ON
REPRODUCTION
RE-IMAGINING
THE POLITICAL
ECOLOGY OF
URBANISM

U&U - 9ᵗʰ International PhD Seminar in Urbanism and Urbanization / 7-9 February 2018
Department of Architecture and Urban Planning, University of Ghent

After successful editions in Leuven, Venice, Barcelona, Paris, Delft, Lausanne, the next edition of the PhD seminars in urbanism and urbanization will be hosted in Ghent, Belgium. Like previous editions, the seminar seeks to bring together students writing their PhD thesis in urbanism, working within very different disciplinary traditions, combining historical research, design research and different forms of urban research.

The community supporting this seminar series over the years shares an interest in work that tries to speak across the divide between urban studies and the city-making disciplines, seeking to combine the interpretation of the process of urbanization with the commitment and care for the urban condition in all its manifold manifestations, and bring together urban theory and the theoretical grounding of urbanism.

The seminar welcomes all PhD students working in this mixed field. The call for papers of each edition foregrounds a set of themes that will be given special attention. We invite students to respond to these thematic lines, however, papers addressing other themes and concerns will also be taken into consideration.

On Reproduction[1] : Re-Imagining the Political Ecology of Urbanism

Each period of urbanization comes with its urbanisms. At times these are clearly defined and constitute distinct paradigms that fill handbooks, structure curricula and form schools. At other times they are contested and subject of vigorous debate. Today, urbanism is a field in flux, forced to engage in new urban questions and address pressing social and ecological concerns. As a direct result the contemporary list of epithets qualifying the notion urbanism has become virtually endless.

In this edition of the urbanism and urbanization seminar we want to think the urban question as a matter of political ecology, joining the transdisciplinary efforts to think nature inside the political economy of urbanization and to develop a perspective on urbanism that unites ecological and social justice concerns. In order to do so, we proceed from a notion which has defined urbanism within poltical economy, namely the question of 'social reproduction'.

Reproduction is a term rooted in Marxist vocabulary that provides an analytic lens to think the ways in which the logics of capitalist production have been socially embedded. Urban questions can be understood as questions of social reproduction, in which typically three concerns intersect: (1) the reproduction of life itself pointing to the bio-political core of urbanism; (2) the reproduction of value, thinking the division of labor, the role of paid and non-paid labor, the split between use and exchange value, internal and external economies, positive and negative externalities, etc.; (3) the reproduction of the institutional and infrastructural arrangements put in place to enable production processes, interrogating the fixed capital and infrastructure cities are made of. Urbanisms are specific propositions regarding the collective arrangements needed in order to address and organize questions of social reproduction in an urbanizing society.

Within the historical Marxist perspective 'social reproduction' has typically served as a critical lens to expose urbanism as an ideological project that provides the social support for capitalist production and uneven capital accumulation (Harvey, Castells, Préteceille, …). Beyond the ideological critique, starting from questions of social reproduction is also an invitation to think alternative urbanisms and imaginaries to this dominant story of uneven development, dispossession, gentrification and environmental injustice. Can we imagine urbanisms that do not treat social reproduction as an afterthought of production, as a necessary form of compensation. What do such reproductive urbanisms that renders the lives of people living in cities more just, more meaningful and more inclusive look like?

Revisiting the question of 'social reproduction', we find ourselves in the midst of discussions that are both new and old at the same time, discussions regarding the metabolic basis of our cities, the ways cities care for their citizens, keep them healthy or make them sick; the ways we share and distribute resources, both physical resources as well as social opportunities; the ways we feed our cities and fail to give citizens control over what they eat; the ways we make citizens mobile or not, car-dependent or blessed with multiple mobilities. The vigorous yet contested quest for alternative urbanisms makes us aware of the rather limited terms through which the field of urbanism has traditionally addressed questions of social reproduction, placing the emphasis on the reproduction of labor and the concomitant concern for housing and infrastructure. Thinking urbanism in the reproductive nexus is an invitation to think the biopolitical basis of urbanism in its full breath, reaching out to the key discussions that shape the urban agenda in the Anthropocene (or should we say 'capitalocene').

<u>Alternative questions</u>

Track #1

The return to questions such as water, energy, food, the circular use of resources brings back to the field of urbanism subjects that have been rendered absent by dominant urbanist discourse. The political ecology literature foregrounds the various ways in which processes of urbanization are deeply implicated in socionatural processes. Urbanists are expanding their scope beyond the hard-wired questions of housing, producing an expanded understanding of the urban question. At the same time,

the operational translations that are made to-day of this new urban question herald a rather troubling reduction of the urban agenda within a functionalist framework. Today the discourse of urbanism is rapidly being taken over by the new-speak of the circular economy, smart use of resources, the shortening of supply chains, the reduction of carbon emissions, the balan-cing of ecosystem services, etc. Urbanists are making an effort to think the process of urba-nization within the food, water, energy nexus, thinking urban services as eco-systems ser-vices, meeting the challenges of urbanization by nature-based solutions. These debates bring biopolitical questions back central stage, yet tend to produce a framing of these debates in a rather functionalist, technical and managerial manner.

We invite papers that reconstruct the intellec-tual itineraries urbanism has walked in addres-sing the seemingly new metabolic questions. How do we think key questions of social and environmental reproduction without falling back into a vulgar functionalist reduction of the city and urbanism?

Alternative movements

Track #2

The politics of the urban are defined by groups that join forces in addressing the specific conditions that the process of urbanization subjects them to. The process of urbanization literally moves and manoeuvers people into new positions, subjecting them to new predi-caments that move them in turn. Urbanisms are defined by the intellectual mobilities and mental capacities that move people to not simply be subjected to the process of urbani-zation but rather to become the subject of their shared history. The reproduction of urbanisms is contingent upon the production of concrete experiences that make urban development part and parcel of a divided social consciousness and collective imaginary. This is true for the dominant urbanisms through which the urban condition is shaped, but also holds true for any effort to shape an alternative.

We invite papers that seek to think processes of urban formation and urban change in rela-tionship to the urban movements from which they emerged and which defined their original motivations. When were urbanisms part of food movements, housing movements, environ-mental movements, mobility movements, etc.? Which citizen groups, which political constel-lations, which communities of practice, which schools of thought, which disciplinary forma-tions shape the urban project today?

Alternative sites

Track #3

Specific urbanisms typically define the dividing lines between what is internalized and exter-nalized in the process of urbanization, between what is placed in the centre and what is rende-red absent. Urban political ecology questions the social implications of the socio-political consequences of specific ecological choices and thereby forces us to rethink the speci-fic positionalities and geographies that have undergirded the history of urbanism. Questions of social reproduction, questions regarding cooking, food growing, child rearing, educa-tion, maintenance and repair have, more often than not, been rendered absent, repressed and treated as secondary. The history of urbanism tends to reproduce the dominant geographies and territorialities of centre and periphery, here and overseas, production and consumption. Taking political ecology seriously requires us to write the history of urbanism from elsewhere. New food geographies invite us to think the urban food metabolism beyond the town-country divide. The metabolic perspective produces new geographies of waste but also new riches and resources previously neglected and undervalued.

We invite papers that move the history of urba-nism to neglected historical sites. We welcome papers that actively seek to decolonize the field of urbanism and dismantle the core-periphery relationships, the geographies of uneven deve-lopment reproduced by the urbanism.

Alternative economies

Track #4

The 2008 sub-prime mortgage crisis might be understood as a crisis of social reproduction, the crisis of the excesses to produce hou-

sing in the commodity form, packaged and repackaged as a financial product. The crisis produces at the same time a heightened awareness of the need to think the economies of cities beyond the market and imagine alternative economies that may save our cities from financial speculation, recover urban value as use value, re-localize the circulation of capital and that undergird the governance of the urban commons. Thinking alternative urbanism requires the construction of an alternative theory of value. The question of social reproduction is the obvious subject to think the transition from efficiency to sufficiency, to think urban development beyond growth.

We invite papers that reflect on the way in which urbanisms have served as the experimental growth for alternative reflections on the economies of cities, from the historical reflections of authors such as Henri Lefebvre, over Jean Remy, André Gorz, Jane Jacobs, Ivan Illich and others to contemporary efforts to think the economy of the commons, the role of community currencies, the sharing economy, the decommodification of housing, the pooling of resources. We invite people to think the role of design in defining the pertinent scales at which these new economies can be articulated, defining the collective units of interventions that articulate virtuous cycles of social reproduction and within the contours of which the balance between the quest for autonomy and the recognition of open logics of exchange can be articulated.

[1] The thematic focus of the 9th edition of the U&U seminars draws upon the collective work of Michiel Dehaene and Chiara Tornaghi and their joint efforts to mount the *International Forum for an Agroecological Urbanism* to be launched at the meeting of the AESOP sustainable food planning group in Coventry, UK,14-15 November 2017 (https://aesopsfp.wordpress.com/call-for-papers/). See also: Tornaghi & Dehaene, Food as an urban question, and the foundations for a reproductive, agroecological, urbanism. (forthcoming). Dehaene, M., Tornaghi, C.., and Sage, C. (2016) '5.2 Mending the metabolic rift – placing the 'urban' in Urban Agriculture'. In Urban Agriculture Europe. Ed. by Lohrberg, F., Scazzosi, L. Licka, L., and Timpe, A. Berlin: Jovis.

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Urbanism of temporality, tracing the impact of food and shelter rehabilitation networks on the production and reproduction of urban realities in Marka camp, Jordan.

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In Jordan, Palestine refugee camps have turned by time into socioeconomic centers of gravity and cores of urban and regional expansions. Yet, such position is not instantaneous and can be related (according to this paper) to the state of parallelism strategy adopted by the host government as means of managing the temporality of those sites. In the Palestine refugee camps of Jordan, the interplay between the conventional or regular networks (economy, education, health, etc) and the emergency-based or humanitarian networks has been always an integral factor in camps' evolution. Based on this assumption, the paper investigates the role of managing temporality of Marka camp in crafting distinctive urbanisms that have existed for decades, yet, occasionally visited in literature.

In these sites of parallelisms; shelter rehabilitation and food-ration mobility, are strongly present next to the regular networks. Such systems motored by international agencies –in addition to host governments- have gained by time a significant momentum in shaping and reshaping not only the urban realities in refugee camps, but their surroundings as well. This paper aims to explore the camp's economy and anatomize the dynamics behind the evolution of Marka camp market as part of a larger frame of an ongoing doctoral investigation that intends to understand the main factors behind the camps' spatial impactfulness.

The paper employs qualitative methods to trace the evolution of food distribution networks in Marka Camp-Jordan. The query links the shelter and food dynamics to the wider matrix of camp management and governance, focusing on the role of parallelism in defining and redefining the camp's impact over its hosting spatial system.

Marka Camp is one of the six "emergency" camps erected in 1968 to shelter 15,000 Palestine refugees and displaced persons who left the West Bank and the Gaza Strip as a result of the 1967 events. The camp is located in Rusaifeh, a city that acts (with Amman and Zarqa) as a home to more than half of Jordan's businesses.

Introduction

> *A Palestine refugee camp is a plot of land placed at the disposal of UNRWA by the host government to accommodate Palestine refugees and set up facilities to cater to their needs"*
>
> *Palestine refugees are "persons whose normal place of residence was Palestine during the period 1 June 1946 to 15 May 1948, and who lost both home and means of livelihood as a result of the 1948 conflict."(UNRWA 2013)*

Enjoying a distinct geopolitical condition, Jordan has always been a regional and international migratory crossroads, the country hosted numerous waves of immigrants such as the Armenians, Circassians, and Chechens in the 19th century (DE Bel-Air 2010), and lately, migrants from Lebanon during the 1975-1991 civil war, from Iraq since the 1991 and 2003 Gulf Wars, in addition to the late Syrian waves of migrants (whom many of them are still living in Jordan until the date of this research). Yet, it is easily assented that the two waves of Palestine refugees (1948 and 1967) played a fundamental role in shaping the modern history of Jordan, (Ababsa 2010; Michael R. Fischbach 2010; Arouri 2008; DE Bel-Air 2010).

In the middle east, and after the 1948 and 1967 Arab-Israeli wars, 58 recognized Palestine refugee camps were established in Jordan, Gaza, Syria, Lebanon and West bank, to accommodate the refugees who fled or were expelled during that period (UNRWA, 2015). On the political fold, Refugees are now living under a variety of different national jurisdictions, Palestine refugees became formal citizens in Jordan since 1949 (except the ex-Gazans) during the annexation of west bank to Jordan[1], while other refugees residing other host countries remained stateless (Jalal Al Husseini and Riccardo Bocco 2009).

Marka Camp

Marka is one of the six "emergency" camps established in 1968 to shelter 15,000 Palestine refugees and displaced persons who fled the West Bank and the Gaza Strip in 1967 (Unrwa 2015). Nowadays, the camp has become the second largest camp in Jordan field (more than 50,000 refugees); it also hosts the second largest ex-Gazan population after Jerash camp. The Jordanian government owns part of the camp's plot and

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[1] West Bank was disengaged from Jordan in 1988

rents the remaining part from the proprietor-individuals (Da'ja tribe). This arrangement gave the refuges who live inside the camp's official borders the right of use not to own, and those plots became by default outside the regulatory authority of the municipality, meaning that opening business inside the camp is almost tax-free.

The camp is physically ringed From the east and north by the old Amman-Zarqa arterial road, the camp is bordered by Theodor Schneller school, a German orphanage that was established in 1920s to the south.

The topographically challenging camp have played a fundamental role in directing the camp's growth and evolution, UNRWA installations can be recognized along "relatively" plane of the camp, the seed of the market; the camp's heart.

Moreover, the basin-like terrain of the camp also catalyzed the emergence of additional mobility networks such the donkey-back delivery which was a popular mean of mobility till the end of the seventies.

The camp is located in Russeifa, a city in Zarqa Governorate in Jordan. Russeifa, Amman and Zarqa form the second largest metropolitan area in the Levant, after Damascus. The city of Russeifa is located in the Central region of Jordan, in the Zarqa River basin. The city is known for the phosphate mine industry since 1935 which was discovered in the early twentieth century while excavating for the Hejaz railway.

Together with Zarqa, Rusaifeh hosts more than half of Jordan's businesses (Ababsa, Myriam 2013), the city hosts many heavy and light industries benefiting from the city's strategic location and proximity to Zarqa River. The demographic fabric of Rusaifeh includes: (1) the Bedouins (Da'ja tribes), and main owners of land in that area, they started to settle in Jabal Al-Amir Faisal neighborhood overlooking Marka camp, (2) Many Circassians (who were exiled and deported to the Ottoman Empire and other nearby regions after Russian-Circassians War in the late nineteenth century) arrived Jordan and settled around Zarqa river practicing agriculture, (3) Jordanian-Palestinians: on various migration and displacement waves (1920, 1948 and 1967), the Jordanian-Palestinians (including refugees), some of them first settled in Hay Al-Hussein squatting the Amiri lands on top of the tunnels of phosphate mining site, Hay Al-Hussein resembles the beginnings of Russeifa city, thousands of Palestine refugees also arrived Russeifa in 1968 and created a significant demographic shock in the city .

[fig.1] Zarqa River (Rusiafeh municipality, 2015)

[fig.2] tunnel in phosphate mine (Rusiafeh municipality, 2015)

Methodology

The paper mobilizes Marka camp as a case study due to its possession of a combination of significant characteristics, namely, size, demographics and locational specificities that promote Marka to be a representative case to address the question of the ongoing doctoral research. The study trailed the ration distribution held by UNRWA and traced the evolution of Marka camp's market as an attempt to detect the linkage between both parallel networks in relation to the camp's evolution.

12 interviews were held in December 2017, interviewees fell in two categories; the first category (8 interviews) includes the first generation refuges who resided the camp from its early beginnings, the questions were centered on spatial narration of the journey of ration reception, in addition to the market's evolution. Discussions were extended most of the time to describe the relation to the adjacent areas and off-camp relations, mainly with the factories and Amman.

The second category (4 interviews) includes UNRWA employees from relief program and procurement division, their duties were directly related to ration management and distribution. Although the research began with structured interviews, the discussions were soon evolved into open-ended discussions.

[fig.2] Marka camp, unrwa installations and market (Dabash D., 2017)

Views on refugee camps in theories
Being governed by fragmented authority, uncertain sovereignty and undetermined duration (McConnell 2009; Wilson 2012), Palestinian situation challenges the conventional understanding of both refugees and camps (Ramadan 2013). The theoretical discourse on refugee camps were mainly divided into two camps themselves; the first one casting them as geographies of violence, as Hannah Arendt in 1966, perceived the refugee as a living, foundational challenge to the truisms and reifications of the nation-state system, and as an interruption to or aberration of "the proper and enduring form of political identity and community- that is, the citizen and the sovereign nation-state" (Nyers 2013). The other theoretical camp formulated the camps as sites of incarceration (Perera 2002), depoliticized spaces of exception (Agamben 2005) or nondescript places (Said 1999), where refugees wait the day they return to their homeland.

Other theorists positioned the camp as irrational, structurally invisible non-places(Augé 1995), while other scholars like (Sanyal 2011) discussed how some researchers like (Hanafi 2008) measured   the openness and closure character of the camp in relation to the level of its mimicking and resemblance to their urban hinterlands. More moderate discussions that emerged recently viewed refugee camps as spaces of hospitality (Ramadan 2008) and identity (Malkki 1996).

However, and despite the dichotomic treatment of camps (hyper tensioned locates versus depoliticized passive sites), the two major debates seem to agree on juxtaposing the camp and the city (the exception and the norm). Those discourses are problematic because such opposition creates an automatic hierarchy, where the agency of the refugees and their spaces are simply overlooked and the fluidity of relations is habitually absented.

As for refugee camps as humanitarian sites (Feldman 2014; Agier 2004), they have been discussed in the social sciences within a Foucauldian frame (Hyndman 2000; Lippert 1999) and field of technology of "care" and "control" (Malkki 1992), where the working power is manifested through the applied techniques of headcounts and situation reports. Hyndman describes the way shelters were distributed over neat grids with the hegemonic presence of the humanitarian building, which is all drawn carefully with the assistance of the aerial photos, a blatant reflection of the hierarchy of power relations (Hyndman 2000). Yet, and although those humanitarian spaces of camps were discussed theoretically as standardized, clustered and hegemonic spaces, it is noteworthy to mention that the spatial presence of UNRWA's installations with their –relatively-spacious courts, have succeeded to protect almost the only outlet for the refugees in the camp. By time, those service-providing structures (e.g. schools, clinics and distribution centers) turned into social (meetings), spatial (wayfinding) and economic (trade) anchor points for the different users (refugees, UNRWA employees, and customers) from inside and outside the camp.

Refugee camps governance and multi-layered power systems in Jordan
In Jordan field; UNRWA and the Department of Palestinians Affairs (DPA) are considered the major key governing -and to a certain extent- controlling systems in refugee camps. Unrwa is a discrete humanitarian regime from the UNHCR. UNRWA took over the humanitarian sovereignty from the Red Cross in 1949 and operates in five fields that include Lebanon, Gaza, West Bank, Jordan, and Syria. The agency implements international management of the camps and provides education, health, camp improvement and relief services to the registered refugees, either they reside inside the camp or outside it.

Although UNRWA's services are being directly affected by its financial separation (from the general UN budget), as well as the regional in-stability (e.g. the massive cutoff of 1982 that followed the Israeli invasion of Lebanon and the expel of the PLO from Lebanon to Tunisia), unrwa has succeeded to maintain nearly zero clashes with the hosting government in Jordan, despite the bitter negotiations and ad-hoc discussions between them. Such relation between UNRWA and the Jordanian host government have by far increased the socioeconomic and spatial permeability of the camp. UNRWA's service provision that exceeds the geographical boundaries of the camp has turned the camp's site into a catchment zone for the all the refugees

from the surrounding areas, such reality would have been extremely hard to become evident if the host government did not *allow* the free movement inside and outside the camps.

Till the end of the eighties, the notables formed an essential agent in the decision making within the camp, *Abu G.*, a refugee and a member of the camp's sport club recalled that the notables and the camp improvement committees used to meet with royalty members and ministers from the cabinet to discuss the urging issues of the camps; "different *international broadcasting channels like Monte Carlo used to cover the camp late nighties" (Abu G., 2017).*

Power, agency and flour, camps as catalysts of urban and economic metabolism, spatial beginnings
Evolution of Marka camp
As an emergency camp, Marka received the refugees who fled Jordan valley camps (*Ghor Kibid and Ghor Nimrein*) in 1968 fleeing the air raids of the Israeli army. The fertile land of Marka camp was soon divided into lots; unrwa gave each family a 12x9 m plot of land and a tent. Sanitary facilities were public; and the shared toilets were distributed amongst the camp's sectors. Water points were also distributed along the camp's main roads and women used to collect the water from those common water points, carrying them back to their shelters. In case of water cutoffs, those women used to secure the water from Zarqa river, as Ms. *Fatima* recalled. *Abu H.* remembered that Schneller school provided the camp with water for four years, and that was almost the only interaction between the camp and its German neighbors.
Months later and due to the harsh weather, the tents were replaced by unrwa with 3x4 m asbestos units. Some refugees who were financially capable, managed to build an extra zinc-roofed room out of brick, and that was the early beginning of the horizontal expansion of the camp and the emergence of brick factories inside the camp. For years, the shelters in Marka were mainly clusters of one-storey rooms, incrementally self-constructed by the refugees, and for years a small court/ leftover space was maintained by the family in order to utilize it according to their needs, for instance, *Abu H.* and *Abu. N* mentioned how those courts were sometimes used as barns to keep the donkeys (which were a transport business for some refugees).
In the seventies and eighties, and during the oil boom, many refugees migrated to the welcoming markets of the gulf, their remittances were mainly invested in shelter expansions, both vertically and horizontally, the courts started to disappear and the camp's inner tissue was almost saturated. It is noteworthy to mention that the Bedouins (the *Da'ajas*) provided social support to their neighbor refugees and facilitated land transaction as *Hashem.* described. This behavior by far had a direct effect on the land development of Rusaifeh city, given that the sequence of land use planning in Jordan follow –in most of the cases- the OBSP model: *occupation, building, servicing then planning* which is a reversed pattern of land development in developed countries as discussed by (Baross 1990). Massive land parcellation took place at that period, and affordable housing regulations were implemented by the municipality all over the city. *Al- Msheirfeh, Al Jabal Al Shamali* and *Al-Tatweer*, were all new neighborhoods that began to emerge to the north of Marka camp, and with the reverse migration after 1990 gulf war, newer neighborhoods emerged like *Al- Qadiseeah* and *Al-Rasheed* districts.

Ties and regional exposure of the refugees
Soon after arriving to the camp, refugees from different demographic groups began to fulfill labor gaps inside and outside the camp. The camp's proximity to the factories (mainly food and clothing industries) provided countless jobs for women and youth. Many women worked in cropping and harvesting, *Fatima* recalled how she and her friends used to walk to Zarqa river bank after school to crop the vegetables. It's worthy to mention that this cropping was more of a structured business rather than a spontaneous activity as *Hashem* expressed, the notables (mainly from Jericho) were the ones who distributed business opportunities amongst their families and tribes and this highlights another important economic agency of the notables at that time. The very good transport connectivity enabled many other refugees to work in free businesses in Amman, specifically in the downtown. Other refugees, who became by that time skilled in construction, became cheap labors for the surrounding area as *Abu A.* indicated.
Despite the fact that Jordan did not join the Soviet camp during the war (contrary to Iraq and Syria**),** Jordan was known as the historical alley to Iraq, and managed to maintain smooth relations with the gulf as well. This "zero-problem" strategy facilitated the flow of Palestine refugees to those countries during the seventies and eighties; also, benefiting from the tensed relation between Iraq and Syria at that time, Jordan became the only window for the Iraqi oil to the sea, forming countless opportunities for the well-educated, thanks to unrwa, Palestine refugees. The remittances were soon translated into spatial development inside and outside the camps. However, it is noteworthy to mention that the ambivalence of the refugee/citizen status was not the only engine of the regional development, but also the systematic series of regulations held by the DPA that facilitated the horizontal and vertical expansion of the camps in Jordan (after Oslo accords 1993).

Rations

Till the early eighties, unrwa used to distribute 6 basic food rations on monthly basis; the ration included flour, rice, oil, sugar and beans. As explained by *Osaama T.*, an unrwa employee; the ration supply was internationally tendered following standardized measures amongst the five fields of unrwa's operations. After receiving the shipments, the agency used to stock the rations in Amman and then deliver them to each camp. According to *Abu K*, a refugee and a retired unrwa employee, the ration distribution was spatially-staged; refugees had to document their cards at the Camp Services Officer CSO office, then sent in tens to the distribution center (currently unrwa school),where they receive each item separately. The whole process was centralized around unrwa buildings at the camp's entrance, such centralization catalyzed inter-mobility networks and the refugees established delivery businesses using donkeys and carts, then mini vans. Bakery ovens started to emerge providing baking services for the dough prepared from the distributed flour. The spatial gain of those massive distributions at that time was the demand of capacious open spaces that led to the preservation of the few outlets in the camp.

The market

At the beginning, refugees –especially the ones with weaker financial profile- used to plant vegetables in the leftover open spaces inside their shelters, some families like *Hashem's* even raised poultries in small inner barns. Yet that was not enough to fulfill the needs of the refugees, consequently and few months after installing the tents, small shops opened close to unrwa street overlooking the main Amman-Zarqa road. *"Moahmmad Aiesh the barber, Younis the teashopowener, Al-Jojo restaurant were amongst the first shops that opened in the camp"*, *Abu H.* and *Abu K.* the tax free shops opened continuously and formed the seed of the camp's main market, were fresh and cheaper commodities could be found. The market soon started to attract customers from the neighboring areas and it grew to the extent that Bedouins used to call the camp *Al-souq* (the market). Interestingly, the competitive prices of the camp's main market were still higher than the capacity of many refugees, especially the ex-Gazans, which stimulated another market with more affordable goods; the market was named *Al-Gazazweh* market referring to the ex-Gazans.

Both markets are open to traffic in goods, capital and people and are connected to domestic and therefore international markets through national traders. Such openness, created competitive markets and facilitated the e of flow of information about the external economy which led to a distinctive evolution of the camp.

Land Use of Marka Camp

- • • • camp boundary
- UNRWA Installation
- ///// open spaces
- Civil Institutions
- Commercial
- Mixed
- Residential

Kilometers
0   0.125   0.25   0.5   0.75

N
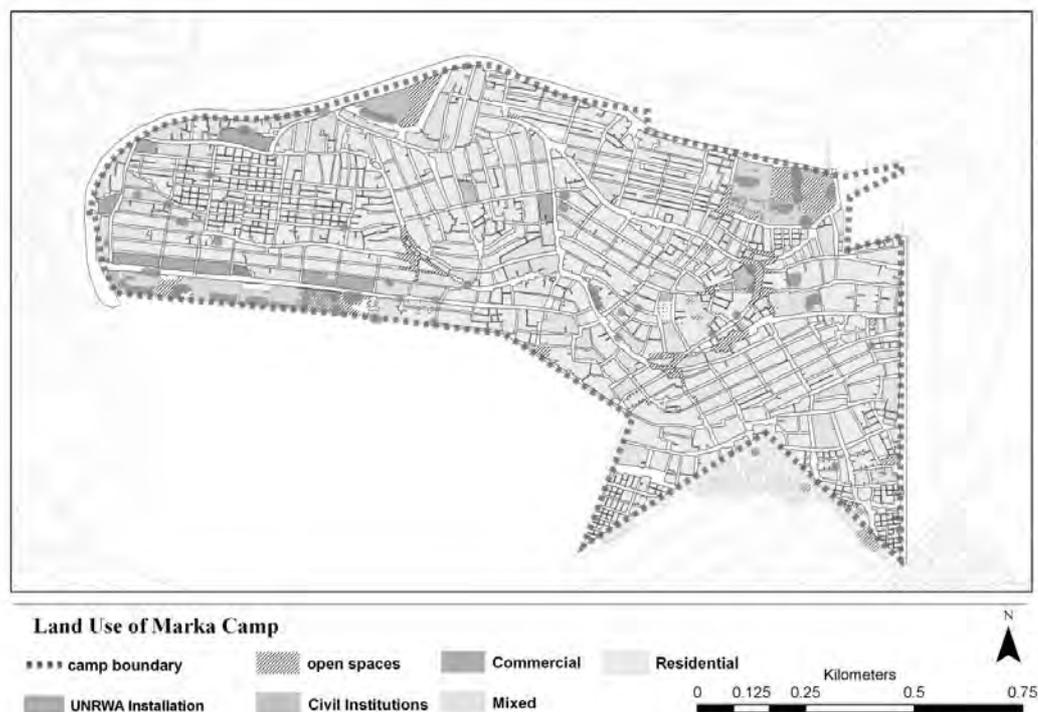
[fig.4] Marka camp land use (Dabash D., 2017)

Concluding thoughts

As aged agglomerations that existed for more than half a century; Palestine refugee camps in Jordan have become strongly connected to their urban environment, and have succeeded to develop economic intensity (Ababsa 2010) and remarkable social network of activities. However, most analyses have focused on their

political implications and rarely have linked the economic behavior of the camps to the spatial realities of those settings.

Although there are many angles to discuss the refugee camps from, this paper focused on the market and shelter networks in the camp as an attempt to better understand the role of one type of managing temporality, which is "parallelism", in crafting distinctive urbanisms within these sites. The query employed Marka (locally known as Schneller camp) as a case study and explored the camp's spatial implications over its hosting system.

While collecting the data for this paper, it became clearer that the interplay between the humanitarian and the regular food and construction networks, have played a fundamental role in the socioeconomic, and consequently, spatial evolution of the camps and their hosting spatial system.

In the case of Jordan, it is noteworthy to mention that maintaining the parallelism in camps has been a vital issue for both, the refugees -who still hope to return to their homeland-, and the host government that receives international aids in support of the hosted refugees.

As observed in Marka camp, humanitarian installations have exceeded the service provision role to become seeds of spatial evolution. Together with the granted citizenship and strategic locations, temporality enabled Palestine refugees in Jordan to craft their own terms of campness. However, some uncertainty in this assumption arises when observing the ex-Gazans (refugees but not citizens), further investigation is required to determine whether such factors can be popularized to include all the refugees sectors or not.

The Palestine refuge case shows that refugees are active –either covert or patent- agents in the consolidation of their hosting spatial systems,

This study is part of an ongoing doctoral research that aims to diagnose the spatial impact of refugee camps over its hosting systems, which is expected to contribute to a better understanding of a significant, yet, hidden agency of those settings, and therefore, contribute to a more constructive consciousness towards similar spaces of agency (e.g. Syrian refugee camps) in emergency-dependent economies, and geopolitically challenged countries like Jordan.

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A critical look at regional planning:
Jean Remy and the concept of urban externalities

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In the aftermath of WW II, the discussion on urban planning rapidly evolved from the reconstruction of war damages to the organization of urban agglomerations' growth. Urban planners became aware that the urbanization produced by the first wave of industrialization had not only exceeded the boundaries of the historical city but had also produced an urban economy of its own that, if properly planned, could increase the overall welfare of its population. The city-region became the spatial unit around which surveys and large-scale plans would organize economic and social life. A new generation of planners emerged coming out of fields as diverse as urban geography, regional science, sociology and architecture. This new (epistemic) community gradually reshaped the discourse on urban planning putting the emphasis on 'balanced' regional development, polarized spaces and growth poles. These emerging theories were all aiming at correcting the imbalances produced by the market and implied the intervention of the state or of regional authority, either within the framework of a planned economy or as deliberate set of policies.

However, in the second half of the 1960s, as planning became institutionalized, a wave of early criticism began to highlight the limits of a supposed 'rational' planning system. In Belgium, one of the figures who articulated an early critique of the dominant planning theory is the sociologist Jean Remy (1931 -). As professor at the Catholic University of Louvain (UCL) and member of several multidisciplinary teams in charge of regional planning, Remy was not only familiar with the economic planning theory of the time but also gained a specific sociological knowledge through fieldworks in various regions. By crossing theory and empirical observation, Remy contributed to a new understanding of the urban, one that undermined some of the key assumptions inherent to the mainstream planning theory.

The article comes back on the early work of Jean Remy and seeks to reconstruct his intellectual journey. It tries to unfold the various steps Remy followed in developing his thoughts on the city and discusses the way he mobilized the concept of urban externalities in advancing his own theory. It puts in perspective Remy's subtle critique of planning theory with the Belgian planning practice of the time. The article follows a chronological story. First it describes Remy's encounter with planning practice through his collaboration in regional surveys. Then it discuss and unpack the argument Remy develop in his thesis: *La ville: phénomène économique* (1966) and seeks to understand the hostile reception by Marxist intellectuals of his book. Finally it describes, the way Remy elaborated further his theory in 2 other articles, *Vitalité urbaine et rationalité économiquee* (1969) and *Economies externes et croissance économique* (1972) and seek to show how he revisited some of his first conclusion on the relationship between urban externalities and the role of planning.

Jean Remy, a peculiar intellectual

Jean Remy, followed an uncommon academic career. Originally trained as economist, Remy rapidly developed an interest in various intellectual traditions from economic geography to regional sciences, from urban sociology to the study of religion. Although, on several occasion he has taken the role of an expert, Remy maintained strong connections with other disciplinary fields. During the early years of his academic career, Remy strongly defended the need for what he called a socio-economy. An economy no longer based on micro-economic agents but one that pays much more attention to social relations (Dehaene 2016). At the time Remy studied economics at the Catholic University of Louvain, Keynesianism had made its way through in the ranks of the academic corps (Maes, Buyst & Bouchet 2000). He became familiar with the various planning technics and growth theories that had increasingly developed since the post-war years.
In 1958, after he graduated Remy joined the Centre for religious sociology directed by François Houtart (1925-2017). The research centre was involved in the sociological survey of various Belgian agglomerations and Remy's contribution studied the socio-economic structure. This first experience certainly triggered his later engagement with urban sociology. After few years as researcher at the Centre for religious sociology, Remy returned to the Faculty of Economic Science where he started a doctorate in urban economics. His research on the economic function of cities led him to study the vast literature on urban economics and

economic geography that had flourished both in French and Anglo-Saxon universities. As an economist he rapidly realizes how much the influence of space had been ignored in economic thought[1].

Economy & Space
As Georges Benko explained (Benko 2008), space remained absent from economic theory for several decades. From Smith to Marshal, the spatial dimension was considered to be negligible in economic thoughts. Only after the Second World War, with spreading of Keynesianism did space come back to the fore. For many Keynesians, the management of the national economy implied a balanced (spatial) development in which transfer of from surplus region to deficit regions would contribute to the overall increase of the national product. The importance of the spatial distribution of economic activities and infrastructure became of crucial relevance and triggered the emergence of regional studies of all kinds.

In Belgium, however, it is first urbanists and geographers rather than economists that opened the way for regional analysis (Ryckewaert 2011, Grulois 2015). On the one hand, urban planners discovered the region in searching for the different functions of the industrial agglomeration, on the other human geographers considered region as basin de vie in which a meaningful relationship existed between human social and economic activity and the territory. For these pioneers, space was considered in its full depth considering the geo-morphology, the human habitat, the cultural history and natural environment. With specialization of some geographers into industrial geography, space became more abstract and was gradually reduced to distances. However, their contribution remained often framed in larger research that studied the region as a whole.

Regional Surveys
In the second half of the 1950s, the slow growth of the Belgian economy[2] prompted the need for less descriptive and more operational regional surveys. Although no legal framework existed yet, several regions began to develop their own survey, bringing together multidisciplinary team of urban planners, geographers, sociologists and economists. In this context, Remy was part of the first generation of economists involved in regional surveys. As member of the Centre for religious sociology he contributed to the regional analysis of Charleroi and as economists he was part of the survey of the agglomeration of Verviers[3]. In a comparison between the various team, Jacques Toint (Toint 1966) pointed out the heterogeneity in research methods and theoretical background. Nevertheless, one can argue, they shared a set of ideas that allowed them to be part of the same epistemic community. These planners shared the idea that the free-operation of the market produces (by default) regional imbalances that had to be corrected by the intervention of a public authority. Whatever the form of these interventions they had to be part of a comprehensive plan that serves the public interest. The plan had to follow on from a scientific study of the region conducted by scientific experts and implemented by a political entity. Finally, despite some nuances regarding the exact competes of each political level, they all recognized the crucial role of regions in meditating the interests of state and the needs of municipalities[4].

It took some time, before regional planning was institutionalized in Belgium. Only after 1962, did the government passed a law, giving spatial planning a proper legal framework (Bure 1962). The law devised a hierarchical spatial planning system that for the first time covered the entire national territory. In this planning system, the regional scale held a primary role, although it was not clearly defined yet. The legislators thought that the regional surveys would help to draw clear boundaries for each region but for the time being they had subdivide the national territory into 20 distinct regions. Within that official framework, Remy continued to work on the region of Charleroi and the survey was published in 1964. Within that survey Remy focused on the study of the social units and the socio-economic aspects of the population. The confrontation with the study of Charleroi must have been of great importance for Remy, as he will keep referring to this survey in his later work. Remy encounters in Charleroi a situation he hardly explains with his theoretical background in economics: in a region with a total of almost a hundred cinemas, 17 of them are located on two streets and together represents 51% of the total sales of all the tickets (Remy 1966). A similar

[1] 'durant ma formation d'économiste il n'avait jamais été question que de temps. En effet, a l'époque, la théorie économique considérait le temps comme une dimensions déterminante et l'espace comme une dimension négligeable, faisant implicitement l'hypothèse d'une parfaite mobilité des personnes, des biens et des informations.' Remy & Leclecq p. 21
[2] For a complete description of the belgian economy in the postwar period see: Cassiers I., De Villé P., M.Solar P. (1996), Economic growth in postwar Belgium, in Craft N. & Toniolo G., *Economic growth in Europe since 1945*, Cambridge University Press, p. 175-209
[3] On Charleroi see: Remy J. (1962), *Charleroi et son agglomération*, Bruxelles, SODEGEC and for Vervier see: Remy J., Nols E., Picard-Vanherk C., Spork J.A. (1963), L'économie de la région Verviétoise: étude des structures, recherché des virtualités, suggestions pour une nouvelle expansion, Liège, Conseil Economique Wallon, 1963.
[4] See for instance the summary of the 6th Congress of the Belgian Federation for urban planning and hounsing held in Liège in 1958: Federation Belge de l'urbanisme et de l'habitation, Le plan régional d'aménagement, de sa conception a sa réalisation, 1958

phenomenon could be observed for other economic activities too and could not been explained by the economic analysis of these firms separately. Remy struggled to explain the added value created by the agglomeration of several economic activities. This particular finding will become the seed of his doctoral research on the specific economic function of the city.

In search for the economic function of cities
The intuition that the city produced an economy on its own that was distinct from the industrial agglomeration was a powerful though in a context where regional surveys tended to downgrade the economic importance of urban centres. Yet the goal of Remy's doctoral study was to move from empirical description to a theory of the urban. To him if one can prove the city has a specific form of economic rationality, then it needs a proper theory, one distinct form the theory of money, firms and markets. If this undertaking sounds overly ambitious, we will see that for many economists the city was a by-product of the regional economy. In order to answer his main thesis Remy proceeded to a very interesting move. Unlike Keynesian economist that tended to analyse urban and regional entity by looking at production and consumption at the aggregate level, Remy choose to study the interaction between micro-economic agents namely the firm and the consumer. This move would have been rather ordinary if he wouldn't have frame it in urban terms, but here lies perhaps the originality of Remy's method; to introduce (urban) space as a variable in micro-economic analysis. In order to develop his argument, Remy combined a deductive reasoning based on an abundant literature on urban economics with an inductive analysis based on empirical studies of real situations.

Remy built his thesis in 6 chapters. In the first four chapters, Remy describes the economic meaning of the city through the prism of both the entrepreneur and the consumer. In doing so, Remy begins to frame the added value he couldn't explain in Charleroi in terms of economic externalities. The fifth chapter deals with the diseconomy inherent to the urban environment and in the final chapter Remy draw some conclusion regarding the implication of his theoretical contribution for urban planning.

External economies
Before going deeper into Remy's thesis, one needs to recall the various definitions of economic externalities and the specific use he made of the term. By the mid 1960s, literature on external economies had proliferated in both French and Anglo-Saxon academic circles. The term emerged together with an arsenal of theories trying to coop with market failures of all kind. Monopoly, asymmetry, transactions costs and elasticity were all terms trying to explain some case in which the free operation of the market was not efficient. It is no coincidence the increasing study of market failures arises at the moment when the management of the economy became widely accepted. In this respect, it is not surprising that the term was absent in most neo-classical literature (Chicago School and Austrian School) for whom market failures could not be fixed by government and by neo-Marxists for whom free-market were inefficient by nature. For all other economists the use of the term described a cost or benefit that affects a third party who did not choose to produce that cost or benefit in the first place.

In *'La ville, phénomène économique'* Remy draws on the classification of externalities proposed by Philippe Aydalot (Aydalot 1965). To him, externalities can be categorized in different ways, first according to the number of party involved (individual or collective), second according to the intensity of the interdependence (direct or indirect) and finally according to the mode of transmission (inside or outside the market). As we shall see, Remy used this classification to come to a definition of urban economic externalities (économie d'agglomeration).

The economic meaning of the urban
In the first chapter, Remy begins by trying to characterize the relationship between the spatial proximity of firms and the process of urbanization. He begins by analysing the different kind of agglomeration and draws a clear distinction between the urban agglomeration and other forms of spatial juxtapositions. According to Remy, an urban agglomeration is characterized by its capacity to generate economic externalities with diffuse effects. These externalities can only be produced collectively by the spatial juxtaposition of diverse economic agents. The effects of these externalities are by nature immobile and their existence implies a form of interdependence between the different firms, one that is not mediated by the market but by a spatial proximity.

This form of spatial interdependence leads Remy to articulate a critique of a common practice in regional planning based on input-output analysis. At the time for many Keynesian, the region like the nation could be considered as a closed economic system and therefore the technics of national planning could be simply transferred to another spatial unit. Input-output model was heavily used by national planning agencies to

manage the economy. It was developed in the aftermath of WWII by the American economist Wassily Leontief to measure and forecast the interdependencies between different branches of the economy. The technique was rather simple and aimed at the aggregation of all the productive input of the economy and to cross them with the sectors where these inputs were consumed. The result was a complex matrix with which aggregate production and aggregate demand could be managed. It implied an endless classification of all the productive activities (500 sectors) that were divided into two categories, the basic and non-basic activities. Basic activities were productive activities oriented towards exportation, whereas non-basic activities were dependent on the local market. The advocate of input-output models defended the idea that the level of revenue was determinate by the aggregate production of basic activities which in turn led to the development of non-basic activities at the service of local population (Andrews 1953, Alexander 1954, Alexandersson 1955).

During the second half of the 1950s, input-output model began to be applied in regional studies[5]. Within that conceptual framework, the economy of a region was depending on firms oriented towards exportation and the relationship between sectors of the economy was a linear one. For Remy, this vision was in total contradiction with what he had empirically observed in Charleroi. Input-output models failed to recognize that urban externalities could generate a surplus value that was independent from the market. Furthermore in his view, the distinction between basic and non-basic activities implied a form of subordination of non-basic activities to basic activities which was intrinsically wrong. As he stated: "The agglomeration is a self-sustained system that is based primarily on the collective production of non exportable goods necessary for the organization and development of its economic life". (Remy 1966 p.60)

In the second chapter, Remy goes on in trying to define precisely what these externalities are from the point of view of the entrepreneur. The development of material services, the technical division of labour, the presence of skilled and diversified labour but also production and distribution of knowledge are all part of these collective advantages a firm can benefit inside the agglomeration[6] . The precise definition of urban externalities helps Remy making an important distinction that builds further on the premises of the first chapter. To him not all agglomerations are urban agglomerations. This brings Remy to a specific definition of urban externalities: "urban externalities, stricto sensu, are advantages that cannot be produced by a single firm, but that derives from the multiplicity of firms juxtaposed". (Remy 1966 p.91) In doing so, Remy draws a clear line between the externalities that could be produced by a single firm but at a higher cost and those that can only be produced collectively.

Firms that are part of the same urban agglomeration maintain between them a form of solidarity that is much more diffuse and flexible than the one existing between agents of a single firm. The collective production of these non-separable assets constantly evolves in time as new firms emerges and stimulate innovation. In this respect, the urban environment is not only responding to existing demand but once constituted produced new reactions between agents.

This conclusion leads Remy to distance himself from the growth poles theory of François Perroux (Perroux 1955). Growth pole theory was 10 years old when Remy published his book, but in practice many economists continued to use it to plan the economic development of several depressed regions[7]. The theory framed the transmission of economic development through the prism of a driving firm (mostly industrial activity). It implied that a single firm induces the development of other (often smaller) firms through diffuse externalities that affected their production, prices or income. In such case the externalities are transmitted vertically (directly) and tie the different firms together. For Remy this vision of how economic externalities were transmitted was simply not matching his own findings: "This model of economic development is opposed to a balanced (equilibrée) theory of economic growth in which diverse sector of the economic are linked together by the effects of externalities diffused horizontally. The model implies a process of polarization in which the localization and the juxtaposition of firms only plays a secondary role." (Remy 1966 p.99)

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[5] See for instance the work of Paul Lamnbert and Joseph Mineur on the region of Liège: Lambert P. & Mineur J. (1957), L'Economie de la région liégeoise, Analyse et perspectives, Liège Editions du Conseil Economique Wallon or the analysis by Louis Davin: Davin L., Degeer L. & Paelinck J. (1959), Dynamique économique de la région liégeoise, Liège Editions Le Grand Liège, 358p

[6] Here Remy mainly refers to the work of Jean Gottmann on the Megalopolis: Gottmann J. (1961), The Megalopoli: The Urbanized North-Eastern Seaboard of the United States, New York. Remy gives special attention to the role and the availability of information as an economic externality

[7] The notion was not only used in many regional analysis but was also the source of many discussion among planners. One example of this is the conference organized by the National Federeation for Urban Planning in 1960 during which they invited Lebret R.J. to discuss the theory of growth poles. See: Lebret R.J.(1960), 'Agglomérations et pôles de développement', in *Cahiers d'urbanisme* (n°33) Bruxelles Editions Arts et techniques.

For Remy the problem of this theory is that it presupposed that the industry or the industrial complex is the primary source of economic development whereas to him large urban agglomerations are equally important as driving force of the economic system. Industrial activity Remy summarized this stance by quoting Aydalot: "If Renault does not explain Paris, one could argue that Paris partially explains Renault" (Remy 1966 p.100). Remy conclude from this this that the diffusion of economic development of the national territory does not only rely on the attraction of leading firms but also by the development of networked urban agglomerations.

The sociological meaning of the urban.
After the analysis of the urban externalities through the prism of the entrepreneur, Remy follows by questioning the point of view of the final consumer. According to Remy, the urban milieu offers a vast range of benefits to its population such as an ecology of choice, a better informed market, a freedom in individual and collective identity, and a geographic mobility. Furthermore the city contributes to the production of certain values and social relationship that creates specific modes of consumption. For Remy the city reflects society as a whole with its culture, institutions, ethics and values. Individual choices and preferences are therefore changing in reaction to the urban externalities. As he state: "the modern city is a spatial organization that produces collectives goods through which individual preferences are valorised" (Remy 1966 p.167). This constant interaction between on the one hand individual preference and on the other collective value, modes of consumption or identity brings Remy to a undermine one of the key assumption of welfare economics.

At the turn of the 1960s, welfare economics was the doxa for many economists. Its ambition was to make use of microeconomic techniques to evaluate well-being at the aggregate level (nation or region). It started from the assumption that first; it is possible to derive social welfare based on the sum individual's preferences. Individual preferences are defined is terms of the utility one get from a certain good and it can be measured by the willingness to pay for it. It considers that all the goods with a certain utility are dividable and appropriated individually. Second; an efficient economic system is reach once aggregate supply and demand curves converge to equilibrium. In this framework the efficiency of the system is judge on the base of its capacity to comply with individual preferences.
For Remy, the fact that urban externalities are produced collectively and have diffuse effects, make it hard for individual agents to determine to what extend they contribute to it and what exact utility they could derive from it. As it is not reflected in individual utility function, such goods are often not taken into account at the aggregate level. To him this poses a fundamental problem for economists as to define what is best for society. What Remy suggest here is that is that the efficiency of an urban economy is not only defined by efficiency of the market. As we shall see, Remy developed this idea further once he considered the role of urban planning.

On diseconomies and urban planning
Remy didn't spend too much energy on the definition of negative externalities. As stated at the beginning of his book, he considered that since the emergence of modern urban planning, much of the literature had been dealing with fixing the negative externalities of urban development. On the contrary little had been said on the opportunities it offered. In the fifth chapter, Remy proceed to a simple inventory of urban diseconomies according to the size of the city, its internal organization and discusses some of the remedies. This brings Remy to the last chapter of his book, where he draws upon the significance of his previous observations for the development of urban agglomerations. He begins by recalling 3 type of interdependence related to urban externalities. First he considers the urban externalities transmitted through the market. To him these forms of externalities are the most obvious ones and they have been widely discusses by economists (Scitovsky 1954, Meade 1955). These externalities are mainly economies of scale linked to the spatial concentration of economic agents for instance: the presence of an important and diversified consumer market, the presence of skilled labour, inter-sectorial relations. The second type of interdependence concerns externalities that are not mediated by the market but rather by the spatial proximity of economic agents. For Remy, economists have often underestimated this category because the effects are hardly measurable, however it remains an essential component of an urban economy. Remy place in this category the externalities linked to the ecology of choice, the presence of substitution goods, know-how and innovation. Finally Remy identify a third form of interdependence, which he names 'urban collective advantages'. To him this is an extreme form of external economies for which the demand cannot be detected by the market and cannot be produced by a single economic agent. Remy takes the example of a shopping street in which a first shop opens, a second shop opens next to the first to benefit from his 'clientele' but by doing so contribute the attractiveness of the street. In the city these 3 forms of interdependence co-exist and overlap. This increases significantly the complexity of elements to take in consideration for rational planning process. (Remy 1966 p.232)

For Remy, this complex interdependence required a different form of planning. The national planning technics he had learned in the textbook of political economy did not comply with the problem he faced in the

city[8]. To make his point, Remy made a distinction between 'dividable' goods with individual appropriation and 'non-dividable' goods with collective appropriation. For dividable goods with individual appropriation, the market can be considered as an efficient mechanism to give information about the aggregate demand. However as prices transmit information at a given moment in time, planners have to forecasts the future demand in order to allocate the public investments adequately (Scitovsky 1952). According to the textbook, the aggregate demand can simply be derived from the sum of individual needs, which leads planners to complex mathematical models to predict the future (Paellinck & Waelbroek 1963). To him similar technics are useless to plan 'non-dividable' goods with collective appropriation. First because they cannot be derived from the sum of individual preferences and second the diffuse effect makes it hard to measure how it impacts every economic agent. Remy conclude from this, that the optimality of an urban policy (plan) derived from quantitative analysis only will always be relative. If this statement sounds rather banal today, back in 1960s it was rather disruptive[9].

To overcome this weakness Remy proposed to link economic preoccupations with the sociological considerations. He suggested the creation of multidisciplinary planning teams to help giving priorities regarding urban development. The task of such planning team would not to substitute the multiplicity of initiatives taken by individuals, but on the contrary, to create the context in which they can flourish. If Remy recognize the central role of a public authority in the management of urban externalities he also admits that it's main role should be limited to providing the framework in which private initiatives can develop. Remy's call for the contribution of several disciplines in urban planning was certainly influenced by his own experience in multidisciplinary team for several regional surveys. Furthermore his study of Charleroi revealed the importance of private initiatives in creating an attractive urban milieu. The role that Remy casted for public authorities relative to the private sector will be a source a criticism from the left an the turn of the 1970s.

The Marxist critic of Remy
It is quite interesting to note, that despite Remy's own questioning of some fundamental aspects of planning, his book was nevertheless strongly criticized by Marxists economists and social-geographers. This objection to Remy's contribution is best captured in an article published by François Asher in *Espaces et Sociétés*.

Written in 1971, Asher used Remy's book to highlight the ideological character behind many urban studies. To him *la ville phénomène économique* embodied the ill-fated attempt from economists to include the social in urban economics. For Asher, this tendency developed in the aftermath of may 1968 and was nothing more than the Bourgeois respond to the Marxist threat on established economic theories. From the French perspective the power of the planning administration was considered to serve the interests of capital and therefore anyone defending the idea of planning was considered as enemy. Asher's main line of critique was that by trying to produce a theory of the urban without considering class relations, Remy was masking the crucial role played by capital in the production of the city. To him, Remy was trying to develop an ideology of social welfare without class and inequality. In retrospect, if one can admit that Remy did not address class relation in his book, he did addressed the role of rent in the production of diseconomies. Perhaps this false reading was caused by the fact Remy did not used the Marxist jargon in his analysis. Nevertheless, Remy supported the idea of planning and this was considered 'ideological' in Asher's view.

Externalities, rent and urban planning
Few years after the publication of his thesis, Remy came to nuance his faith in planning. By the end of the 1960s, the use of macro-economic model had increased not only in academia but also within the institutions of the state. Moreover the role of capital in extracting urban rent became increasingly visible in Belgian cities and the crucial role played by the public authorities in allowing these projects to happen became a target of many criticisms. Remy tried to related this situation to the notion of urban externalities he had previously defined. In 1969, Remy published together with Liliane Voyer an article titled: *Vitalité urbaine et rationalité économique* (Urban vitality and economic rationality). The general structure of the article followed Remy's book, but the authors developed further on the role of rent in the production and appropriation of urban externalities. If it remained rather theoretical, Remy made some effort to illustrated his theory with concrete situation, many of which inspired by the Belgian urban context of the time.

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[8] Here Remy refers to the course he received at UCL on political economy: Duquesne De La Vinelle L. (1965), *Cours de politique economique et d'organisation de l'économi*e, pp. 22-24
[9] In fact, tree years later David Harvey addressed a similar critique regarding the philosophical underpinning of quantitative geography. See: Harvey D. (1969), *Explanation in geography*, London Edward Arnold ed., 521p

Remy had already made clear the distinction between rural and urban rent[10], so he focused exclusively and the urban cases. He begins by noticing that not all economic activities have the same capacity to generate external economies and that there is no relationship between the profitability of an activity and its capacity to generate externalities. Remy take the example of a cultural centre, which has a limited budget but potentially, can generate positive externalities for a neighbourhood. As land is by definition a limited asset, there will be a tendency for these activities to be replaced by more profitable ones. Remy argue that in several urban renewal scheme there is a risk that the city is appropriated by a 'dominant group' and run the risk to loose part of its 'vitality'. Remy take another example to illustrate his point and refers to the North District of Brussels. At the time, a vast urban renewal program - the infamous Manhattan plan – developed both by the public authority and real estate developers envisioned the construction of an international business district (WTC) next to the train station. In modernist fashion, the plan projected to clear-out the site from existing buildings in order to make room for high-rise towers and large boulevards. A large part of the neighbourhood was doomed to destruction. In such situation, he claims, the rising rents caused by the urban renewal will push away the marginal activities of the neighbourhood and this process can neither be compensate by a system of subsidies nor by a form of political intervention because in many case these activities are linked to the community that is displaced (Remy 1969, p 417). Remy, conclude from this that the city structure should allows for a diversity of economic activities not based on the economic profitability but on the complementarity between them.

This observation brings Remy, the question the role of urban planning in the transforming the land market and here again he used the framework of externalities. The argument was developed, in another article in 1972 titled: *Economies externes et croissance urbaine* (Economic externalities and urban growth). For Remy, in the negotiation of urban projects there is a confusion between what is profitable and what is productive: "the non-profitable is not necessary unproductive" (Remy 1972, p 1014). The relative profitability of an area can generate externalities that are productive to another. This is due to the complex game of interdependences proper to the urban environment. To him, the role that plays urban planning in preserving of altering these interdependences is crucial. In defining the land-use and allocating infrastructure, the plan generates externalities that either reinforce existing interdependence or distort them. By defining what can be built on a plot, the plan does not only determine the value of that plot but also the value of all those around. Remy uses the typical example of a exiting green space that in one case is planned as a protected area and in the other changed into an industrial site. The change in land-use fix the price of the land but has externalities on the land around. And as Remy stated earlier; the effects of such externalities are diffuse and indirect, therefore it cannot be compensated (fully) by a form of taxation or subsidy. This distortion can lead on the long run to spatial inequality since positive externalities generated by the plan tend to be captured by a dominant group and translated into the rental market. To him, the lack of empowerment of many social groups calls for a different praxis of urban planning, one that would address the 'vast field of social ignorance'.

There are many lessons that can be drawn from Remy's intellectual journey. Here I would like just to name a few. First Remy's own observation of reality led him to be quite skeptical regarding the establish discourse. His empirical analysis of the city and the comparison with different urban and economic theory revealed some important deficiency in planning theory. Second his theoretical effort to redefine the urban highlighted the need to develop both a conceptual apparatus and planning methods that are specific to it. And finally Remy's atypical career, moving between different intellectual traditions, lead him to recognize the added value of multidisciplinary team in dealing with urban issues.

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[10] Remy describes this difference in La ville phénomène économique pp. 227-228

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Unveiling Latin American territories; The *Travesías* of the Valparaíso School as a critical practice of the planetary urbanization

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The contemporary planetary urbanization is a phenomenon predicted by Henri Lefebvre, in *La Révolution urbaine* of 1970, which is a major contribution to the radical critique of the postwar urbanization emerged during the 60's. Nowadays, through this theoretical approach, geographer, and landscape-architects have developed new critical description of the urbanization beyond the traditional city. Together, providing new approaches about landscape and territory, allowing us to pay special attention to the production of leftover territories result of this extended urbanization.
Against this background, in Latin America, the theoretical discussion and design approaches are still emerging. Nonetheless, this research aims to state that, parallel to the development of the critical theory from the sixties and until today, The Valparaíso School of Chile through the critical practice of The *Travesías* has treated the problem of unveiling the Latin American territories surpassing the cities, centered specifically on the leftovers lands produced by the historical and planetary urbanization.

Keywords: planetary urbanization, leftover territories, critical practice, *Travesías*

The leftover-territories of the planetary urbanization

The contemporary 'planetary urbanization' is a phenomenon predicted by Henri Lefebvre in his book *La Revolution Urbaine* published in 1970, which is a major contribution to the *radical critique* of the postwar urbanization, emerged during the 60's mainly in Paris and later in North America. Nowadays, through this theoretical approach geographers (Soja, 1989; Harvey, 2012; Brenner, 2014), and landscape-architects (Waldheim, 2006, 2016; Berger, 2007; Corner, 2014) have been developing new critical descriptions about the current urbanization; as something that goes beyond the traditional city, affirming the ubiquity of the phenomenon, bringing down de bynomio countryside-city, the negative effects of the surplus value of lands and the accumulated capital of the laissez-faire (Brenner, 2014; Waldheim, 2016). Together, these insights provide renewed ideas of the concept of landscape and territory, allowing us to pay special attention to the paradox between the production of urban landscape-territories, and the 'leftover territories', as the result of exchanges between urban landscape, operational landscape (Brenner, 2016) logistic landscape (Waldheim and Berger, 2008) and natural ones, which implies the interaction between lands beyond political and regional borders. Therefore, the common objective has been to return to the territory, developing new methods as mapping to describe the performances between local and global scales. Milton Santos call it the relationship between contiguous and networked places (Santos, 2017).

Henri Lefebvre in *The Urban Revolution*, suggested two concepts approaching these leftover territories of urbanization: the 'blind fields', as the physical and mental field located between the industrialization and urbanization actions; and the idea of 'residue', described as the undiscoverable, fugitive and devastated nature that can be found everywhere (Lefebvre, 2003 [1970]). Following the idea of leftover waste landscape production, the landscape architect Alan Berger coined the concept of Drosscape; "affirming that the dross into the landscape emerge of two primary processes: first, as consequence of current rapid horizontal urbanization and second, as the leftover of previous economic and production regimes, which are both catalyzed by the drastic decrease in transportation costs over the last century" (Berger, 2007, p. 12). Likewise, the concept of wasteland is related to derelict sites due to industrial changes, and brownfields to abandon sites contaminated by offensive industries. All these concepts describe accurately the North America, and perhaps European relationship with the land.

In this sense, the idea of extended urbanization and its leftover terrains –produced by the operationalization of places, territories and landscapes, often located far beyond the dense population centers, composed by large infrastructures across territories and enclosed lands of privatization and exploitation (Brenner and Schmid, 2015)– seems to open the notion of wastelands, regarding these territories which are environmentally and socially vulnerable, as in Latin America, where the urbanization has been expanding most intensely as a result of the commodity boom and that supply by an extraordinary expansion of the resource extraction frontier (Arboleda, 2016, p. 234). Therefore, in this context the concept of planetary urbanization has strong

implications on new notions of distance and boundaries, as well as of urban-flows that nowadays affect the natural and cultural reproduction within the territory.

Against this background, in Latin America, the theoretical discussion is limited and its perspectives for design-fields are still emerging (Sordi, 2015; Correa, 2016). Nonetheless, this research aims to state that, parallel to the development of the critical theory from the sixties until today, and with another narrative, The Valparaíso School of Chile (Perez de Arce and Perez Oyarzún, 2003) through the critical practice of The *Travesías* has treated the problem of unveiling the Latin American territories, specifically the leftovers lands produced by the historical (colonial) and planetary urbanization.

The *Travesía* is a pedagogical experience carried out year after year since 1984 by all the members of the School. Described as 'voyages of unveiling', its purpose has been to develop a specific point of view on the architecture and urbanization of Latin America, addressed through the experiences of voyage and ephemeral constructions one by one in places surpassing the cities, in the leftover territories that they have called poetically the American 'Interior Sea' [Fig.1,2]. This concept avoids the political frontiers, and also the negative connotation in terms as waste landscapes, in this sense, is closer to the idea of *terrain-vague* as greater and perhaps less precisely defined territories, connected with physical idea of a portion of lands in its potentially exploitable state but already possessing some definition to which we are external (De Solà-Morales, 1995).
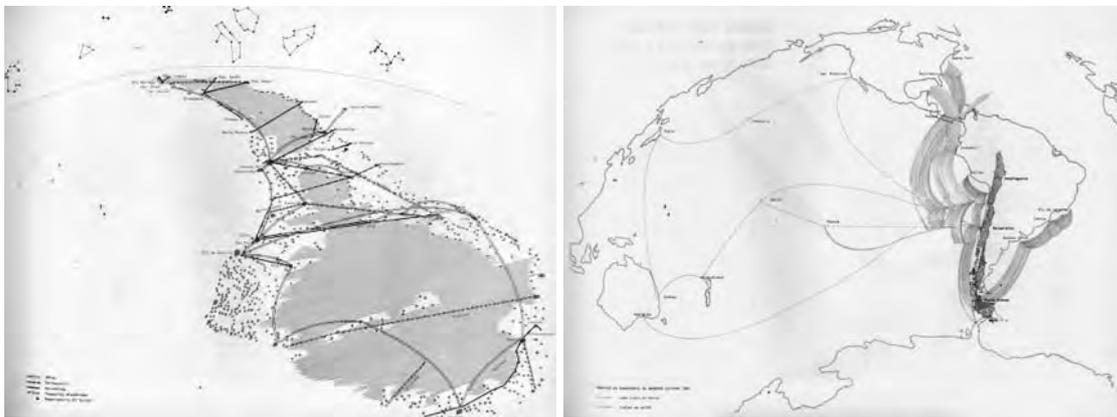
[Fig.1] Mapping the 'Interior Sea' (blue), the transoceanic route systems (black) and cities (red) across the Latin American Continent. From 'Para una Situación de América Latina en el Pacífico', in *Fundamentos de la Escuela de Arquitectura, Universidad Católica de Valparaíso*, p. 30.
[Fig.2] Mapping the main air and nautical routes of the Pacific coast. From 'Para una Situación de América Latina en el Pacífico', in *Fundamentos de la Escuela de Arquitectura, Universidad Católica de Valparaíso*, p. 20.

Travesías to unveil the Latin-American territories, three phases of this critical practice.

The narrative behind the *Travesías* is mainly described in the book Amereida I, II, III (Various Authors, 1967, 1986, 1991) and the essays The Thesis of the 'Interior Sea' and The Thesis of the Own North (Cruz *et al.*, 1971) written by the School, works that *"*that permit re-view our American reality starting from an individual point of view, and look into the world from there, theses which open and which are fertile to think an urbanism which is not only the simple optimal election of possibilities according to criteria based on the mere productivity of a region, a country and a continent." (Cruz *et al.*, 1971, p. 4). However, to understand this voyages as a critical practice and its relation to the Paris scene is necessary to introduce three phases in the constitution of the radical pedagogy (Colomina *et al.*, 2015) synthesized in the union of "poetry and crafts" (architecture, design and other arts), and "live experience" practice as methods to address creatively the architecture and urbanism.

First phase: The School re-foundation, the city as laboratory

In 1952, a group of young Chilean architects headed by Alberto Cruz and Godofredo Iommi, moved from the capital city, Santiago, to Viña del Mar and began their work in the Valparaíso School. The principles upon which they were led, radically reformed the established methods of teaching architecture to derive in the communion of crafts and performative poetry. Likewise, expanding this boundless agenda into the school´s

curriculum led to students being directed to explore outside the classroom. The transposition made it possible for Cruz to combine a former interest in plastic explorations with a preoccupation with the "lived" experience of the city (Cruz, 1959), that is, comprehending the city as a laboratory (Pendleton-Jullian, 1996) [Fig.3]. Thus, the architects, students and teachers, have developed unfolding a practice that aims to "read the place" from a particular given moment, this method has taken different names: phenomenology, postmodernism, deconstruction (Mihalache, 2006). They named it "architectural observation" with the city of Valparaíso as the place of study.

[Fig.3] The architectural observation in the hills of Valparaíso, 1956. From The Historical Archives ©J.V.A. of The Valparaíso School.

Second phase: The Manifesto of 1967, The First Travesía and The Ciudad Abierta of Amereida

In 1965, Cruz and Iommi organized and carried out a journey from Punta Arenas, Chile – the extreme south of the continent – to Santa Cruz de la Sierra, Bolivia, declared the *"capital poética"* of America. The *Travesía* inspired the participants to collectively write Amereida I: an epic poem that blends the Aeneid, conquest-era chronicles, and abstract drawings of the South American continent and its 'Interior Sea'. This voyage of 42 days was the first opportunity to test their radical philosophy: originating poetry as the source of the creative process. During the time they met with locals, installed small-scale *Obras* (Works), and elaborated performances, the poetic word was always present [Fig.4,5].

[Fig.4] Performance in the Pampa of Argentina, First Travesía 1965. From The Historical Archives ©J.V.A. of The Valparaíso School.
[Fig.5] Mapping of the route, First Travesía of Amereida 1965. From Book Amereida, p.186.

Simultaneously to the publication of the first printed edition of Amereida in 1967, the Universitarian Revolution was initiated in Valparaíso, in which the Valparaíso School took the leading role, claiming that "the Latin American universities were not capable of distinguishing or answering to the legitimate and urgent necessities of our countries, and even less, were not able to open a field situated beyond all investigations, we refer to the free and uninterested contemplation of that which may constitute our own reality, finally becoming imperative here and now, without possible dilatations, the radical undelayable change of the

principles that our universities maintain" (Iommi, 1971b). According to this text, it is possible to state that the Manifesto was nourished by the revealing experience of the *Travesía* of Amereida.

These two phases of the Valparaíso School were related to the radical scenario of Paris (Pendleton-Jullian, 1996; Bravo, 2015), especially with the insights developed by the International Situationists described in essays as "The Unitary Urbanism" and "Introduction to a Critique of Urban Geography" (Debord, 1955, 1956) and practiced in the experiences of psychogeography around Europe, as well linked to the *radical critique* (Lefebvre, 2003 [1970]) developed by Lefebvre in the late sixties. Both scenes will locate the "living experience" -*praxis*- as the major way to reveal and transform the urban reality and beyond it -*poiesis*-, an ideal nourished first by the modern poetry of Paris and then by the sociopolitical revolution of May 68 (Merrifield, 2006). However, moving away from political ideals, the leaders of the architecture school will reject the political ambitions of the 1968 movements. In fact, professors from Valparaíso will express repeatedly, instead of aspiring to change the world, they will be guided by the desire for a "change of life" (González, 2015).

In 1970, the professors of the Valparaíso School founded the *Ciudad Abierta de Amereida* (Open City), a territory of 270 hectares located in Ritoque, on the coastline close to the cities of Viña del Mar and Valparaíso, which constitutes a real manifestation for a "change of life". It is a territory founded under the poetic of the American 'Interior Sea' (Iommi, 1971a) expressed since then, as a territory slightly intervened in front of the Pacific Ocean. This place is conceived, still today, as a space of collective life and work which would bring together the disciplines cultivated by the School, and where the collective corpus (conformed by professor, students and guests) addresses architectural knowledge through the *praxis* of the *Obras*.

Third phase: The Travesías as a pedagogical practice

Since 1984 the *Travesías* has been part of the Curriculum of the Valparaíso School, using the voyage as a research process which is part of every studio. In contrast to the typical, one-off trip abroad undertaken by most of schools, the Valparaíso group has made their trips an annual journey into their backyard: the wildernesses of South America. The aim is a building whose poetics emerges from an engagement with the landscape of America as ground and place of residence, not a resource to be exploited through its colonization (Steane, Luza and Jolly, 2016), but they remain as an open way to unveil the 'Interior Sea' of Latin America, where each experience constitute a different approach to the territory. Today, these experiences surpass 250 voyages performed.

The *Travesías* is a live project that requires students to be closely involved between themselves and with the inhabitants of the places for a period of two to three weeks in actual building processes. The projects have two basic dimensions: Firstly "Work and Place" [Fig.6,7], the development of a logistics of life and work that enables projects to be constructed even in the most remote locations, and secondly "Voyage and Draws" [Fig.8], a teaching approach that makes mapping and annotated on-site sketches the point of departure for design in which issues of inhabitation are the major focus, where the crossing of the continent reveal some axels of the final place of project. This study is thus an opportunity to examine an apparent paradox: that the creativity of wandering must be allied to a strictly orchestrated plan of campaign (Steane, Luza and Jolly, 2016).

[Fig.6] *Travesía Curimahuida* 1986, a refuge for shepherds in the Andes Mountain, Chile. From The Historical Archives ©J.V.A. of The Valparaíso School.
[Fig.7] *Travesía Paildad* 2014, new dock and decks in the fjord Paildad, Chile. Elaborated by the author.
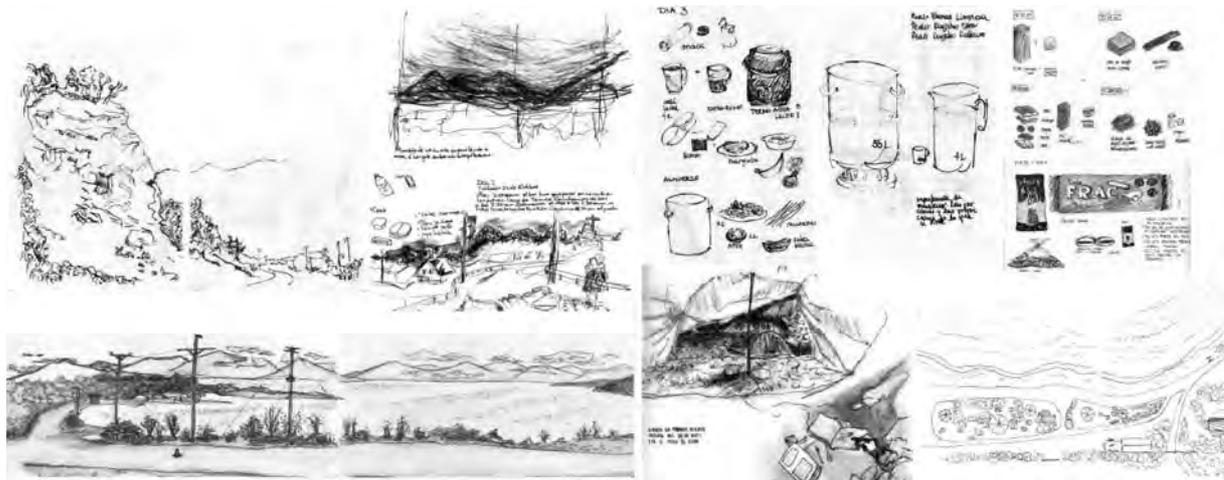
[Fig.8] *Travesía Vodudahue* 2015, exhibition of sketchbooks about territory and everyday life during the voyage, Patagonia, Chile. Elaborated by the author.

The *Travesía* as a critical practice of the planetary urbanization

The path built by the Valparaíso School through the *Travesías* acquire the connotation of critical-practice because they remain in the effort of creating, year by year, a new pedagogic approach to address questions about architecture and urbanism beyond the cities. Although these practice is not explicit to the discourse surrounding the planetary urbanization, they have been related to it, precisely, through questions about the leftover places and territories produced by the contemporary urbanization. In this way, there are motives to perform the *Travesía,* for example: the *Travesía Curimahuida* in 1986, related to the territories of indigenous occupation and mining exploitation of The Andes Mountains*;* or the *Travesía of Paildad* in 2014, related to the rural life within the Patagonian fjords and the impact of transnational aquifer exploitation.

From this first theoretical approach, this investigation suggest that the critical narrative related to the planetary urbanization seems to be constituted by three main elements: theory, description and critical practice. Naturally, they are incomplete if the phenomenon is observed from a unique perspective, however, the three elements seem to be determined in re-observe the territories through new focus length and methods, placing them in an open field of discussion for multidisciplinary feedback. In this sense, The *Travesías* and its methods could be a contribution to link, for example, the macro scale mapping with human scale projects, assisting the abstract mapping, today criticized in project of landscape-architects (Thompson). On the other hand, considering the design of *wastelands,* this practice could contribute to the research of new methods for exploring the landscape through unfamiliar ways, as a kind of radical, cultural and political *praxis* (Gandy, 2013).

Finally, the narrative of the *Travesías* and its potential scopes on planetary urbanization is unknown, probably because is limited by the lack of information presented in a unified theoretical corpus. Nevertheless, further research might investigate the dispersed material in different private archives and in the archive of the School, and the implementation of key interviews following methodological criteria. This would help to establish a better understanding of the methods of this group, contributing to the interdisciplinary discussion of architecture and territory.

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Live to understand: reflection on an ethnography of a high rise social housing estate in Brussels

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"Peterbos Park" is the name of the high rise social housing estate, that will be the object of the following paper. From the starting aim to reflect on the future – regeneration - of the estate, the paper presents a first piece of an ethnographic research led within the neighborhood. It takes the occasion to reflect on the object and the frame of the ethnographical research and its fieldwork. It discusses some elements of definition of the fieldwork and of the neighborhood and its inhabitants, the notion of the time revealing local specificity and finally questioning the notion of the appropriation of the public space.

Introduction

In this paper, some observations collected from the first four months of an ethnographical fieldwork conducted in a high rise social housing estate in Brussels – the Peterbos Park, will be presented. This ethnography is organized according to three situated angles: the neighborhood with its tenants/inhabitants and users, the "social action" sector - in other words, workers that engage every day in the neighborhood-, and finally, the "institutional frame" that initiates discourses and policies, manages and projects on the site, from above. Two themes extracted from the fieldwork will be then described which illustrate local mechanisms from the mentioned three angles - "inhabitants"/"every day workers"/institutions - : the notion of time and the appropriation. As the data collection and the ethnography is not considered finished, the dimensions presented here are representative of a first preliminary analysis built on gathered material.

The paper is built from the ethnographical findings, following an inductive process. In this sense, it does not pretend to give an exhaustive understanding but rather some illustrations.

The general aim of the research is twofold. First, the intention is to reflect on the possible regeneration of high rise social housings in Brussels. Specifically, these estates are the embodiment of a social and spatial modernist model. They were meant to be progressive neighborhoods, following an idealist social and urban modernist project[1]. In return, today, they accumulate a population with social and economic difficulties (particularly due to the allocation rules[2] to access social housing in Brussels).

Secondly, the research is the occasion to study the potential contribution of an ethnographic approach in the urban design regeneration of public and collective space.

Definition of a fieldwork

This research started looking at the uses, possible appropriations of the public spaces and at the everyday practices.

The initial idea was to give a proper understanding of the area, by observing and participating in the neighborhood, to deliver an urban ethnography of a residential neighborhood inhabited by social tenants. Then, quickly, the frame widened to everyday workers and to the institutions that manage the site. Both everyday workers and institutions interact, produce knowledge and influence the usages within the studied neighborhood.

First, the everyday workers constitute the people who come every day or live at Peterbos to work. We can identify two main categories: social and management workers. The social workers are either individual or collective. The individual social assistants accompany tenants in their daily steps and are employed by the housing companies and by the municipality. The collective social workers from the social associations drive the socio-cultural, well-being, leisure, sport activities in the site. The management category gathers the workers in charge of the management of the built environment like housekeepers, technical team, cleaning

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[1] The municipality described the estate of Peterbos in 1963, at the beginning of its construction: « the basic idea was to implement, on this area of 12ha, on a strong slope towards the south, a residential neighborhood that would be avant-garde of the urban realization through an architectural composition, designing: an open field, social and commercial equipment, street limited to the strict necessity of the inhabitants, underground parking spaces, and mainly proposing a multitude of green spaces entering the neighborhood and extending the already existing green continuity that the municipality is developing across its territory». Quote translated by the author extracted from the publication produced by Anderlecht Municipality in 1963 "Urbanisme en action/stedebouw in actie. Groen Anderlecht Commune Verte"

[2] The right to access and benefit from a social housing property is defined by the Brussels dwelling code. This code mentions a priority list built on the number of priority points the household got, the more candidates are identified as being in an insecure position the more points they accumulate. These rules have been already discussed by Nicolas Bernard and Pascal Jamoulle in the case of Brussels, defining the priority points as precarious point.

team… They are key stakeholders as they are witnesses of the ground-truth: from the collective garbage managing to the intimacy of tenants' apartments.

In general, the everyday workers are key informants for the institutions and for the researcher as they develop a discourse on the site while they are also players of neighborhood scene, interacting with inhabitants, although identifying themselves apart from them.

Second, the institutional frame includes, so far, the social housing companies (*Le Foyer Anderlechtois* and *Comensia*) and the municipality of Anderlecht. As manager and owner of the buildings of the public space, these actors, are obviously present on the site. Inhabitants constantly interact with these institutions, among others for financial issues, as these examples illustrate: every year, all households prove their socio-economic situation to the social housing companies in order to keep the same rent price; half of the households[3] of Peterbos rely on replacement incomes, which are granted by the social service of the municipality. The example of Fatima is illustrative in this respect. Fatima relies on a social integration income and should contact her social assistant when she faces new expenses such as an orthodontic treatment for her daughter or expenses for school.

> *"I don't know how I'm supposed to contact him? Do I have to go there each time that I have a new expense? Last time, he told me that I couldn't anymore come to him once a month, with my medical invoices after paying them to be reimbursed. He told me that I should tell him before what are my expenses and then ask the social service to help me. But I work every day, (she is following French classes, as part of her professional insertion process), so I have to take a day off, but I can't do that each time that I need to pay something…and if I send it by post it will be even longer to get an answer and I will never know if he got it… Could we ask him if we can mail him the invoice? That might be enough for him?"* (Fatima, November 2017)

The omnipresent relationship with social housing companies is also embedded in the everyday life through posters displayed in the entry halls that inform on how to behave, the do's and don'ts, or that encourage the tenants to participate in activities or in decision-making processes of the company.

These three spheres – inhabitants, everyday workers and institutions - appeared to be compulsory for a whole understanding of the same territory, within which they are embedded and relate with each other.

The definition of the fieldwork nourishes also the definition of the studied object "Peterbos". The neighborhood is defined by a clear name and perimeter, even if many diverse discourses participate in the shaping the object: from institutions, from "inside" inhabitants, from media... The definition is, indeed, not a neutral given and needs to be analyzed from its origin and context. The ethnographical research will open the opportunity to reflect on the diverse definitions; contributing to an "inside definition" of Peterbos from the inhabitants' perspective, to controversial definitions arguing for sub-identity or for outside perspectives, or to many other conscious and unconscious definitions - from the inhabitant, from the youth, from mothers, from the media, from politicians, from the landlord…

The definitions will open the discussion on the representations of the neighborhood, how the insiders and the outsiders perceive the neighborhood, who belongs there and what are the elements that make sense for the collectivity, the rules of behavior…?

The method

The method of observant participation could be defined by an endless list expressing how through different postures, listening and understanding people, the researcher collects data. It requires an embedded posture, the researcher is the tool to access the local knowledge and, in order to reach an objectivity, she or he is aware of being part of the knowledge itself, experiencing and orienting the subject. By taking daily notes, the material collected becomes data. In that sense, the notebook allows the researcher to distance her/himself from the fieldwork.

Practically, moving in the neighborhood[4] allowed me to engage with the field. Living within the neighborhood gave me access to informal contacts with my neighbors and to the night life. In addition to "after work" experiences, I dedicated "standard working days" and weekends living there, imposing myself to stay in *my new* neighborhood (finding the good deal grocery shopping, spending time in the wash house, having occasional chats, enjoying the park and spending time in the playground…). Differently from an exotic ethnographic fieldwork, as Malinowski in the Trobiand Islands, the detachment from my socially constructed norms and beliefs and from my life represents an intense struggle. The proximity of the

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[3] 48% of the inhabitants in 2016 rely on replacement incomes: 20% on the unemployment benefit – 11% on the social integration income – 13% on the work disability allowance – 3% disable allowance. In addition, 31% relies on pension. As reference, in the Brussels Region, in 2017, the social integration income for an "isolated" person raises 892,70€ per month, for a cohabitant 595,13€, and for a head of household (which means someone with children) 1.190,27€.

[4] I am inhabiting one dwelling of one high rise building on the site. This apartment was empty for some months already, due to the renovation process going on the company has not replaced the leaving household. The managing of these empty apartments is part of another important discussion regarding housing shortage in Brussels, which is not developed here.

fieldwork and the potential prejudices are part of the necessary awareness of the researcher to avoid as much as possible subjective bias.

Next to this immersion, the activities organized by social workers were opportunities to also participate in the neighborhood. Being involved as a volunteer in the homework-school, in the local social service antenna of the municipality, in the collective activities organized by the social housing company… allowed me to get access not only to plenty of new inhabitants but also to the everyday workers themselves, opening a direct link with the institutional frame. I also dedicated moment to specifically meet the managing teams working on site for the social housing companies such as all housekeepers, cleaning and techniques workers.

The access to the institutional context is the most complex as it implies a strong trust from the stakeholders. Contact after contact, I tried to become a key informant. So far, my legitimacy is based on a clear reciprocity and gift exchange[5]. I offered my services and in exchange I had access to informal material. For example, my participation at the recent candidacy of the municipality for a local urban renovation program was the occasion to support the renovation service and to open one door of the often-closed municipal world.

The interest to reflect on the different fieldworks and the diverse ways to access them gives an understanding of the status and the legitimization given to the researcher and simultaneously reveals the concern of each stakeholder. When accessing the municipal service antenna or the renovation service, I became a student of whom they are not suspicious or, on the contrary, a Phd student who could dig into certain matters. Accessing the neighborhood, I was sometimes considered as a Belgian, a useful resource to help with administration works and incomprehensible administrative language, as a social assistant for other matters… Few of the many identities I got, express each stakeholders' concerns and their attitudes within this specific social world.

Some insights from the fieldwork

According to the inductive ethnographic method, the fieldwork guides the researcher through the sense of the place, two of them are detailed hereunder: the notion of time and appropriation. The following mechanisms are representative but might not be generalized.

Time

This notion gathers diverse subthemes: the waiting time; being bored (and lonely); the rhythm of the neighborhood; and the common past (and future?).

> *I arrived in the neighborhood during summer, when many households of foreign origin went "back home" on holiday. I remember Medina warning me that "for the moment, it's really calm, you will see when school year starts again". The summer was nice, "but people keep complaining that they are bored, that there is nothing to do, while they live in a park and the weather encourages you to go outside. And even more, Brussels is full of free activities" a social assistant told me. I had the feeling of being away from the intensity and rhythm of the city.* (Author's notebook)

After the start of the new school year, even if the rhythm has changed, the neighborhood remained separated from the "outside city". The flows "of the city" brush the neighborhood without impacting it. The buses and the car traffic pass along the boulevard but none of these flows cross the territory, the rhythm given here is uniquely based on the residents themselves while representations of a city often refer to intensity, movement and density of activities. The intuition of a differentiation between inside and outside rhythms opens a range of reflections. In the same way that the neighborhood is marked by an inside and outside definition, the recognition of a specific rhythm inside the area is defined by an addition of elements together (and not in isolation).

The structure of the population, such as the low rate of employment and the high rate of elderly inhabitants, outlines the differentiation of rhythms inside and outside the perimeter. The lassitude and slowness of inhabitants, illustrated in the previous quote, also participate in the rhythm definition. It also refers to the constant relation with the administration and the possible waiting time it leads to. For instance, in case of the many households with migrant background, they very often do not speak one of the national languages. This produces a population who is accustomed to wait, to rely on others and to spend time on administrative errands without managing the result of their request.

Finally, time is also marked by the spatial appearances and management of the neighborhood. Inhabitants, together, build a common past and common cycle, accumulated, through the years, in the discourses, in the gossips, in the collective imaginary, and on the walls of the estate. A shared pessimism about the past and the poor investments on the renewal of the public spaces nourish a general feeling of permanency, and of vicious cycle where problems that have been solved are expected to reappear very soon.

> *"Nothing changes here, it is always the same. And if there is change, it is part of a cycle that will go and come back."* (Autor's notebook)
> *"The youth are not squatting the staircase anymore, but they will come back…"*

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[5] Notion developed by Marcel Mauss. Mauss M. 1925. Essai sur le don. Forme et raison de l'échange dans les sociétés archaïques, *L'année sociologique*, nouvelle série, 1.

"The garbage dump is gone, but wait, you will see…." (concierge, 2017)

The time and rhythm notions reveal a tension in the public space between the apparent quietness of the neighborhood and the over-presence of gossips that refers to potential intense appropriation of the space.

Appropriation

The notion of appropriation appears firstly as a goal often mentioned by the collective social action programs. *Samenlevingsopbouw*, the association in charge of the *Projet de Cohésion Sociale* in the neighborhood, since 1999, defined one of its missions to encourage the appropriation of the public and collective space by inhabitants and to give space for everyone in the neighborhood. Even more in this estate where a large amount of public spaces is provided. This observation contrast with the reaction of visitors who are new to the site, and who are usually surprised by the absence of appropriation and the "under usage" of the public space.

"There are so many people living here, but you never see anyone" (Social worker, September 2017).

The association translated this goal into diverse interventions and actions: one year ago, after many feedbacks from the inhabitants and discussions with the company, they decided to appropriate, once a week, the "problematic" entry hall of the block 16, in reaction to the neighborhood friction caused by the renovation work of the building. They were offering coffee and cookies as pretext to create a meeting place where to enhance dialogue between inhabitants and the appropriation of that space.

Through this experience, I argue for the recognition of the appropriation process as a substantial action. By claiming a space that usually, for a certain period of the day, is occupied by the youth, the organized appropriation generates frustrations from the youth and simultaneously gives brief senses of power to the other inhabitants.

> *Today, Samenlevingsopbouw installed its table in my entry hall. I sit a few minutes to talk with Françoise and Helen, the two social workers and I took advantage of this moment to meet two other neighbors that I didn't know yet. Each time that a neighbor crosses the hall, the whole table greets him and invites to share a coffee. When it is the turn of the young guys whom, that same morning, were squatting the staircase, the table stayed silent. At their leaving, one social worker asked one of them to please close the door when they leave. One old lady sat next to me, stood up, and went on further "For once, it's us, you see, it's not always you [that decide the rules in here]. I knew the guy, and he looked at her and saw me, and he left silent. From that moment on, I decided to not sit in the hall anymore, to avoid any possible discussion with him (them) a next return in a later hour.* (Author notebook)

As this quote demonstrates, the appropriation process impacts more and sometimes differently than expected and is an arduous process to be anticipated.

Following the same reflection, being too close to some groups of people who are associated with a certain type of behavior, is meaningful in the neighborhood, both for the researcher as for other stakeholders: being associated with the police is the risk of being considered as a traitor, or, for a mother, leave her son to play with the neighbors is the risk that he develops a friendship with brothers of a drug dealer and potentially to fall into drugs, being associated as a social worker to one association could be considered as a competitor who attract the same user public…

The invisible tension over the appropriation contrasts with the feelings of calmness, quietness, "under usage" of the public space that was already expressed in the rhythm analysis. These notions of rhythm and appropriation display an antagonism around the public and collective spaces between non-appropriation and over-appropriation, while groups of inhabitants are over-represented, and other space visibly not appropriated.

From these notions, the link between the urban regeneration and the social action programs, between social and spatial research perspective starts emerging. The example of the appropriation shows how social goals – of social cohesion and meeting, for example – are translated into spatial interventions, as temporary and reduce as they are. The interventions that aim to increase social status of a population often tend to be implemented into physical spaces.

In the other way around, the "dominant urban planning practice"[6] often defined urban policies in order to provide a cohesive and inclusive space. The formulation through an urban project of these assumed social goals could substitute to the social actions or, at least, would rely on these associations to fulfil these objectives.

As conclusion

The paper was the opportunity to widely outline the questions raised during the fieldwork.

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[6] The term dominant - widely discussed in sociology - refers to an asymmetric relationship between stakeholders. The outsiders defined as the urbanist, municipalities, landlords called here "the urban planning practice" would be the dominant facing the inhabitants' body as dominated in this specific relationship of the urban regeneration process of a site.

The first difficulty of the research is to define its study object. In this case, the case study frame seemed clear "the high rise social housing of Peterbos", but rapidly the exercise of giving a comprehensive definition of the neighborhood and framing the fieldwork appeared more complex.

The inhabitants are not the only contributors who shape the site. Two main other stakeholders were defined: the everyday workers and the institutions. In order to relay an accurate analysis of the neighborhood, this case is considered within its wider context, considering the three elements – Inhabitants, everyday workers and institutions – as carrying specific positions in the context and impacting the neighborhood scene. Complementary to this fieldwork frame, many other outsiders might be considered in the following step of the research, but have not been described hereinabove. Nevertheless, the neighborhood due to its spatial configuration is not often visited or crossed through site.

From this perspective, it became essential for me as the participant observation researcher to relate with each of the fieldwork aspects, in order to access specialized local knowledge. This also required adapting and taking on different roles on different occasions / in different situations and consequently to take diverse postures in the fieldwork which express diverse stakeholders' concerns.

The ethnography allowed to highlight mechanisms that present some of these concerns. The rhythm of the neighborhood and the – invisible - appropriation notions displayed the complexity of the site and some antagonisms between the visible and the lived experience, between the local mechanism and the management decisions taken from above…

This paper could not reflect yet on the interrelation between ethnography and urban design since the research so far, was restrained to the ethnographical fieldwork.

But this experience inspired the following thoughts. To reach an interdisciplinary research, the next step should avoid the phasing and the division of the research between ethnography and urban project. Rather, it engages in an iterative process, going back and forth, throughout the research. As an example, the ethnography should widen its study object and consider the possible dynamic regeneration process as part of the study and not as an end-result.

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Re-imagining the collective space

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A careful reading of the evolution of the central dualism opposing public and private domains reveals the relatively silent presence of a third entity: the collective space. In comparison with the importance of a third way in economic and political fields, architecture seems to suffer from a significant gap. This transdisciplinary approach brings to light, in the architectural domain, the theoretical discontinuity that has long been given to intermediate space, between public space and private property. The architectural challenge around its own third way has long been reduced to the gradual register, without asserting itself as a status, necessary and complementary to the other two components of urbanity. As a very ancient urban element, and relatively recurrent in the formation of cities, collective space presents both all the transcendent abilities of reproduction, but also a precious flexibility mainly linked to its absence of theoretical formulation. Let's give a new emancipated orientation to this underestimated component, overshadowed by a rooted binary reading of the city.

Producing and reproducing the city

Reproduction can be perceived in two opposite ways from the urban planning point of view, both as a driving force and as a slowing weight. *Driving force* because urban phenomena are precisely produced by re-producing, and especially by repeating the fundamental relation between public space and private volumes. This elementary continuity has given the traditional city its strength and longevity. Modern Movement has been particularly criticized for renouncing to the strong and fertile duality which opposed in a balanced way the public to the private. Then, this substantial quality was re-evaluated at the end of the 20th century. But both the principle of reproduction and the historical public-private duality could again be underestimated, at the beginning of a century characterized by reinvention, rupture and the search for alternatives. Nowadays, reproduction is widely negatively connoted: perceived as an obstacle to personal overtaking, and a resistance to overall innovation. But according to sustainability perspectives, there are probably still lessons to be learned from the capacity of such urbanity to last over time with the same intensity. Even in search of alternatives, historical depth can help to support vulnerable innovations. While keeping a critical attention, it may be appropriate, even today, to consider reproduction as an urban potentiality. As Bernardo Secchi noted in *La ville des riches et la ville des pauvres*, urban planning – but also architecture in the largest sense – should take advantage of the capacity of space to oppose the resistance of its own inertia to social change (Secchi 2015). He also attributes to space the capacity of proposing an oriented trajectory, linked to this pre-existing form. In this context, the ambiguous trajectory given by the powerful relationship between public and private space deserves to be studied with attention.
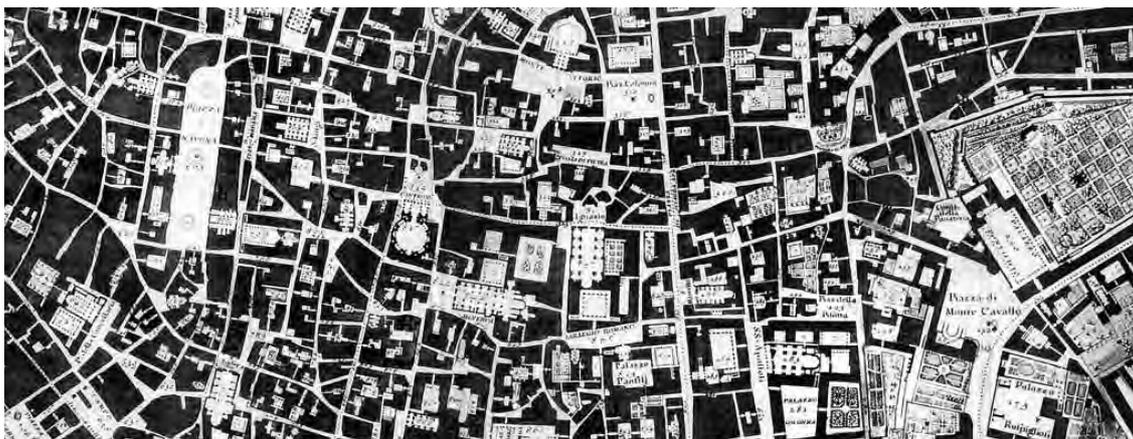
[fig.1] Extract from the Plan of Nolli: Rome, 1748. Source: Online interactive map University of Oregon

Modern attempts of circumventing

Historically the European city was based on a clear tension between the public and the private, mainly defined by sharing side walls and alignment on the street. Perceptions of the public-private relationship can be very diverse depending on location, time, gender or age, (Paquot 2015) but from an architectural point of view, reproduction of this founding duality has lasted through the centuries with a certain constancy [fig.1]. Persisting from Antiquity to medieval city, until the bourgeois city of the 19th century and even beyond. Still

today, the capacity of this efficient duality to generate urban situations is very clear. Especially the relationship between public and private produced by the *immeuble de rapport* continues to assert its relevance in most cities. In situations of lower density as well, models as 'terraced houses' lead to the same conclusions, considering it as an efficient confrontation. The various derivatives of these two architectural types have largely contributed to the spread and prosperity of this elementary and fruitful duality. Confronted with this strong legacy, urban historiography of the 20th century was enriched by a multitude of attempts to circumvent it. Modern overtaking of the fundamental duality between public and private spaces was based on social and political motivations, but also more directly on morphological arguments. The transition from the paradigm of texture to that of the object overthrew the traditional balance, considered outdated by the main leaders of the avant-garde. This architectural shift had immediate urban consequences, directly compromising the traditional definition of the street. Alignment giving way to an abundance of free spaces in need of definitions. The modern architects attributed to the large and continuous ground a universal tone, as well as the main common goods that are the sun, the air or the possibility of enjoying open views. It could reasonably have assumed a public character, if the experience of time, the social dysfunctions and the weakening of the welfare state had led to reconsider this initial attribution. The recent trend in France towards *résidentialisation* and clarification of domaniality in large housing complexes is undoubtedly the most striking illustration[1]. In the chapter "Crisis of the object: impasse of the texture" from *Collage City*, Colin Rowe emphasized this problematic disproportionality: "there might be suggested the overthrow of one of modern architecture's least avowed but most visible tenets. This is the proposition that all outdoor space must be in public ownership and accessible to everybody; and, if there is no doubt that this was a central working idea and, has […] become a bureaucratic cliché, there is still the obligation to notice that, among the repertory of possible ideas, the inordinate importance of this one is very odd indeed" (Rowe, Koetter, 1978, p.66).

[fig.2] Le Corbusier, Paris, Plan Voisin, 1925, figure-ground plan. Source: *Collage City*, 1978

In the 1960s, megastructure supporters were facing the same difficulty by breaking free from the founding duality of the traditional city. They denied the impact of the parceling in the urban generation. The legal and technical chimeras they imagined evacuated the inescapable problem of the status attributed to spaces and built entities. In Metabolist images like 'Archigram' or 'Superstudio' a vague collective register prevails without clear attributions [fig.3]. Here is undoubtedly one of the main reasons for the obsolescence of such visions. In the shadow of these experiences among the most heroic of the Modern Movement, another modernity from North of Europe chooses more silently a completely different direction (De Solà Morales 1987). Less radical with its heritage, it fits in the historical trajectory given by the two main components of the urban. The street is preserved, as an elemental relationship between private building and public space. Rather than depreciate their relationship, it proposes and assumes the introduction of a third element: the collective space. Its most representative formalization is probably the block with central courtyard. In this device, the collective space is very clearly identifiable as a separate entity. It is physically dissociated and symbolically independent of the public space; as well complementary in terms of uses and self-representation. Cities like Copenhagen, Vienna, Hamburg or Amsterdam are full of housing complexes designed from this

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[1] In France, the *résidentialisation* was one of the practices promoted during the first mission of the national agency for urban renewal (ANRU), between 2004 and 2014. As a tool mainly used for the renovation of social housing operations, its main aim was to personalize housing from resident's perception, but also to clarify maintenance responsibilities between social landlords and municipalities.

triptych [fig.4]. This position takes advantage of the potential offered by reproducibility, maintaining balanced and clear relationships between public, private and collective registers.
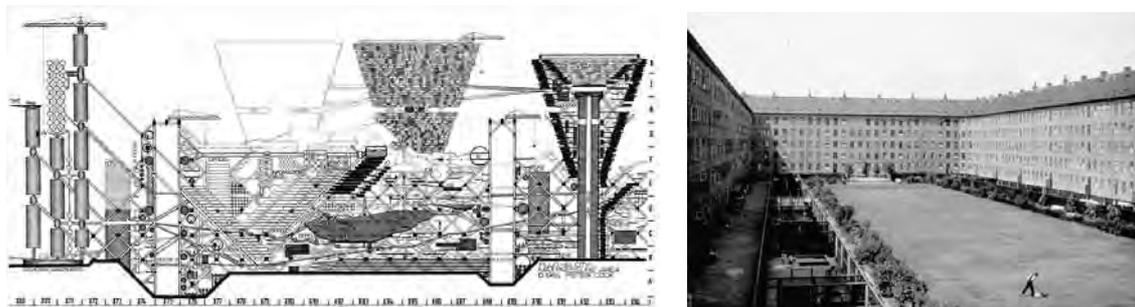
[fig.3] Left: Peter Cook, Plug-In City, Max. Pressure Area, Long Section, 1964. Source: Online Archigram Archival Project.
[fig.4] Right: Kay Fisker, Hornbaekhus in Copenhagen, 1923. Source: 'Dwelling in the metropolis: Reformed urban blocks 1890-1940 as a model for the sustainable compact city', Wolfgang Sonne.

The impasse of a binary reading
The victory of the street on majority of innovative visions of the Modern Movement is undoubtedly one of the most persistent assumptions of Postmodernism. It is enough to see with what determination the majority of current urban projects try to recover a traditional urban grammar. In the same way, the extreme violence still associated to Le Corbusier's *Plan Voisin* for Paris [fig.2] attests to the popular attachment not only for the historical thickness of the city, but perhaps also for its familiar structure. That should give the public-private duality a confident actuality at the dawn of the 21st century. The *îlot ouvert* characteristic of the 'City of the Third Age', as defined by Christian de Portzamparc, could be seen as a cautious return to the revisited efficiency of the traditional city. Being more composed and less systematic, it will difficulty reach the same susceptibility to reproduction. Of all the most daring morphological innovations, none has yet succeeded in surpassing the success still anchored throughout the world of aligning private elements along a public domain[2]. From there, the street would still have promising prospects ahead. However, some recent dynamics could certainly disturb this clear horizon. The weakening of the welfare state regarding to the market weight could have a direct impact on the integrity of the public sphere. It could upset the fundamental balance with the private sector. In parallel, the successive crises - economic, social and environmental - engendered among others by contemporary capitalism change the scope of private register in the construction of the city[3]. These economic, political and social disturbances are also accompanied by architectural stigma. For about twenty years, the popular success and the enthusiasm of a new generation of architects for informal and participative architecture is one of its visible markers. The most archaic driving forces of the city are questioned – first of all the responsibility by private property[4] – on behalf of citizen appropriation and revaluation of the collective value of urbanity. These recent attempts to circumvent the relationship between public and private would be like reminiscences of modern utopian visions previously described. Images produced by this informal orientation generally contain the same confusion of the collective register as projected by their predecessors 50 years earlier. Despite the announcement of a prolonged triumph of the street, all these pendular attempts of circumventing, and especially the last one – which we certainly do not yet know the full extent – alert us about the need to go beyond the binary reading of the urban, with which the city continues to be thought.

The renewed importance of a third way
While the societal context is experiencing an unprecedented shift regarding to the environmental crisis and the awareness of transnational citizenship, the majority of disciplines are mobilizing in search of new balances. The political ecology of urban planning is also on the alert, in search of profound redefinition. Taking part in this effervescence, it searches for bearings beyond its own disciplinary limits. The recent enthusiasm for the notion of 'common' seems to have already reached a significant part of the protagonists of urban planning – in a more or less explicit way – both those who think the city as much as those who built it (Stavrides 2016). Such a success, within the field of architecture, of a notion derived from the social sciences (Ostrom 1992) invites to specify its possible appropriations in spatial and conceptual terms. It

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[2] Considering that despite all the cultural variations related to the interpretations of each situation, the fundamental relationship remains about the same on the architectural level.
[3] Real estate consequences of the 2008 financial crisis can only fuel a certain mistrust of the private sector's ability to participate in the production of the urban in a balanced and sustainable report. Examples of aborted cities in Spain are particularly significant.
[4] Could also be developed the calling into question of the role of experts and craftsmen, as defined in professional federation schemes. Participatory policies pushed to the extreme could lead to the denial of some specialization, in favor of the 'do it yourself principle'.

reveals a general transdisciplinary interest for the intermediate register, between the public domain and private property. It also invites to imagine architectural equivalents. Is the interdisciplinary actuality of the 'common' can be seen as an opportunity to bring new lights, and new dynamics, to the manipulation of the collective register in the architectural design?[5] At least, it could help to define what is the collective space today.[6] Unlike the majority of economic or political approaches, motivated by seeking alternatives to existing governance schemes (Coriat 2015), the architectural equivalent – strong of its previous experiences and recognizing the millennial capacity of the street to generate urban – could apprehend the introduction of the 'common' as the addition of a complementary element. A third component rather than a third direction. Recovering advantage of reproduction. As a very ancient urban element, and – in its variety of forms and intensity – relatively recurrent in the formation of cities, collective space presents the transcendent abilities of reproduction, as well as a precious potential, provided it is considered a full urban element. The challenge would be to leave the collective space of the gradual register, too long considered an intermediary and not as a status in itself. A status with its own theoretical substance, with its own questions of formalization, according to the two other major components of which it should be distinguished. The alterity of the collective space, respecting to urban surrounding, takes then on renewed importance. Its level of association with a building complex can be relevant, as well as is its degree of neutrality confronted to the public space. It could be associated with architectural elements, even a language, which goes beyond the gradual question and that of simple programming[7]. The different social contexts and cultural traditions could also bring useful thicknesses[8]. It takes part of searches for alternatives to the individualist withdrawal. The persistent expectation of spatially experiencing the collective action – on localized scales and with materialized representations – also gives the collective space a new amplitude and current ambitions.
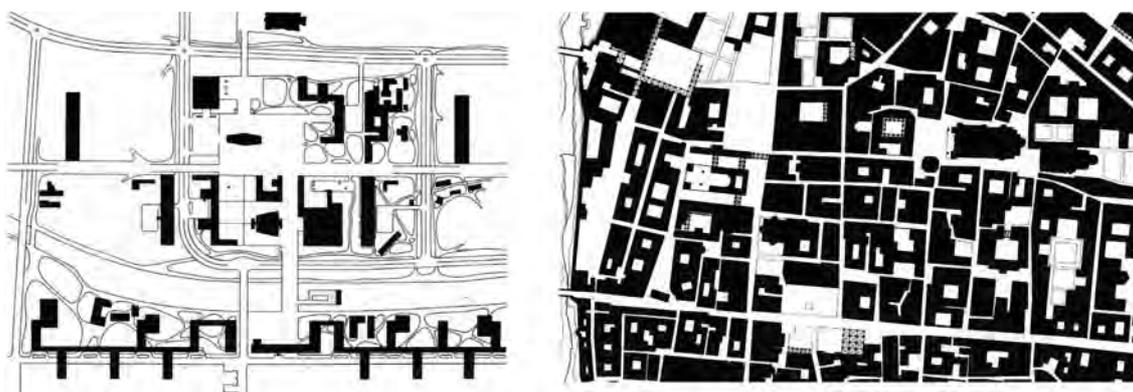
[fig.5] Le Corbusier, Project for Saint-Dié and Parma, figure-ground plan. Source: *Collage City*, 1978

Representing the collective space

Re-imagining collective spaces in urban terms involves rethinking their modes of representation[9]. For this purpose, the work of Colin Rowe and Fred Koetter is particularly enlightening. In *Collage City*, they propose a graphic interpretation of the founding urban duality between public and private components. Since then, this transcription by a graphic black and white dichotomy has become emblematic [fig.5]. In the same publication, criticizing the tendency – originally benevolent – of modern architects to consider any free space as a public domain, they also notice the need to introduce intermediate registers. Between the black solid equivalent to the private, and the white void of the public space (or inversely), it would be like imagining a new element: the grey. By introducing grey, it immediately raises the central question of the alterity of represented spaces, in relation to public and private spaces around. Under what conditions is the collective space capable of assuming an autonomous character, according to a different status than public or private one? Or why is it

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[5] This is the general research question envisaged for the thesis. The research explores different definitions of 'common' and their impact on the field of architecture, according to five entries that directly affect the architectural design.

[6] The study of the alterity of the collective space is one of the five working packages proposed in the thesis, along with authority, cohabitation, neutrality and typology. Each of these thematic sections will be developed according to its own aspects, and will assume its differentiations adapted to the specific requirements of addressed topics.

[7] It is striking to observe the trend towards collective programs like 'shared gardens', which is placed with approximation, rather than thinking the whole in a broader spatialized vision. It could be the mark of a certain theoretical insufficiency around the collective space.

[8] Interpretations of the collective scale can vary enormously from one culture to another. This is what we learn from reading *Faire Société. La politique de la Ville aux États-Unis et en France* (Donzelot, Mével, Wyvekens, 2003). The main distinctions deserve to be explored more precisely in order to identify some major categories of actions, useful for project design.

[9] Developing a mode of representation expressing the formalization modalities of collective space is one of the objectives expected in the research.

often confined to a gradation of one or the other, which is more or less intense? The same question can be asked in terms of hue. For representing this third component, should grey be considered as a colour halfway between black and white? or is should it be perceived as a set of variable shades from one or the other? Such enlightenment would clarify the current and imprecise use of the distinction between the collective, semi-private or semi-public space. There are undoubtedly situations for which colour would more easily refer to an own status, asserting itself as an autonomous register. Others would be more directly perceived as declensions of public or private space. However, even relatively autonomous, collective space could also be prisoner of the polarity in which it is taken. This third register would be fundamentally blocked between two entities to which it can alternately and indefinitely tend. A first attempt tries to escape variations of nuances, using a single hue for the collective space [fig.6]. The challenge of representations of such spaces is to succeed in introducing several variables, by defining the criteria for varying indicators (surrounding architectural language, possibility of access to non-resident people, passage or impasse, etc.), without giving up the uniformity of the represented register. Here the variable retained corresponds to their degree of permeability. What is highlighted is the physical perception of their limits. In this case, variations are not expressed by changing hues but intensifying the pattern. Only one colour is used. It asserts itself as an entity. It is an entity held between two polarities, but which claims a certain autonomy. Introducing grey as a colour – between the black and the white of the historic city – would allow to fully re-imagine the role of collective spaces, in all their intensity and specificity.
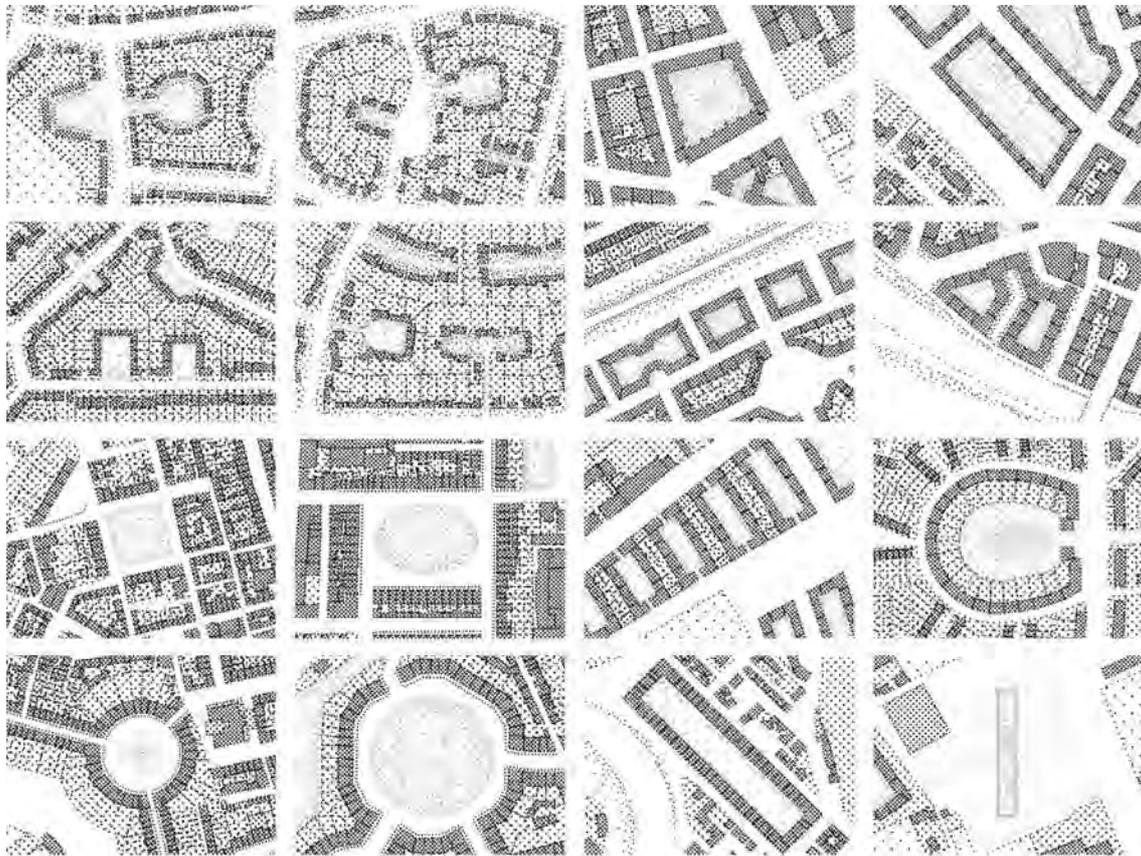
[fig.6] Atlas of collective spaces (in progress). From left to right : *Raymond Plain* and *Raymond Close* in Welwyn Graden City, *Hands Green* and *The Quadrangle* in Welwyn Garden City, *Bebelhof* in Vienna, *Hornbaekhus* in Copenhagen, *Closes on Hampstead way* in London, *Dellcott Close* and *Brokett Close* in Welwyn Garden City, *Krugerhof* in Amsterdam, *Stengodset* in Stockholm, *Queens Square* in Bath, *Bedford Square* in London, *Dulsberg-North* in Hamburg, *Hufeisensiedlung* in Berlin, *The Circus* in Bath, *Moray Place* in Edinburgh, *Climat de France* in Alger, *Unité d'habitation* in Marseille. Elaborated by the author, from 'Google Earth' datas.

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Spontaneity in Everyday Space: Linking Social And Spatial Through an Urban Design Perspective

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The preconceptions of urban planners and designers for a physical environment may fail as everyday users start to employ it. This mismatch is caused by spontaneity that is innate to every person, making them behave and decide according to their natural drives. The postulate is that spontaneity is reflected in urban space, calling for an updated human-oriented urban theory and analysis. With the literature survey, the main aspects of spontaneity in space are set as spatiality, temporality, and agency. This idea is developed through an interpretation of spatial dialectics from an urban design perspective connecting the designed and lived spaces. This theoretical basis is explored with a novel methodological framework entitled as spatial design ethnography realized in a busy central street called Yüksel Street in Ankara-Turkey. Still holding on to its first physical layout in macro scale, the street is being (re)made subtly through the countless micro interventions of its users. To reveal these micro patterns and understand the relation between designed and lived space, the PhD research has been divided into three analytical sections. In this paper, a special emphasis will be given to the first section (spaces for people) that discusses the historical socio-spatial development of the street. This is to reveal the morphological development together with the transformations in the social life; and to create the archive of everyday through analyzing the former plans, urban design schemas, memoirs, old maps, and pictures.

Research Synopsis

This research focuses on the dialectics between designed and lived space defending that spontaneity is an overlooked yet fundamental human characteristics that is revealed in the formation of physical environment. For this, the main research question is stated as "How can we theorize and analyze the dialectics between designed and lived spaces through situating spontaneity within urbanism?" This is believed to give urban studies a way to address the knowledge gap between the everyday life and spatial design throughh the interpretation of spontaneity from an urbanism perspective. For the theoretical framework, this interpretation is made after an insightful literature survey encompassing many fields from philosophy to positive sciences to unfold the aspects of spontaneity. The outcome of this is that there are three indivisible aspects of agency, temporality, and spatiality for us to discuss spontaneity in spatial terms. Simply, to understand the post-design process of urban space that makes it a living entity, we need to value the form production by many users through everyday interventions at different time intervals.

This theoretical basis is explored with a novel methodological framework entitled as *spatial design ethnography* and tested in a busy central street called Yüksel Street in Ankara-Turkey. Still holding on to its first physical layout in macro scale, the street is being (re)made subtly through the countless micro interventions of its users. Spatial design ethnography aims to bring together the agency and materiality while (social and spatial; ethnography and spatial analysis etc.) to understand the ordinary users' impacts on urban space by integrating various modes of data collection and analysis.

The research has been divided into three sections as the empirical study starts in Yüksel Street. The first section (spaces for people) analyzes the former plans, plan reports, memoirs of the inhabitants, old maps, and pictures to reveal the morphological development and to find clues for the archive of everyday. This brings out the second part of the analysis that investigates the instances and rhythms of the everyday life (spaces with people). For this, longitudinal fieldwork encompassing the recording of everyday life, participant observation, photo documentation, behavioural mapping, interviews with users, owners of surrounding buildings has been conducted. The last section (spaces by people) unveils the unique ways of urban space appropriation from a designerly perspective to develop a translation from everyday life and space to urban design operations and principles. This section is closely related to the findings of the second phase of the analysis yet tries to re-evaluate the findings with respect to the initial postulates stated in the theoretical framework.

Within this paper, a special emphasis will be given to the initial analysis section that discusses the historical socio-spatial development of Yüksel Street [fig.1]. This is to understand the planning and design ideology that not only shaped the physical tissue but also altered the social life and, in turn, transformed by it. The space that is produced for people has a background story of the ongoing social, economic, political transformations. Therefore, to have an insight of the everyday life and space of the street, its past will be unfolded. The data has been collected through archival study that has been conducted in two main city archives of Ankara, namely VEKAM (Vehbi Koç University Library) and METU-CRP (Middle East Technical University - City and Regional Planning). The former city plans, old photographs, local newspaper articles are gathered from these archives. Besides this visual collection, the plan reports, books and memoirs constituted the textual information that helps to uncover the dynamics that created the Yüksel Street. The

former and current urban plans were rectified geographically through the map warper software**.** This analysis will be conducted to track down the basic and most important morphological changes along the street. The main reason to conduct this spatial analysis is to put together the physical imprints of social life and change in everyday life. The aforementioned data does not always cover the street itself, but the surrounding urban area that it is located within.
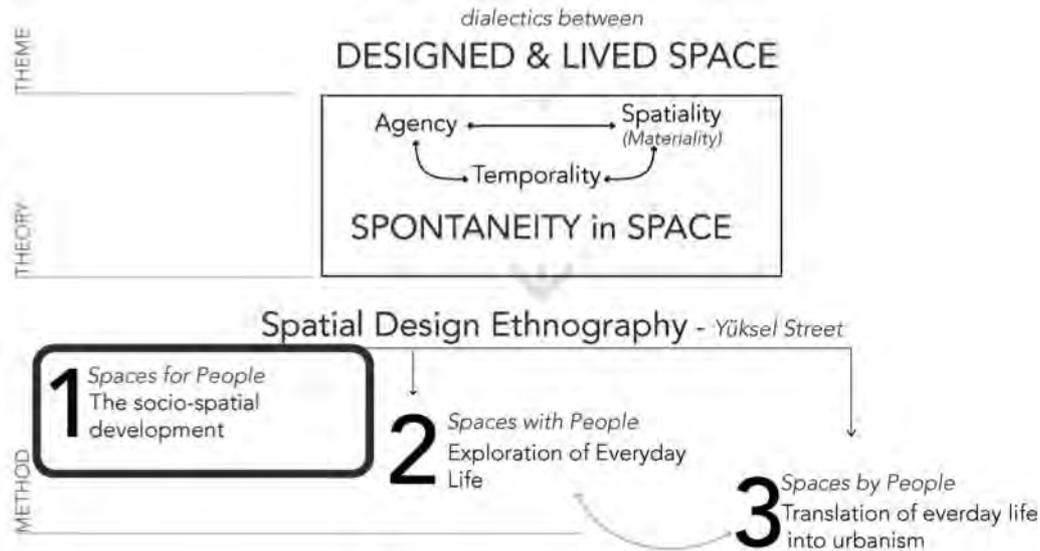
[fig.1] The flow of the research and the focus of this paper as stated within a green rectangle
Source: Elaborated by the author

Yüksel Street: Planning History and Social Life
Yüksel Street is one of the planned streets surrounded by the residential areas in early planning phases of Ankara. That is also clear that the street has faced many alterations not only in its formal plan regulations but also informalities accumulated in time. Today it is still one of the important pedestrian streets in the heart of the city center supported by a diverse set of land uses generating an ever-changing and rich social life. Hence, it is a highly suitable case site to elaborate on the dialectics of designed and lived space, providing not only a rich material in terms of planning history but al a spontaneous ways of making of the everyday life and space. In order to grasp the current socio-spatial condition of the street, it is essential to know its past both in terms of spatial and social history.

On the Eve of Republic (1920s)
To record the everyday life is crucial for a city like Ankara since it does not have the well-known means of what defines an urban land such as the continuum of the interrelation among people through centuries or ages-old urban elements such squares, rivers, houses or cafés (Miser 2001, p.91). However, the city has many witnesses making it closer to the urban by refreshing the young memory of the city. To narrow down the scale and time period, this study focuses on the beginning of the urbanization period in the city in the beginning of 20th century in which Ankara was no more than a deprived settlement as stated below(Atay in Çankaya, 1969, 505; cited in Tanyer 2006):

> "The station, then the swamp, then the graveyard, after decreipt Karaoğlan, the site of the fire; and once the end of that is reached village with crooked streets, without pavements or just paved with rough cobblestones. Adobe hunts or mud-brick houses"

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[fig.2] City View in 1922 by Lansere
Source: Ankara Yazı - 2004

[fig.3]. Ankara 1929
Source: Atılım University Digital Archive

Before the foundation of the republic and the declaration of Ankara as the capital of Turkey (1923), the city is described as being a village-like-town in the middle of the naked step land. The daily life of people was closely attached to the houses and public spaces in and around the Ankara castle. This tranquil life was enriched with the short-time migrations to the vineyards during summer which was not only a free time but also a working period that the families made living and get ready for the winter (Günes 2013, 15). A Soviet painter Lansere illustrates the life in the city in 1922 [fig.2, fig.3]. He paints the everyday life of this "quiet and poor" city as still living in the middle ages. The spatial traces such as crooked and narrow streets the handicrafts overflew to these streets from the shops stroke him deeply. Lansere (2004, p.22) states that:

> "Despite the rumors about the laziness of the eastern men, the hard working people I see here amaze me… However, although they have never been conquered since the time of Timur, the lack of decorations and embellishments in the houses and furniture is striking. There seems to be nothing attractive…The people go to walking in the evening, they walk to the lakes where there are tables along the water or to the barracks serving tea or coffee near the water streams."

The Creation of the Capital (1920s-1950s)

This tranquil and small-scale settlement was about to face an influential transformation in political, intellectual and economic contexts as well as in social life and urbanism. Following the Republican revolution in 1923, Ankara has been selected as the capital despite the lack of means of accommodation, accessibility, and administration. This forgotten step village was transforming into the main city of the new republic, almost symbolizing the passage from an unsettled society to a nation (Bischoff; cited in Azakoglu 2015, 163). This transformation had started with the first urban plan idea initiated by the state. The plan was aware of the greatest changes that the declaration of capital would bring. This would not only be a pressure of transformation of a village into a city but to a center of government of a country (Jausseley 1929, p.11).

[fig.4] First Urban Plan of Ankara by Hermann Jansen (1932) - Yüksel Street and Its Vicinity Highlighted with Red
Source: METU-CRP Archive

The first urban plan of the city was prepared by Lörcher (1924-1925). The plan supported the development in and around the old city center (Cengizkan 2014). However, the need of housing and administrative buildings overcame the planning scheme, therefore by 1932, Jansen Plan was approved to correspond these changes of the increase both in population and altering needs [fig.4]. This process brought not only the changes in the physical tissue as in the construction of new neighborhoods, city centers, public institutions but also the alterations in the urban activities in cultural, commercial and recreational contexts. The development of the New City *(Yenisehir or Kızılay)* adjacent to the south edge of the old city center was promising a first planned model of urbanization in the country. The construction of residential areas was crucial and urgent to accommodate both the residents of Ankara and new comers. This speed of the implementation process together with the urban plan created absurd sceneries in daily life during the period of construction [fig.5]. When we think of an open steppe land in the south of the old city center and the scattered building constructions with lack accessibility, it is not surprising to read this excerpt from the book *Çankaya* written by Atay (1980, p.371):

"It was a snowy winter night that the rumors said wolfs came down to Yenişehir and bite the bronz sculptureses thacitynmanagement broughtht from Europe; the ambassador of England. Mr. Clark wanted to leave from a receptition that İsmet Paşa threw. However, his car was stuck in the snow and he decided to walk, yet again it was deserted, empty area covered by snow making the walk to the house that was located only 150 meters away impossible. Instead of getting angry the ambassador laughed; saying that "it is ok if the wolves would kill us…But it will the first time that a penguin suit and opera hat are left after they have finished with us."

[fig.5] Mimar Kemal School, 1927
Source: Koç University VEKAM Library

[fig.6] Yenisehir is rising 1926-30
Source: Koç University VEKAM Library

The main design idea in Jansen's plan was to implement a garden city concept while creating green continuities, main squares and axial alignments for *Yenişehir*. Yüksel Street is located within this area known commonly as *Kızılay* today. The street and its surroundings were proposed as residential areas by Jansen Plan. Since its location was close to the ministries, the housing units were built for and occupied by state workers (Yavuz 1952). In its form, it was as a branch supporting the main vehicle and pedestrian transportation spine, that is called the Atatürk Boulevard. Its location let a direct connection to the main flow of traffic as well as a close spatial interaction with the government quartier. Detached, two and four floor houses were constructed within the site, making the street pattern was highly permeable yet loose at the same time [fig.6]. This fine-grained street pattern started to transform in the upcoming years.As the development continued, the main boulevards were cut by the inner streets that Akgün (2008) describes as crooked, dusty and never direct due to the "respect" to the ownership patterns during the 1930s and 1940s. Yüksel Street may be one of those streets that the author refers.

The subdivision plan that was approved in 1937 by Urban Development Directorate of Ankara Municipality. This created the main morphological traits that lasted till today in terms of block size and street layout. However, as the discussions continue the second world war started, In spite of not taking part, the inhabitants were vastly affected due to the shortage in food, clothing, accommodation and the problems in social life. The people that were ü working in the public sector in genereal such as civil servants in the newly born city were not only struggling with the daily problems but they were living their days to get away from it by going to footbal matches in the weekends, or cinema and theater displayed in the public-houseses as well as walking to the recreation areas surrounding the built-up area such as vineyards or riversides (Güneş 2013).

During these years, the repetitive customs that are mainly religious celebrations such as bayrams and the community celebrations such as weddings helped them pass the heavy burden of the political and economic contexts. Tradition is *gelenek* in Turkish, carrying the root of *gelmek* that means to come. Hence, by celebrating a routine that comes from the past habits, people found to strength to build their future.

'

Making of the Street's Identity (1950s-1980s)

> There, in the middle of Kızılay, near the new building, in front of its shop window that is organized neatly, is a gypsy woman was crouched and begging…This city gone mad, thought Hatice. Not so long ago, it was impossible to see cheap people in the streets of Ankara. There was order before, there was surveillance and presence of authority.'

A literary excerpt (Soysal, 1973, p.46) from the scenery in Kızılay back in the 1970s gives an insight about the changing life and clashing encounters between social groups in the city center. Yüksel Street, as among the actors making this scene acquired many identities as the city grew and socio-political context altered. The inhabitant and user profile was also in a transformation with the rural migration to the city. The socio-economic changes and the shifts in political sphere start to occur and impact the city center started to alter by 1950s. Due to the population increase and demographical change, landuse transformation was inevitable. The new shops were opened along the Atatürk Boulevard, the houses and the furniture of that old and plain city were changed with the new ones (Tanyer,2006, p.3). Hence the new and old was starting the mold in each otherer, creating diversity as well as clashes and lack of identity that might be why a famous poet N.F. Kısakürek referred to it as an 'artificial city' (Tanyer, 2006, p.44) or the 'lost city' as Aydın (2012, p.57) claims [fig.7]. There were 'europeanization' visible in clothing, high-culture activities and the architecture while the quiet and poor city prevailed nearby.

[fig.7] From a children book written during the 1950s. The text below
the image states that: "The old and the new are all mixed together
here."
Source: Koç University VEKAM Library

In the context of everyday life, this period is known as the development of consumerism, western style of life and consumption as well as the diffusion of mass communication (Usal 2014). This was reinforced by plan decisions and by the law proposals for new urban management. Kızılay was announced as a Central Business District in 1952 (Batuman 2006). Following this, a new law for the property ownership was enacted between 1968-1972 following the Yücel-Uybadin Urban Plan (1957) that recommended Kızılay as the Central Business District without a visionary approach that integrates pedestrian and vehicular transportation and landuse needs. When this additional implementation plan declared New City as the 'high-rise region', the crucial changes started to occur in the area. The two and three dimensional composition of the site started to alter drastically. The single blocks with two or four floors within gardens were transformed into high-rise buildings still protecting the same plot size causing densification of the built-up area. The buildings were increased up to 7-8 floors with an adjacent building order without any preconception for the urban infrastructure problems that this would bring (Bilsel 1977).

Besides the alteration in the form and the activity pattern within the built environment, the meaning of the street for the city and the people in this time is worth mentioning. Yüksel Street started to employ particular political identity by 1950s by becoming a node for the protests by various political groups (Dinçer 2016). The opening of the Social Club for Political Sciences Graduates (Mülkiyeliker Birliği) in 1964 at the intersection of Yüksel and Konur Street, and the Union of Chamber of Turkish Engineers and Architects at Konur Street contributed a lot to this wave of critical political environment (Dinçer, 2016, p.60) This process is more than a simple site selection, since these institutions are known with their oppositional and mostly leftist views that influenced the immediate public space as Yüksel Street to be a place for the street politics (ibid, 71). The conversion of Yüksel into the place of passive resistance through press releases, protests, hunger strikes point out 'the quiet encroachment of the ordinary' (Bayat 1997). This identity continued to prevail throughout turbulent political events in the country during the 1980s and lasted until today.

Space of Continuous Flow (1980s-2000s)

The wave of liberalization of economy and the weakening of the social welfare state in Turkey starting with the 1980s affected the urbanization agenda, its spatial reflections and everyday social life in cities. The new role of the state as the facilitator rather than the service provider les privatization of public institutions and services. Being one of them, education had its share from this process. The competition among the high school students to enter the university increased and this caused the private after-school and weekend education centers *(dershane)* to pop up in the city. Thanks to its central location Kızılay, Yüksel Street was in a favorable location for this use of space. Again, the location selection of political unions and chambers in and around this area was planting the seeds of a highly fluid, dynamic and pluralistic urban environment. The outcome was the occupation of the streets by the youth for their gatherings after school, for drinking, chatting and 'killing time'. The book written in 1994 by Doğan tried to understand this group and use in the street within the discussion of the youngsters in Yüksel Street as a sub-culture. They were seen as an alternative youth group that does not follow the mainstream behaviors and preferences of the general young population. They were named as 'Yüksel youth' and attract attention via their choice of clothing, sleeping time, entertainment habits.

[fig.8] Human Rights Sculpture
SourceAuthor's Archive, October 2015 & January 2017

This alternative appropriation of the street was going hand in hand with the political demonstrations and press releases. This period was also associated with petty crimes recordeded in and around the street. The local municipality claimed to have responsibility to 'change' this image of the street. Hence the partial pedestrianization of Yüksel, Karanfil, and Konur Streets in Yenişehir was realized in the beginning of 1990s. The city managers wanted to alter the identity from a place for marginal groups to an art and culture site. Alongside with this attitude, the famous bronze sculptures are placed in the street. Being the most known and significant one is 'Human Rights Sculpture' at the intersection of Yüksel and Konur Streets. Designed by Metin Yurdanur in 1990 this art piece has become the landmark and meeting point for various gatherings [fig.8]. This decision fostered an easy and continuous flow of people and provided many opportunities of appropriation in public space both by users and the shop owners.

Together with the opening of the Metro line along Kızılay in 1997, a Metro exit was started to serve at the entrance of Yüksel Street from Atatürk Boulevard. This supported the connector character of the street in

between the other pedestrianized streets such as Konur and Karanfil. The pictures that show this period does not reflect any less than the current identity of the street. However, besides the lower number of everyday users, the open space in front of the shops that are located in the entrance floors of the buildings attract attention. That is they seem to have a simple taste and less of an appropriation tendency in terms of covers, use of signboards and alike. The people who remember this period, including myself, are mostly claiming that it is not so different than what it is today. However, the pavements, placement of benches, land functions (number and intensity) and many other components seem to alter significantly.

Continuous Flow, Neglected Identity (2000s - Today)

From 2000 onwards, Yüksel maintained its functional, commercial, political and public characteristics in different scales. It was 2010 when Çankaya Municipality formed a team to make an urban analysis and to propose new arrangements for the pedestrian streets including a section of Yüksel Street. The outcome for the analysis presented a set of problems including pedestrian circulation, pavement, lighting, safety, and expansion of informal developments, social problems and alike with almost no emphasis over the social dimension including users and everyday life. Together with the urban design plan they implemented on the section A and a part of B [fig.9], these issues are tried to be solved through physical rehabilitation and legal measures for the removal of informal counters from the entrances and front yards of some buildings. During one of my visits to the Çankaya municipality, there appeared a chance to make an informal interview with one of the designers of the team. According to her, their purpose was mainly to rehabilitate the other pedestrian streets, namely Konur and Karanfil. However, being in the intersection of these two, Yüksel Street was taken into the agenda and it was observed that the main problems were related with the accessibility of the disabled people and the invasion of public spaces by some shops. Today, the ease of accessibility through ramps or yellow tracking pavements are deprived but still visible. The shop fronts are occupied again blocking the ease of flow yet creating a more vibrant and attractive environment. The kioks seem to become permanent rather than temporary. They are mainly concentrated around the Metro Exit (in section A); and in the section B. Besides that, the variety in the landuses decrease as we move from the section A to D. The street has a highly mixes-use composition including photographers, unions, many hairdressers and restaurants, dental clinics, small education centers etc.
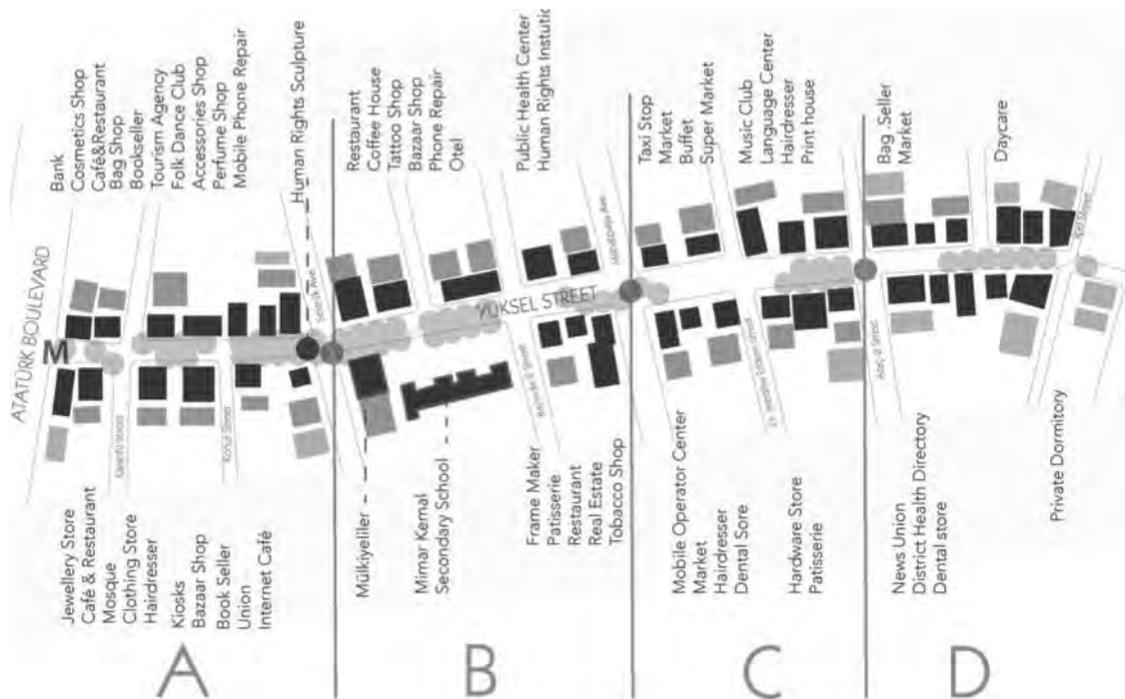
[fig.9] Yüksel Street Landuse Map (2017 July)
Source: Elaborated by the author

The spatial interventions were not so aggressive to change the street. However, the prohibition of kiosks, street vendor and the 'illegal invasion' of the shop fronts aimed to 'clean' the street. The socio-spatial consequences and current conditions of the street will be touched upon in the upcoming section. The significant thing about the materiality of the site is that historical traces seem to be carried through the form of plots till today. This can be seen from the image created by the superimposition of the figure-ground maps

of (i) Jansen Plan, (ii) Subdivision Plan, (iii), up-to-date satellite view [fig.10]. After rectifying these three plans in mapwarper software, it is visible that there is an inevitable densification within the plots created a more legible built environment in and around Yüksel. With the densification of the built-up area and use, the building blocks lost the space in between the buildings was closed by doors or sleazily built shops. Therefore, we need to follow a different approach then a sole material analysis to understand intangible, lived configurations making the street a socio-spatial whole. All in all, this exercise of tracing the morphological alterations does not say much about the current physical condition and the life prevails beyond it.
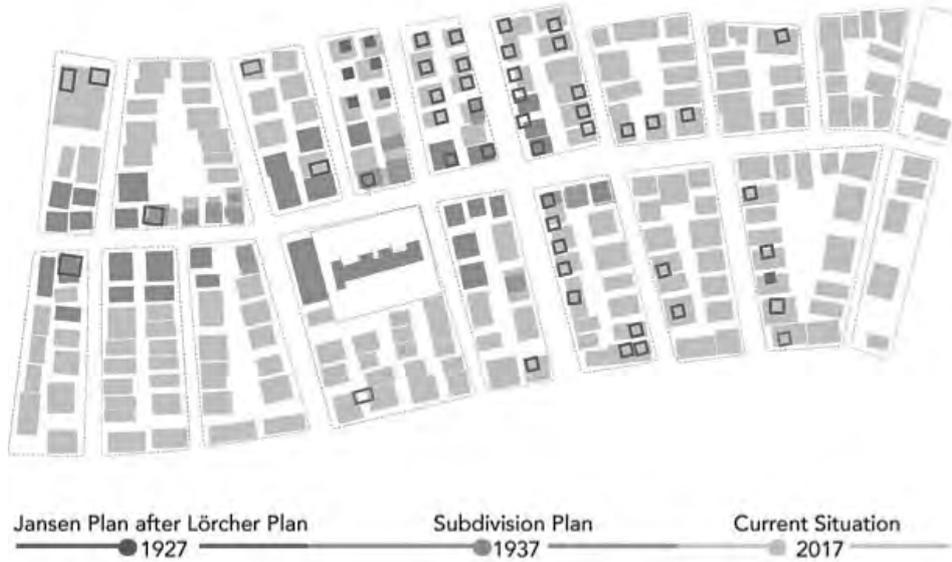
[fig.10] Superimposition of Figure-Ground Analysis from Three Periods
Source: Elaborated by the author

Concluding Remarks

This attempt to interpret the socio-spatial evolution of the street is rather controversial. Because stone sustains, construction holds on to time, as well as the political and economic power. This power can control an urban form and cannot go unrecognized in the near future. This creates an illusion in the historical explanation of urban space. Understanding the historicity of urban form development, Yüksel Street is not an exception. City planners as Lörcher, Jansen, Yücel-Uybadin; the municipality and state institutions such as *Çankaya* and Ankara Municipality, Urban Development Directory come to the fore when talking about the physical formation and continuum of the street layout. The inclusion of the memoirs and literature helped us to picture the everyday user of the *Yenişehir* in its near past. However, the part of the research that aims to have unstructured conversations with the witnesses will close this gap. From this point onwards the spaces with people will be unfolded in Yüksel street. For this, the 'informal' uses such as appropriation of street setbacks, the distributionns of kiosks and the appearance of street vendors will be documented together with the people's spatial choices for waiting, meeting or resting. This will form the minor map of the street besides the master planning studies [fig.11, fig.12] .

[fig.11] Kiosks at the heart of the street
Source: Personal Archive, 2017

[fig.12] Yüksel Street at Night- Covered by pop-up street vendors
Source: http://www.halksahnesi.org

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Governing the air: knowledge, infrastructures, contestation

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Short paper

This short paper proposes a retrospective analysis of the way in which air pollution was measured, governed and contested upon, in the last three decades in Brussels. Atmospheric monitoring and governance, we contend, are not the result of an inevitable path, but constitutes a legitimate object of contestation and potential transformation, and are subject to pressures and stimuli at different scales. By looking at the interaction between government, citizens and science, the paper aims to illustrate how the object 'pollution' was constructed and framed by different actors in different context, mobilizing different forms of knowledge and proposing different interventions. The paper also explores the extent to which institutional and citizen practices influence atmospheric knowledge production, as much as various forms of knowledge influence practices too. This research contributes to shed lights on the role and on the potential of 'traditional' scientific practices and of bottom-up knowledge production to politicize the question of air and to drive change.

Introduction

Air is an imperative condition of human existence. Every day we breathe a quantity of air much greater than the quantity of food and drink which we consume. And yet, with the notable exception of the restoration of ecosystem services, virtually no governmental operation exists to physically supply clean and breathable air to urban settlements. As opposed to other urban metabolic flows, clean air does not need production or distribution infrastructures, such as pipelines and aqueducts, electric grids, road and rail networks. A key component of air management, conversely, is the system of sensors, models and maps that measure the presence in the air of specific contaminants; this information, together with a series of considerations on the level of concentration that is socially and biologically acceptable, is then used to influence the governance of other sectors and possibly prevent excessive pollution. This is why, to understand the governance of urban air quality, it is of primary importance to look at the knowledge and the science on pollution, and at how this is generated, interpreted and shared.

At least since the time of the industrial revolution, the combined exercise of monitoring and governing pollution is primarily in the hands of governmental institutions, which have developed an articulated framework of norms and infrastructure to control pollution (Whitehead, 2009). The way in which pollution is monitored and governed, however, is not the result of an inevitable path, but constitutes a legitimate object of contestation and potential transformation, and is subject to pressures and stimuli at different scales (e.g. from citizens and from other institutions, at urban, national and continental scale).

In this context, this paper proposes a critical examination of the history atmospheric measurements and practices in the Brussels Capital Region, Belgium (BCR). It includes an overview of the history of the institutional approach to the pollution question and of how this was shaped by the European legislation, as well as of the forms of civic contestation for cleaner air. By looking at the entangled interaction between institutions, science and citizens, the research aims to illustrate how different practices influence the production of knowledge, as much as different forms of knowledge influence institutional and civic practices, and to show how –at least in the context of urban air– the distinction between science and practice is far from being unambiguous.

This paper is part of a broader research on air pollution in Brussels, its geography, its governance, and the knowledge about it. These dimensions were and will be explored through different approaches, as shown in [Table 1]. First, I looked at the relation between and at the distribution of two emblematic socio-ecological externalities of Brussels agglomeration, namely air pollution and geographic accessibility. At the moment, I am exploring the link that exist between atmospheric governance, contestation and knowledge production, by looking retrospectively at the history of atmospheric governance in Brussels. This is the focus of this paper. For the latter part of my research, I will take an action research approach: I will measure individual exposure to pollution using wearable pollution monitors and combine the results with a qualitative analysis of the personal geographies of the individuals under scrutiny. Under the urban commons framework, moreover, I will research on the experience of a number of citizens' groups who, following the experience of participatory pollution monitoring, are mobilizing politically around the question of cleaner air.

	Research as observation	Research as action
Introduction & background	#0 A brief guide to the air of Brussels	
The geography of air pollution	#1 Accessibility, air pollution, & the trade-off of agglomerations	#2 Just breathe: pollution & inequality on the move
The governance of air pollution	**#3 Governing the air: knowledge, infrastructures, contestation**	#4 Air in common: collective action for pollution measurement & control

Table 1 – The broader scope of the research

Study of the literature

To describe the system of atmospheric governance and knowledge production modes in the BCR, we build on Whitehead's (2009) notion of 'Government With Science.' This "is suggestive of a set of historical processes in and through which certain forms of scientific practice have supported a governmental ethos within the State, and certain governmental desires have fostered the formation of new, and reconsolidation of older, scientific networks of knowledge production" (Whitehead, 2009, p.35). The concept, grounded on the Foucauldian perspective on governmentality and on the literature on the Sociology of Scientific Knowledge, was developed and mobilized precisely to illustrate the essential link between the production and dissemination of atmospheric knowledge, and the overall governmental efforts to control and mitigate pollution. Government With Science is more than the simple mixing between scientific objectivity and politics, or the State funding of scientific activity: it is about the construction of a "scientific apparatus of and for government" (Whitehead, 2009, p.15).

When looking at how knowledge influences governmental practices, therefore, we do not refer to a simple and linear understanding of "speaking truth to power" (Wildavsky, 1987), whereby experts 'know it' and advise policy makers, whose decisions are influenced by that information. Conversely, we acknowledge the complexity and convolution of the knowledge-power interface, and we take this duality as a conceptual heuristic rather than as an unproblematic given. Knowledge, also, is just one among many factors driving policy and political processes, alongside with consensus, resources and various forms of normative and infrastructural path dependencies. It plays, however, an important role in framing a given problem and in identifying potential solutions, by influencing actors' understanding of the issues at stake and choice among different alternatives (Dotti, 2016).

The complex conundrum labelled here as 'Government With Science', it shall also be noted, does not cover the whole range of atmospheric knowledges and practices. Citizens have different ways to come to know pollution. Research on the public understanding of air pollution, for instance, illustrates how citizens develop their own ideas and meaning about pollution, and make claims in relation to responsibility for and vulnerability to pollution. In doing so, it seems, local knowledges and corporeal perceptions (e.g. smell, sight and intuitive experiences), as well as a general tendency to protect and reinforce social, cultural and geographical hierarchies, play an important role, as a complement to 'scientifically' derived information (Bickerstaff and Walker, 2003). In addition, citizens and civic movements can contest a certain status quo, by making claims against a polluting actor or activity, by questioning the solutions taken by the government, or its measuring apparatus.

Research question

By alluding to the existence of different forms of knowledge, allegedly mobilized in different ways by different agents, my goal is not to enter a diatribe on the epistemology of pollution and eventually explore a hierarchy of knowledges (if any). Rather, I want emphasize the existence of different forms of knowledge that directly or indirectly drive change. Against this backdrop, I specify my research questions in the following terms:

#1. How do different approaches of knowledge production influence atmospheric practices?

In particular, I will assess to what extent is knowledge on air pollution used to support governmental practices and civic contestation. Further, I will look critically at what kind of knowledge is used and deemed credible, and at the implications that occurs in using a particular form of knowledge.

The relation between knowledge and practice, however, is by no mean mono-directional. The ways in which people (including citizens, scientist and decision makers, if the distinction is of any relevance here) come to know and make sense of air pollution are always socially mediated –inter alia– by the very practices of atmospheric government and contestation. This is why I also ask:

#2. How do institutional and civic practices influence the production of atmospheric knowledge?

I will look at who defines what knowledge is worth attention and deserves consideration. I will also explore the impacts of both institutional practices (ranging from EU norms to BCR policies) and contestation on the modes of producing knowledge on air pollution. As a corollary, I will question the extent to which these modes are themselves being contested, and what are the outcomes of contesting a particular knowledge regime.

Data & methods

My research is based on the analysis of archival sources and primary documents (see Roche, 2010). I use the archive of Inter Environment Bruxelles (IEB), the French-speaking network of neighborhood committees in Bruxelles, historically active on environment related matters. This archive includes more than 27'000 documents collected by IEB since its establishment in 1974, ranging from daily press reviews, articles from newspapers and specialized magazines, and reports. I also use the documentation center of Brussels Environment, the BCR agency competent for air matters, and focus in particular on the technical and policy documents related to the regional network of air quality monitoring. For the purposes of this research I focus on the period going from 1989, year of the establishment of the regional agency for environmental protection (IBGE, later transformed in Brussels Environment), to 2016, year of the publication of the last available version of the State of the Environment report (Bruxelles Environnement, 2016) and of the adoption of the Regional Plan for Air, Climate and Energy which provides the current regional priorities as far as air quality is concerned (Plan Régional Air-Climat-Energie - PRACE).

I start by exploring the press articles archived by IEB under the label 'air pollution', focusing in particular on governmental action and on civic mobilization at the scale of the Brussels Capital Region, or smaller. This query is potentially biased by the choices made by IEB personnel on how to select the relevant press, and on how to label it under 'air pollution'. At the same time, this strategy allows to look at the issue from the perspective of the people who were part of the debate, at the time the debate took place, thereby correcting from another -potentially more problematic- bias, i.e. looking at the history of air from today perspective and risking to focus on issues and frames only relevant in the present days. This research will allow to identify recurring themes, events and processes (i.e. 'hotspots') in the regional history of atmospheric monitoring and practices. I further explore these hotspots by expanding my search, both in the press and in other archived documentation (including policy documents, recordings of the regional parliaments sessions, legislation…). I will corroborate the data with a series of in depth interviews with current and former staff of Brussels Environment, as well as members of citizen movements civil society groups historically and presently active around the issue of air pollution (e.g. BRAL, IEB, Greenpeace…).

I will then carry out a discourse analysis of these texts (see Waitt, 2010) to identify the set of ideas and conceptual frames that describe and critique atmospheric monitoring and practices. In all cases, I will focus on what kind of knowledge is mobilized, on how air quality data are collected and shared, and how specific knowledge infrastructure creates -implicitly or explicitly- particular (in)visibilities.

Venues of empirical research

This section introduces the themes, the processes and the events and the processes that will be the substantive focus of the research.

Atmospheric Government With Science

The history of the atmospheric Government With Science in Belgium and in Brussels goes back at least to 1930, when particularly unfavorable meteorological conditions slowed down the dispersion of pollutants from industries and heating causing some sixty deaths in the Meuse valley. In that occasion, an experts committee was established to shed lights on the facts, and for the first time the link between air pollution and health was scientifically demonstrated (Brasseur, 2011a). In the following decades, technological innovation and scientific progresses, the political will to deal with air pollution and the increased awareness of its negative impacts led to a more systematic approach to measuring and governing it, in Belgium and abroad.

In BCR, we observe two interrelated processes. On one hand the regional network of air quality monitoring was fully developed to the shape it has today, expanding the range of pollutants under scrutiny and adopting newly available technologies (see Brasseur, 2011a; b; c). On the other a number of policy interventions to cope with pollution are put in place by different governments (e.g. the 1990 operation *"Transparence Air"*, the 2005 Plan for Heatwaves and Ozone, the 2008 Pollution Peak Emergency Plan…).

Considering the European and the Belgian legal framework, a key driver of policy change was the EU legislation. If in the 1970s and 1980s, efforts had concerned the development and harmonization of measuring methods and the identification of health protection values, since the 1990s the emphasis was placed on informing the public and on making the limit vales legally binding (Council Directive 92/72/EEC of 21 September 1992 on air pollution by ozone; Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management). The Directive 2008/50/CE brought together all existing directives on ambient air pollution, and provided the framework which is legally binding today (Directive 2008/50/EC of the European Parliament and of the Council of 21 may 2008 on ambient air quality and cleaner air for Europe).

Mobilization for better air

The analysis of the various examples of contestation around the question of air pollution reveals three main hotspots. The oldest one concerns the mobilization against a printing factory in the Uccle municipality, and more broadly the question of geographical proximity between productive and residential areas (i.e. *mixité industrie-habitat)*. The second concerns the heated debate that took place around the environmental performance of the waste incinerator of Neder-over-Hembeek (NOH), and its role within the region. The third hotspot is much more diffused in space and scale, and concerns pollution generated by the transportation sector and more specifically by the private car.

- A polluting neighbor: Illochroma in Uccle

Illochroma is a Belgian company specialized in printing labels and packaging, which had a plant in the Bourdon neighborhood, Uccle, in the southern fringe of the BCR. In the early 1990s, the press reports of a campaign conducted by the local neighborhood committee (*BREG- Bourdon, Roseau, Engeland et Griottes*), including a petition, various letters to local institutions, street marches and a lawsuit. The mobilization resulted in a quarrel between the residents, blaming the company for unbearable odors, noise and circulation of lorries, and Illochroma menacing to close down the plant (which eventually happened). The case is part of a broader discussion on the problematic co-habitation between industrial activities and residences, and on the difficulties in striking a fair balance between employment, profit and fiscal revenues, on one hand, and environmental priorities, health and quality of life on the other.

- A contested role of regional trash bin: Neder-over-Hembeek's incinerator

The neighborhood of Neder-over-Hembeek is a neighborhood situated in the industrial areas in the north of the Brussels municipality, close to the regional border. The neighborhood was historically characterized by a number of polluting sites, including a former industrial site used for illegal waste dumping, a propane and butane filling center, and a coking plant. Most of all, however, the neighborhood has been hosting since the eighties the regional waste incinerator, much contested for its impact on the quality of the air. The contestation against the incinerator culminated in the early nineties, when the environmental NGO Greenpeace took the lead in various actions, including the divulgation of alarming data on the pollution levels in the surrounding areas and a spectacular irruption in the premises of the incinerator, which blocked the ovens for various hours.

- Moving pollution

The last of the hotspots which we will look into is the long-standing contestation against transportation related pollution. Focusing on it requires a shift in scale and perspective, inasmuch as the polluting source became mobile and more diffused throughout the region. Moreover, while in certain cases, there was an emphasis on a given location (e.g. the tunnels along the internal ring road), this was not immediately linked to the generation of pollution, but to its concentration. Contestation against transportation related air pollution only became prominent in the public debate starting from the early nineties, but to a certain extent it built on and continued other forms of contestation targeting the dominance of the private car in the city's road network and public space. Overall it is the issue that remains the most relevant today.

Conclusion

This short paper presents a research that is in progress. The study of the literature has allowed to position it at the intersect between the literature on the science policy interface and on the public understanding of science, as well as to formulate the research question. A preliminary review of the press archives allowed to identify emerging themes, events and processes that characterized the development of the monitoring system, policy making and governmental intervention, and various forms of citizens mobilization and contestation. The next stage of the research involves further fieldwork to explore the hotspots which were identified, and the analysis of the empirical material to answer to the research question. Overall, I will try to disentangle the dynamic relation that exists between government, science and citizens, and draw a picture of the Govern-'ance' With Science regime characterizing Brussels. This –I hope– will shed light on the role and on the potential of 'traditional' scientific practices and of bottom-up knowledge production to politicize the question of air, and to drive change.

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Archives

Centre de Documentation de Bruxelles Environnement, Site de Tour & Taxis, Avenue du Port 86C / 3000, 1000 Bruxelles & http://document.environnement.brussels/

Centre de Documentation de Inter Environnement Bruxelles, Rue du Chimiste, 34-36, 1070 Bruxelles & http://biblio.ieb.be/

Construction and its contrary
The role of demolition in the project of the city

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The age that saw the constant and compulsive trend towards material accumulation as its protagonist is now approaching its denouement; City and Territory have been consumed by unremitting building output that has led to the paralysis of architecture's planning role.
Reuse, recycling and upcycling can provide effective answers to solving specific problems but cannot constitute an overall strategy that restores representative value to architectural planning. If so far demolition has implied economic, political or design failure, the proposed study aims to integrate it into the praxis for the project of the city, leading the architectural discourse to an unexplored role in defining the process of dismantling.
In this context a positive theory of deconstruction might not only provide new instruments of planning but might become necessary.

Introduction

"a striking expanse invites you, before being covered with buildings, to think…to many things. This expanse is there, it has been created, it is an urban event…" (Le Corbusier 1925)

This paper is part of a research project on the role of demolition in defining the form and character of spatiality in the urban and territorial context.
The study is in fact a critical/designed analysis of demolition, more specifically based on the possibility of producing the void as part of the planning process.
While the theory of construction has been covered exhaustively over the course of recent centuries (from great many standpoints), the analysis of demolition has not yet been fully structured, or where it has, it has been at best relegated to a complementary role in the definition and redefinition of the space: "paradoxically it is not merely from a theoretical point of view that the production of death accompanies construction and governs inventions" (Emery 2011). The cathartic function of demolition is in fact a widely accepted theory: J. A. Shumpeter's 'creative destruction'[1] according to which "industry's process of organic transformation ceaselessly revolutionises the economic structures internally, destroying the old without a pause and creating the new without a break" is nor far removed from the modernist ambition of *tabula rasa*.
The idea we intend to promote here is that demolition is a process capable of establishing its own languages and independent functions and that it not only contains its own creative character but is also the bearer of a specific aesthetic. While challenging the common perception of demolition as a merely negative act of subtraction from the urban fabric the study will focus on the positive shape of the void both in ideological and representational terms.
The demolition plan that normally constitutes one of the starting points for any architectural project has seemed to be limited to providing indications for the removal of built material while instead it is in itself a planning action that is capable of creating spatial relationships by means of the different scales.
A series of questions arises as a consequence: do different types of demolition exist? How should they be conducted? What is the value assumed by the void as a consequence of these interventions?

In a lesson given at the IUAV in Venice in 2013, Bernardo Secchi pointed out that Urbanism "had an awful reputation" in the context of the lively debate on architecture and the architecture of the city in the seventies, and was deemed guilty of "betraying the construction logic of the town plan" as well as of a variety of representative simplifications that had led to cities being read by dividing them into large functional areas.
At the same time, large parts of modern cities were being abandoned, suddenly becoming obsolete. The consequence, Secchi continued, was a change in strategy: the transformation of urban spaces no longer took place through huge plans but by the small-scale modification of different spaces.

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[1] Joseph Alois Schumpeter was an Austrian-born American political economist. With his book 'The Theory of Economic Development' (1912) he added to a static approach to economy a dynamical one, intended to explain the nature of development. According to his theory, capitalism can only be understood as an evolutionary process of continuous innovation obtained by a construction-deconstruction cycle.

The city therefore becomes legible, even in its heterogeneous and mixed composition, as a new mouldable material from which more resistant veins will continue to keep their form and function while other weaker ones will lend themselves to being modified, worked or removed.

What follows is a series of examples which, enriched with historical, political and spatial contexts, serve at this stage of the research for identifying the outcomes and possibilities, missed or expected, of an autonomous demolition project.

Demolition and the bourgeois city

"Le vandalisme a ses journaux, ses coteries, ses écoles, ses chaires, son public, ses raisons. Le vandalisme a pour lui les bourgeois." (Hugo 1832)

The Haussmanian plan is not the first one to act in the radical transformation of Paris, indeed it would't be "much of an exaggeration to say that the history of modern Paris –Paris since the Enlightenment– could be written as an account of its systematic demolition" (Vidler 2011). However, by the mid-nineteenth century, "under the impact of Haussmann *marteau* the city was even seen to change more rapidly than human nature" as Vidler remembers, out from Baudlaire's lament in 'Les fleurs du mal'[2].

Is not just a simple plan to 'embellish' the city or a mere product of the new necessity of a salubrious urban environment but it is a political and social revolution intended to overwhelm the ancient city.

The bourgeois built its own capital, planned in order to conquer the existing urban fabric and bury its memory under the weight of the wide open spaces required by modernisation. He is deemed a vandal by Victor Hugo in an urgent appeal in favour of a "law for memories", published on 'Revue des Deux Mondes' in March 1832. The transformation of the city goes deep in the material earth of it: even the soil layers experienced a reorganisation showing a new set of networks and infrastructures. Inclusion or modification are not foreseen in the project, "only the strong 'monuments' survive the planner."(Fournier 1883)

Pruitt-Igoe and the birth of modern demolition

The notorious story of Pruitt-Igoe housing project complex has often captured the interest of architects and sociologists. The documentary 'The Pruitt-Igoe Myth' tells its genesis, the initial enthusiasm of its inhabitants who used to describe it as "an oasis in the desert", and its subsequent failure. In 1972, only 16 years after its completion, most of the buildings forming the complex were demolished. The event will become famous thanks to Charles Jencks as the death of modern architecture, the detonation which will provide a symbolic tabula rasa making room for the birth of the postmodern movement.[3]

Minoru Yamasaki's construction project[4] was then followed by a demolition project that will set the standard technique in the building demolition industry worldwide for the years to come. (Easterling 2014)

This event will in fact sparkle an almost liberating trend: "Hundreds of thousands of high-rise housing units have been razed since the destruction of Pruitt-Igoe. In 1996, Chicago projected the implosion of 15 per cent of its public housing projects by 2002. Most of the towers, when destroyed, were less than forty years old […]Philadelphia has cleared thousands of row houses, cleaning up vacant lots and re-aggregating parcels of land" (Easterlig 2014)

A new logic arose from this: a building could now have a manufacturing and expiry date, a potential time limited design of space.

How many of these buildings deserve eternal life? OMA at La Défense

It is definitely worth to give special attention to this project for different reasons: not only it is part of the history of parisian demolitions but it has the declared objective of 'revisiting' the *tabula rasa*.

The Mission Grand Axe competition immediately showed its inherent contradictions[5]: set in the context of Paris close periphery, the vast area of La Defense is surrounded and immersed in a meaningless urban fabric, a "plankton–the typical accumulation of undeniably inferior building […] Most of the older buildings were in disrepair." (Koolhaas 1995) from which only a few emerging buildings are worth saving: the Grande Arche, the CNIT and the FIAT tower. These are objects of "sentimental value" constituting a sort of "20th century acropolis". What is left in fact, does not bear any meaning. The project becomes then a demolition project consisting of a progressive erasure which will reclaim the whole area over the course of 25 years starting right

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[2] Is "the form of a city" that changes in 'The Swan', poem dedicated to Victor Hugo.

[3] From Charles Jencks, 'The language of Post-Modernism': "Happily, it is possible to date the death of Modern Architecture to a Precise moment in time. Unlike the legal death of a person, which is becoming a complex affair of brain waves versus heartbeats, Modern Architecture went out with a bang."

[4] Minoru Yamasaki designed also the World Trade Center, inaugurated in 1972 while Pruitt-Igoe was demolished. As is well known, the WTC fell down in 2011, target of another kind of planned demolition.

[5] "The competition called for an extension of La Défense. The french, with their eternal optimistm about the significance of axes, had already decided that the only meaningful gesture would be to extend the famous axis that starts at the Louvre and continues, via the Arch de triomphe, to the Grande Arche at La Défense, and to Charge this unglamorous line with meaning." From SMLXL

from the most recent parts of the city and not from the oldest, more dense and deteriorated ones. The design however, which cannot avoid a confrontation with Le Corbusier's Plan for Paris, is not as drastic and it reveals[6] in the empty space resulting from the demolitions a Manhattan grid, a system ever confirming to be a source of endless variety.

Describing Mission Grande Axe project, Koolhaas noted that "the notion of a new beginning […] had been taboo ever since Le Corbusier's brutal attempt with the Plan Voisin to scrape everything away at once. The harshness, the shock, the obvious insanity –but at the same time the incredible eloquence– of his operation closed the book on the question of the new beginning for generation to come"; somehow K. is placing the project in opposition to Le Corbusier's one, but in fact they are strategically similar: to generate the need of a new urban fabric by the designing of a large empty space.

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[6] The competition model photos show how the grid is not dropped on top of the void, but is actually already in place and revealed by the erasure of the present urban fabric.

Limits and inevitabilities of dams in the North American machine-territory

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Dams have been essential for the growth of population and its prosperity. Men have been building dams for 5,000 years. Last century, 75,000 dams have been built in the United States. It has been estimated that by 2020 the 85% of those barriers will reach the end of the designed life-span. Over the past 30 years approximately 900 dams have been removed (in the US) due to ecological concerns, calling into question the supply model and the idea of the City. Construction of dams complied to the inescapable necessity of progress, their demolition is driven by the search for an original landscape. Two American stories of spatial and social modification are a chance to explore and problematize the limits and the inevitabilities of dams in contemporary.

Introduction

Dams have symbolized the Prometheus (Kaika 2006) of civil and economic progress; they played a central role in the agricultural and industrial development of entire nations. Hundreds of thousands of dams have been built in the world during the last century (World Commission on Dams 2000); emerging countries, today, [not] exploit the inheritance and the knowledge accumulated by the previously emerged countries and quench the thirst for water and energy through the construction of augmented concrete walls along the rivers. The collective imaginary, of different generations, which spontaneously alludes to the great works of civil engineering, inevitably refers to a rather clear historical (and psychological) phase: Modernity; and in this process of popular representation the United States symbolize the effigy. In North American territory, more than 75 thousand dams have been built, it means more than one dam a day over the last two centuries (Babbit 1998). During the Great Depression dams meant a shared hope. Naturist ideologies, stolen from Ralph Waldo Emerson, that allowed to build an ambiguous relationship of aesthetic and functional dependence between man and nature, justified the only thought. The capacity to transform geographical and daily scales determined them as the solution of an historical crisis to be left behind. According to Rowe (1994), in North America, the long process of acceptance of modernity occurred precisely with those great infrastructures that became part of people's lives, radically transforming habits and styles. The scalar duality is the key for a critically reading of the artefacts and for understanding their value in a certain historical context: the territorial transformation (I purely refer to the realization of a man-made lake that ennobles 'dangerous and turbulent'[1] rivers) shows all the strength of the human genius. The distribution of water and energy, which miraculously makes homes clean, intimate, welcoming and personal (Kaika, Swyngedouw 2000) is proof of the rightness of that effort. Through this 'scalar gap' a relationship of transcendence between individuals and infrastructures comes up and so, the pilgrimage towards the great works of civil engineering assumes the value of a ritual among the touristic and the economic. Bridges, railways, dams became divine material and therefore weapons, publicly manipulated, to claim man rights on the environment; those objects later formalized the "public good" (Goubert 1989), their consequent spatial residue constructed the places where the relationship between city and nature would then have been partially mediated.

The Second Great War had obviously undermined the *credo* in the heroic purpose of technology, which nevertheless still represented the only known model to grow on one side and to rebuild on the other side (of the planet). In the early seventies Jencks (1977) posed the historical passage from modernism to postmodernism and Harvey (1989) recognized a mutation of capitalism in the economic paradigm, in those same years, only after a dizzying rush to dams, the construction trend paused. The map of the country was punctuated in every corner, the geographical space and the limit of the resources' exploitation that derives from it, the passage of time and the deterioration of the physical structures under its action, mixed with a renewed ecological sensitivity laid the fundamentals for a crisis that would explode few years later.

Notes of the candidate

This paper collects a series of reflections that partly form the critical package of my doctoral thesis that was born a couple of years ago following the reading of an article where emerged clearly (the idea) that the demolition of dams could have marked the prodromes of an unexpected future. In the last twenty years about nine hundred dams have been demolished in the North American territory[2]. It seems therefore that the

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[1] Franklin D. Roosevelt's speech at Boulder (Hoover) Dam was published in newspaper and broadcast at radios all over the nation. *Address at the Dedication of Boulder Dam*, September 30, 1935, The American Presidency Project, *http://www.presidency.ucsb.edu.*

[2] American Rivers Dam Removal database since 1999: *americanrivers.org/threats-solutions/restoring-damaged-rivers/dam-removal-map.*

(twentieth-century) model of landscape engineering got into crisis and that the dams are facing the end of their life cycle. Rereading Thomas Khun (2009) one could identify the state of play in a phase among "the birth of anomalies" and "crisis of the paradigm" supposing that the demolition of those artifacts is the "scientific revolution". But the "normal science" (Engineering), into a severe crisis, is questioned by Ecology – a multi-disciplinary science that from niche knowledge of the eighteenth century becomes commonly shared by the environmental movement in the second half of the twentieth century – and by the anti-economic maintenance interventions addressed by the new environmental awareness. Furthermore, the demolition is dubious due to the uncertainty that itself implies (The Aspen Institute 2002) (the disciplines called into question have not accumulated experience enough to define theories, methods and practices), and with a larger scale view appears the fundamental role that the dams have had, and still perform, in the construction and survival of the City. A recent article (Maavara et alii 2017) published in *Nature Journal* clearly redraws the evidence with which climate change is inevitably also linked to the construction of dams: sediments carried by rivers and blocked by barriers (dams) have an impact on the carbon cycle within the terrestrial atmosphere. The annual report (ASCE 2017) published by the American Society of Civil Engineers that investigates the health profiles of major American infrastructures, reporting manifest numbers, recognizes the value of such a system in the water and energy supply for the entire nation, and it has been estimated that a clear state of poor maintenance demands an investment of about forty-five billion dollars for structural adjustments. These are some of the data that establish the debate between the limits and the inevitabilities (of dams) whose problematization is the substance of my research. A first part of the thesis (summarized in the previous lines) has been dedicated to the recognition of the literature on the theme: a broader and more generic one from which I develop a reflection on the role of dams and on the geological capacity of man demonstrated in the twentieth century, and a more specific one, ascribable to the object in question, that allowed me to build a first genealogy of families of problems that drive the demolition. A second part (subject of this article) was dedicated to the description of two American stories that offer interpretative tools to relocate on the territory, inductively, the bipolarism between Demolition and Conservation that has emerged in the study of structural data. Maria Kaika (2009) speaks of "hidden form" (of the infrastructure), Pierre Belanger (2016) of "invisible scale" (of the infrastructure), in both it seems clear the idea that there is a space on the planet, unknown to most people, in which man has built the supply machine that has always marked the limits between urban space and its background. The places, where the paradigm of the race to the natural resource has tragically marked the soils, become object of interest of this paper whose text moves freely among the issues that have gradually emerged and that seemed to me more urgent and adhering to the context. A certain 'academic unruliness' can be found in knowing and exploring the facts of the territory with the eyes of the gold miner; a couple of trips to the United States represented the essential tool (of an architect-urbanist) to observe, know and understand the places described and mapped afterward.

Two stories of North American dams
Diary one, part one
The hydrogeological district of the Klamath River [fig.1], which flows between Oregon and California, covers about twelve square miles of biological, morphological and climatic diversity. The two Upper and Lower basins – one marked by natural lakes and bas-relief deserts and the other characterized by steep mountains and forests (Andersson 2003) – have been for decades the epicenter of two massive transformation projects. The reclamation and therefore the development of some agricultural areas combined with the construction of different dams for electricity production, between the nineteenth and twentieth centuries, have contributed to the slow decline of the water quality that evidently impacted on the native tribes who have been inhabiting those places for centuries (Secretary of the Interior 2012). The Upper basin, since the first settlements of Euro-Americans coming from the East, was characterized by agricultural areas (mainly orchards) that were an important economic income of local communities. The Upper Klamath covers about the 40% of the entire district but it receives only the 12% of annual rainfall, and the lake, despite the large surface, has an average depth relatively low. The natural supply system therefore has minimum storage capacity and in 1878 a group of resident farmers established a first company (Linkville Water Ditch Company) for the control and management of surface water with irrigation purposes. The invention of the Francis turbine and the consequent rush to the construction of pioneering pumping stations and small hydroelectric power facilities meant an epochal change: the water could have been extracted, stored, distributed in shorter times and it could have easily reached different heights. At this first revolution was added a political will that marked forever the geography of the Klamath river: in 1902 the president Theodore Roosevelt signed the Reclamation Act; in 1903 the engineers J. T. Whistler and H. E. Green looked for potential wet areas to be reclaimed for agricultural purposes; in 1905 the Secretary of the Interior E. A. Hitchcock authorized the Klamath Project. The rivers Wood, Williamson and Sprague, the major tributaries of Upper Klamath Lake,

and the Clear and Gerber lakes become the main water resource for about 235 thousand acres of reclaimed land.

The region was going to experience a period of abundance then called 'Orchard Boom' (in Kramer 2003). In those decades, there were also stories of successes, failures, envies and business challenges that, then, merged into the Klamath Hydroelectric Project. The construction, in 1891, of two power plants in Yreka and Klamath Falls, one in California, the other in Oregon, demonstrate how the economic interests for that area have always ignored the geopolitical boundaries. In 1852 the foundation of a 'Jefferson State' was conceptualized. The secessionist movement failed, but that regional cohesion was compensated a few years later by the California Oregon Power Company, which, raising several dams along the Klamath River, gave a reputation to the territory, paternalistically called 'Copcoland'.
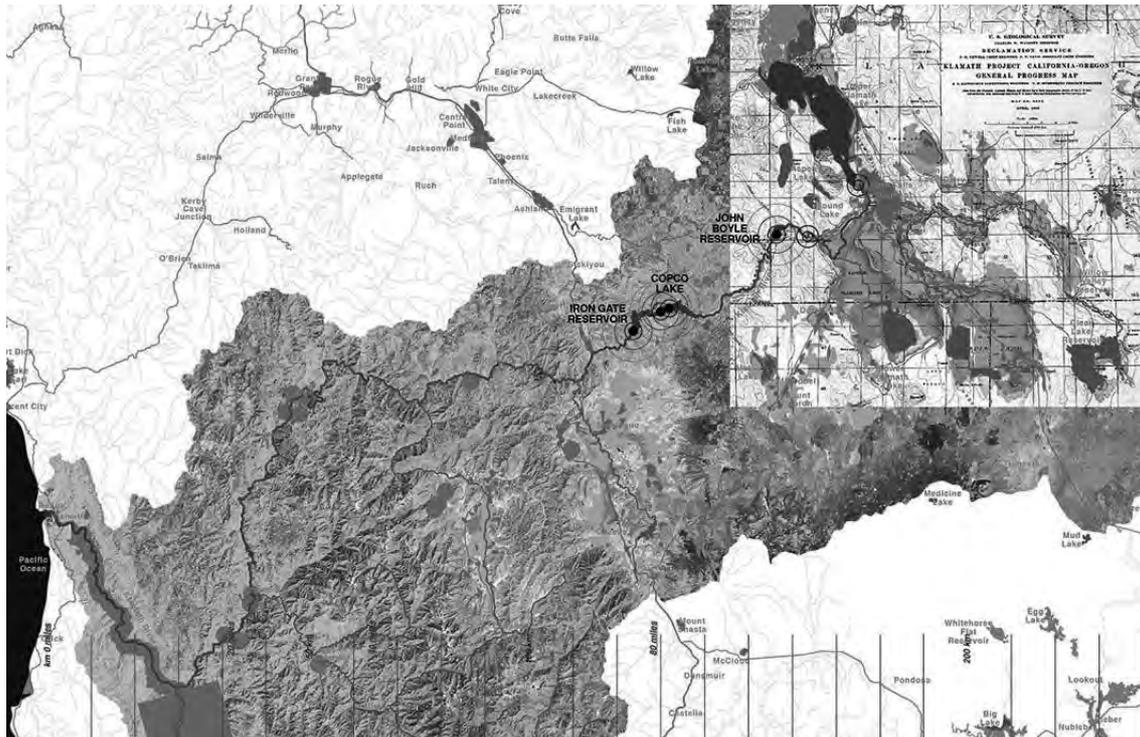
[fig.1] Klamath Hydrological basin. On the top original drawing sheet of the Klamath Project where reclaimed wetlands/agricultural areas are evident. Targets symbolize the four dams to be removed. Downstream of the river the Hoopa Tribe Reservation. Source: from US Geological Survey, US Department of Interior. Elaborated by the author.

Since the first barrier, built in Fall Creek in 1903, a linear corridor of facilities has been built, marking the landscape of the Lower Klamath: [from north-east to south-west] Link River Dam to Klamath Falls (OR), the dam dedicated to J. C. Boyle[3] in Siskiyou County (CA), after the grand canyons the two Copco dams and, about forty miles away, the Iron Gate dam, the last in spatial and temporal order (built since 1958). Over the decades of construction of diversions canals, pipes, power generation plants, pumping stations, tunnels and dams, disparate economies became structural for the area. Forests were the ideal fuel for the wood industry; the vast (and rare) Californian chromite deposits supported the foundation of several mines; the 'wild and scenic' landscape of the region, after the construction of the railway, was granted to a discreet touristic movement. The importance of the electrical production (and the subsequent energy transmission grid) in the spatial coordination of the development is obvious. The rate of population growth was around 400% and the process of evolution of the Klamath region would have experienced a period of partial slowing down only during the years of the Great Depression when dams returned to occupy that paradoxical role of glue in a disrupted society. In 1956 the California Oregon Pacific Company, which in the meantime had become PacificCorp, signed a fixed-price contract with the 'upstream of the system' farmers and ranchers which would have kept the power rates decidedly low, in exchange the surplus water of the irrigation process would have been received to run through turbines. In 1973 the Endangered Species Act was approved: minimum

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[3] John Boyle was vice president of the California Oregon Power Company (COPCO). Chief engineer of the hydroelectric project on the Klamath River.

flow regimes along rivers marked by hydroelectric exploitation were imposed to protect native fish populations, crucial issue for future disputes.

Diary two, part one

Pittsburgh, Pennsylvania, has been center of social and cultural transformations for over three centuries. Productive and economic adaptations inevitably met a civil and then military engineering process of the territory. The urban area of Pittsburgh is bordered by three rivers: the Allegheny and the Monongahela flow into the Ohio River which, after 1500 kilometers, flows in turn into the Mississippi. This hydrogeological feature has driven a certain trajectory of the city whose center historically is the so-called Headwaters District, underlining a series of records that clearly refer to water. Pioneer engineers tested the first keelboats and steamboats, and in 1824 a series of interventions of cleaning of snags, boulders, and bars combined with the construction of small dams led to the opening of the first commercial channel of the United States. In those years Pittsburgh became the experimental station of a system of inland waterways that decades later brutally demarcated the country's rivers, opening the door to the (multi-)use-of-resources model. The engraving of some laws on the territory, and therefore on the society, triggered an intense debate. In the twentieth century Pittsburgh fell in the center of a great controversy personified by politicians and engineers (Johnson 1979).
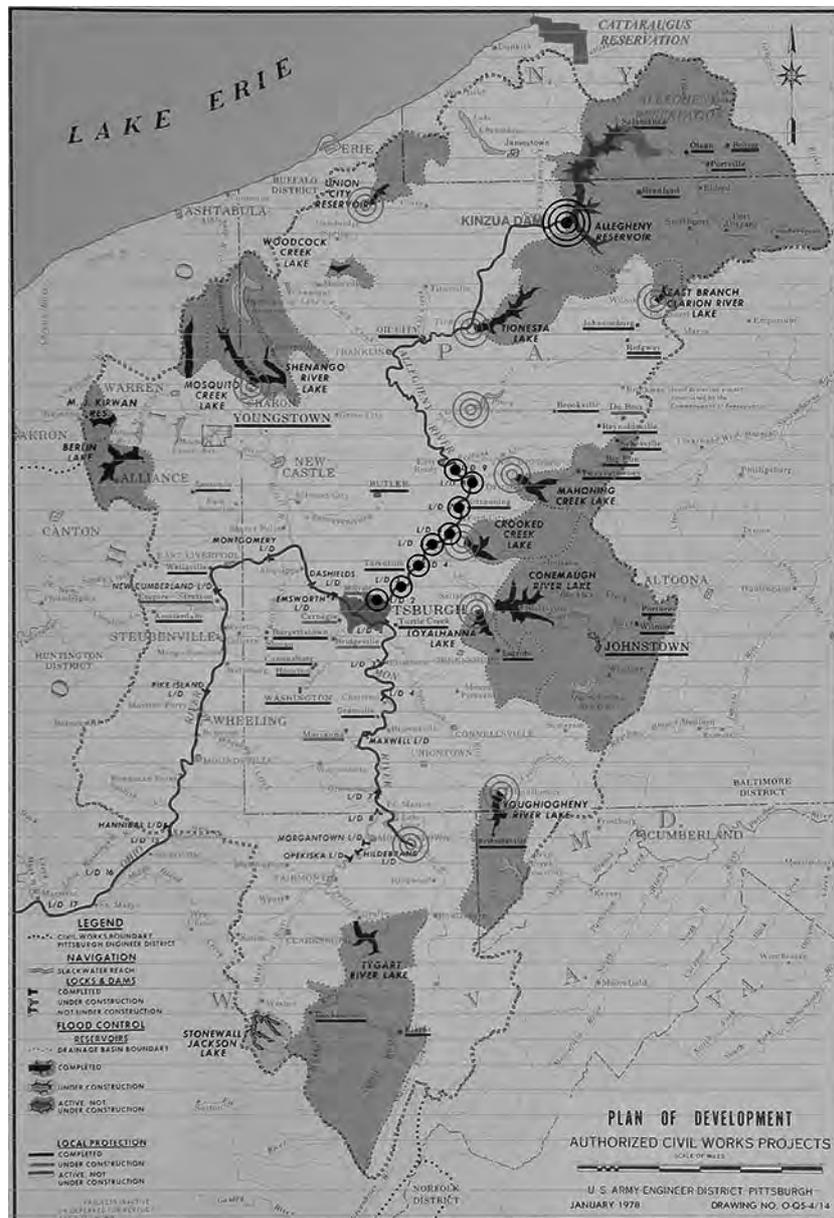
[fig.2] Known as the Headwaters District, the Pittsburgh District is comprised of the Ohio River drainage basin above New Martinsville, West Virginia. Ongoing plan for Pittsburgh (1978) from the Flood Control Act (1936). At the north of the District are visible: the Kinzua dam and the Quaker lake on the Seneca Reservation; the eight dams (of the Copeland Act) on the Allegheny. Source: form US Geological Survey, US Department of Interior, Army Corps of Engineers District of Pittsburgh. Elaborated by the author.

The city has been affected by numerous floods whose informations are reachable since the mid-1700s. In 1907, the Business District was submerged by water (with damage of six million and half of dollars), and it was established the Flood Commission, whose largest exponent was the popular industrialist H. J. Heinz. During this first phase of water management policies, an elite of industrialists and businessmen coalesced into a civic force to fight a series of environmental reforms: the aspiration was dominated by economic and commercial interests, but the group appeared as a class of progressives united for the community (Smith 1975). Until 1936, over fifty floods imprinted the city, and in 1936 on St. Patrick's Day, devastation throughout the metropolitan area, 50 million dollars in widespread damage and the life of 47 people provided fertile ground for promote a plan (Copeland Act) to build nine dams in the Allegheny valley, at north of the city. Federal Government approved the Plan; President F. D. Roosevelt, by the Flood Control Act of 1936, started an itinerary of construction of hundreds of barriers all over the country, and in 1938 he delegated total responsibility for the management and control of surface water to the Army Corps of Engineers, which, in this way, assumed absolute power over the consequent exploitation of resources and over the unavoidable modifications of the geographies of the entire North American continent. In the same year the construction sites of eight of nine dams [fig.2] of the Copeland Plan were in progress: the Kinzua dam, which should have been built on the territories belonging to the Seneca tribe (Allegheny Reservation, 200 kilometers north of Pittsburgh on the border with the state of NY) was hampered by the Natives themselves; the intervention of the New York State authorities and the outbreak of the Second Great War weakened the interest in that project: at temporary 'low priority'.

During the war, Pittsburgh, like other cities, was abandoned by political powers and the only source of livelihood was provided by the civic forces. After the war, the metropolitan area came up depleted by widespread industrialization and water exploitation practices, and the decline in general quality of life forced a series of Headquarters to move to New York. In 1943 the Allegheny Conference on Community Development drew the conclusion to face environmental, economic and social problems, in this case the most influential personality was R. K. Mellon, inheritor of the family empire. New floods, especially in the point where the three rivers meet, rekindled interest in the 'flood control' issue and an unusual environmental sensitivity associated with critical historical-geographical reading of the Golden Triangle produced a series of projects: the urban parks of Olmsted Jr, Bennet, Moses, Wright, collapsed under the construction of several apartment and office buildings, and a Hilton Hotel (Muller 2006). The link between the industrial elite and the political representatives was intellectually modern, the Pittsburgh Renaissance project would have never been accomplished without the construction of the Kinzua dam. The events overlapped between national and personal interests for about 10 years. In 1957, under the impetus of President D. D. Eisenhower, Congress allocated a million dollars for the construction of the dam, in the same year the Army Corps defined the project as 'necessary'. The opposition of the Seneca tribe was based on the 'Pickering Treaty' signed in 1794. It defined the boundaries of the reservation that the United States could have never claimed, "nor disturb the Seneka Nation" (in Rosier 1995). Furthermore, the Natives asked the famous engineer A. E. Morgan, first chairman of the great project on Tennessee Valley, an alternative plan. The proposal – of an extremely innovative character that, in case of great flow, allowed the diversion of the Allegheny river to Lake Erie – despite having the consent of several academics and professionals of the time, was not approved by the Corps of Engineers. In 1958 the United States Court forced Indians to sell the land by 'right of eminent domain'. Under the bewildered public gaze the Natives started to abandon their ancestral lands in a historical process of dislocation. The water of the reservoir would have flooded homes, schools, farmlands, holy places, cemeteries, and the Indians would have had to rebuild the fragments of their communities a few miles to the north. In 1966 the dam became operational while the tragedy of the Seneca opened a wound of a latent anthropological conflict that will never be marginalized; the American deterministic nature, exasperated during the difficult years of the Cold War, built that modern dowry that we would later call fixed spatial/social capital.

Reflections, part one

By these two stories it is clear that the transformation of the environment, where we live, is the result of an intricate process of design overlaps in which aspirations and powers intercede. Signs are not always easily ascribed, but the facts of history still remain an essential instrument to recognize, at least, those subjects that directly intervene in the modifications of the terrestrial surface. Not only a glance at the course of events declares that disciplines such as engineering, landscape, economy and then also ecology are in a continuous alignment, but highlights how the boundaries of the urbanized environment have always been labile: "it is

hard to see where society begins and nature ends" (Harvey 1993). Objects move where resources move, and endemically marginal territories drop at the center of a first socio-economic and later urban-scientific debate. The dam in the two case studies takes on an iconic two-sided value: on the one hand, areas with unexpressed potentials require infrastructural investments to follow a historical course of growth, on the other martyr territories are transformed undergoing a process of development that takes place hundreds of kilometers away. In these two features, we can find the paradigmatic value of the water infrastructure whose spatial modifications produce temporal echoes that transform the in-the-middle-of-nowhere into areas dense of those recognizable urban expressions that Banham (2009) would call "ecologies".

Diary one, part two
At the beginning of the 2000s, the Klamath River return to being the focus of local communities and mass media, becoming motive of debates still burning in the United States.
In 2001, the Federal Government, due to a severe drought, force farmers and ranchers to reduce water withdrawals in accordance with the special law for the protection of fish species (ESA): it has estimated a loss of over 27 million dollars. The following year, the Bush administration, guarantees water to farmers and a minimum free flow of the river causes one of the largest die-offs of adult salmon in Western history provoking social tensions with the Natives who live along the river. Four years later, the government prohibits fishing on a thousand kilometers of coastline to encourage the repopulation of fishes, triggering, this time, fishermen. The system is facing a structural collapse, crisis follow one after the other and get aggravated in a series of legal battles. In 2007 the Federal Energy Regulatory Commission during the re-license process, for the use of water in power generation by PacifiCorp, establishes that the dams should be adapted to the new environment protection regulations and therefore provide fish ladders to stay operational. Implementing fish passage and maintaining the aging dam is more expensive than taking them out. The Natives start to demand their demolition and a controversial struggle over the water rights opens up. In 2010 about 40 parts – Natives, farmers, ranchers, fishermen, federal governments – sign the Klamath Hydroelectric Settlement Agreement that force the four dams to demolition from January 2020. The agreements provide for the approval of the Congress, whose position, even today, appears uncertain; the resistance from a part of the population seems to resist.

Diary two, part two
The construction of Kinzua dam, after the war, meant the accomplishment of a hydrogeological vision and became a structural element when, at the end of the seventies, Pittsburgh abandoned its industrial past for a more financial, cultural and therefore tourist vocation. The dam had inevitably marked the end of an era even in the history of the Seneca tribe: every economic, cultural, educational, political aspect of life of Natives had been forged. In the eighties, after the failed promises of support from the New York State Government, the Senecas opted for alternative economic development led by a new generation of leaders, later signing the social redemption. Over the time, part of the Allegheny Reservation has become a mass of gas stations, smoke shops, one-stop convenience stores, tribal bingo [fig.3] that detach from the inviolate natural environment and from the (new) villages built with the dam. The tax-free sale of cigarettes and fuel clearly has also attracted a non-native clientele, and within a few decades the tribe, thanks to the construction of three casinos (Salamanca, Buffalo, Niagara Falls), has been managing an economic empire of over a billion dollars (Hauptman 2014). In 2011, the FERC begin the relicensing process of the hydroelectric plant – 450 Megawatts of energy distributed in the district of Pittsburgh since 1970 – annexed to the Kinzua dam; the FirstEnergy colossus offers for sale the concession. The Senecas (with the Seneca Energy LLC) apply to acquire the license in the name of "the historical injustice"[4] suffered. In 2013 the license is sold to the LS Power of New York.

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[4] From the remarks of President R. O. Porter announcing the Seneca Nation's application to acquire the Seneca Pumped Storage Facility license, November 30, 2010.

[fig.3] Gas Station at Allegheny Reservation (NY). October 2016. Source: photographed by the author.

Reflections, part two

Several scientific fields could be addressed to define a horizon on what has been written and told so far. Environmental Psychology, in recent decades, has conducted disparate research efforts on the sense of places (Buchecker et alii 2007), and the theme of the attachment (to places) in this case is crucial to argue a first consideration: identity is not an absolute value. In 1978, Proshansky defines "the place identity" (1978) as that part of the Self that identifies the individual personality in relation to the physical environment. Recent studies have shown that there seems to be a place identity in which people identify themselves "not only for their environments, but also for places and landscapes that, although they do not belong to their own sphere of direct experience, recall in their own configuration and in their own image, elements that are perceived in themselves as pertinent to the identity of the places from which the people come from" (Bonnes et alii 2010). The tribes of Natives, in California and Oregon (first case-study), reclaim a landscape – "a cultural image, a pictorial (non-immaterial) way of representing, structuring and symbolizing surroundings" (Cosgrove, Daniels 1988) – that, after a century, clearly, is no longer the feature of that place. The search for the original landscape [fig.4], which revokes rhetorical memories, thus becomes the rail towards the demolition/removal of the dams and of a more recent productive identity of the river. The "selective use of the past" (Ashworth, Graham 2005) to claim present and future development rights would evidently oblige the maintenance of the dam, of its power plant and of all economic benefits deriving from it. In the second case study, Heritage seems to be a "highly political process, malleable to the needs of power [and able] to validate and legitimize territorial ideologies" (McDowell 2008).
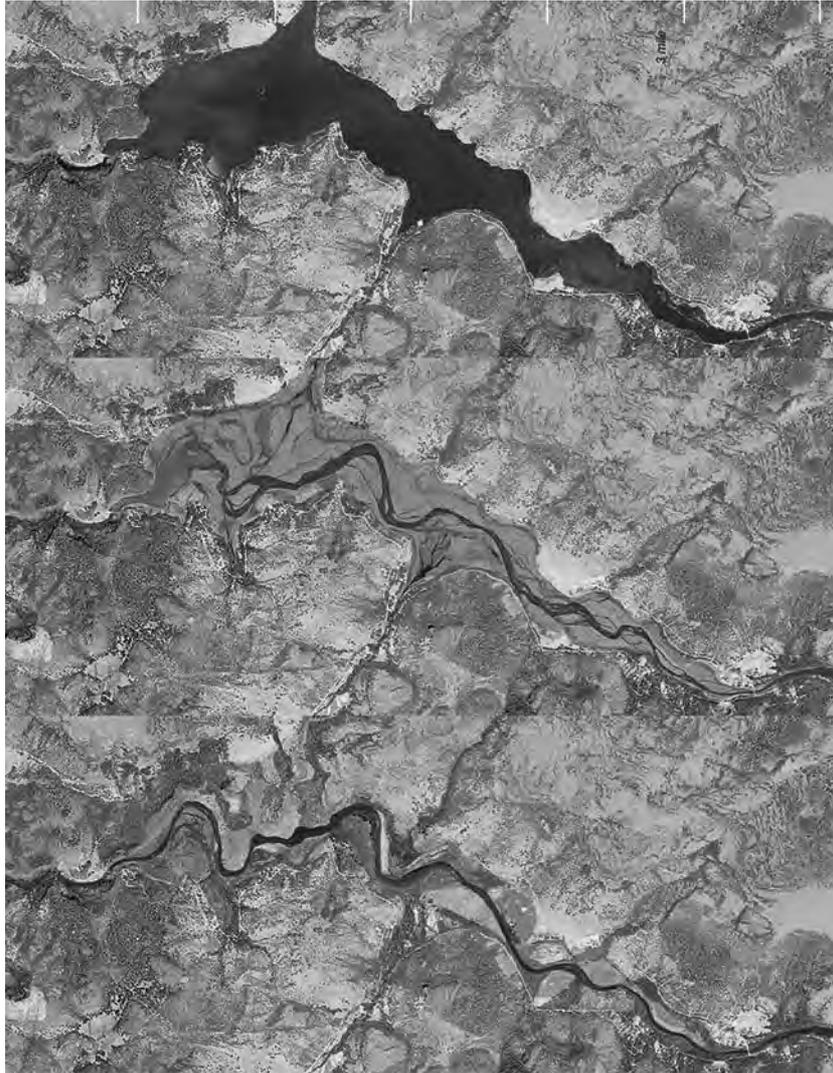
[fig.4] [Hypothesis of] Evolution of Copco lake on Klamath river after the demolition of the Copco No.1 dam. Source: from US Department of Interior, 2012. Elaborated by the author.

Places can be understood for their natural ability to influence the identity development of the individual, but themselves, in common perception, can be characterized by a specific distinctiveness (Bonnes et alii 2010). The question of the identity of places has tormented the intellectual debate since the nineteenth century and, today, it seems to have been resolved with the idea of a "pre-built format filled with different contents" (Banini 2013) which refers mainly to territorial marketing. The content-dam influences the tourist, environmental, economic, residential image of the studied (paradigmatic) territories, and it is the trajectory of an urban evolution based precisely on the clarity of those objects that assemble the "organic machine" (White 1995) of water infrastructure. Lakes, canals, aqueducts, levees, hydro-power plants, water towers and dams are vivid environmental representations and therefore "imageability" of the city (Lynch 1960). [They are removed and a trauma will irrevocably follow.]

Demolition, guided by social and environmental pressures and economic evidence, clashes with conservation, legitimized by a process (of self-acceptance) which recognizes that the structure of territories and societies in contemporary is a product of a new-technologies-building Modernity: it is impossible to go back. The cases show how the two dogmas are tangible and coexistent. The collapse of native ecosystems, the risk of droughts and floods, the energy crisis, the physical and technological obsolescence of facilities, the lack of funding, the cursory interest of political agendas, a *laissez faire* federal management, suggest complex scenarios whose consequences are still to be investigated.

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The Italy of the factories. Narrations, representations, images.

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April, 2020
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The relationship between territory and production in Italy has been repeatedly inquired since the second post-war period. These researches produced narrations, representations, images of a territory rich of mutations and inertia. Among these numerous researches about the Italian territory, three emerge for their ability to focus on the relationship between territory, economy and society: the *Progetto '80*, the *Tre Italie* of Arnaldo Bagnasco (1977) and the *Itaten* research (Clementi, Dematteis and Palermo, 1996). In these studies the issues related to the industrial production are not marginal at all, even if declined in different ways. This paper aims to try, in the contemporary times, an analogous operation, through the construction of a map that focuses on new models of the Italian manufacturing production, complexed by the overlap of other maps/layers: conflicts, patrimonialization, infrastructures. In order to try to understand convergences and indifferences among the different systems, today, in the Italy of the factories. This operation, the construction of an image intended as an accumulation of representations, hides an strategy and an implicit project.

Narrations

In Italy, maybe more than in other Western countries, industrial history has been built according to two models, with very different ways of understanding economy, society and their relationship with territory (Berta, 2015). On one hand, an industrialist model, capitalistic in the Braudelian meaning, on the other, a local model which looks at the concept of *"sviluppo senza fratture"*, "development without fractures" (Fuà and Fracchia, 1983). The commuting relations between production and territory have seen the two models prevail with different forces during the *Novecento*[1]. After the Second World War, the several narratives on the variety of the Italian production system have been able to build representations and images of great inertia. Representations and images that make continuous use of two levels of description. Representation of phenomena and representation of context. Representation of mutation and representation of inertia (Secchi, 1996). Images as a *Zeitgeist*.

Representations

The representations, the maps, compared to the territory are first of all "a very basic scheme, a deformed ideogram", but it must also be reiterated that "mimesis, imitation, duplication, is never a copy but an analogical process endowed with generation; it is always poiesi "(Farinelli, 2009). The representation, the map *is* the territory. It is able to produce reality and not just accept it, describe it and represent it. It has an ontological power. It hides a strategy and an implicit project. Quoting Hobbes, the power of the State is the power of the map. And we could add, power is exercised through it. Symptoms of the fact that any attempt to interpret the functioning of the world can only try to come to terms with the representation (*ibidem*).

Three images of twentieth century

The phase of urban polarization of the immediate second post-war period is reflected by the *"Progetto '80"* interpretations. The three layers on which this territory lecture was built, intensive areas, free areas, and infrastructures, were examples of a great "modern project" that concentrated on the "construction" not only of an industrial territory but also of an "industrial society" (Renzoni, 2012). An industry-country based on the Northwest model of the great industry that institutionalized work, "leisure time", the "right to the territory". Territory as an object at the service of an anthropocentric idea. The representations and images of *"Progetto 80"* count about politics, researches, figures. The effervescent years of the economic planning of the first center-left governments (and its relative failure) with the important policies for the "industrialization" of the *Mezzogiorno*. But also the researches of different study centers: Daest, Ires, Svimez. Who have built figures and models on industrial production in Italy. "*L'uso capitalistico del territorio*"(Indovina, 1973) , "*La città fabbrica*" (Magnaghi, et al., 1970).

The "discovery" of the "third Italy" by Arnaldo Bagnasco (1977) and the unsuspected vitality of the peripheral districts accompanies the intense transformation of the external territories to the large metropolitan areas occurred in the seventies, discarding the strong inertia of the "development-

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1 There is a vast literature treating these themes, important contributions on the topic have been elaborated by the economist Giuseppe Berta.

underdevelopment " image that had dominated the Italian storytelling in the previous decades. Emerge a more articulated image of Italy, divided in three different territorial areas. The Northwest of the large industry, which had driven and shaped the model of national development until the seventies. The central and north-eastern regions characterized by small and medium enterprises with a particular form of development model, which created alternative forms of urbanization, production and societies. And finally, the South as a relative underdevelopment area with an economy dependent from external needs. Differents but also connected territories. These are the years of research by Bagnasco[2], Fuà and the ISTAO[3], on that particular type of "sviluppo senza fratture", "development without fractures". This image has had the ability to discard an imagery of strong inertia like the "classical meridionalism" one. To create figures like the "*distretto industriale*". And in the following decade to be at the base of a series of policies that stimulated "the second Italian economic miracle" (Berta, 2015).

The nineties are the years of Maastricht, the years of the consolidation of European integration and globalization and the beginning of the last "technological revolution". In this context *Itaten* research, the last great effort to read settlement phenomenas on a territorial scale in Italy, is developed. *Itaten* focuses on the formation of new settlement environments. Looks at differences, not at uniformity of the territory. The figure of the "*ambienti insediativi*" holds these differences together. The emphasis is on the change of images, socially and morphologically. From traditional to new images. It passes from "an Italy of the hundred cities" to "an Italy of a thousand rooms" or "a thousand kaleidoscopes" (Demmateis, 1996), an image that insists on the idea of complexity and constant change. The production here is within the "*Itaten* of regions" (Clementi, Demmateis and Palermo, 1996). In each "environment" this has specific characteristics, logics and ways of settling. The narratives of these years on one hand ignore industrial production[4] and on the another recount a context of great changes and crises[5].

Another "image of development"

Finished the *Novecento*, and after years of economic crisis, the narratives and the images of the relationship between industry and territory in Italy have been radically changed. The industrial system renounces to the extreme polarization large industry vs. small-medium industry, on which most of the twentieth century narratives have been built. The large industry, either under public or private control, has strongly reduced, undergoing crises, privatizations, outsourcings, transitions to foreign investors, divestments, environmental crises, widely narrate and represented. The industrial districts of the small-medium industry, are in a period of profound metamorphosis, some remain highly competitive even if changed in all their logics, others have strongly suffered the many crises of the last twenty years. Today the Italian industrial landscape has strongly diversified and is made up of a larger number of actors many of them linked to globalized markets. In this complex scenario, the figure of the so-called "fourth capitalism" comes out, made up of very internationalized medium and medium-large enterprises, most of them part of the "made in Italy" system. According to several economists and italian research centers, this model has been, in recent years marked by the most important economic crisis after World War II, the one that shows the most competitive and resilient signs in the Italian economy. The Mediobanca-Unioncamere report on "Medium-sized Italian Industrial Enterprises (2005-2014)" builds this category of business, starting from the following data: they have a workforce between 50 and 499 units and a sales volume not less than 16 and not more than 355 million of euros; they have an autonomous ownership structure attributable to family control, or to companies included in the consolidation scope of Italian groups; finally they belong to the manufacturing sector.

Starting from these data, we construct a map of the medium, medium-large industry, the Italian "fourth capitalism" (fig.1). The concentration of many companies of this category comes out strongly in the sub-alpine area and in the Po valley, held by the Turin-Milan-Venice axis (especially in the Milan-Venice section) which extends, with force, along the *Via Emilia* and continues along the middle Adriatic route up to the *Pescarese* area. The same situation is founded in the micro-region Florence-Livorno-La Spezia and in the Neapolitan metropolitan area. It is interesting to note the significant presence of this category of companies in areas most suited to large industry (in particular Piedmont) where the district derivation is intertwined with that originated by the deverticalization of large companies. However, the strong presences are mainly in traditionally areas linked to the district systems, Lombardy, Triveneto, Emilia, Romagna, Marche, Toscana.

2 Arnaldo Bagnasco is an Italian sociologist. Specific reference is made to the publication "Tre Italie: la problematica territoriale dello sviluppo italiano", 1977.
3 The reference is to the Italian economist Giorgio Fuà and the Istituto Adriano Olivetti di Studi per la gestione dell'economia e delle aziende. Important works from that years are "*Lo sviluppo economico in Italia: storia dell'economia italiana negli ultimi cent'anni*", 1978-1983 an important research cured by Fuà and "*Industrializzazione senza fratture*", 1983 with Carlo Fracchia.
4 For example in "*FRIENDLY '93: Almanacco della Società Italiana*" by Laura Balbo, 1993.
5 For further information "*Imprese in cerca di padrone*" by Fabrizio Barca, 1994.

The Apennines, most of the areas around Rome and the territories of Southern Italy and the islands (except for the already mentioned Naples metropolitan area and a discrete presence in the north of Puglia) are essentially deserted. The Northwest and the Northeast host the 41.5% and 37.8% of these companies respectively. If we consider the NEC area[6] the amount rises to 49.2%, leaving the residual 9.3% of medium-sized enterprises dispersed in the large area of central-southern Italy and Isles.

After the construction, and the deconstruction, of the map of the "fourth capitalism" the operation is to overlay it with other territorial representations. Representations that tell the processes and figures taking place in today's Italy. Italy of territorial conflicts (Figure 2), Italy of capitalization (fig.3), Italy of old and new infrastructures (fig.4). The attempt is to understand convergences and indifferences.

In the "territorial conflicts" map (fig.2), the hypothesis is that the great conflicts in act in Italy have shifted from the strictly urban sphere to the territorial scale. Many and different types of conflicts are represented, linked primarily to the infrastructures[7], to the State structure, to the migratory routes, to the organized criminality. No Tav, No Tab, No Muos, movements against the "*Ponte sullo Stretto*". Autonomy referendums in Lombardy and Veneto[8], the referendum, rejected, for the provinces abolition[9]. The important migratory routes on the Sicily Channel that have made Italy one of the main gates for migrants of Europe. The "terra dei fuochi" and other territories linked to the ecological crimes and organized criminality. Is interesting to notice that the theater of most of these conflicts are the North Italy territories, where most of the "fourth capitalism" enterprises are found. The territories that have best dealt with the economic crisis are those that face most of the conflicts. The "fourth capitalism" industry is indifferent to these conflicts.

The patrimonialization map tells another image of Italy. Those of the "*città d'arte*", of the cultural festivals fake vivacity, of the many university campus used in many cases as a strategy of urban regeneration. Images of an Italy that in the last twenty years, at least, has been told as a tertiary economy, ignoring the fact that the manufacturing sector still remains, and despite the crisis of the industrial sector, highly important for the Italian economy. The medium manufacturing industry is indifferent to this narrative and this image.

The infrastructure map also overlaps different systems. Transport systems, logistics systems, telecommunications systems. Highways, high-speed rail, broadband, ultra-broadband infrastructures (fig.4), ports, airports, interports, power plants (fig.5). By overlapping this map with the "fourth capitalism" industry one, emerge convergences and indifferences. Most of the infrastructural systems are, like the medium industries, mostly present in the North and the Center of Italy. In the *Mezzogiorno* the highway network is less dense and the power plants and the airports are less present . High-speed rail infrastructure stops in Naples. Despite this there is an important presence of ports and interports, although the flow of goods is significantly lower than in the North and Center of the country. Is interesting to notice that in 2018 broadband coverage at 30mbps, an essential infrastructure for the "fourth capitalism" system, is higher in the southern regions, with 88% coverage peaks in the Apulia region, than in the rest of the Country[10]. Broadband coverage at 100mbps in 2018 is present in important percentages only in the main cities of the North and Center of the Country and in the regional capitals of Southern Italy. Convergences and indifference are present in the overlap of these two maps.

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The pattern that emerges is very different from those of the twentieth century. Despite the separation between the different parts, and in some cases even the radical fragmentation that emerged from these reserches, the systems were always in a constant and a dialectic interaction between them. The country's production system were related to the remaining systems. The diversity of the image we propose lies precisely in the fact that the productive system of the "fourth capitalism", the most competitive and "resilient", seems indifferent to the other systems. It reproduces strongly where there are great conflicts, it is indifferent to the image of a tertiary Italy, in some cases it prospers even in the absence of adequate infrastructures. The image is that of the indifference.

"*Ceci n'est pas un territoire*"

The operation tried until now has the taste of the modern novel. The hero misunderstands the world and in doing so understands it. Or at least he tries. What seems to come out after this exercise is the impossibility, nowadays, to look after the production, of any kind, limiting to a specific territory, as the great territorial reserches of the twentieth century did. The image produced is fictitious. It's fictitious because you cannot

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6 The term "NEC Area" indicates the territories of the Northwest and Central Italy, according to Giorgio Fuà's famous denomination.
7 The so-called NIMBY movements: "Not In My BackYard".
8 The Emilio-Romagna Region advanced a similar request to the Parliament. Puglia and Liguria regions express their intention to also follow this direction.
9 Constitutional Referendum of December 4th, 2016.
10 For example Piedmont's coverage stops at 46%, Veneto 54%, Lombardy 66%.

stop there. Today for the first time in the history of humanity, the world economy works in unison, quoting Castells. It is Braudel's economy-world. Looking more deeply at the "fourth capitalism" industry, it becomes evident that this is so firmly integrated with the global value chain, given its already mentioned high degree of internationalization, that any investigation just focused on Italian territory risks to be at least reductive. The next step is to do some surveys. To investigate some of these "fourth capitalist" enterprises that are not only firmly integrated into the "global labor chain" but which have initiated ground-level policies. Discarding forever the twentieth century logics of investigation of the land, not just Italian. *Ceci n'est pas un territoire.*
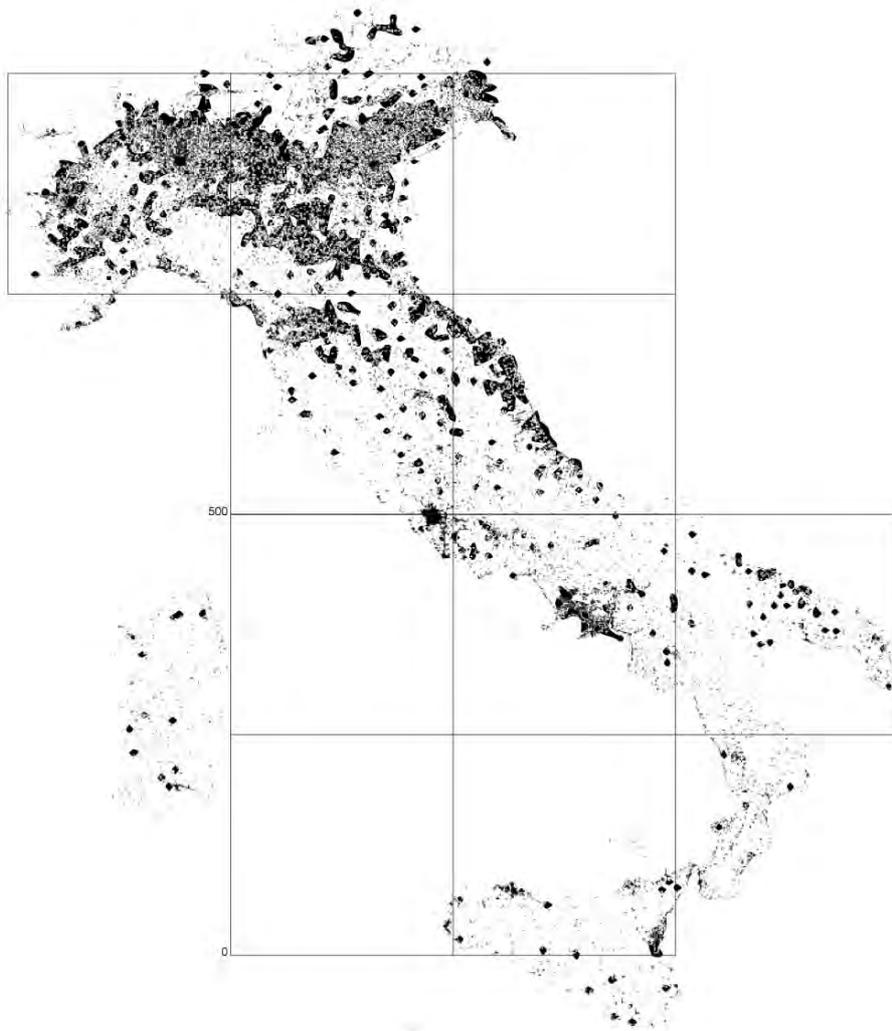
[fig.1] "Fourth Capitalism" industry map. Source: elaborated by the author from Mediobanca-Unioncamere data.

"Territori dei conflitti"

[fig.2] Conflicts map. Source: elaborated by the author.

"Territori della patrimonializzazione"

[fig.3] Patrimonialization map. Source: elaborated by the author.

[fig.4] Infrastructure map. Source: elaborated by the author.
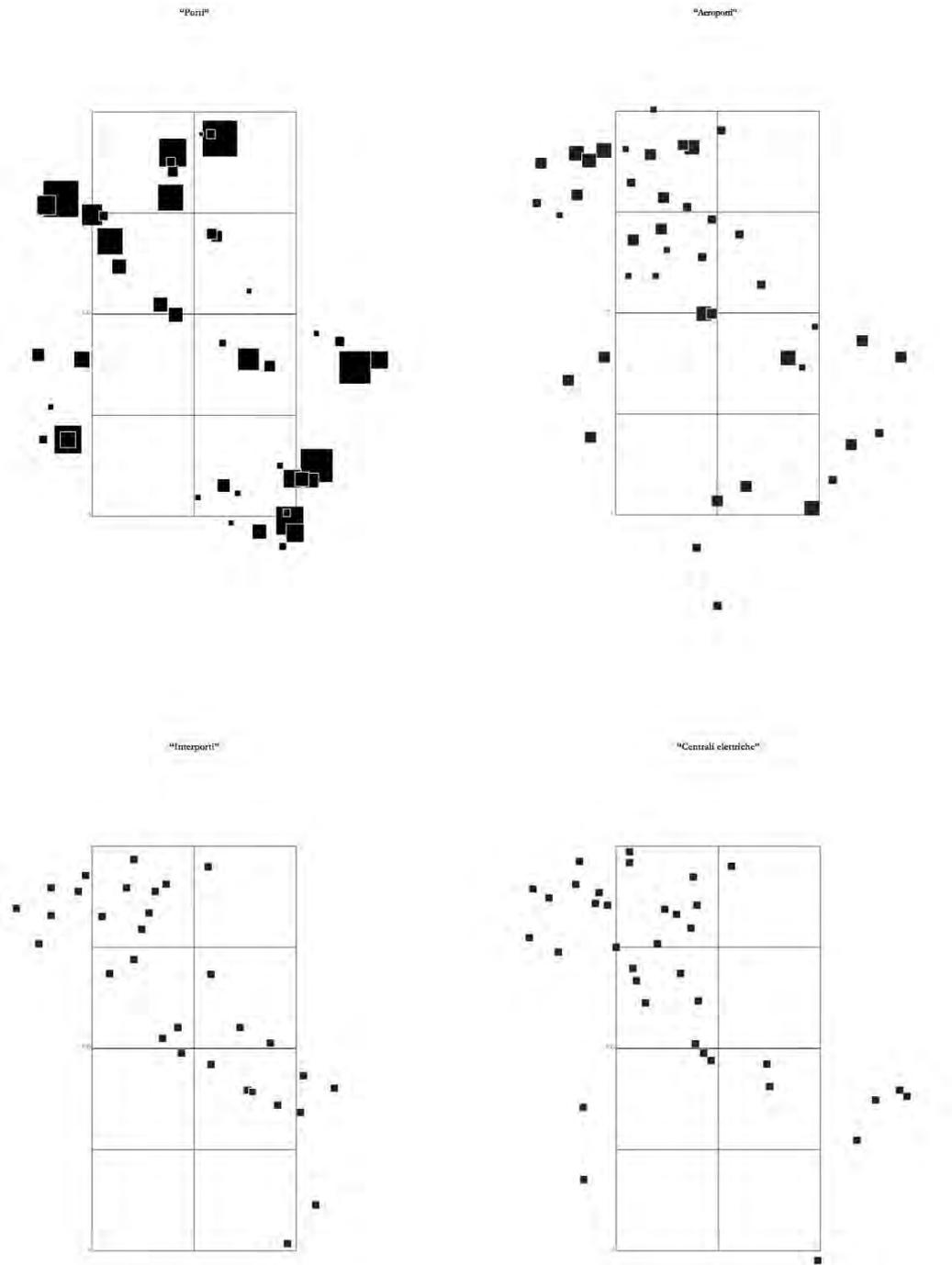
[fig.5] Infrastructure map deconstruction. Source: elaborated by the author.

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The Northbothnian Technological Megasystem: Urbanization, territorial metabolism and political ecologies.

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Planetary Urbanization (Brenner, Shmid, 2011) opens up a radical shift in analysis from urban form to urbanization process, as suggested through the radical hypothesis of the complete urbanization of society, put forward by Henri Lefebvre four decades ago. This situation means, that even spaces that lie well beyond the traditional city cores and suburban peripheries, have become integral parts of the worldwide urban fabric. Political-economic spaces can no longer be treated as if they were composed of discrete, distinct, and universal "types" of settlement.

Under such scope, in every region of the globe, erstwhile "wilderness" spaces are being transformed and degraded through the cumulative socio-ecological consequences of unfettered worldwide urbanization. In this way, the world's oceans, alpine regions, the equatorial rainforests, major deserts, the arctic and polar zones, and even the earth's atmosphere itself, are increasingly interconnected with the rhythms of planetary urbanization at every geographical scale, from the local to the global. These spaces become critical for urban development (and moreover, for urban political ecology debate). For that, Sweden is a paradigmatic case study where the **urbanization** of the southern part of the country **is sustained upon an extremely intensive appropriation of natural resources** from the North (Sörling 1988), (Tidholm 2014).

Norrboten, the northernmost land of Sweden, is a paradigm for territorial metabolism where a complex combination system of mining industry urbanization shaped the area. Thus becoming the connecting concept of Norrbotten Technological Megasystem NTM (Hansson, 1990) [fig.1], it's key actors: *natural resources, mining, transport, H_2O, energy, military infrastructure, mining communities, the indigenous Sami.* Today the nature of industry remains the same, the social, political and economic leverage NTM exerts over the region is absolute; the economic profit, financial stability and wealth of the Swedish state take precedence over the environment. However, much of the industrial paradigm that underpinned its implementation is now under a severe change; as the global economy is facing an era of human development where resources, metals, minerals and energy will be more critical than ever, a renewed urban and territorial framework is urgently needed. The set of relations between environment and communities is currently under an unprecedented revision based on socio-environmental reflections.

This short paper will pose for discussion how heavy territorial infrastructure respond to the changing metabolism that is following after the short-term appropriation of resources so characteristic of industrial development in northern Europe. By critical graphic comparative analysis and trans-scalar research by design (Barcelloni & Cavalieri, 2015), the thesis will empirically investigate these processes to be able to cope with the debate on infrastructural adaptation through political ecology perspective.

[fig.1] The Norrbotten Technological Megasystem (NTM). Water-energy system along the Lule river and railway Luleå to Narvik. Source: from historic archive web www.historiskt.nu, web www.powerplants.vattenfall.com, Statens Vattenfallswerk. Image modified by the author.

Introduction

Have, even spaces that lie well beyond the traditional city cores and suburban peripheries, become integral parts of the worldwide urban fabric? Do really exist wilderness anymore? How is planetarian urbanisation becoming an interconnected reality in a glocal geographical scale? *If 90% of Europe's iron ore is extracted in the Norrbotten county, is this territory less connected to urbanization society cycles than cities like London, Berlin or Paris?* How is the emerging, evolving and future transformation of a local megasystem justified by the extractivism of natural resources for the wealth of a state?

Urban political ecology asks questions about who produces what kind of socio-ecological configurations for whom (Heynen, Kaika, Swyngedouw, 2006), it comes thus to great interest in the present times to analyse those transformations happening in environments far away from the most populated areas, where nobody is watching. There is nothing unnatural about produced environments like cities, dammed rivers, or irrigated fields under the realising that produced environments are specific historical results of socio-environmental processes. The interest is so to understand the processes in those urbanization cycles at the multiple scales.

Under this scope, the northernmost part of Sweden is an example for territorial metabolism paradigm where a complex combination system is sustained through the flow of water (or power?) of a large sacrificed river; thus giving the start circulation to the interconnected hydropower system for energy supply, through the transportation in the railway Luleå-Narvik, following to the harbours. Raw materials from the mines are giving the basis for the extractivism and its urbanisation process.

The purpose of this short paper is to show how and why this socio-technological megasystem's process emerged and evolved, taking as a start point today's perspective, excavating the process of modern urbanization of the territory which eventually will embody in its material, symbolic, political and discursive constructions the expression of how the "production of nature" is both arena and outcome of the tumultuous reordering of socio-nature in ever-changing and intricate manners (Swyngedouw 2004).

To focus this in the framework of the paper, the discussion will place the interest on the socio-physical processes, with the physical system: *water* (Lule river) as the backbone supporting the so closely related technological megasystems, its ultimate goal: *extractivism* (mining), a process located in the multiple scales. How closely related a political nationalistic perspective evolved, in the time of modern industrialization in Sweden, through the appropriation and sacrificing of the natural resources, all justified for the energy and the wealth of Sweden's people?

The Northbothnian Technological Megasystem

Natural resources

Norrland is a very rich region in natural resources and it was well seen as an opportunity during the period of 1870-1920, where as the result of the modernization process a new picture of Sweden emerged. Industrial society demanded a more realistic vision of the country and a new national identity. There was an extended belief that Sweden had been blessed with good prospects in the form of superior natural resources, as the industrial breakthrough had shown that raw materials and their refining provided for success in the modern world (Sörlin 1988). As a result, hasty industrialization happened, mainly within *extractivism* in lumber industry and mining. This was followed by the beginning of a large-scale exploitation of the great rivers *water flow*, as technological advance brought the possibility to produce hydropower electrical *energy*. The far unimportant region had changed into an area of enormous national economic significance, which as a consequence brought tremendous scientific research interest, mainly concentrated on the natural resources and their utilization through inventory projects carried out under state supervision. Here the relationship between science and economic interests was not unambiguous, research on natural resources was carried out as a nationalistic act.

Mining

The mining industry is one of the world's largest and Sweden is an important European participant. It dates back to the early 11th century and has provided for the country a stable financial foundation for centuries. However, it is not until the end of the 19th century with the confluence of modernization and advances in technology that the industry, and specially with the construction of the Malmbanan railway between the harbours Luleå to Narvik, would turn intense extractivism into profitable. Mining was thus transformed into a key sector for the industrial breakthrough in Norrland and Sweden. In 1750, the export of iron ore accounted

for 70% of total goods exported from Sweden (Malmberg, Buckland, 2015). Today, *90% of Europe's iron ore is extracted in the Norrbotten county.*

Most of the iron ore in Norrbotten is located in the mountains Kiirunavaara, Luossavaara and Malmberget. Aitik is extracting other metals including copper, gold and silver. Yet mines have an extreme territorial impact, in the form of noises and dust, as well as pollution of air and water. Running a mine takes a lot of energy and water, and processing produces large amounts of waste rock, as well as leakage of polluted substance or metals to the surroundings and acidify the lakes and rivers. But mines in Sweden are often considered so important that protection agencies allow large emissions beyond what would be tolerated in other industries. Swedish law is benefiting mining corporations, and attracting foreign companies to the Swedish mining market. Legislation even allows mining companies to prospect and begin excavation on private land without the landowner's consent. The mining industry's so called national interest trumps other national interests, such as environmental protection, outdoor tourism, and the reindeer herding industry (Malmberg, Buckland, 2015). An exemplification of that, the mining industry is exempt from the landfill tax, has a lessened energy tax, and only pays the mineral charge on 0,2% of the excavated value of its minerals (Tidholm 2014). Nowadays, mining companies should be required to prove to be financial stable, and regulations ensure it in order to avoid the danger of going bankrupt, leaving mines with its pollutant stand to be bought by the Swedish state at a great expense.

The other side of the story in a local perspective is the strong labour movement characteristic of the region, with consistent strikes. That way, the rise of unionization in Norrbotten specifically can be seen as a part of the larger pattern of community resistance to the NTM. Another manner more apolitical without protest, is the search of diversification of the industry, as with the push for space research in Kiruna it is a desire to unbind from the monopoly of the Norrbotten mining industry.

Transport

The prospect of mining to a profitable one would change in 1878, with the technological method for industrial ore purification that British chemists patented, it meant that iron ore could be purified and the phosphorus removed. Industry became then a consequence. Now a larger transportation network [fig.2] between the north of Sweden to the coast for processing and exporting to Europe was needed.
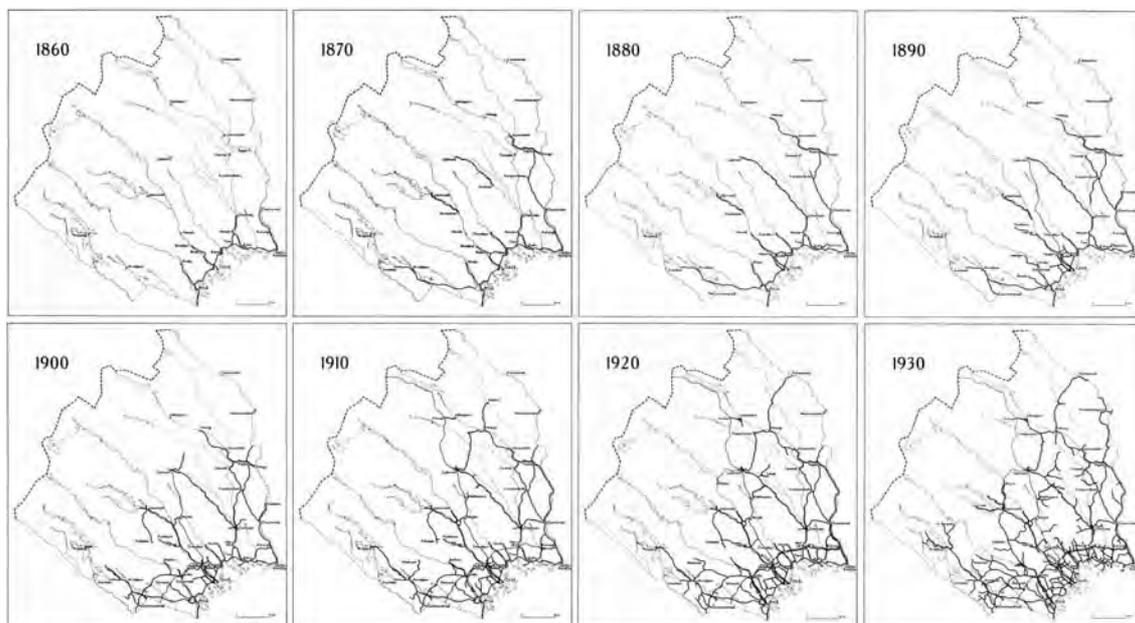
[fig.2] Historic roads and railway extension process in Norrbotten from 1860 until 1930. Source: from the Norrbotten's museum archive.

To begin with, it meant the construction of a railway about 200 kilometres long, between Luleå and Gällivare. Until then, transports had been carried out using reindeer and horses. Built by an English company, the railway was completed in March 1888, going bankrupt in 1889. A political regime shift that led to a transition from liberal to protectionist thinking was followed by the fact that the state took over the ore field (railway, harbour, surrounding infrastructure), and that mining rights were transferred in Swedish hands. The arguments put forward in the government's proposal emphasized that a state takeover would have beneficial socio-economic effects.

But there was still an obvious weakness on the transport side, Malmbanan reached only Gällivare, not to the larger and more accessible ore compound in Kiruna. As long as this was the case it resulted not economically viable to conduct mining in Kiruna. In 1898 a decision was made to build the Ofotenbanan, completing the last tram until the harbour in Narvik, being ready in 1903. As a consequence and in order to strengthen the defence of the railways and mines, the fortress building in Boden began.


[fig.3] On the top the harbour in Luleå 1960, down the extension of and actual Sandskär harbour. Source: from web www.kartbild.com.

Vital as well was to have a harbour from which to load the iron ore onto the ships that would transport it to Europe. The English companies placed the harbour in Luleå, the first loading was in 1887. In 1965, a decision to increase shipping potential was made to rebuild and expand the shallow harbour adding a new water with and increasing capacity from 4,300,000 to 9,000,000 tones. Ten kilometres were dredged, and a rocky shore was blasted away during construction. In 1994 it was decided to build a new harbour at Sandskär, being completed in 1996 [fig.3]. Aiming for higher security and ore capacity (both influenced by an increasing global need for iron), plans are to build a new harbour which will be connected to the nearby road, expected to be completed in 2020.

With the Ofotenbanan, the pressure on the mining system's energy component increased. The state became in 1907 half-owner in LKAB, with the agreement for a significant increase in ore mining and transport. It soon became apparent that the energy part of both the mining and the transport system were not dimensioned for these new commitments. A change from steam to an electrified railway was foreseen, and the next system building decided, a hydroelectric power station in Porjus that came into operation in 1915.

H₂O/ Energy

At the end of the 19th century mining operations in Norrbotten required more energy for the extraction and transportation of ore, it was coinciding in time to when the state became half-owner in LKAB, and with the enlargement to the north of the railway to reach Kiruna [fig.7] and Narvik. At that time Sweden was entirely dependent on coal imports for its energy supply, thus "the white coal" or cheap electricity with hydropower was the answer, in 1910 the Swedish state commissioned what would be the largest hydropower station in Scandinavia: the Porjus power plant, producing a then-record breaking 50 MW upon completion in 1915 [fig.4]. Today it produces 480 MW, the 4th largest in the world. The 1st largest is now located further down the Lule river, Harsprånget power plant, achieving 977 MW.
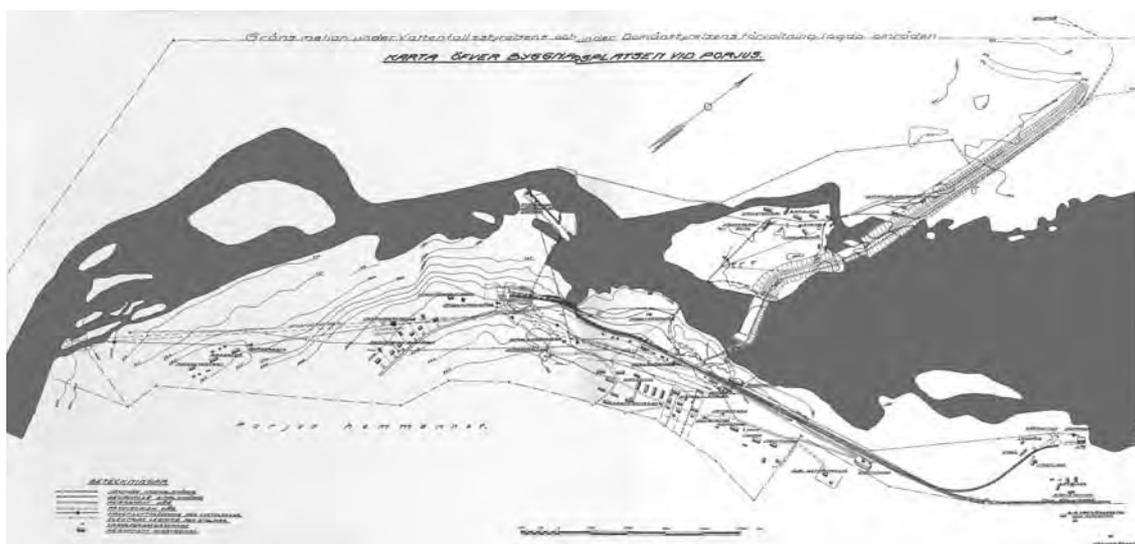
[fig.4] Map of the building site at the Porjus power plant. Source: from FORSGREN, N. (1982). *Porjus. Pionjärverket i ödenmarken*. Stockholm: Elitoffset AB. Image modified by the autor.

Yet, how was the decision made and which were the aims for such an oversizing of the system? what was the future perspective in mind and flexibility taken in account for the building of the NTM? When the question of a power plant construction in Norrbotten began to be discussed during the first half of 1908, the purpose was producing electricity for the ore field and the mining in Kiruna and Malmberget. But viewed from the 1908-1909 horizon, the power plant could also fill a very valuable function for new industries whose operations were importantly based on good access to cheap electricity. It was thought that electricity could grow a major development block. Because back then it was not possible to transfer electricity over longer distances, the industries that wanted to use electricity had to be placed near the power plant. This change, concerning its purpose, was in line with the industrial police aiming at promoting Swedish industrial development and thereby increasing use of domestic natural resources. It was also a policy that had led to an ever-increasing government involvement in different areas. A criticism to the policy is that it largely affected Norrbotten, and yet it was designed by actors without anchoring in the county and without close cooperation with Norrbotten players (Hansson 1998).

A major difficulty in the building of the system was knowing how should have to be dimensioned and how to deal with the problems that arose. The power plant took a risk in getting larger dimensions on behalf of overcapacity for certain periods. Another option could have been to take energy from elsewhere in the cases needed, an approach termed by Hugues as an "economic mix". This is what was the case in southern and central Sweden, where other possibilities for interconnection between different entities occurred. Later, and here will be argued it happened because of the contradiction of choosing a large energy system versus an interconnected flexible one; with the unexpected problems by the wake of the First World War, world economic problems turned the longer perspective of industrial visions down. The consequence of it was an overcapacity of the power plant, but by the moment when the crisis finally went away technological advances allowed long transfers of electricity to the centre and south of Sweden, leading to a complete override of the visions from 1910s [fig.5]. Today, nearly half of Sweden is met by hydropower. The Lule river is the largest source of hydropower in the country [fig.6] [fig.8], with fifteen hydropower plants run by the state-owned Vattenfall AB.
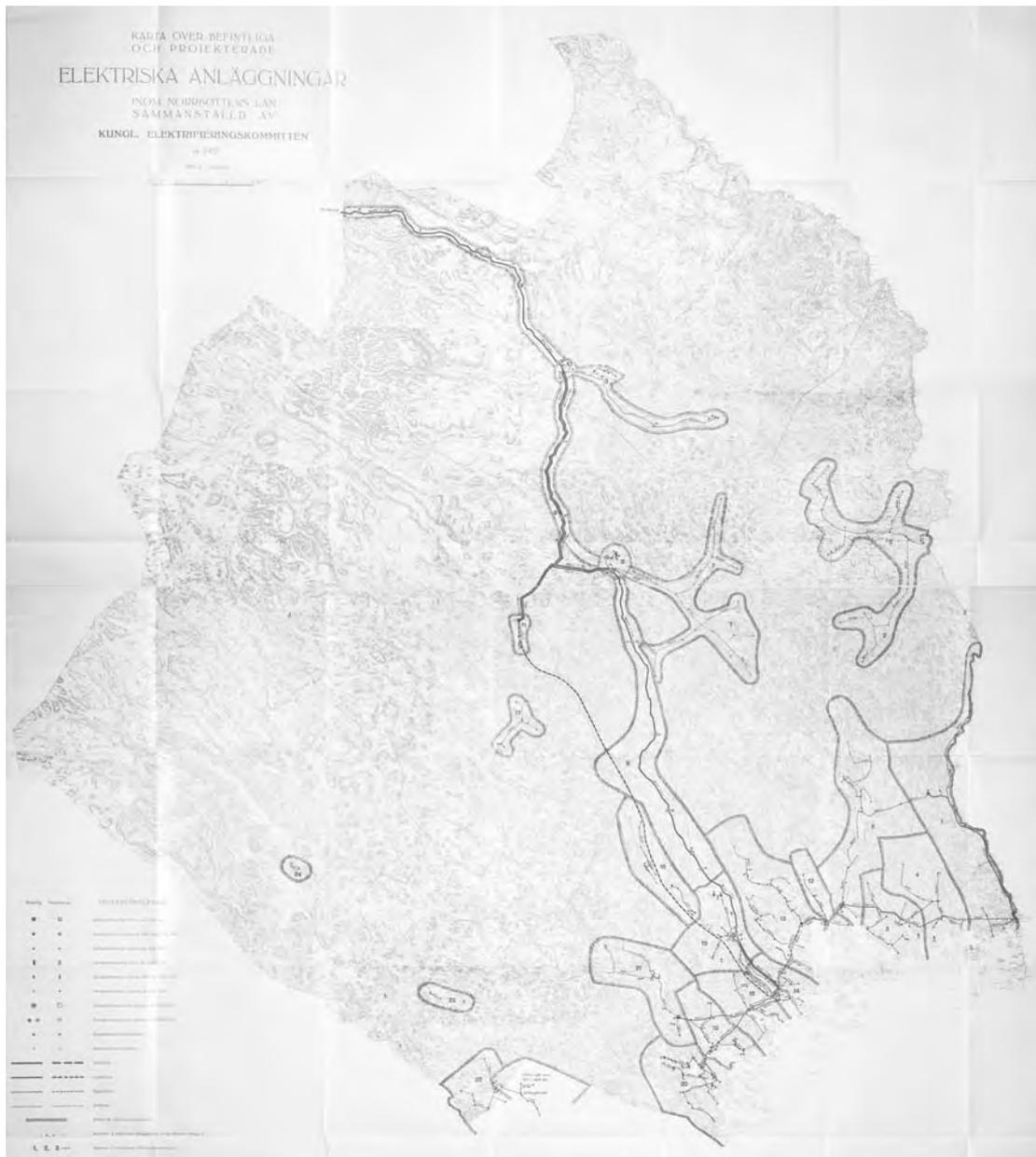
[fig.7] Map of power stations and power lines in Norrbotten in 1924. Source: from the National Library of Sweden.

[fig.6] Dam in Suorva and its American influences. Source: from FORSGREN, N. (1987). *Suorva. Dammbygget i vildmarken.* Vimmerby: VTT-Grafiska.

[fig.7] Photo "Malmpallar i Kiirunavaara", how the railway and electricity were conquering the territory of the northernmost part of Europe, arriving to Kiruna. Source: from Kiruna. F.G. Landströms Bokhandel: Kiruna.
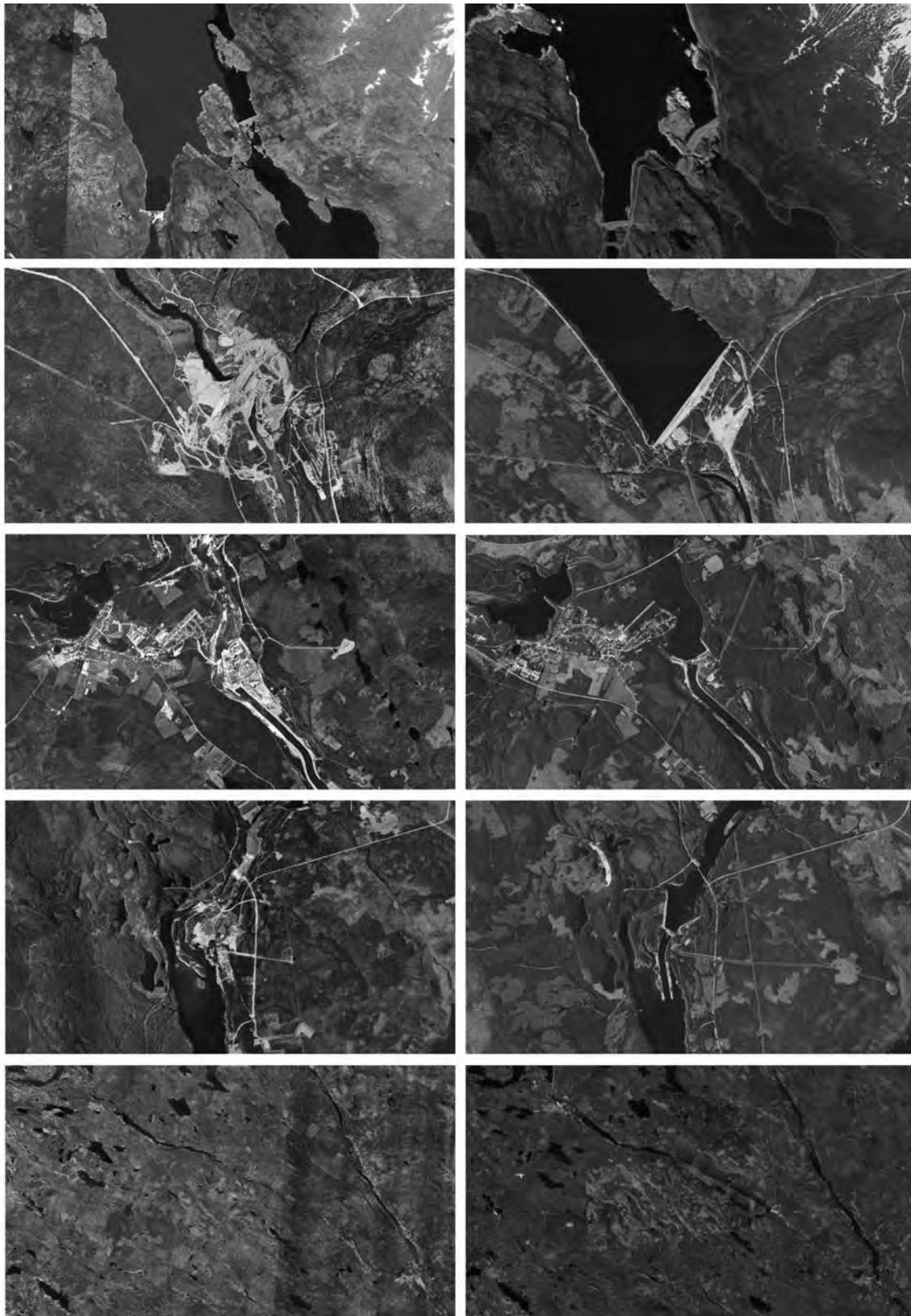
[fig.8] Transformations in the building of some of the fifteen dams located along the Lule river, on the left 1960s, on the right the present. From the bottom to the top: Suorva, Messaure, Porsi, Laxede, and the dried tram of the Lule river affluent, between Letsi power station and Vuollerim. Source: from web www.kartbild.com.

Military infrastructure: Boden, Lule river

When the Riksdag and the Norwegian parliament in 1898 decided to extend the ore from Gällivare via Kiruna to Narvik, it meant that the last railway tram would be built, requiring an increase in defence preventing the risk of possible interests from Russia in northern Sweden. In 1900 a parliamentary decision was made for the construction of the fortress in Boden: a facility widely acclaimed for defending the great stagnations made in the north. At the moment the decision was taken, the mines were still in private hands but with the 1907 Riksdag decision, the state was to become a half-owner in LKAB.

The securing with the defence at this stage, would lead to control the risk and make further decisions on the building of the megasystem. The next one to be taken was for a power plant with the dimension to respond on Malmbanan and LKAB's needs. A review in a time of great change with long perspective will lead to consider a hydroelectric power capable to reach and expand for higher demands, opening the possibility to the increasing of production and further industrialization of the region (which for other unpredicted reasons such as: the irruption of the First World War, the transport side where long distances caused problems, long and cold winters which caused very long periods of downtime in the shipping industry, underdeveloped education with no prepared people in technological fields…didn't turn to be as planned).

Community conflicts

Mining communities, urban transformation in Kiruna and Malmberget, Aitik.

Mining is the backbone of the Swedish state and is threatening Norrbottens communities, its land and livelihood, bringing unstability through weak regulations and environmental transgressions. Kiruna and Malmberget (main iron ore mine towns) buildings will need to undergo radical changes in the coming decades, being strongly affected by what is happening in the world at a global scale. This is, as iron ore prices began to rise in the early years of this century thanks to growth in China, LKAB decided by this influence to continue mining (Sjöholm 2015). Thus, company's operations will be secure for many years and mining will continue reaching new main levels. As a consequence, towns will gradually be affected by the continuation of mining, forcing to move - relocate buildings (cultural heritage considered) or demolish. The land between town and mining will be converted into a park buffer area. In 2004 the Municipality of Kiruna issued a press release stating: *"Vi flyttar en stad"* (we are going to move a town) [fig.9].

[fig.9] The headline "Vi flyttar en stad" (We are moving a city) appeared on the news in 2004. Source: from the web www.samhallsomvandling.lkab.com.

Pollution, global warming, and the peculiar industrial accidents in Kiruna and Malmberget are all slow-onset disasters, which can take generations to become understood and are often seen as inevitable (Malmberg, Buckland, 2015). From the beginning of the mining first settlements or shantytowns, they were decided to be built the closest to the centre of the mine, as transportation in Norrbotten was difficult the shortest distance from the homes of the workers to the mine pre-vailed. Hence, when the mine proved profitable towns were dismantled and rebuilt on the same spot, a largely unplanned growth repeated throughout the histories of

Kiruna, Gällivare and Malmberget. Without the possibility to rely on other sources of energy for transportation alternatives, it was decided to build on top of where iron depots were, if known that one day would possibly be extracted it was the condemning of the town to be moved in a future scenario. When taking in account today's process of moving the towns, the one-company town LKAB is aiming to protect natural reserves, avoiding further proximity to current and future mining operations. But as LKAB is the one supplying the buildings, roads and infrastructure for the new towns, community is solely depending on the industry for sustenance. The administrative role in the relocation process serves to further strengthen their political and social influence (Malmberg, Buckland, 2015). The mining community was dependent upon the LKAB company for sustenance up until the 1950s, when the Swedish state bought a controlling interest putting in theory the community wealth at first priority, but as one of the several consequences to industrialization: in practice, financial interests often comes first.
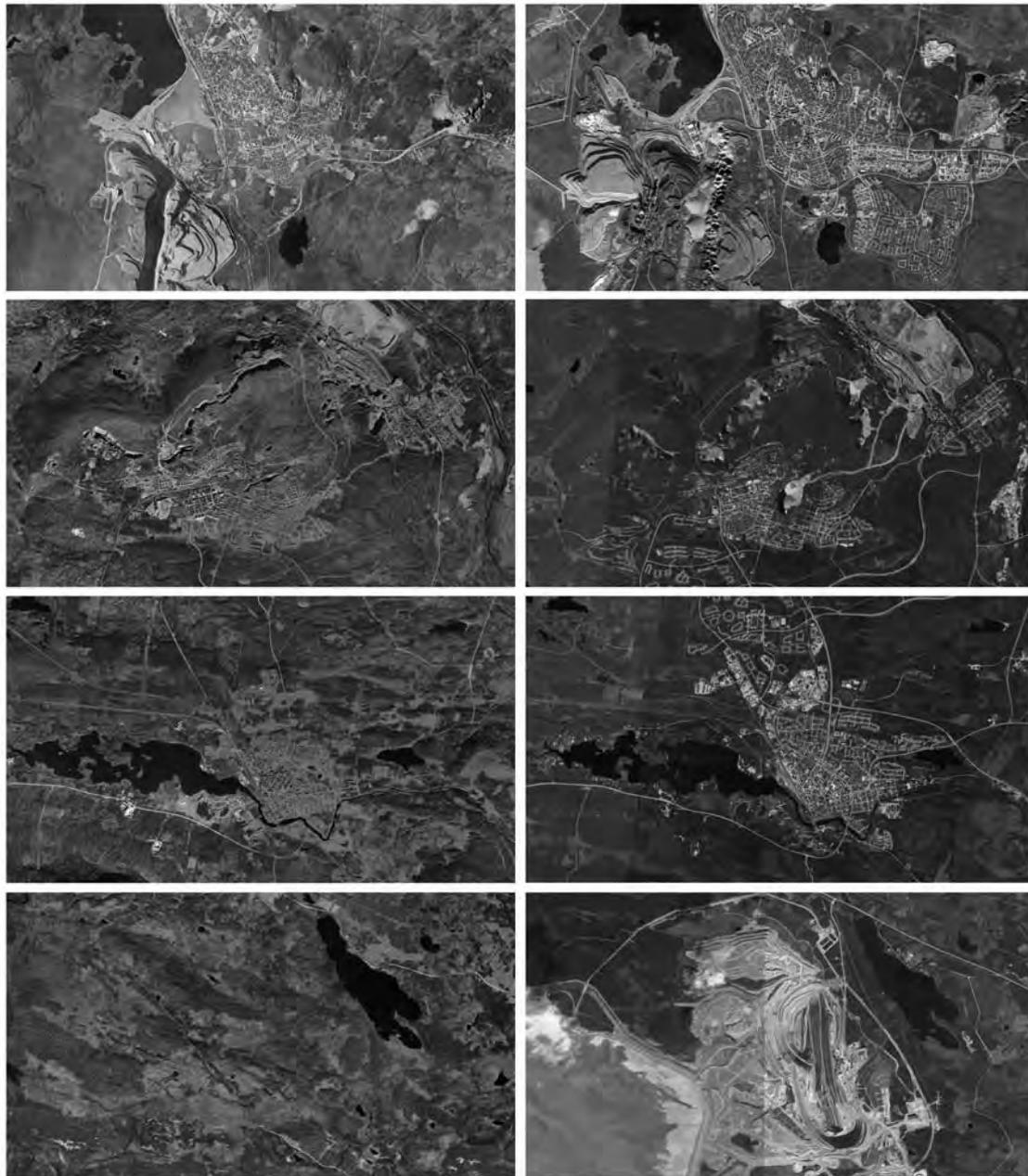
[fig.10] A comparison from the top to the bottom, of the mining and towns of: Kiruna, Malmberget, Gällivare and Aitik. On the left 1960s situation, on the right the present astonishing transformations can be seen. Source: from web www.kartbild.com.

Kiruna, Malmberget/ Gällivare and Aitik, serve as examples for a reflection on the interactions between generalized industrial megasystems and their surrounding communities in Norrbotten and Sweden at a large. Three different physical realities in the extractivism coincide with different processes and consequences to their communities [fig.10]. First, in Kiruna, the mine is deep below the Kirunavaara mountain. As volumes of rock are removed from the mine, the ground above is liable to cave in proportionally. The Kiirunavaara iron ore body slopes, at an angle, beneath the outwards towards the town. The ground seeps and falters, and will eventually cause the town to crumble into a pit of waste rock, a slow process but inevitable. If mining operations ceased today, the surface would destabilize within a few decades. As mining operations continue, the sinkhole expands even further. LKAB estimates the town will be unliveable within a century. Hence, the town is facing a relocation due to an impending surface collapse. Second, in Malmberget, the mine is open-pit. In the 1950s, the pit, nicknamed Kaptensgropen [fig.11], began to expand of its own accord. LKAB evacuated the nearby buildings, moved some structures and abandoned others entirely. The ever-growing pit divided the town in two. Houses and neighbourhoods were swallowed by the dangerous sinkhole. Between the risk of rock falls and the threat of relocation, the town of Malmberget began to dissolve socially and economically. Mining ceased and a majority of residents moved to the neighbouring Gällivare. Now with population 6000, it was once a much larger community, and the city plan reflects that. Most houses and streets are empty. The pit only becomes obvious when driving through town, with many roads closed and blocked off. Here, the town is suffering an irreparable damage causing the migration of its residents to the neighbour town Gällivare. Third, in Aitik, the mine is open-pit very automatized and increasingly digitalized. Because Aitik began operations in the 1960s, modern automotive technology meant that its workers could simply live in the nearby town of Gällivare. There was no need for a hyper-local mining community, as in Kiruna and Malmberget. There are no community issues, no cost of human impact, and no evacuations. When the mine begins to crumble into instability in the coming decades, it can simply be abandoned. With the precautions of modern mining technology, yearly tests for groundwater pollution are reassuringly negative. While there are other environmental impacts, Aitik has the smallest social footprint of any major industrial mine in Norrbotten. As a result, Aitik has a relative lack of community impact.

Some questions arise to be critical in the following research. Was the first urban setting decision condemning the town to be moved in its future development, due to the building of homes on top of hypothetical or known location of iron depots? What are the social problems related to, if LKAB is versus the municipality, taking responsibility on the moving process while being a public company? How will the moving of the towns be perceived in the history, as old buildings or as complex historical environments?

[fig.11] The ever-growing expanding pit in Malmberget, nicknamed Kaptensgropen (Captain pit), dividing the city in two. Source from the web www.thepolisblog.org

The indigenous community today: The Sami

The construction of roads, railways, dams for hydropower, and pollution of fields and mountains for the mining industry requires numerous environmental changes, which came in expense to the economy of the indigenous community inhabiting Norrbotten and the region of Nordkaloten: The Sami. These changes are affecting them in numerous ways and for instance disrupting the annual migration of their herds, as well as often poisoning the animals. In this socio-physical reality comes in evidence how the infringement of larger megasystems have repercussions as representatives of a common industry-first attitude.

The long-lasting conflict between Sami and the affection by industrialization process intensified when operations and the community of Kiruna were stablished, here the government breached the development limits set by the parliament in 1867, which through the cession of land traditionally owned by the crown or state, was becoming the property of individuals. There was to be no new settlement outside the development limits, and the land was instead to be used solely as reindeer grazing land, but in the practice this was not followed. A hundred years before it had been another conflict, the ratification of the Swedish-Norwegian border (1751)[1], when the feeding areas became regulated through taxes. These regulations applied more or less up until 1905, when the union between Sweden and Norway was dissolved (Lundholm, Groth, Petersson, 1996). Later, from the LKAB's first managing director in Kiruna Hjalmar Lundbohm, came the doctrine "lapp skall vara lapp" (Lapp should be Lapp), arguing that reindeer-herding Sami should not be integrated into industrialised society, neither commercially nor culturally. This way the Sami reindeer-herding culture would be preserved for the future, believing that if they had contact with "civilisation" then could be tempted to give up their nomadic lifestyle (Viklund, Brunnström, Sjöholm, 2015).

One could argue here towards the necessity on leaving any kind of false ideal interpretation, their lifestyle or conditions for survival like anyone else also changed, together with technological developments and urbanization. Thus, today with technology, migration takes place by truck, milking or cheese production became rare and evolved to meat production. Forced migration and the survival of the group amidst the modern industrialized society spreading its characteristic large-scale concept, are the current challenging processes. The traditional Sami way of life is based on other basic values, with the reindeer-keeping the Sami has learned to adapt his life to his natural environment, understanding the vital importance of protecting the land.

Environment questions are given a higher priority nowadays when initiatives like new dam projects are discussed. How to use natural resources? Where are the interests and how are they weighed against one another? Where is the compromise between the needs of the larger society to use the assets for the good of the whole nation, and the self-evident right of the Sami to live in accordance with their traditions?

Case study not sufficiently investigated

After 1920, the once perspective of the northern region as the symbolic future of Sweden has turned to another reality of economic decline. *Economic reliance* is a major repercussion of the NTM. It is so that when an industrial town is founded adjacent to some natural resource, the community that grows up around it tends to be predominantly employed in that specific industry (Malmberg, Buckland, 2015). This is the case of Kiruna, Malmberget, Gällivare and the majority of small industrial towns in the region. When the most part of the residents are employed in one central industry, the wealth of that industry tends to parallel the wealth of the town. The same, the wealth of the NTM, and all the myriad industries it contains, tend to parallel the financial and social well-being of those living in the region. Thus, the specific industry tends to gain influence in the politics of the region. By a similar mechanism, the environmental concerns of the region tend to be weighed against the benefit of the industry, which is given preference in nearly all cases. Now, futures

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[1] Nationalistic thinking caused a deterioration in the situation of the Sami. The treaty of 1751 allows for Sami to cross the Swedish-Norwegian border, and that applied more or less right up until the end of the alliance in 1905. The result, specially for Sweden, was that Sami from Norwegian Finnmark and the Torne Valley continued with their reindeer-keeping as far south as the upper reaches of the Ume ricer. This brought a cultural clash between groups of Sami, as they did not speak the same language, they had different methods of reindeer management and their way of life was different. Criticism is levelled at the decisions made by authorities concerning mandatory measures in general, and in particular at the fact that two management systems came to be side by side. The northern Sami had practically ceased their milk utilization at the beginning of the 20th century, concentrating instead on meat production. Thus, extensive reindeer-keeping evolved. Therefore the new arrivals brought reindeer herds which mixed with the existing herds where the Sami still practised intensive husbandry, i.e. grazing and milking. If we move on to the last two decades, we can note that the milk economy was not viable, whatever the geographical area.

continue to be formulated for Norrland, stemming from contemporary idea currents like ecological consciousness and visions of hi-tech societies (Sörlin 1988).

Conclusions

What emerges from this first horizontal analysis in the urbanisation processes of the NTM shows that the optimistic decisions, by the building of the large megasystem made at the time where the region was seen as "the Land of the Future" (Sörlin 1988) with abundant natural resources, didn't meet the desired expectations. The high dependence from the different elements make the system less strong in adaptability when shortcomings arise. Be an example the First World with its counter effects, or the technological advancements allowing for the energy to be transferred to the south of the country as soon as overcapacity affected the system. Energy could be in the future better produced nearby in a distributive manner with less damage to the always linked processes of the planetary environment. But even back in time, one could see that the south of Sweden was not relying in a unique large system, instead in a network of, where providing for energy in a more diversified manner.

The settlements designed just to extract the needed resources for a society in a national or global scale can lead to a weak basis of local social structure, no diversification of the economy and avoidance to accept the richness complexity of "the place" are threatening large systems from the very start point. Lefebvre asked: *"If the traditional is dissolving, and urbanization is being generalized across the planet, can new forms of citizenship be constructed that empower people collectively to appropriate, transform and reshape the common space of the world?"* So it could be argued that the subject for empowerment should come to be the "society" power, taking the bottom approach. If as in this case study of a large megasystem: one-company town, top-down energy and transportation rigid systems are the "game rules" [fig.12], how could they be transformed by whom and how? Why and when will that happen?
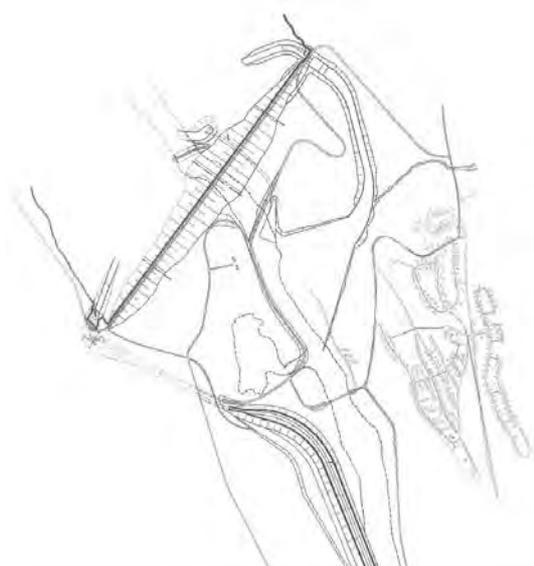
[fig.12] Messaure provisory town. During the years of the hydropower plant construction (1957-1963), a temporary town for approximately 1,350 inhabitants was built to allocate the workers. On the top the plan to build the dam with the town, in the middle while under construction in 1960, at the bottom the present situation where only the streets remain. Source: from Statens Vattenfallswerk, web www.kartbild.com.

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The Strategies of Territorial Development in the Test of Coastal Dynamics. From the Mobility of the Coastline to the Spatio-temporal Depth of the Coastal Area

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Natural disasters, as a mark of a 'before' and an 'after', are central in the perception of risk. In France, they feed a jurisprudence, allowing an incremental evolution of policies. New tools appear in the fields of urban design and legal procedures. Their effects are analysed through several case studies of post-disaster redevelopment. This study reveals the coexistence of complementary decisions that hover between the reproduction of a conventional building culture and a kind of regulatory functionalism. In spite of their efficiency, these measures have limits – public incomprehension, lack of project, counter-productive effects… Experimental initiatives try to overcome these limits through the design process. The establishment of a collective memory becomes a prerequisite for a dynamic approach of natural hazards. The spatio-temporal depth of the coastal area, as a project itself, plays a decisive role in it.

Topic of the Research and Research Question

The coast is the privileged place of a hybridization between natural environment and human activities. On a global scale, around 60 % of the population lives in coastal areas (Béoutis, Colas, Jean 2008); a presence in constant increase, which generates an important economic wealth[1] but at the same time increases the vulnerability of human settlements to coastal hazards – erosion and marine submersion. The waves of urbanization of the 19th and 20th centuries, which allowed the development of beach tourism, have also led to the birth of a 'risky territory', subject both to an anthropogenic pressure and to coastal dynamics (Lageat 2016). These two forces act in an iterative manner, the first one amplifying the effects of the second. Thus, the coastal space is relentlessly being remodeled, both by the urbanization process and by the alteration of the coastline.

If the science of coastal dynamics has a long history – it was already described by Alberti in an empirical way in 1485[2], and then studied during the 20th century by geomorphologists – it did not impede the densification of coastal areas, planned or not. On the contrary, their massive urbanization in the seconld half of the 20th century bears witness to the technological faith of engineers[3]. The "Littoral" Act, a founding text with regard to the french policy of coastal protection, was enacted at the exact time when the most important planning operation were nearing completion. Furthermore, its implementation raises problems; its effects vary from one place to another and often gives rise to litigations, without restricting the coastal artificialisation[4]. Two centuries of urbanization have made coastal areas a vulnerable territory. Primarily based on environmental control through infrastructures, these developments are now being questioned due to the risks they present, the maintenance cost of coastal protections as well as the damages they are frequently exposed to. Experiments initiated by the State try to reverse that trend in the light of the Integrated Coastal Zone Management (ICZM), a concept based on the coordination of stakeholders around an ambition of resilience (Auly, Lageat, Prat 2014).

The analysis of this dual heritage – both built and sociocultural – and the ways in which its évolution might be eased and promoted in the french context are the topic of this research, which investigates the following question : between environmental control through infrastructures and adaptation of human settlements to an evolutionary environment, to what extent coastal dynamics can initiate a recomposition of the coastal landscape?

Research Hypothesis
Several research hypothesis can be inferred:

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[1] In 2007, coastal tourism accounted for 29% of the domestic tourist consumption, or 34 billions of euros; in 2011, the coastal municipalities accounted for 39% of the national tourist accommodation, or a capacity of 7,4 millions of tourists. See Guingand, A. and Quintrie-Lamoth, T./Ministère de l'Écologie, du Développement Durable et de l'Énergie, 2012. *Analyse économique et sociale de l'utilisation de nos eaux marines et du coût de la dégradation du milieu marin.* Paris: MÉDDÉ, 2012, p. 2.

[2] Read the description of coastal erosion in Alberti, L.B., 1485. *De re aedificatoria.* Translated and presented by P. Caye and F. Choay, 2004. Paris: Le Seuil, p. 508.

[3] The epic of the "Mission Racine" and its large public works is related in Picon, A. and Prelorenzo, C., 2000. *L'aventure du balnéaire. La Grande-Motte de Jean Balladur.* Marseille: Parenthèses.

[4] Those difficulties were described in several Parliament reports; see in particular Bizet, J. and Herviaux, O./Sénat, 2014. *Rapport d'information fait au nom de la commission du développement durable, des infrastructures, de l'équipement et de l'aménagement du territoire sur la loi Littoral.* Paris: Sénat, pp. 11-17.

- After the prolific period of the 19th and 20th centuries, the architectural invention of the seaside may now be in a crisis, which could explain the difficulties the implementation of the "Littoral" Act encounters. The latter would be penalized by the dominance of a legal interpretation over a project interpretation.
- A paradigm shift would be in progress to characterize the coastal landscape: the spatio-temporal depth of coastal area would supersede the concept of 'coastline'. The early stages of such a paradigm may be identified in some architectural realizations of the 20th century. Based on the integration of hazards and on the control of anthropic pressure, that depth would support the achievement of strategies aiming at resilience.
- Even though each shore has its specificity and may require a contextual intervention, general principles of resilience could be developed by recognizing structural recurrences which are typical of coastal area.
- Identifying the risks and implementing their visibility would be crucial factors for a social acceptance of the territorial adaptation to hazards.
- The coastal resilience would partly rely on the reinvention of the building culture; a 'light urbanization' could supersede the solidity logic prevailing so far.
- The evolution of tourist habits and their legal and economic models may facilitate that reinvention; the coastal landscape, reconsidered as a common heritage, would then be renewed.

Methodology
The methodology relies on three steps :

Historical Contextualisation of the Question
The first step consists in questioning the links between the invention of seaside as a territory of project and the building of a risky territory, through a historical approach. This is based on a critical view of the coastal protection. Indeed, while allowing to edificate by the reclamation of the land, it has also altered the geomorphologic operation, leading to a paradoxical situation where creation and destruction were interwoven through the settling of the 'coastline' in urban and architectural projects[5]. The analysis of the axes of the National Strategy for the Integrated Management of the Coastline (NSIMC) then shows how the uncertainty related to the coastal hazards and the climate change conduce to deconstruct the concept of coastline: the coastal area is now conceived as a depth rather than as a line[6].

Characterizing the Coastal Depth, Identifying Risks and Evaluating the Resilience Potential
The second step consists firstly in characterizing the coastal depth. For that purpose, three main parameters are proposed: the geomorphology, the urban morphology and the connections between the coast and the hinterland. The crossing of those allows the realization of a descriptive grid including diagrams, seeking to conciliate geography and urbanism to propose an elementary vocabulary of what compounds the coastal depth; in summary, a 'urban geomorphology' of the coastal area[7]. This tool is used to select the case studies. This sampling, without claiming to be exhaustive, aims to represent the diversity of shores. Therefore, it covers all the configurations identified for the three main parameters, to which are added three secondary parameters :
- the direction of the urban growth, from the hinterland towards the coast (H => C) or in the reverse direction (C => H);
- the existence (or not) of a physical factor limiting the coastal depth;
- the presence of territorial projects that are developing different approaches to integrate hazards.
Seven case studies are so selected : La Rochelle, Le Barcarès, Lacanau, Nantes/Saint-Nazaire/Saint-Brévin, Vias, Petit-Bourg and the Camargue [tab. 1]. For each site, maps are produced to characterize the constitutive layers of the coastal depth and identify the risks. Lastly, the analysis of the territorial projects is confronted to the results coming from the cartographic atlas in order to understand how the hazards have been taken into account and to what extent the coastal depth has been used to do so.

Consequences of resilience on the Coastal Building Culture
The last step consists in analyzing the links between the integration of hazards at a urban scale and the resulting building culture. The legal, economical and tourist aspects of the resilience – control over land property, compensation to victims, models for a responsible tourism – are addressed to clarify their consequences on the architectural renewal of the coastal areas.

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[5] Read the role played by the base of the seaside villa as a stage effect to represent the confrontation between the man and the sea in Rouillard, D., 1995. *Le site balnéaire*. Bruxelles: Pierre Mardaga, p. 327.

[6] From 2012 to 2015, the *Ministère de l'Écologie, du Développement Durable et de l'Énergie* initiated a call for projects on the matter of "the relocation of activities and properties, towards a spatial recomposition of territories exposed to coastal risks"; this was part of the NSIMC.

[7] The classification used for the 'geomorphology' parameter is based on the broad categories of coasts established in the reference work: Paskoff, R., 1985. *Les littoraux. Impact des aménagements sur leur evolution*. 3rd edition 1998. Paris: Masson & Armand Colin.

	Main Parameters			Secondary Parameters		
	Geomorphology	Urban Morphology	Links between Coast and Hinterland	Direction of the Urban Growth	Physical Factor Limiting the Coastal Depth	Territorial Development Project
La Rochelle	River/sea mudflat	Port town Diffused city	Roads Canals Railway	C => H	-	Anti-submersion public spaces around the harbor basins
Le Barcarès	Lagoon and lido	Seaside resort 20th Campings Old hamlets Diffused city	River Road Paths Agricultural system	H => C	Lagoon	Valorisation of the Agly Valley
Lacanau	Sandy coast	Seaside resort 20th Seaside resort 19th Diffused city Old hamlet	Road Railway (formerly) Paths	H => C	-	Initiative of relocation Strengthening of the seafront
Nantes Saint-Nazaire Saint-Brévin	Estuary (cliffs + sandy coast)	Port town Diffused city Seaside resort 19th	River Road Railway	H => C	-	Development of a metropolitan coastal seafront
Vias	Sandy coast	Old hamlet Seaside resort 20th Campings Shanty town	Roads	H => C	Canal du Midi	Initiative of relocation Restoration of the sand dune system
Petit-Bourg	Clay cliffs	Olf hamlet Shanty town Diffused city	Paths Agricultural system Ravines	C => H	Express road	Initiative of relocation
The Camargue	Delta (salt marshes + sandy coast)	'Green' caesura Old hamlets Isolated farms	River Roads Paths Agricultural system	H => C	-	Permanent cessation of the maintenance of salt marshes

Table 1 : Selection of seven case studies representing the diversity of coastal areas. Those are the main source material of this research, but complementary references to sites or projects are mentioned.

From Risk Perception to Spatio-temporal Depth of the Coastal Area as a Project

Populations' dismay facing the recent natural disasters – Irma & Xynthia in particular – has highlighted the lack of tools of the project stakeholders to adapt these territories to coastal risks. This may imply a paradigm shift: to switch from a solidity logic to a search for a resilient form. If the projects that pursue this adaptation are not that many, their number tends to grow and they seem to converge to a flexibility ideal, both in terms of urban design and building techniques. This article proceeds from the assumption that the coastal depth, with its dynamic behaviour within space and time, contains the risk factors as well as the necessary resources to set up such an adaptation[8]. This paper is placed on the second methodology axe that aims to show the importance of the risk perception in the initiation and the development phases of an adaptation process.

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[8] See the thesis discussed by Kevin Lynch on the continuation of the past into the present, the possible future dormant in present situations and our ability to take advantage of it in order to transform places in Lynch, K., 1972. *What Time Is This Place?* Cambridge: MIT Press.

The disaster as a 'before-after' marker : a risk's jurisprudence

In France, since the second half of the 20th century, the evolution of risk-related regulatory texts is characterized by a certain jurisprudence. In fact, a correlation exists between the big disasters and the law proposals or plans. Those enrich the available tools for legal procedures and urbanism in an incremental way. This jurisprudence goes beyond coastal hazards and natural disasters: it also includes the technological risks [tab. 2].

Event's Date	Disaster	Act/Plan's Date	Main Measures Adopted
Winter 1981	Flood of the Saône, Rhône and Garonne valleys	07/07/1982	- Risks Exposure Plan (REP) - Natural disasters' compensation
September 1992	Flood of Vaison-la-Romaine: - 34 deaths - 4 missing - 460 million euros of damages	02/02/1995	- REP becoming Natural Risks Prevention Plan (NRPP) - Creation of the "Barnier" fund to finance expropriations.
21/09/2001	Explosion of the AZF factory (Toulouse): - 31 deaths - 2 500 injured - 85 000 victims - over 2 billion euros of damages	30/07/2003	- Right to desertion in certain perimeters exposed to technological risks - Consultation and information obligation - Strengthening of NRPP
February 2010	Xynthia storm in Vendée and Charente-Maritime: - 47 deaths (29 in La Faute-sur-Mer caused by breaches of dikes) - 1,5 billion euros of damages	13/07/2010	- Integration of marine submersion and flash floods into the NRPP. - Improvement of extreme weather events predictability - Strengthened maintenance of dikes - Development of a 'risk culture'
Winter 2013	Storms in Aquitaine, retreat of the coastline over 50 meters: - 75 victims in Soulac-sur-Mer - "Le Signal" building evacuated	13/07/2016	- Law proposal related to the adaptation of coastal areas to the climate change - Integration of the coastal erosion as a major risk allowing the use of the "Barnier" fund

Table 2: Causality between the big disasters and the evolution of risk-related regulatory texts. Sources: Parliament Acts and press releases.

With these effects – human & material damages – the disaster forms a disruptive element. As an accomplished risk, it makes the vulnerability of human settlements tangible. The resulting risk perception determine a 'before' and an 'after'. It appears decisive in improving crisis management and elaborating adaptation strategies, a process which impacts territories far beyond the initial area of the disaster. But the regulatory texts evolve in a long term and provide only a general framework. Their implementation is not easy nor univocal. What are the territorial impacts of the decision-making consecutive to the disaster? The study of the redevelopment projects that follows allows to distinguish different objectives. For the needs of this research, the examples will be limited to coastal sites.

Redeveloping after a Disaster: between the Reproduction of a Conventional Building Culture and a Regulatory Functionalism

After disasters, the proposals for redeveloping the coastal areas frequently hesitate between two tendencies: on the one hand, the reproduction of a conventional building culture, based on a conquest model that dates back to the 19th century (Rouillard 1995); on the other hand, an in-depth reform of the urbanization and building patterns through a regulatory translation of the risk. Several examples emerging from the selected case studies and complementary references allow to expose the issues of these two attitudes.

The reproduction of a conventional building culture may happen through the identical reconstruction, in spite of recognized interactions between environment and human settlements. This is the main regret of the landscape architect Ian McHarg about the management of the "Ash Wednesday" storm that ravaged the East Coast of the United States in March 1962. The inhabited barrier islands of Delaware and New Jersey, particularly vulnerable due to their very low topography, were flooded during five consecutive tides (O'Brien and Johnson, 1963). The swell that resulted from the strong winds and the spring tides opened breaches and devastated the residential neighbourhoods: there were 40 deaths, over 1000 people injured and thousands of destroyed houses. Defending the integration of urban and natural systems, Ian L. McHarg notes in "Design with Nature" that in Long Island, the few houses that resisted to the storm were located at the back of the dune. His detailed study of the dune system allows him to infer rules that could have provided a resilient redevelopment [fig. 1]. Despite this 'lesson', Long Island was reconstructed as before, reproducing a vulnerable situation (McHarg, 1969) [fig. 2]. His critical approach challenges a blind way of development regarding to the site constraints and the unability to reform.

[fig. 1] The dune system of Long Island and the usage rules inferred from its qualities and weaknesses. From McHarg, I.L., 1969.
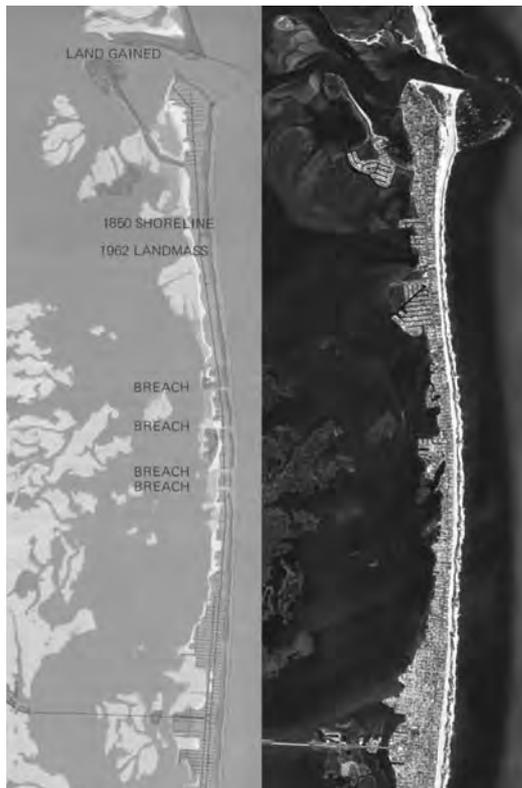
[fig. 2] On the left, Long Island, its urban grid and the identification of the breaches caused by the storm. From McHarg, I.L., 1969.

A similar reproduction process may occur along with an emerging awareness that changes must be operated. One example is the reconstruction of the coastal protection systems in Vendée and Charente-Maritime, after the Xynthia storm highlighted their vulnerability. The lack of global visibility of coastal defense, due to the implication of numerous actors, appeared as a factor of risk aggravation. If the immediate strengthening of the dikes was compulsory to ensure territorial safety, it went along with the will to improve their maintenance and to adapt the urban fabric in the long term. The Marine Submersion and Flash Flood Prevention Plan thus disbursed 500 million euros to finance works on the fluvial and coastal dikes between 2011 and 2016 (Ministère de la Transition Écologique et Solidaire 2017). The ambition of such an investment is to be questioned: would it be synonym of sustaining the technological approach of coastal development?

The reform of urbanization and building patterns through the regulatory translation of the risk testifies of a deeper change. After Xynthia, the State accelerated the establishment of NRPP on the coastal areas (Brodhag, Guézo, Villar 2012). The numerical modelling of natural phenomenons became crucial to determine the exposure to hazards accurately and set the new land regulations. This process however presents pitfalls.

Firstly, that translation relies on a dissociation between the identification of hazards through a scientific expertise and the political discussion of the rules. The risk objectification is based on the sustain of a boundary between those two fields (Bayet 2000). The crossing between hazards and urban issues permits the procurement of a second map regulating the development and this time submitted to a public inquiry. Contrarily to the digital model, the resulting zoning reports on natural phenomenons in a static way that limits their explanatory capacity. Thereupon, how to ensure that inhabitants can understand such stakes? The scission between the cartography and the real-life territory may generate their questioning. In the same way,

the professionals of territorial development use it without knowledge about the methodology and parameters employed upstream (Ansel, Guerrouah, Martin, With 2010).

The NRPP have important consequences on social acceptance of the adaptation to risks. For certain owners, they mean the loss of their property through the application of the "high danger risk for human life zones" – commonly known as "black zones". Emerged after Xynthia, they were renamed "expropriation zones" and allowed the demolition of 1510 houses in Vendée and Charente-Maritime in return for compensation. This induced a certain misunderstanding (Chadenas, Mercier 2012). Most widely, the regulatory zoning can modify the status and the value of the land by making them unbuildable, as in the Ré island where land owners expressed their indignation (de Dieuleveult, G., 2014). Finally, this zoning may drastically restrict the evolving capacity of territories when several hazards merge. The municipality of Vias, which features 4000 leisure plots, demonstrates this situation. The regulation related to erosion, submersion and flood hazards led to a freeze of the real estate transactions and, by extension, of the land: impossibility to relocate, resell or reconstruct after a potential disaster[9] [fig. 3].

[fig. 3] Concertation workshop with the inhabitants of the Vias West Coast concentrating on the NRPP.

[fig. 4] Integration of anti-submersion systems into the public spaces of the La Rochelle old harbour.

[9] Data from the field work and the diagnostic realized by Obras architects. See Obras arch., 2016. *Expérimentation de la relocalisation des activités et des biens de la Côte Ouest de Vias. État des lieux, diagnostic et enjeux.* [Booklet] July 2016 ed. Paris: Obras arch., pp. 90-91.

The modelling can also make of a past extreme weather event a frame of reference. The Charente-Maritime NRPP thus mention two altimetric levels of reference, "Xynthia + 20 cm" and "Xynthia + 60 cm", which are the sum of the Xynthia submersion and the elevation of the sea level in the short term and in the long term. They have been used to size the new protection works realized in the context of the "Flood Prevention Action Program" (FPAP) of La Rochelle. Those are integrated into the public spaces around the harbour basins by means of sophisticated devices (Communauté d'Agglomération de La Rochelle 2013) [fig. 4]. These theoretical altimetric levels are questioning: the future storms will be potentially more intense and the elevation of the sea level probably superior. Will the efficiency of that design justify the 9,5 million euros invested?

Thus, two distinct attitudes are expressed through the post-disaster redevelopment process. Not exclusive one of the other one, they can coexist on the same site and sometimes present limits: inhabitants left out of the decision-making process, experts' lack of pedagogy, and above all absence of project to enlighten the regulatory translation of the risk. Between the reproduction of a conventional building culture and a regulatory functionalism, is there an in-between way to adapt territories to the coastal hazards?

Form a collective memory, mobilize an imaginary: a prerequisite to the change

If disaster contributes to the making of a collective memory, it produces a negative image of the territorial adaptation to the coastal hazards. To counteract this effect, the National Committee for the Integrated Management of the Coastline initiated in 2016 a call for ideas entitled *Imaginer le littoral de demain* [Imagine the Coast of Tomorrow] for scholars, students in architecture and landscape and professionals. This open approach of awareness and mobilization resulted in 30 contributions. In this context, students of the postgraduate degree "Architecture and urban design" of the National School of Architecture of Marne-la-Vallée proposed the use of a *Grain de sable* [Grain of sand] vignette on the Oléron island in order to enable the tourists to park in return of a flat contribution to the restoring of the dunes (Galzin, Goupil, Schlumberger 2017). This simple idea has a triple effect: it is a financial instrument, an effective mean of deterrence and a tool to highlight the fragility of the ecosystem.

Visual indicators are another way to make the risk perceivable and constitute a memory. Besides the blockhouses of the Second World War, frequently showed as an indicator of the coastal erosion, artists have been interested in representing the hazards *in situ*. In 2014, the Landescape studio used the land art along an avenue of La Rochelle to sensitize the public to the climate change and prepare the refurbishment of the old harbour. The blue-painted tree trunks represented, in the 'lived' space, the Xynthia submersion and the "Xynthia + 60 cm" hypothesis[10] [fig. 5]. This intervention, as a reminder, makes the NRPP a less abstract rule.

Those two types of approaches attest of the new essential role given to the public's involvment in order to implement the adaptation policies.

[fig. 5] Use of land art in the context of the "Littoral +2°C" project in La Rochelle. From Landescape, landscape architects.

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[10] The "Littoral +2°C" project, by Barthélémy Schlumberger and Antonin Amiot from the Landescape studio, was awarded in 2015 at the *Grand Prix d'Aménagement en terrains inondables constructibles*. See *supra* the analysis of the public spaces of La Rochelle old harbour. See also Ministère de l'Environnement de l'Énergie et de la Mer, Ministère du Logement et de l'Habitat Durable, 2015. *Comment mieux bâtir en terrains inondables constructibles*. Paris: MEÉM, MLHD, pp. 82-85.

Zoning: Between an Absolute Value and a Dynamic Approach.
The "Littoral" Act protects the coastal ecosystem by organizing a control of the urbanisation on a "strip pattern". The closer to the shore the space is, the higher is the control: non-building land over a 100 meter strip from the shore in the non-urbanized areas; limited urban extension in an ill-defined space "close to the shore"; urban growth contiguous to the existing agglomerations; renovations or improvements of the spaces that are already urbanized. The spatial framework of this law is based on the combination of an absolute value from the shore and a margin left in the appreciation of the decision-makers. By integrating the coastal hazards, the NRPP clarified the conditions of the land-use in these coastal areas. Even if their cartography seems frozen, they give an important place the natural phenomenons in the urban development. By doing so, they reinforce and objectificate the depth notion included in the "Littoral" Act.

Roland Paskoff, geographer specialized in coastal geomorphology, proposed a scalable zoning as an answer to the erosion of beaches: "a new approach to the problem of the erosion of beaches is necessary. […] We could define, from the shore, three strips of land bounded with its supposed position in a term of ten years, thirty years and sixty years. […] This zoning should be periodically reviewed and adapted according to the real behaviour of the beach." (Paskoff, 1998, p. 73). This dynamic approach ensures a regulation in a close connection with hazards. Furthermore, it paves the way to new relationships between the coast and the hinterland through a "flexible city" idea, which would be based on the spatio-temporal depth of the coastal area. [fig. 6].

[fig. 6] Retreat of the coastline between 1888 and 1985 in L'Amélie-les-Bains and impact on the urban fabric. From Paskoff, R., 1985.

[fig. 7] Valorisation of the Agly Valley establishing new links between the coast and the hinterland. From Obras arch., 2017.

The Spatio-temporal Depth of the Coastal Area as a Project

This approach of the coastal landscape is close to the one from Ian McHarg on Long Island, which is based on a land use depending on the qualities or fragilities of the site. If he uses it at the coastal dunes scale, it can also be applied to a wider scale that can be determined by the relationship between the coast and the hinterland. The valorisation project of the Agly Valley, conducted by the Obras studio in the north of Perpignan, uses those possibilities. The landmarks and resources spread along the riverside are mapped to enlarge the frame: the coastal landscape is not limited to the seafront and its 20th century resort pattern anymore; it embraces the agricultural and urban systems that connect it to the hinterland [fig. 7]. The study reveals the attractivity of more diversified situations and proposes a new land-use[11]. Therefore, other questions linked with the one of resilience emerge: how to reintegrate architectural heritage in the coastal project? How to coordinate agricultural and urban patterns? How to support the evolving tourist habits and their economic model? How to adapt the existing infrastructures to offer new mobilities?

In this example, that should be confronted with the other case studies, the spatio-temporal depth of the coastal area itself becomes a project, in which the risk is not the central matter anymore. A search of positive and permissive resilience supersedes the regulatory functionalism. This new approach to the regulation, the tourist practices and their economic models may transform the building culture of the coastal landscape.

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[11] Data from the field work and the monography realized by Obras architects. See Obras arch., 2017. *La Porte d'entrée Nord des Pyrénées-Orientales et de l'agglomération de Perpignan. La vallée de l'Agly comme paysage structurant.* [Booklet] April 2017 ed. Paris: Obras arch., p. 32.

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LAND FOR FOOD
The Interaction of Urban Planning and Regional Food Planning
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This PhD project focuses on the interaction of urban and architectural developments with regional food production in cities and their hinterlands. The research aims to demonstrate how those interactions can be translated into spatial models and land use planning for future development of productive land in the case studies. Moreover, the research explores the questions of land control, ownership and land use.

The methodological framework aims to overcome the limits and gaps in research by combining historical, literature research, spatial analysis, cartographies, scenario analysis and model planning. By using land- use scenarios, the research will investigate how the integration of agriculture and productive land in the urban planning process can cause different scenarios on agriculture land, building density and typologies. A multi-scalar approach is used throughout the research project to embrace architectural, urban and regional scales. The expected outcome will give recommendations for guidelines to assist in implementing food planning in future urban planning processes in regards to the case studies.

"That city is more fully sufficient which the surrounding country supplies with all its vital needs than is another which must obtain these supplies by trade." (St Thomas Aquinas, De Regimine Principum, 13th century)

Intro

Food and territorial organization

Throughout the history of urbanization, food has progressively been removed from the city over the centuries (see Steel, 2009). Aside from some remaining gardens and allotment sites, the once common food growing spaces that once existed have been abandoned in modern cities today (C.M.Deh-Tor, 2017).

Consequently, today agriculture and rural areas have an increasingly marginalized role in urban development. This is due to the growing urban sprawl and the loss of the ecological role within a productive landscape through the perception of people, even if more than before urbanization and agriculture are increasingly related. Both agriculture and urban development need the same basic resources, which are increasingly rare in modern time: earth, water and energy. Secondly, both fields are forced to fulfill urgent global needs: how to serve, provide home and work and feed an increasing world population of which more than a half is living today in an urbanized context? (Dubbeling, et al, 2016)

Moreover, today there's an increased awareness regarding the crisis of land in particular, as agricultural land grows scarce (effecting environmental, social and economic outcomes) as urban growth continues and as agricultural land correspondingly declines to make way for the expanding urban areas.

This has led to a renewed attention to questions pertaining to land control and land use due to recent on goings in the global food system. Precipitated by the convergent crises of food, fuel, and finance, today the conflict of land is at the center of conflicting visions about the future of food and farming in urban or rural areas. These conflicts have caused a renewed focus on regional food production in urban regions (Gieseke et al., 2015).

Certainly, there are legitimate claims that raise doubt in regionalizing urban food systems, but regionalizing urban food systems also represents a strategy and an opportunity to achieve positive externalities for the city and surrounding regions: Integral components to creating a resilient and self-sufficient city is by promoting

and instigating a need for increased efficiency for resource usage and their valorization, fostering economic viability and sustainability in the peri-urban areas.

In turn, many European and North American cities and regions have recently developed food strategies and food charters resulting in the number of policy councils substantially increasing as alternative food networks gain additional significance (Dubbeling, et al, 2015)

The global infrastructure of food is transforming as food markets grow and the re-localization of food production start to occur through channels such as urban agriculture, vertical farming, aqua ponding etc. which are central components of new food policy strategies. Consequently, cities are seeing food as a driver for other sustainable urbanization policies (Forster, et al, 2015).

However, these strategies have not adequately addressed enough the issue of integrating food planning in the urban planning process and their spatial impacts.

Most instances when non-built-up land is available, food production is not a high priority for urban planners. I argue that by making it a priority cities could avoid the potential loss of vital habitat which could be used as farmland.

Therefore, in my project I will be looking at the effects, that urban and architectural developments have on regional food production in cities and their hinterlands.

What's the potential of the integration of food planning in the urban planning process? How can planning legislation provide a framework to support future urban planning, including food planning?

What are the spatial impacts (i.e. higher building density, hybrid typologies) of integrating agriculture/food planning in the urban planning process? Further, delving into how those impacts can be translated into spatial models and land use planning for future development of productive land in the case studies.

Case studies

The locations where I will be conduct this research are the contrasting landscapes of Luxembourg and Singapore and their regional hinterlands, the Greater Luxembourg Region and the Singapore Metropolitan Region. Both are micro states and have a suitable scale for the urban and regional focus of my research. While there are large and blatant differences such as urban density, climate, Luxembourg being land locked in the heart of the EU and Singapore an island nation located in southeast Asia. They also share commonalities, for instance rapid economic growth, land scarcity and the lack of resources and energy. Further compounding their issues by landscape fragmentation and environmental degradation caused by a lack of sufficient housing and infrastructural congestion (characterized by trans-border mobility).

Singapore's dense urban fabric and little to no agricultural hinterland respectively, contrast to Luxembourg's low concentration of built-up land and relatively robust presence in the agricultural sector. Both countries are undeniably the economic core of their regions, significantly influencing the spatial function and organization of the regions as well, making Singapore and Luxembourg (including their hinterlands) key examples for my research.

Luxembourg encourages research about their regional food production (urban farming, permaculture and aquaponics) and its consequences on the territory. According to the Rifkin's report in 2016, Luxembourg could develop and settle into an agricultural niche if the country decides to shift to a more sustainable ideology pertaining to production. This ideology can be achieved by gaining domestic market experience and implementing renewable energy processes on farmland. However, concrete examples or practices are still missing and should be developed and supervised in the upcoming years.

In contrast, Singapore has been in the focus of several research programs regarding the challenges of global environmental sustainability (see Future Cities Laboratory, the Future Resilient Systems of the ETH Zürich and the National University of Singapore). There's also a need to research the landscape of agricultural production regarding metabolism of food and the effects it will have on future developments for territorial organizations. More specifically, there is a need for tools and efforts to create sustainable practices that could transgress nationally and beyond territorial boundaries (Topalovic, et al., 2013).

In this regard, more research of the consequences of the transition from global to regional food production should be conducted. While this effects Luxembourg and Singapore the lack of sufficient tools and efforts to create, these practices are a global issue too. (Viljoen et al., 2014)

Methodology and Work Plan

The research will be based around a hybrid methodology consisting of historical research, spatial analysis, cartographies, scenario analysis and model planning to understand the territorial dimensions of a regional food planning and how to construct productive land in urban regions (including hinterlands). The research project, aims to develop a clear and concise understanding of the key points mentioned above by using a multi scalar approach, focusing on multiple scales from regional to urban planning and architecture.

While looking at the history and thinking about the future of our cities, it is worth to speculate about the constant evolution of urban and rural 's duality, to understand the processes, which connect the food issues with the territorial organization. The historical evolution of urban and rural duality will be described, to further understand the processes which connect food issues with territorial organizations and how food has been abandoned throughout the history of urbanism. In Addition, I will describe which historical projects and vision did include food planning in the urban planning process and which didn't. While also questioning what are the consequences regarding food planning and urban planning processes today?

Followed up by field work in the case studies, culminating into a structured careful analysis and mapping. The aim is to analyze and define how vital areas of production are equipped and connected to settlement patterns, etc. By mapping the territorial dimensions and landscapes of regional food production, including physical and/or formal properties of production and infrastructure landscapes (like scale, dimensions, typologies of landscapes and infrastructures) while analyzing the regional food system (including production, supply, and distribution etc.) and the consequences on the land.

Another portion will attempt to uncover current developments by critically addressing the blind spots and limitations of current processes (Legislation) discovered throughout my research and best practice examples.

Additionally, working with several public research institutions will allow me to utilize the domestic based research centers and gain valuable knowledge regarding urban planning and food production in these areas. By doing interviews with local stakeholders, actors, NGOS and government institutions such as the Ministry of Agriculture, Viticulture and Consumer protection, Agri-Food & Veterinary Authority of Singapore (AVA) and the Centre for Liveable Cities Singapore (CLC).

It is envisaged that the research will follow a scenario analysis and a strategy planning method to test the impact of urban and architectural developments on regional food systems in particular food productions and distribution.

The scenario analysis will be used and paired with the strategy planning method to test the impact of urban and architectural developments on regional food systems in particular food productions and distribution and will help investigate how to integrate agriculture and productive land in the urban planning process and vice versa. By using different scenarios on agriculture land, building density and typologies.

The expected outcome would be recommendations and contributions, i.e. in form of an alternative planning model for future developments of productive land in urban regions. Furthermore, how to develop territorial organizations for regional agricultural production built around a sustainable and resilient vision consisting of regional 'short circuit economies', that organically promote and facilitate regional social cohesion.

Conclusion

This research topic discusses the challenges of spatial developments and regional food production in city-regions, which are compacted by the challenges of population growth, rural-urban migration, climate change and the dependency on global food systems (under the depletion of petroleum). Today, land is at the centre of conflicting visions about urban developments and the future of food and farming.

In that sense, urban and peri-urban agriculture are crucial, because as cities grow, current hinterlands will become urban areas in the future. In turn, adding to the urgency and necessity for regional food production being included in the architectural and urban design planning of cities and their hinterlands. While the solutions mentioned above are valuable these issues could be avoided from the onset by integrating food planning/ regional food systems and agriculture in the urban planning and design processes, lowering the risk of losing vital habitat through expansion or conversion due to other uses then farmland.

Ideally planning legislations should provide a framework to support implementing food planning in future urban planning processes.

In reviewing the subject, it's important to consider the potential new functions of existing urban open spaces and the principles of multi-functionality applied to urban landscapes, that can become a tactic to combat the specific challenges and demands of a contemporary city, in terms of living space, services and food.

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Waste space and recycling practices: the case of the Abattoirs in Brussels

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The paper investigates the space of waste and recycling through the lens of urbanism theory and practice, given the traction that the waste recycling paradigm has gained as global sustainability strategy. A paradigm, nevertheless, commonly discussed in terms of technical innovations and behavioural changes, in a way it risks to overlook the spatial conditions in which they materialize. To contribute overcome this gap, the paper looks in-depth into the case of the Abattoirs and Market of Anderlecht, in Brussels. The case is of interest given the large volume of consumer goods that transits through what is one of the largest city markets, resulting in the generation of waste products that are discarded and temporarily accumulated on site. Waste is therefore highly visible in the area and is a major concern for the overall site's functioning. Since a decade, the Abattoir company has developed a waste management and recycling system which relies on an entanglement of actors and practices. The fact that the system has been successful is not simply due to the economic profitability of the recycling choice, but also, as the paper argues, by the fact that its implementation suits and leverages on certain socio-spatial conditions specific of the site. Specific conditions which can nevertheless provide interesting insights into the relation between the space of waste and recycling practices.

Introduction

Cities generate an impressive amount of solid wastes, whose management is commonly entrusted to techno-managerial networks of waste collection, disposal, and recycling. Investment and running costs of these networks represent an important expenditure for public authorities which might rise as waste production is increasing even faster than population growth (Hoornweg and Bhada-Tata, 2012). As the 'recycling' paradigm arises as the main discourse in waste management, the way cities are equipped for managing and recirculating an ever-growing (or at least steady) amount of waste is under question (Acuto, 2014; Corvellec and Hultman, 2012; Davies, 2008; Engler, 2004; Hoornweg and Bhada-Tata, 2012; Un-Habitat and Programme, 2010; Zapata and Hall, 2013). One option is under the eyes of everyone, as multiple bins and liners for recyclables are popping-up in public and private spaces and curbside collection is stabilized as the most cost-effective way to remove waste from cities (Willman, 2015).

Yet, municipal waste recycling which relies on heavy industry (for crushing, shredding, and re-manufacturing) has not been spared by harsh criticisms (Beatty et al., 2007). Main questions regard the high energy demand and down-cycling processes involved in recycling (McDonough and Braungart, 2010), as well as the uncertainty about the percent of materials which is effectively recycled due to contamination and fluctuation in the secondary raw material market (Rogers, 2006). The stabilization of the recycling industry, moreover, is blamed to naturalise disposables instead of foregrounding practices of waste redesign, reduction and, most importantly, elimination (Liboiron, 2009; MacBride, 2011). Firstly, it contributes to absolves manufacturers from the responsibility of keeping on producing and pouring in the market single-use and cheap goods which, once discarded, create long-lasting environmental problems. Secondly, the enormous sunk costs invested in large technical infrastructures create path dependencies and 'loops of technological fixes' (Tarr, 1984) which are deemed responsible for undermining decentralized approaches in recycling and waste prevention (Wilts, 2012).

On the other hand, small-scale, community-based recycling programs which originate in Europe and North America from early environmental movements of the 1960s have proven to be mostly incapable to tackle the waste problematic at the magnitude at the urban scale (Lounsbury, 2005; MacBride, 2011; Strasser, 2000). Already at the end of the 1970s, the movements which struggle for waste prevention, reuse, and recycle, were subsumed by national authorities and the recycling industry (Cooper, 2010; Lounsbury, 2005; O'Brien, 2007). According to MacBride (2011), a main reason of the failure of community-based recycling programs is believing the city not only as a major source of waste generation, but also as a place where the demand for recycled products was higher and, as consequence, more easily marketable with an immediate impact on local labour and retail market (Lounsbury, 2005).

This believe follows the aspiration, which dates back to the 1960s and is still present in most of contemporary debates on 'zero waste' of envisioning recycling primarily as a strategy to rebuild communities around alternative modes of sustainment, which reject mass consumerism and discard (Helvert, 2016; Lounsbury, 2005). "Recycling activities not only aimed to better the ecosystem, but to create self-sustaining production system that where geographically bounded" (Lounsbury, 2005, p. 78). Something that can be read in today's zero waste and 'circular economy' discourses: "the increased local circulation of commodities to discards to

commodities and so on will lessen demand for materials from the outside. The locality, will become, again in theory, more "self-reliant" (MacBride, 2011, p. 133). But if this could be true for products such as textiles and furniture which are resold in second-hand shops, for most of the remaining waste fraction (plastic, metal, and glass containers), recycling programs have been mainly concerned by the management of by-products of consumption with rather little outlets at the local scale, failing to avoid "the migration of recycled commodities out of localities" (MacBride, 2011, p. 151).

A matter of space, a matter of practices
Against this background, and given the fact that the issue of waste and recycling crosses different urban scales and daily practices (of generation, accumulation, disposal, and recovery), the paper investigates the space of waste and recycling practices through the lens of urbanism theory and practice. The issue is of interest given the fact the 'waste as a resource' paradigm requires to overcome conventional approaches which focus on the rapid collection and transfer of waste, in favour of more integrated, context- and community-based, solutions (Davies, 2008; Gutberlet, 2016; Hoornweg and Bhada-Tata, 2012; Seadon, 2010; Tremblay et al., 2010; Un-Habitat and Programme, 2010; Wilts et al., 2016). Yet, little attention, with few exception (Yatmo et al., 2013), has been paid, by both scholars and practitioners, to the space of waste and recycling practices in cities. To advance in this direction, the paper builds on a case study research, namely, an empirical inquiry into "contemporary phenomena within a real-life context" (Yin, 2005 cited in Deming and Swaffield, 2011, p. 80). Firstly, the paper enounces urbanism key principles and insights which resonate with the issue of urban waste management and recycling. Secondly, it introduces the case and presents the results of a series of fieldworks and non-structured interviews with key informants and local stakeholders. The research deploys a descriptive mixed method based on the systematic observation and recording of both quantitative and qualitative information and their translation into spatial schemes and maps. In the conclusion, the paper discusses the results of the case study against the background of urbanism principles and concepts raised in the introduction.
The paper draws from the notion of 'urban' as a social space, product of the intersection of everyday life with social systems and structures (Certeau et al., 1990; Lefebvre, 1974). It stems therefore from considering the urban infrastructure which organizes the flows of goods and wastes as a partially technical, and partially social and political project. A project that in everyday life is not just about technological networks and infrastructures but "is composed by embodied labour, mundane materials and quotidian connections" (Tonkiss, 2013, p. 24). Embodied labor and connections, which enable material and waste circulation, transfer, and exchange, but are conditioned, on turn, by their infrastructures. It builds therefore on the consideration of the urban question as a 'distribution problem' (Tonkiss, 2013, p. 114) that concerns not only the distribution of resources (e.g. water, energy, goods, etc.) in a certain space and time, but also and primarily the distribution of infrastructures and social capacities to accede these resources, as well as the risks and costs associated with their exploitation.
This reflection builds also on the work of urbanists such as Jacobs (Jacobs, 2016 [1960]), Sennet (Sennett, 1970), and Lynch (Lynch, 1984), which regard at the urban environment – and its accumulation of people, infrastructures, capacities, and diversity of agencements – as a resource. Contrary to the belief that efficiency lays in the social division of labour, these authors have shown that the urban environment entails a 'thicker' social space which enables synergies and create transactions and collaborative practices among discrete groups and activities (Simone, 2011; Tonkiss, 2013). The process of conjunction which creates the material conduits of everyday life is what Simone calls 'people as infrastructure' (2004, p. 419). The notion, used by the author to track the more or less spontaneous, formal and informal practices of 'infrastructural' self-provision by various urban actors (such as marginalized communities), is key as it looks at people as both final users and providers of the urban service. Within this perspective, the issue of waste management and recycling is not just a question of technological efficiency of the urban infrastructure, but rather about the social aim of its collective construction.

Learning from the Abattoirs and Market of Anderlecht
The Abattoirs and Market of Anderlecht are located in Cureghem, an urban neighbourhood which spans between the Brussels South train station and the Brussels-Charleroi Canal – the former city's industrial backbone. Similarly to other inner-city neighbourhoods, Cureghem has the particularity to have a central location and being one of the most deprived and socially mixed of Brussels[1]. With the process of deindustrialization and peri-urban expansion of the second half of the 1900s, different immigrant communities (initially from South European and then North African and East European countries) settled here because of the low rent of houses made available by the middle class that was moving in the city's

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[1] Cureghem is ranked at the second lowest position in terms of incomes (14007 €/years in 2013) and the second highest position in terms of unemployment rates (24.28% in 2014) among the neighborhoods of the Brussels Region (Monitoring des Quartiers de la Région de Bruxelles-Capitale)

outskirts (Jouret, 1972; Kesteloot and Meert, 1999; Mistiaen et al., 1995; Vandermotten, 2014). Today, despite new (re)development projects are endangering some processes of gentrification along the Canal and under the Regional authority direction, little has changed in the neighbourhood also due to the lack of interest shown over the years by municipal authorities and local elites (Sacco, 2010, 2011). As such, Cureghem has become a privileged case where to investigate urban development models more coherent with the existing environment, rather than with metropolitan visions and plans underpinned by the housing and regional development sector. (Van Criekingen and Rosenfeld, 2015).

[fig.1] The neighborhood of Cureghem, Brussels. Elaborated by the author from UrbIs

The case of the Abattoirs and Market of Anderlecht falls completely within the case. This 11-hectares urban productive site is roughly split in two main functional areas: the slaughterhouses (one of the few slaughterhouses still actives within an urban centre in Europe) on the West side, and the weekly market that takes place below and around a monumental shed-structure which dates back to 1890 and a brand new building (the 'FoodMet') on the East side. The abattoir and wholesale structures (which comprise the slaughter line) and the market area share the logistic space for truck movements and loading, and a large car park facing the Canal on West, where there is one of the main entrances to the area for trucks and vehicles. The privileged pedestrian accesses are located on the East sides facing, respectively, Chaussée de Mons and Rue Chaudron, two crowded commercial roads served by public transport (Metro and buses), which connect the site, respectively, to the city centre and the South train station [fig. 2].

The concentration, both in the market and surrounding roads, of a variety of wholesales, retails, and restaurant activities – mainly related to the meat sector and the ethnic cuisine – is at the origin of an important generation of waste. The market, in particular, being one of the largest of Brussels represents at the same time a meeting place and a means of subsistence for a part of the most socioeconomically precarious population of the city, e.g. by supplying cheap consumer goods, being a pole of employment for non-skilled workers and a way for immigrants and newcomers to enter the labor market, providing the opportunities for small independent activities to compete with the large distribution. The area is crowded with people especially in the weekend, from Friday to Sunday, when a total of around 100.000 costumers flocked the market that hosts more than 600 vendors. Here, there is the evidence of waste piling up in the streets mainly composed

by plastic bags, cardboard boxes, and wooden pallets. Due to the presence of numerous food stands, also food loss and waste account for a large proportion of overall waste generation in the area.

[fig. 2] Axonometric view of the Abattoirs and Market of Anderlecht, Brussels. In light gray the space of the slaughter line, in dark grey the space of the market. Elaborated by the author
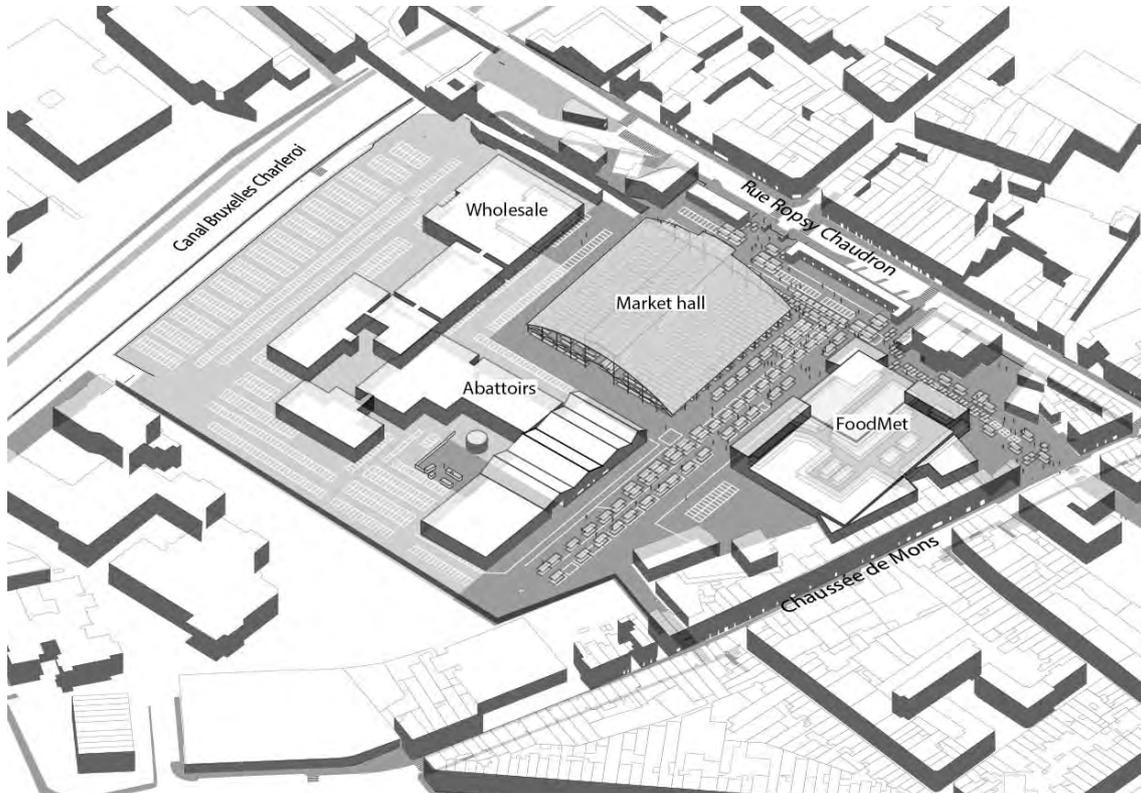
Within this framework, it is worth noting the many efforts the Abattoir company has undertaken over the last decade to counteract littering and implement a waste management service that, as the company states, 'goes beyond its obligations'[2]. If on one hand, the effort is motivated by the long-standing concern of containing the nuisances generated by the slaughterhouse and market activities (such as odours, traffic, etc.), it is also part of a larger strategy which aims to improve the image of the site *vis à vis* a different (wealthier) client base and attract new public and private investments. Since 2007, in fact, the Abattoir company has benefited of EU and Regional funding (the ERDF – European Regional Development Fund) for the implementation of an ambitious masterplan which proposes the global reorganization of the site with the relocation of the existing slaughterhouses into a new mixed-use building hosting other food-oriented SMEs, the creation of a large public playground, the promotion of new housing developments, and realization of urban rooftop farms (ORG and Abattoir SA, 2013). All these activities, according to the project vision, will create synergies in terms of energy consumption, waste management, and products' exchange within the framework of a 'circular economy' (Kinnaer A. and Sénéchal C., 2015).

Yet, within the current spatial configuration and starting from 2008, the company has developed multiple initiatives to improve on-site waste management. To name but a few: the application of a 'polluter pay' system for the cleaning service of the market area; the recruitment of an external enterprise for the cleaning service of the surrounding roads' sidewalk, the set-up of a 'recycling point' for the separate collection of recyclable materials; the creation of a 8-person communication, control, and prevention team; the support of nonprofit associations for the recovery of the unsold food products; the interdiction, starting from 2016, of the use of lightweight, single-use, plastic carrier bags. Like the number of initiatives, also that of the waste concerned actors is relevant, and comprise, beyond the Abattoir company and market's vendors, two waste recycling contractors (Vanheede, Jozef Mitchel), one social economy operator (Manus), and a non-profit organization (AlimentAB) [fig. 3].

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[2] http://www.abattoir.be/fr/propret
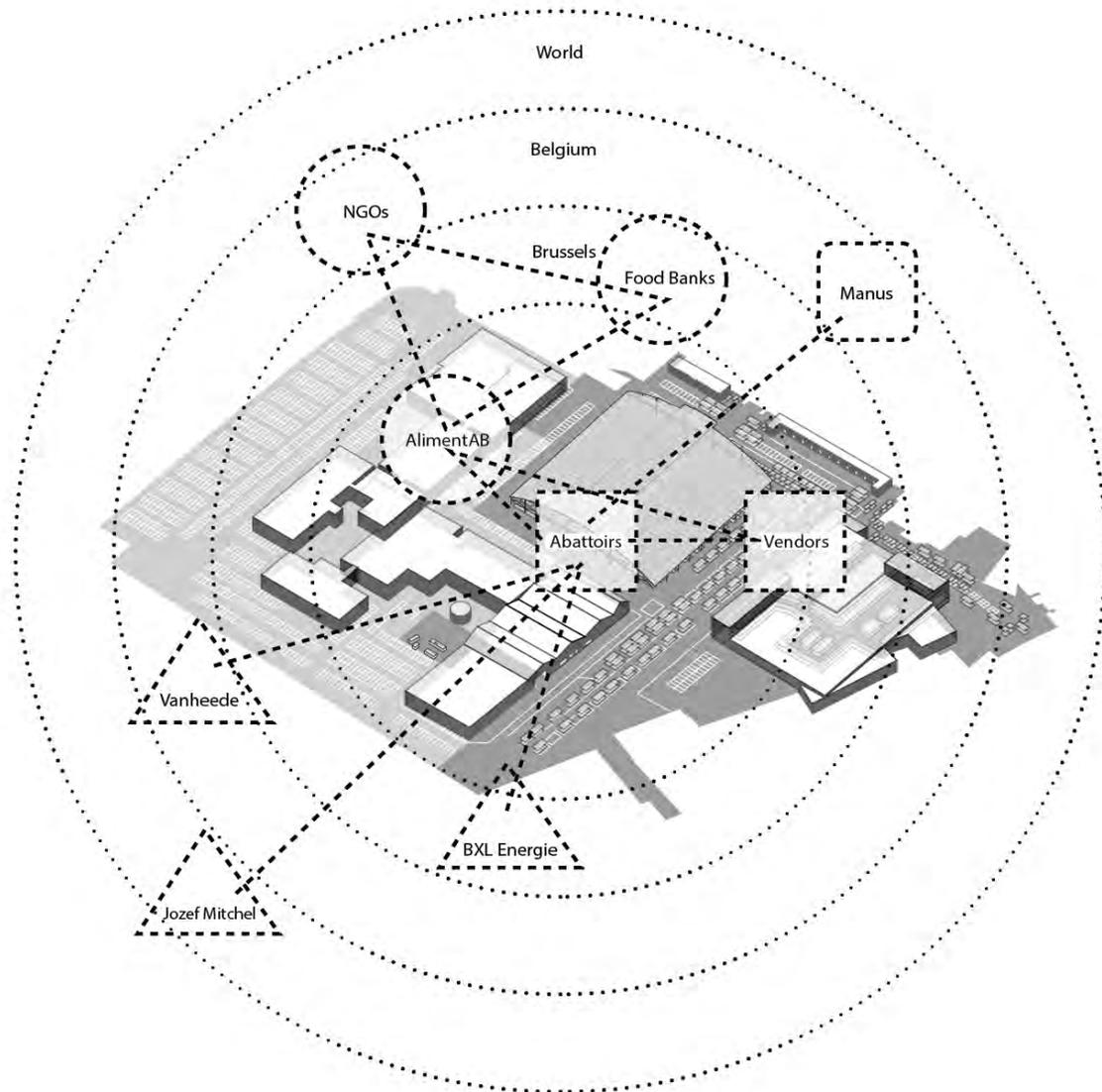
The polluter pay system

Since 2008, given the fact the most of waste produced on site was transferred to incineration with high treatment costs (≈ 200.000 €/year), the company has implemented a prevention and separate collection system for recyclable materials (cardboard, plastic, and organic waste). The system relies on a waste collection and cleaning service active seven days a week for both the slaughterhouse, warehouses, and retail activities, mixed with a bring system for recyclable materials and for the market stallholders. Given the fact that the market activities account for the most of refusals produced on site[3], the cleaning service for the market vendors follows a polluter pay principle. All market stall holders pay a fee to the Abattoir for the daily cleaning of the market area through the use of a sweeping machine assisted by a couple of operators. The fee is based on a *bonus/malus* principle which gradually reduce or increase the amount due by the market holders according to their commitment in leaving their stall as much clean as possible at at the end of the market time.

The separate collection system

Recyclable materials such as cardboard, plastic, and organic materials are brought by the same market vendors in buckets and hand trucks to the backyard of the slaughterhouse where a 'recycling point' of

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[3] almost the entirety of the slaughterhouse wastes (e.g. skins, bones, bloods, etc.) are in fact fully recovered within other industrial chains (mainly of animal food and cement production).

approx. 700 m² is equipped with a weight station, a machine compressor, and three large freight containers: one for the organic and two for the cardboard and plastic fractions. A single service operator from the Abattoirs company supervises the proper execution of waste sorting and disposal. Containers are then removed on a weekly basis by two different waste companies [fig. 4]. Delivering recyclable materials has a price for market vendors, but it costs less than leaving the waste on place. As a result, market vendors are encouraged to gradually sort and pile refusals during the market hours within the boundaries of their market stall (commonly in the back or beneath the market table), reducing the amount of residual waste that is thrown and which randomly accumulates on the ground. This is clearly an ideal behavior which does not always materialize, and many efforts are made to enforce the regulations through active surveillance by the Abattoir's operators.

[fig. 4] The separate collection system: 1) vendors collect organic refusal and cardboard/plastic materials within the market stand; 2) the same vendors deliver it to a single recycling point; 3) the material is weighted and disposed in different containers that are removed by two service contractors. Elaborated by the author.
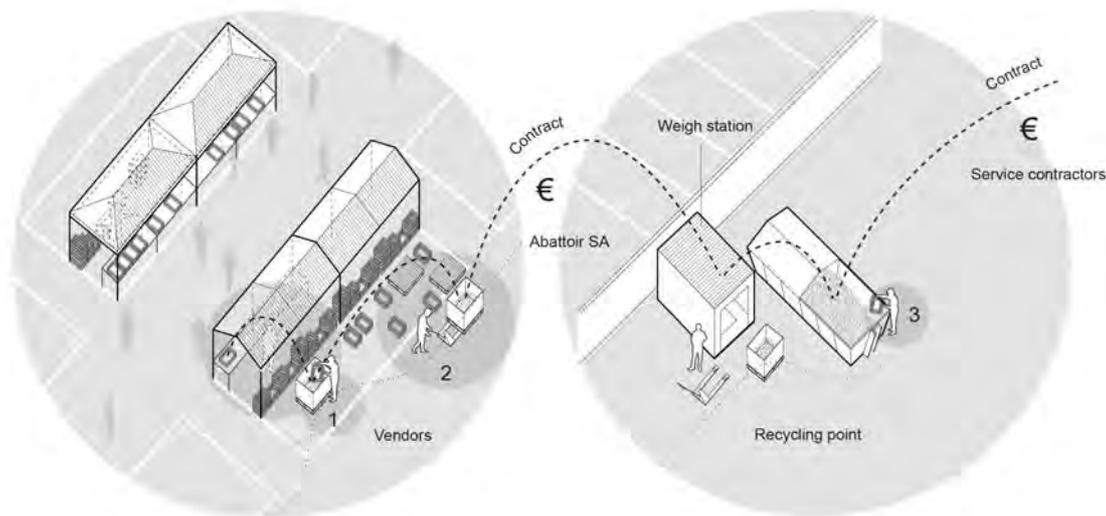
Organic waste is collected at a price to the weight (0,09 €/kg) by the Abattoir company, which on turn contract a third company for the removal and treatment of this fraction at an anaerobic digestion plant located approx. eighty kilometers from the site with a cost of 62 €/t. The disposal of cardboard boxes and plastic packages is collected for free, since its separate collection has a positive income for the Abattoir company that can sell it (50 €/t) to another waste recycling company, which hauls them to Antwerp and then ship to China. The selective collection of plastic, cardboard, and organic materials, allows saving in the costs of residual waste, which is treated at the incinerator located North of Brussels (Bruxelles Energie) with the highest price for the company (103 €/t) (Ibrir, personal communication).

The 'Zero Food Waste' initiative
Another waste related practice can be observed on the area during the market time. Gleaning, the act of collecting unsold fresh foods, takes places on Sunday afternoon, when the vendors discard perishable goods that have not been sold during the market days. Two forms of gleaning activity can be found. On the one hand, informal gleaners mix with the vendors when the latter dismantle the stall and pack back their things into the trucks collecting still edible goods that are left on the ground. On the other hand, and with the aim to regulate the informal activity on the example of other markets in Europe, a nonprofit association (AlimentAB) has come to install in the site through the intermediation of the Abattoir company in order to take care of the collection of unsold food products among the market stalls. The association organizes groups of volunteers that run throughout the market with hand carts, pick up boxes of unsold but still edible food offered by market vendors, and bring them back to a storage (and refrigerated) room, located along the slaughter line and provided for free by the Abattoir company [fig. 5]. Part of the salvaged food is kept by the same volunteers; part is redistributed to the people who ask for it on site on Monday; what remains is taken over by foodbanks and the social aid sector for being transformed into meals served for free or at low price in other structures.

[fig. 5] The organized gleaning: 1) market vendors put aside unsold products; 2) volunteers collect and transport the products to the storage room; 3) people can demand for it the day after; 4) what remains is taken over by other associations and food banks. Elaborated by the author.
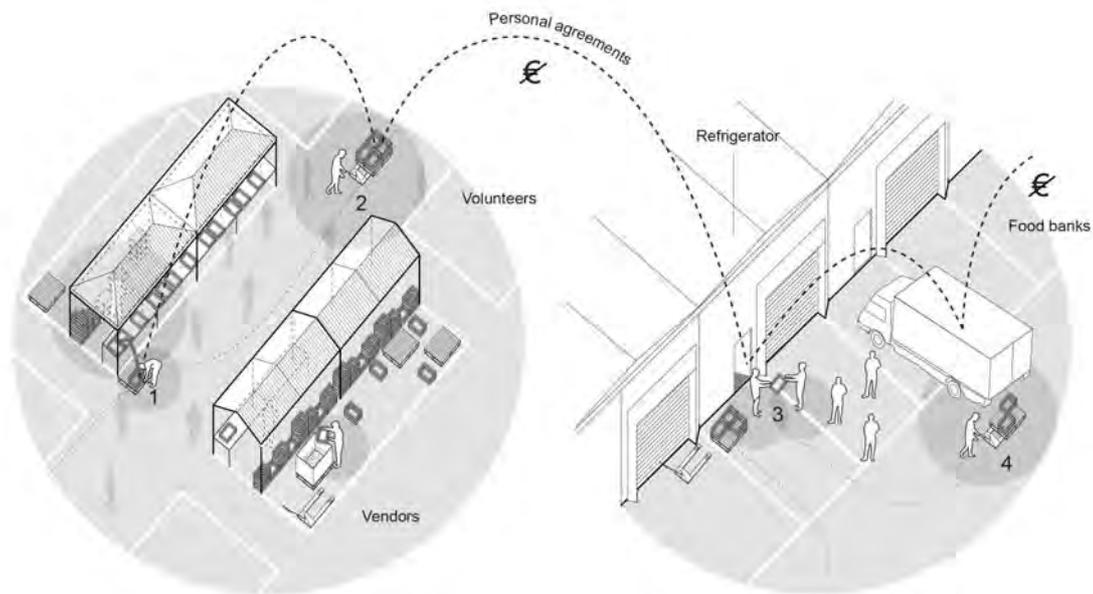
Discussion

In the Abattoirs and Market of Anderlecht a threefold strategy mixes a common cleaning service with the separate collection of recyclables, and recovery of food products. The system is effective as shown by the fact that, if in 2007 the total amount of residual waste collected was of 1.826 tons, the same stood at 632 tons, with a separate collection of recyclables of 754 (paper/plastic) and 382 tons (organic waste) in 2016 (Ibrir, personal communication). On the other hand – and although in a still limited quantity compared with the fraction of organic waste which is redirected towards anaerobic digestion – several tons of perfectly still edible food are salvaged each year by groups of volunteers which comprise either socially engaged people and people in a condition of need coming from the surrounding neighbourhoods [fig. 6].

First of all, it is clear that this is made possible by the availability of space to store and sort waste: two spaces that belong to the slaughter chain but that are easily accessible from the market, are functional to this purpose. Nevertheless, the fact that such spaces were pledged into the management of waste should not be taken for granted in such a dense urban context. In other situations, supposedly, the solution would have been to displace waste elsewhere or entrust it to third parties. On the other hand, the case also highlights the well-known relation between marginal places and waste objects (Engler, 2004; Lynch, 1990; Strasser, 2000): are the slaughterhouses, in fact, whose activity is since some time shrinking and now waiting for the site transformation, which provides, at present, the space for waste.

Secondly, the case shows how the scale and accessibility of both the 'recycling point' and 'storage room' – coupled with the co-existence of a logistic space for wholesale and retail market – enable multiple actors to collaborate in the recirculation of waste. It is well-known that denser market concentrations in cities promote diversification, competition, and efficiency (Tonkiss, 2013), but the case unfolds the opportunities the spatial proximity between the slaughter line and market activities entails, in particular, for the management of waste. Moreover, the localization of the Abattoirs in Cureghem, a neighbourhood characterized by a strong heterogeneity and promiscuity of populations and functions, contributes to the reproduction these opportunities and synergies well beyond its boundaries.

Finally, the space of waste in the Abattoirs holds also a 'representative' value, as it contributes to the recognition and legitimisation of both the private company's and the non-profit organisation's initiatives on waste. The role of the latter is more qualitative rather than quantitative, but in general, the ensemble of the waste management systems developed by the Abattoir company tells us about a form of responsibility on waste. A responsibility that shows the value of an urban area in retaining and recirculating waste in order to improve local resource efficiency, reduce the externalities entailed by the disposal of waste, and enhance individual and collective actions.

[fig. 6] Schemes of waste flows: quantitative and spatial representations. Elaborated by the author.

Residual waste	632 t	Incineration (Bruxelles Energie)
Paper / plastic	754 t	Recycling (Oud Papier Jozef Michel)
Organic	382 t	Anaerobic digestion (Vanheede)
Unsold Food	?	Social aid sector (AlimentAB)
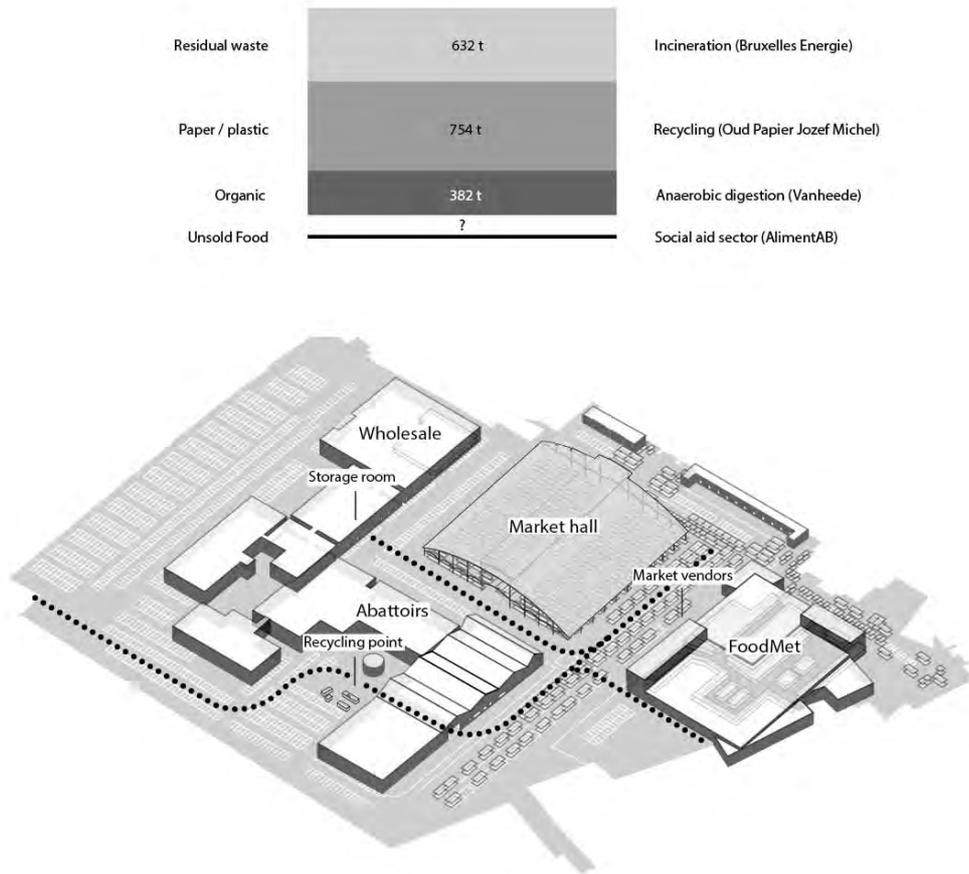
Conclusion

From the survey on the space of waste and recycling practices in the Abattoirs and Market of Anderlecht emerges that the management of waste relies on a hybrid – hard and soft – infrastructure: a physical infrastructure proper of productive areas (the space for container storage and truck movement) and a social infrastructure typical of dense urban areas, where everyday life is underpinned by intense social networks and exchanges. The recycling point pins down a stable connection between on-site sorting practices and global material industrial reprocessing chains, while the storage room enables volunteers and market vendors to assemble around waste prevention through food recovery and exchange. On turn, the non-profit association triggers people as infrastructure creating the networks and opening the conduits for the transfer of goods from a condition of surplus to one of scarcity. Here, the space of waste acts as a social platform which enables a diversity of socio-technical agencements within a distributed management system where market stallholders, private operators, and volunteers are equally embedded into a common web of interests and responsibilities. The system has been set up through trials and errors and it is resilient to changes being constantly under negotiation. Yet, it is also vulnerable to abrupt changes. The example of how the entanglement of waste actors and spaces allows to attains an integrated management of waste and recycling provides, once again, an argument in favour of diverse, functionally and socially mixed urban areas. An argument more, perhaps, to counteract any future risks of gentrification and social expulsion.

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Energy transition in the nebular city: a socio-spatial perspective on the case of heat in Roeselare

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The transition towards a sustainable energy system is one of today's essential systemic challenges and raises important spatial and socio-political questions. This research uses the case of 'heat' in Flanders to explore how the introduction of new energy infrastructures relates with urban morphology, alternative forms of governance, and social inclusion. It particularly focuses on the case of district heating in the region of Roeselare. The paper brings together crucial spatial and social parameters for a scenario-exercise about the heat transition in the region. It formulates three hypotheses about the transformative potential of a Flemish energy transition and argues to mobilise the transformation of the heat system as a lever to revalorise proximity, introduce common forms of governance, and improve social justice in the energy system.

Introducing collective heating in the nebular Flemish landscape

The transition towards a sustainable energy system is considered a crucial systemic challenge to mitigate climate change and respond to declining fossil resources. But while this energy transition is often portrayed as a technical question, its spatial and socio-political dimensions remain underexplored. This paper explores these dimensions for the dispersed territory of Flanders, through the case of district heating in the region of Roeselare.

In the nebular landscape of Flanders, supply networks have historically facilitated and reproduced a dispersed and energy-intensive form of urbanization that depends on cheap and abundant energy, and complicates the integration of sustainable energy systems. Moreover, the emergence of collective heating infrastructure as a new type of energy system in this context, raises new questions of governance and equitable access.

This research wants to understand how the introduction of these new energy infrastructures relates with spatial morphology, and how the socio-political struggles inherent in such a fundamental transformation, play out in particular contexts. The paper will become part of the second chapter in the final PhD manuscript. It presents essential ingredients for future scenarios for Roeselare, based on theoretical literature and empirical explorations of the heating sector in Flanders.

Combining methods to build scenarios for Roeselare

This research ties in with the need for more context-specific and practice-based case studies to develop a better understanding of the spatial and socio-political dimensions of energy transitions (Faller 2016). It explores the case of a sustainable heat transition in Roeselare through a combination of qualitative and designerly research methods.

Phase 1: mixing methods

Several approaches are developed in parallel during the first phase of this case study. A first element is participatory observation during the process of developing Roeselare's 'Climate+ plan', including workshops with external consultancy, civil servants and local stakeholders. This gives contextual insight in Roeselare's regional spatial context and the network of actors engaging with climate and energy questions. The second is a mapping of Roeselare's spatial structure. This allows to understand and visualise the region's topography and natural system, built environment and energy demand, existing heat infrastructures and sources, and opportunities linked with planned urban projects [fig. 3]. The third line of inquiry is a desktop research on existing collective heating projects in Flanders, combined with a series of semi-structured interviews with relevant actors. Actors such as civil servants, representatives of energy cooperatives, and technical energy experts, were interviewed about the spatial and social dimensions of new (collective) heat infrastructures. This provides an understanding of the state of the art of (collective) heating in Flanders, and the emerging spatial and social questions related with this new energy infrastructure.

Phase 2: building scenarios

These parallel approaches will form the basis for the second part of the case study, where different scenarios for Roeselare's future heating system will be developed in workshops with stakeholders. Scenarios are widely used to interrogate the future in situations of uncertainty. They can be used in a predictive (probable futures), explorative (possible futures) or normative (desired futures) way (Börjeson et al. 2006; Stremke et al. 2012b). In urban design, scenarios often use research-by-design to understand the spatial consequences of certain trends or hypothetical actions (Schreurs and Kuhk 2011; Viganò, 2016, p. 14). Scenario exercises have particularly become important in the context of environmental questions, but also as a tool to understand

new forms of dispersed urbanization (Viganò 2016). Both of these dimensions come together in this research about the introduction of sustainable heating infrastructure in the nebular Flemish landscape. It is characterised by uncertainties at different levels: there is no general consensus about the desired outcomes of the heat transition (spatial, social, economic, ecological), and no clarity about the resources and technologies that might be developed to reach them, or their consequences.

Scenarios have already been used in the context of regional energy transitions, for example by Stremke et.al. in the Netherlands. They propose a 5-step approach that combines (1) an analysis of the present spatial and energy structure, (2) a mapping of near-future developments, (3) scenario base-maps illustrating possible futures, (4) developing integrated visions, and (5) identifying spatial interventions. These steps integrate three 'modes of change': projected trends, critical uncertainties, and intended change (Stremke et al. 2012a, 2012b). Preparing for Roeselare's scenario exercise, I've combined step (1) and (2) with an exploration of existing collective heating projects in Flanders. Engaging with these emerging practices ties in with transition thinking's attention for frontrunners and gives insight in existing spatial strategies and governance approaches and the related parameters for possible future heating systems.

This input will become the starting point for several workshops with experts and local stakeholders in Roeselare. The aim is to generate a discussion on the spatial consequences of certain technological choices (eg. between individual or collective infrastructures at different scales), and on the socio-political questions of governance and access to energy. As argued by Sijmons, research-by-design should allow to go beyond technical questions and use its potential to visualize and spatialize the fundamental societal impact of a transition towards sustainable energy systems (Sijmons 2014, 2017). The workshops therefore aim to explicitize the socio-political questions that are at stake, understand the diverging ideological positions (ranging from a belief in individual self-sufficiency to confidence in a techno-fix), and explore how citizens might take the energy future into their own hands.

Theoretical reflections on the spatially and socially transformative potential of energy transitions

In public debate, the transition towards a sustainable energy system is often reduced to a technical question, of which the spatial, socio-economic and political consequences are underestimated. But transition thinking actually conceptualises 'sustainability' as disruptive to the system, as opposed to discourses of 'optimization' or 'efficiency' (Frantzeskaki and Loorbach 2010; Paredis and Block 2015). The transformation of the energy system is seen as part of a process of fundamental societal change towards a more sustainable future (Block and Paredis 2012; Rotmans 2016). But how fundamental is fundamental? This paper argues that if the transformative potential of the energy transition is to be realised, it should include rethinking spatial structures, developing alternative forms of governance, and improving social justice.

The spatial dimension of energy transitions

While the spatial dimensions of energy transitions have long remained underexplored, a 'spatial turn' has recently introduced a geographical perspective in transition studies (Bridge et al. 2013; Coenen et al. 2012). But from a designer's perspective, the attention to local contexts remains at an abstract, often institutional level, and doesn't engage with the relation between energy infrastructures and urban morphology. Designers like Sijmons and Stremke show how research-by-design can be used to envision potential energy futures and reframe the energy transition as an inherently spatial project. However, these Dutch approaches rarely question the existing spatial structure of the built environment, a question that is particularly pertinent in the Flemish context.

Its nebulous and fragmented form of urbanization leads to a high energy demand for mobility (Boussauw and Witlox 2009) and heating, complicates the integration of renewable energy production and raises the societal cost of supply networks. Space is thus more than a 'context' or 'tournament field' (Sijmons 2014) where the energy transition is played out. Building a new energy system includes rethinking spatial form, and particularly requires to broaden the discussion on energy efficiency from the building scale (building skin, installations) to the collective, urban level (orientation, compactness, density, function mix). It also requires insight in how supply networks facilitate and reproduce dispersed urbanization or how they might support alternative spatial logics.

This strategic dimension is usually absent from technical studies about the 'landscape potential' for different types of energy production (Renders et al. 2015; Van Esch et al. 2016). These offer valuable quantitative insights but don't answer questions of real-world implementation, nor can they replace a collectively constructed and context-sensitive spatial vision. The *Energielandschap Vlaanderen* study was a first research-by-design exploration and included a conceptual exploration for a regional energy system in Roeselare (*Energielandschap Vlaanderen* 2015). The *Atelier Diepe Geothermie* went an important step further by exploring how the integration of collective heating networks to distribute deep geothermal energy in the Campine region, could be part of a strategy to structure urbanization (*Atelier Diepe Geothermie* 2015).

It highlights the relevance of 'heat' from a spatial perspective, in comparison to energy in the form of electricity or fuels for transport. These different forms of energy correspond with particular actors and infrastructures for energy production, transport and supply, and therefore differ in their spatial impact. Once a network is distributed isotropically over the territory, as in the case of electricity and gas in the Flemish context, it tends to lose its spatially structuring capacity. But because heat gets lost over distance, 'proximity' matters in the case of collective heating, and can potentially be revalorized as guiding principle for both energy systems and urbanization. The spatial planning community is increasingly interested in energy transition as a spatial question, and starts to include 'heat' next to electricity as an essential part of building future energy systems (Raeymaekers et al. 2017). But if spatial planning is to guide the urban landscape in a more sustainable direction, it needs to better understand and mobilise the spatial logics of such other domains (like energy), and how they influence urbanization.

The socio-political dimension of energy transitions
Transforming the energy system is not just a technological project but involves the emergence of new actors and shifts in power relations, and inevitably leads to conflict and contestation. The question is no longer to construct "large-scale technologies from scratch, but to re-construct complex socio-technical systems that are linked with fundamental aspects of economy and society" (Miller et al., 2013, p. 146). Several authors have drawn attention to the socio-political aspects of transforming such urban infrastructures (Bulkeley et al. 2014; Coutard and Rutherford 2010; Meadowcroft 2009), and have conceptualised the forms of power at work in these transformative processes (Avelino and Rotmans 2009; Hoffman and Loeber 2016). Key choices in energy transitions are "not so much about different fuels or technologies, but between different social, economic and political arrangements built in combination with new energy technologies" (Miller et al., 2013, p. 139). But such ethical and normative dimensions often remain implicit, and discussions about the desired outcomes of energy transitions rarely go beyond environmental targets. The following paragraphs therefore look into critical views on the socio-political dimension of energy transitions to start exploring its socially transformative potential.

Critical perspectives on the social impact of ongoing transformations in urban infrastructure often draw a very negative image. Notably Graham & Marvin's work illustrates how processes of liberalisation, unbundling and bypassing can lead to exclusion, and embed social inequalities in the design, materiality and functioning of technical networks (Graham and Marvin 2001). Byrne critically analyses the discourse of the renewable energy sector, and unravels the parallels between conventional and 'sustainable' energy paradigms (Byrne et al. 2009; Byrne and Toly 2006). While renewable energy promises a solution for the ecological impact of fossil fuels or nuclear energy, it doesn't question their underlying modern belief in technological solutions, or the need for an ever increasing energy production to sustain economic growth. This cornucopian dream of 'more is better' is also supposed to reduce conflicts over resources and inequalities in access (Byrne and Toly 2006). Based on a logic of quantification, it places norms of technical success over social values, and thereby puts technical expertise central. This gives limited opportunities for people other than engineers, technocrats or economists to take part in the debate about sustainable energy futures (Miller et al. 2013). Because this dominant discourse doesn't challenge existing power structures or the underlying principles of capitalist political economy, its potential to generate true political and economic transformation is low (Byrne et al. 2009). Interestingly, early renewable energy visions developed in the 1960s were based on a broader socio-political agenda of anti-war and anti-corporate politics, but from energy-politics the discourse later shifted to energy economics, adapting to the logics and language of conventional energy paradigms (Byrne and Toly 2006). If the energy transition is to fundamentally transform society's relation to energy, we need to re-introduce essential socio-political aspects in the discussion –argued convincingly also by Swyngedouw (forthcoming). Following Coutard's plea for a politics and practice of hope rather than cultivating an alarmist view on urban infrastructure (Coutard and Guy 2007), this section will further focus on two main dimensions of potential social transformation, related with 'commons' principles of governance, and issues of energy justice.

Often a concern with such questions has been introduced as part of a 'commons' view on energy. The commons framework proposes an alternative to the traditional dichotomy between market and state, and fundamentally questions the ownership and governance of systems of collective consumption (Becker et al. 2017). While the satisfaction of social rights is traditionally seen as a question for the state and based on individual property rights, commons thinking introduces an alternative of collective ownership and governance practices (Harvey 2011; Mattei 2012). It considers energy not as a commodity but as a common good and focuses on its use value rather than its exchange value. This perspective opens possibilities for individuals as citizens, rather than mere consumers, a perspective clearly opposing traditional energy paradigms and curiously absent in many energy transition debates. The dominant technological discourse empowers citizens to "consume the products of the renewable energy paradigm but diverts them of the authority to govern its operations" (Byrne and Toly, 2006, p. 21). In a critical historical analysis of the

'modern infrastructural ideal', Kaika and Swyngedouw also reveal how an emancipatory potential was attributed to the connection to urban networks, and thereby enacted at the individual level rather than found in the public sphere or at the collective level (Kaika and Swyngedouw 2000). Commons thinking then stands for a more holistic, systemic view on energy transitions, and allows to rethink the dependence of individuals on collective systems of consumption as an essential part of a fundamental energy transition.

Becker uses this framework to understand initiatives for remunicipalization of energy networks in Berlin and Hamburg (Becker et al. 2017). Struggling for democratic participation and ownership of energy infrastructure, these movements broaden the goals of the energy transition from ecological sustainability to democratic governance and social justice. This ties in with how Miller understands the social dimensions of energy transitions, captured in three intersecting aspects (Miller et al. 2013). Issues of democratic decision-making and governance are crucial because the design of energy infrastructures reflects social and political choices and has financial, geographical and environmental consequences, and are shaped by how and by whom decisions are made. Moreover, the values embedded in the shape of energy systems depends on whose knowledge is considered relevant. Lastly, aspects of energy justice include equitable access to energy, and a fair distribution of the costs and benefits linked with the introduction of new energy infrastructures (Miller et al. 2013). A related question is how new energy systems and policies influence energy poverty (Goedemé et al. 2017).

Several energy cooperatives have emerged in Flanders since the 90s, that put the ethical and social questions inherent in the energy transition, on the table. They claim the right to 'harvest' wind and solar energy as 'common resources' and argue for a transition towards 'energy democracy' (Vansintjan 2016; Willems 2014, 2016). Such cooperatives mainly focus on the governance dimension and argue for financial and democratic participation of citizens in the construction of sustainable energy infrastructure. They often have a positive impact on public acceptance of new infrastructure projects (Sansen 2015). In terms of social justice, they question where the economic benefits of the transition should go, but attention to equal access and the reduction of energy poverty has been limited. They do emphasize how collective ownership of energy infrastructure benefits local economies, a dimension relatively absent in the consulted academic literature.

Back to the basics: focusing on heat in an ordinary town
The previous section argued that if the energy transition is seen as a fundamental societal transformation, it should go beyond implementing ecologically sustainable technologies, but include a reflection about a more sustainable spatial structure, alternative forms of governance, and a socially just energy system. In Flanders, energy in the form of heat emerges as a system where both the relation with urban morphology and questions of governance and energy justice are at stake. While the public debate often focuses on electricity, the challenge of building a fossil-free heating system is receiving increasing policy and research attention as a crucial element in future energy systems (*Argusrapport* 2014; Connolly et al. 2014; Cyx 2017).

Heat represents 60% of end energy use in Flanders. It is used to heat buildings and supply hot water (at lower temperatures), and to power industrial processes (higher temperatures), each responsible for around half of the heat demand (*Argusrapport* 2014). Today, it is mainly produced with fossil fuels in the form of natural gas (67,5% of households and increasing) and fuel oil (23% and decreasing) (Winters et al. 2015). Only 4,7% of heat used in the region comes from renewable sources, as opposed to 10,5% for electricity. Green heat mainly comes from biomass (94,4%), a small percentage from ambient energy (heat pumps soil and air, 3%) and solar (2,1%) (numbers for 2014, Jespers et al. 2016).

New actors and technologies (solar boilers, heat pumps, CHP, (4th generation) district heating) start to challenge the existing heat system. But particularly for collective heating infrastructures, a clear framework on the spatial conditions, governance and socio-economic dimensions has yet to be developed as it is a relatively new system in Flanders.

But some experience with district heating has already been developed in Roeselare, a small city in the Midwest region of West-Flanders. Since 1986, the local intermunicipal waste company MIROM revalorises the residual heat from its incinerator. It powers an urban network that supplies heat to meso-scale functions such as the regional vegetable auction, several schools, a hospital campus and the swimming pool. The network has expanded considerably since 2012, connecting new customers as opportunities arose, including some residential projects. This opportunistic expansion was facilitated by a close collaboration between MIROM and the city administration.

Also beyond the existing heating network, Roeselare and its region present an interesting energy profile. The regional horticultural sector, including a number of large 'frozen food' companies and a strong pig and cattle farming industry, represents interesting opportunities for a future energy system where heat, electricity and (organic) material flows can be strongly intertwined (*Energielandschap Vlaanderen* 2015).

A small city of 60 000 inhabitants, Roeselare has a larger demographic growth than comparable Flemish cities. This puts pressure on existing infrastructures and on the natural (water) system. Between 1983 and 2015 built surface in Roeselare increased from 30 to 49% (*Stad Roeselare, FOD Economie*). This affected the

water system in the Mandel valley, leading to several floods and a period of drought over the last years. Urbanization in the region mainly concentrates along the water- and rail infrastructure connecting Roeselare with the Leie valley, and is notably characterised by the interweaving of industrial and residential areas. Often studied as a typical example of Flanders' fragmented and 'wild' urbanization (Cattoor and De Meulder 2011), this context also offers particularly interesting opportunities to develop a regional heating system that connects a diverse range of heat sources and consumers [fig. 1].
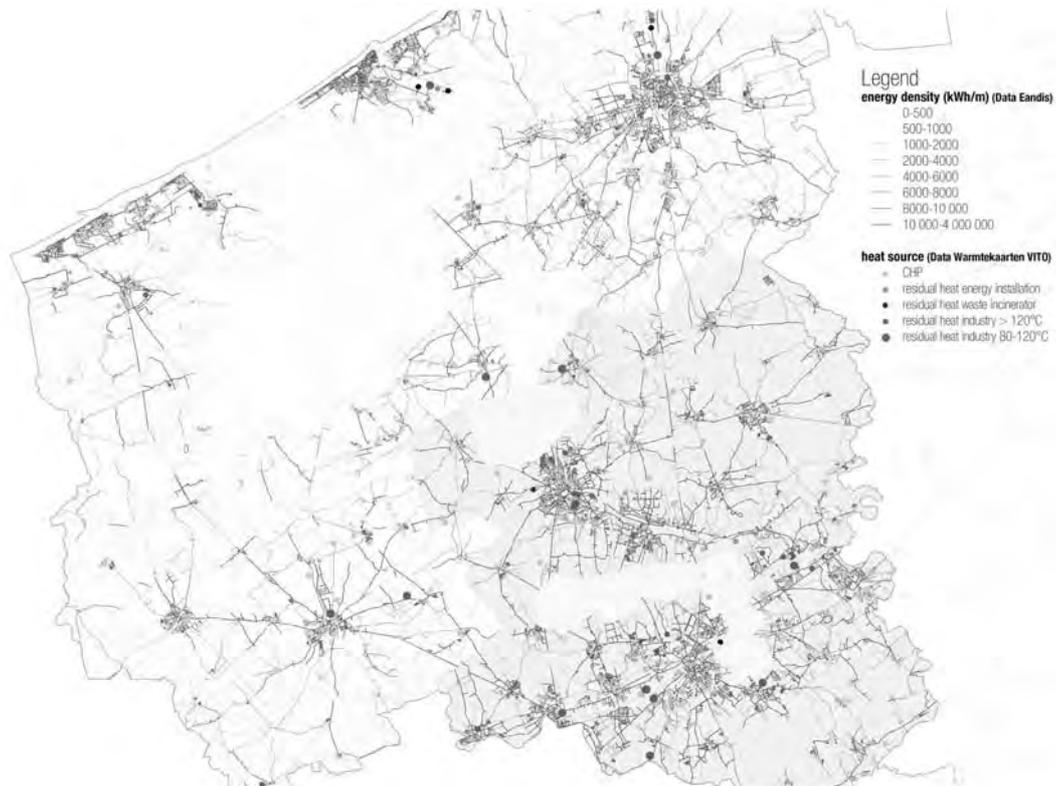
[fig.1] Natural gas use (as proxy for heat demand) in the province of West-Flanders, with the region of Roeselare and Kortrijk clearly standing out. Source: elaborated by the author based on data from Eandis (2016), Agiv.

The need for a vision about such a future energy system and in response to climate change has become clear, and Roeselare's administration is working on the Climate+Plan as part of the Covenant of Mayors engagement for 2030. It aims to connect the city's diverse climate actions and wants to involve local stakeholders in a dynamic transition process. Moreover, efforts to reflect on a regional collective heating vision have started under impulse of Leiedal, the intermunicipal company for the neighbouring region of Kortrijk. It has also become clear in Roeselare that the ad-hoc expansion of the district heating network is reaching its limits, and a more long-term policy framework is required. Over the next few months, the scenario-exercise with stakeholders will be a first step in exploring the possibilities for such a vision.

Where to start? Parameters to include in a scenario exercise for Roeselare's heating future
Throughout the theoretical reflection, three dimensions of the energy transition's transformative potential emerged. The introduction of new energy infrastructures can be a lever to rethink existing spatial structures, introduce forms of common governance, and build an inclusive energy system. The following paragraphs describe how these three dimensions appear in the question of collective heating in Flanders, and list the essential parameters that need to be included in the scenario exercise for Roeselare [fig. 2].

[fig.2] Parameters for (collective) heating projects. Source: elaborated by the author.

Heat and space: revalorising proximity?
The suitability of different types of heating infrastructures depends on the characteristics of the built environment: as heat gets lost over distance, proximity is an essential condition to exchange (residual) heat between different functions. A first parameter in the choice between individual or collective systems is therefore density of energy demand (kWh/m). A recent study shows that collective heating networks are more interesting in denser urban areas with a mix of functions, whereas individual installations make more sense in residential areas with a very low density (Cyx 2017). It underlines spatial selectivity as a central question in the development of sustainable heating systems in Flanders, as opposed to the historical approach towards gas (and electricity) distribution which aimed to connect every corner of the territory.

A related characteristic is the energy efficiency of the existing built tissue, and its potential for renovation. This depends on the state and typology of the building, but also on the socio-economic profile and ownership status of its inhabitants (Vanhille et al. 2017). The energy demand of a building determines the required temperature regime of its heating system, and therefore its suitability for sustainable heating systems such as heat pumps or 4th generation district heating that typically work on lower temperatures (30-60°C). Rather than aiming for 'maximum' energy efficiency for each building, an 'optimal' balance between renovation and heat provision might be more realistic and effective (Cyx 2017).

District heating systems working on lower temperatures, allow to connect more diverse types of energy sources. In that sense, district heating is not an aim in itself, but a way to 'unlock' and connect various types of sources to build a more circular, or better 'cascading' heat system. Flexible or 'open' systems also allow switching to more sustainable energy production collectively in the future. They can respond to uncertainties about future expansions or changes in demand, and about dependence on specific sources such as household waste or residual industrial heat.

An important obstacle for the introduction of collective heating and structural renovation strategies, is Flanders' fragmented housing ownership structure. Until today, district heating networks have mainly supplied heat to meso-scale functions – public buildings, social housing estates, businesses. Recently several new urban projects have integrated district heating, but connecting individual existing houses remains financially and technically unfeasible. For the development of new district heating projects, meso-scale functions and strategic urban projects can therefore function as crucial stepping stones [fig. 3]. Our individual housing culture also means that the introduction of collective heating systems depends on many individual decisions for change that are linked with daily habits, such as switching from gas to induction for cooking. Individual investments in other alternatives such as heat pumps, can also undermine support for collective systems where these would be more appropriate. But at the same time an individual strongly depends on a collective or public decision before connecting to district heating is an option.

Switching to a new system also means leaving behind the old one. Flanders' fine-grained gas network is a notorious example of path-dependency and the handicap of a head start. While the obligation to connect new housing to the gas network was recently lifted, there is no consensus about phasing out gas. Many argue that it is a 'transition fuel' necessary to compensate for the intermittency of renewable energy sources. The existing network has remaining potential to connect up to 95% of households (Cyx 2017; Gistelinck 2016) which could even mean an improvement for the 23% of households still using fuel oil. In some places it might be interesting to re-use the gas network for bio- or synthetic alternatives in the future. But investments made in gas infrastructure today also have very long depreciation terms of around 50 year and life spans up to 80 years (Cyx, 2017, p. 64). New connections to the gas network are still outnumbering investments in sustainable alternatives (Hens 2017). Belgium even decided to retrofit a large part of the gas system to switch from low-caloric Dutch gas to high-caloric gas mainly imported from Russia, Norway and Qatar[1], continuing a strong dependence on foreign energy sources. All these 'system optimizations' and sunk investments represent an important societal cost and impede more fundamental change. A better understanding of where the network is or will be outdated is therefore an important element in developing a phasing-out strategy on the middle- and long term. Such a long-term perspective also allows people to plan for the necessary changes in their daily environment and make optimal use of natural replacement moments (Cyx 2017).

A more pragmatic spatial factor is related with the physical integration of collective heating networks in the public domain. Putting pipes underground has quite some physical impact and local governments like to keep nuisance to a minimum. The exact physical trajectory and phasing of a heating network in practice often develops in synergy with other (planned) infrastructure works, such as the switch to a dual sewage system, integration of the optic fibre network, refurbishments of public space, and the construction of cycle paths (that can profit from heat wastes to remain frost-free in winter). Vice versa, the chances of integrating a heat network in a recently refurbished street, are rather small.

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1 Since the Netherlands decided to phase out gas by 2050, the supply of low-caloric gas to Belgium will end in 2030. Part of the network will be adapted to the supply of high-caloric gas, an investment of around 500 million euro (Hens 2017).

[fig.3] Spatial structure of Roeselare showing the existing heat network, potential heat sources and planned urban projects. Source: elaborated by the author based on data from Agiv, LNE, GIS department Roeselare, interviews with Roeselare administration.

The spatially transformative potential of district heating lies in revalorising 'proximity' as a guiding principle in urbanization and the energy system. Introducing collective heating and improving the built environment's energy efficiency, are inextricably linked. A mutually reinforcing dynamic can be created by linking the introduction of collective heating with strategies for collective renovation and energy-conscious urban design through densification and a function mix of complementary energy profiles. Such a strategic vision needs to balance out conceptual principles with the pragmatic considerations described above.

Heat and governance: governing in common?
The heat sector is in flux: diverse collective heating projects are developed and new actors are emerging [fig. 4]. Since the liberalisation of the energy market, the 11 intermunicipal companies gathered in Eandis and Infrax, have the legal monopoly on gas and electricity distribution. But for heat, production and supply are not necessarily 'unbundled'. Next to the intermunicipal energy companies, other types of actors such as commercial firms, citizen cooperatives, and intermunicipal waste companies have started to implement district heating projects.
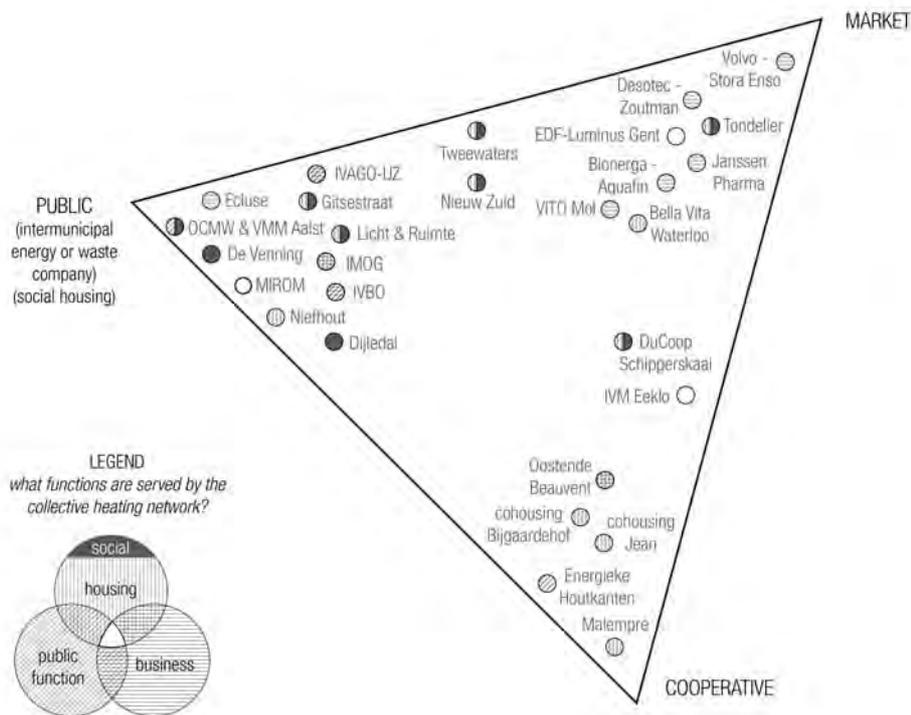
[fig.4] Visualisation of governance structures for existing collective heating projects in Flanders.
Source: elaborated by the author based on various online sources and interviews.

The intermunicipal energy companies have local municipalities as main shareholders. But their financial and decision-making structure has been criticised for lacking transparency. Local representatives often lack the technical knowledge to engage in strategic discussions at board meetings. Two recent incidents show the tension between their approach and 'commons' principles of governance. The news in 2016 that Eandis wanted to make a deal with the Chinese State Grid Corporation to buy Electrabel's shares, was criticised by civil society as a missed opportunity for 'energy democracy' and a greater involvement of citizens in energy distribution networks (Willems 2016). In spring 2017, local municipalities were asked to vote on a transfer of operating rights for the activity 'heat' to Eandis and Infrax (Energy cooperative director, energy expert administration 2017, Walraven 2017). This would provide them with a strategic advantage in the district heating sector and was criticised for potentially interfering with the freedom of enterprise of other actors such as energy cooperatives.

Intermunicipal waste companies have been important drivers in developing collective heating in Flanders, with Roeselare's MIROM as pioneer. But waste-to-heat raises questions about the long-term availability of household waste in a more circular economy, instigating doubt about which incinerators will remain operational in the future. Lacking a long-term vision on the Flemish level about optimal locations and capacities of incinerators, investing in district heating is often a strategy for waste companies to increase their chances on license renewal. How their role as energy supplier and waste manager will evolve in the future, remains an open question.

Several collective forms of governance also emerged. Firstly, several cohousing projects have included collective heating on a small scale. Second, some local projects on biomass revalorisation work on a cooperative basis, with energy producers and consumers as main decision-makers (Regional landscape biomass expert, 2016). Some of the larger citizen energy cooperatives (Rescoops), that had focused mainly on wind and solar so far, also started developing district heating projects. Energy consumers are not in all cases also shareholders of the cooperative, creating variations in the relation between consuming energy, decision-making, and sharing profits. But cooperatives can also be founded by private actors, having both inhabitants and 'risk investors' as shareholders. In that case energy consumers participate financially and have a voice but don't have a voting majority about the governance of the heat system they depend upon.

Because in the case of district heating, an individual depends on the monopoly of one actor for heat supply, it is crucial to understand the consequences of such different governance structures. Firstly, dependence on one party, points in the direction of a public or collective structure which allows for some form of democratic

governance and citizen participation, and where profit is not the main objective. This also fits with the long investment perspective of district heating infrastructure. Citizen cooperatives generally place the use value of heat central and aim for lower heat prices rather than high dividends for shareholders. They combine ecological with social objectives and might therefore be open to a wider range of projects than commercial firms, or even intermunicipal energy companies. That is particularly the case if district heating is to be developed not only in places where it is already competitive with gas, but in all cases where it is the most sustainable alternative. This is in conflict with the vested interest of intermunicipal energy companies in the existing gas network.

A crucial issue is the need for a 'level playing field' between the different actors. Intermunicipal companies have historically developed privileged relations with local municipalities, giving them an advantage over other actors and potentially conflicting with the entrepreneurial rights of commercial or cooperative developers. Local governments therefore have an important director's role and require suitable juridical expertise in the procedures and criteria used to grant access to the public domain for the construction and operation of district heating infrastructure (Urban administrations, 2017).

In terms of governance, the transformative potential of collective heating systems lies in rethinking the dependence of consumers on a collective supply system and finding opportunities for citizens to participate democratically and financially. Several approaches might offer opportunities to integrate 'commons' principles, ranging from a 'democratisation' of the existing intermunicipal companies, to introducing forms of municipal ownership and governance, or stimulating citizen energy cooperatives to engage in collective heating projects. Important to keep in mind is a separation between operational decisions and strategic governance to balance ecological and social objectives with issues of efficiency and profit.

Heat and social justice: building an inclusive energy system?
Because the heat system is connected to the energy-efficiency of housing, it also links with the issue of energy poverty. Around ¾ of a household's energy budget goes to heating (Delbeke and Coene 2017). Households are considered to be in 'energy poverty' if they spend a proportionally large part of their monthly budget on energy, or if they use less energy than needed to satisfy daily needs (Delbeke et al. 2013). Socio-economically disadvantaged families live relatively more often in housing of lower quality and are confronted with different barriers to invest in energy efficiency. These depend on their status as social renter, renter on the private market, or (emergency) home owner (Vanhille et al. 2017). But existing energy-efficiency policies have a strong Matthew effect[2]; they often benefit higher-educated families or middle-income households (Delbeke and Coene 2017). Certain proposed 'ecological' policy measures, such as a 'green tax shift' or 'carbon tax' can conflict with social considerations, and could disproportionally affect lower-income households that use fossil fuels but don't have the means to invest in alternatives. On the other hand, small-scale pilot projects have tested innovative approaches that focus on specific target groups and develop alternative financing mechanisms (Vanhihlle et al. 2017).

While several projects on collective heating have already been implemented, there is no framework yet that regulates social access to heat supply. For electricity and gas, and even fuel oil, a federal framework regulates a 'social maximum price' for certain target groups and imposes strict conditions for disconnecting an indebted customer (Delbeke et al. 2013). For collective heating such a social tariff doesn't exist although in some cases it is organised at the project scale through an internal solidarity mechanism or with local government funding. Generally collective heating projects follow the 'Not more than else'-principle (*Niet Meer Dan Anders*), guaranteeing a price below the gas price, to compensate for the lack of customer's freedom to switch suppliers as promised in the liberalised energy market. But this principle can be interpreted in different ways and the current low gas price forms an important obstacle for collective heating's market competitiveness.

Particularly in cases where social housing companies are heat customers as in Gent or Roeselare, questions about the calculation of the heat price and the right to a social tariff are emerging. Another complication for social housing companies in switching to collective heating, is connected with the management of billing and malpayment. While conventional energy suppliers usually invoice to the end customer, several collective heating projects send a collective invoice to the *VME* (association of co-owners) or social housing company (urban administration, 2017). This can cause them extra work and is sometimes a reason to opt for individual heating solutions. On the other hand, the simpler ownership structure of social housing estates makes them interesting stepping stones in the development of an urban district heating strategy.

A third question relates to the accessibility of collective heating systems for different target groups and the societal distribution of costs and benefits. Collective heating has so far already been implemented in a variety of projects, ranging from social housing pilots, to small-scale co-housing or high-end ecological neighbourhoods. But it remains important to ensure that district heating doesn't become a system for the lucky few, particularly because investing in energy-efficiency or sustainable heat provision at the individual

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2 Certain advantages of social government policy, usually inadvertently, go more to higher than to lower social categories (Goedemé et al. 2017, p. 8).

level can be difficult for lower-income households. Another risk is that commercial firms 'cherry-pick' the most profitable projects, leaving the more high-risk projects for cooperative or public developers. Society would then have to carry the highest risks and costs of the heat transition while potential profits fall into private hands.

A question to be explored is how collective heating systems might help in improving equal access to heat and reducing energy poverty. Coupling them with strategies to improve energy efficiency for vulnerable groups would be effective both ecologically and socially. But common or publicly governed collective heating can also allow to reduce heat prices or integrate social redistribution principles, to open up crucial breathing space in the budget of households struggling with energy poverty.

Where to go? Three hypotheses for Roeselare's heat transition
This paper has outlined three dimensions of the transformative potential of the energy transition in Flanders. It explored three groups of related parameters that are to be included in a scenario exercise for the region of Roeselare. This designerly approach will further test the hypothesis that the introduction of collective heating infrastructures can be mobilised as a lever to revalorise proximity, introduce 'common' forms of governance and improve social justice in the energy system. Moreover, building scenarios for the concrete case of Roeselare will allow to connect these different dimensions and better understand how different forms of governance are connected with different spatial strategies or social consequences.

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Reinterpreting the territory's resourcefulness

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Responding to resource scarcity challenges, many European cities aim to become circular. However, mainly focusing on optimizing material flows entering and exiting cities' administrative boundaries, cities' dependencies on resource hinterlands are often overlooked and spatial interventions are mostly limited to infrastructural requirements to exchange resource flows. In the footsteps of environmentalists, urban designers approach the territory itself as a renewable resource and consider changing hinterlands one of the architect-planner's most prominent action arenas. This paper proposes that urban design offers instruments for holistic circularity perspectives addressing multi-scalarity, place-specificity and multiplicity, potentially complementing prevailing functionalistic circular city approaches. It unfolds urban design investigation instruments applied in co-productive research by design on circular economy transition in the Campine region, Flanders. Resource cartographies, metabolic transects and circular resource sheds reinterpret historical urbanism drawings, yet shift their original perspectives. The design instruments reframe circularity as an essentially territorial question addressing interdependencies between urbanization and resources, led by an evolving understanding of the way in which flows and infrastructures connect different socio-economic agendas in specific places.

Introduction

This paper forms the last chapter (Chapter 7) of the research by design section in my PhD research on the spatial integration of circular economy. It approaches the conducted design investigations on circularity from the adopted design instruments. The PhD research aims to contribute to urban design and planning methods to realise multidimensional socio-ecological circular economy transitions. It therefore focuses on urban (landscape) design as a practice.

The PhD manuscript consists of three parts:
- research on design: state of the art circular city design (Chapter 1) and state of the art research by design supporting circular economy transition in Antwerp and Central-Limburg (Chapter 2)
- research by design: a series of self-initiated co-productive design investigations in Antwerp and Central-Limburg within the framework of circular economy transitions (Chapters 3-6)
- research for design: reflections on urban landscape design investigation instruments (Chapter 7) and on how the conducted design iterations interacted with ongoing planning processes (Chapter 8).

Circular economy transition: a wicket problem

Since postwar increasing consumption, linear thinking and acting dominate contemporary society. (Feys 2011) Manufacturers continuously extract raw materials from nature to produce products consumers massively discard after use. As a response to growing resource scarcity, the circular economy shifts this wasteful modus operandi. Aiming to decouple economic growth from resource extraction and to reduce pressure on the natural environment, circular economy considers any waste flow as a resource that can be reused through sharing, reuse, repair or recycling. (Ellen MacArthur Foundation 2013) As one of many sustainability transitions, circular economy transition is a wicked problem.[1] According to transition theory, the combination of landscape changes such as threatening natural resource scarcity and niche innovations such as repair cafés or sharing economies expects markets, industry, science, policy and culture to break up linear consumption patterns and to gradually realign them into a new circular socio-technical regime. (Geels 2007) [fig.1] The question remains how all of these dimensions can be simultaneously integrated in this complex multi-actor, multi-level, multi-phase and multi-pattern transition process (Loorbach 2012, Vandenbroeck 2014).

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[1] "Acknowledging the existence of wicked problems means admitting to face societal challenges for which no definitive answer exists. Wicked problems are structurally complex so that it is hard to say where a given problem stops and another one begins." (Vandenbroeck 2012)
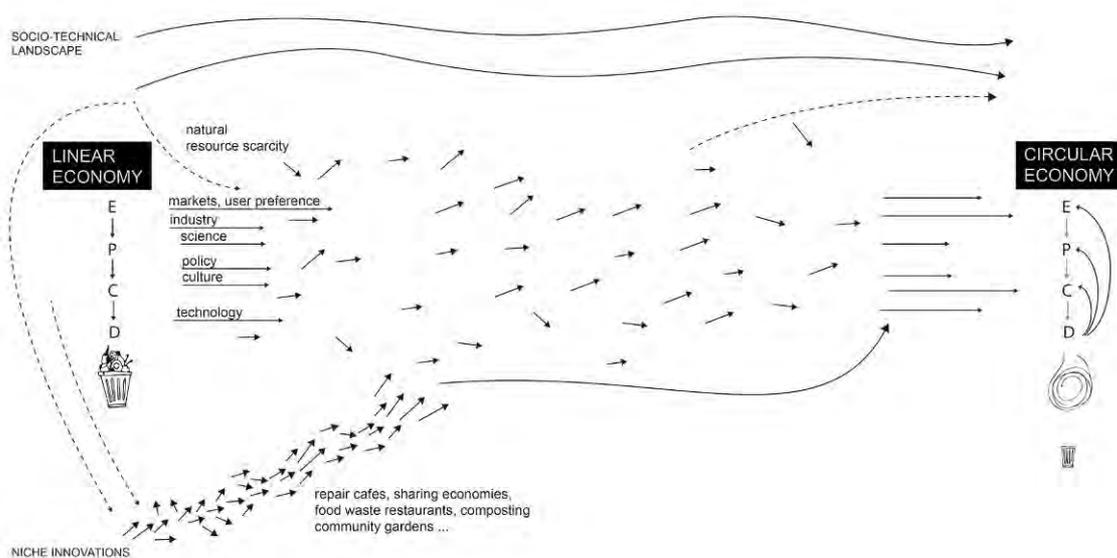
[fig.1] Transition from linear to circular economy. E=extraction, P=production, C=consumption, D=disposal Source: diagram by author based on Geels 2007 p. 401 and data from Ellen MacArthur Foundation 2014.

From circular economies to circular cities

To date, efforts to achieve circularity in cities mainly focus on circular economy business innovations and optimizing material flows entering and exiting city boundaries. European cities such as Amsterdam or Glasgow aim to become circular,[2] however in vision and policy documents 'circularity' is often conflated with 'sustainability' and what defines circularity remains unclear. (Prendeville 2017) Contemporary spatial practices focusing on closing resource loops between a set of actors are predominantly functionalist and generally ignore contextual particularities. Rooted in industrial ecology, 'material flow analysis' (Baccini, Brenner 2012) quantifying resource flows drives most circularity design. Exemplary projects such as Kalundborg Symbiosis in Denmark[3], reuse industrial waste products as resources within one industry park. Despite their achieved resource efficiency, industrial ecology's focus on quantifying material in- and outputs is critiqued for ignoring, the multidimensional social, ecological and political context in which these flows exist. For example Sabine Barles, civil engineer and urbanist, states industrial ecology overlooks cities' dependency on resource hinterlands. She calls for 'territorial' ecology instead of 'industrial' ecology, taking into account resources' places of origin, the quarries and water reserves in distanced hinterlands as well as the stakeholders and agents involved in material flows. (Barles 2010b) Indeed, as brilliantly illustrated by Nikos Katsikis' map[4] of the total land surface supporting urban agglomerations (Katsikis 2015), urbanization essentially consumes land: land occupied by buildings and infrastructures to begin with, but also an ecological hinterland feeding it natural resources such as food, drinking water, building materials, and receiving its wastes. A city's environmental imprint indeed far exceeds its boundaries (Barles 2010a). Similarly to Barles' critique of industrial ecology, Castan Broto et al., emphasize in their 2012 state of the debate that quantitative knowledge about material flows should be linked to specific social, economic and ecological contexts and to space in order to understand "how particular things, such as urban forms, lifestyles, and infrastructural landscapes, lead to metabolic differences" (Castan Broto 2012: 854).

Contrarily to what seems implicitly accepted at 'circular city' gatherings[5], it is obvious a circular city is not simply a city containing circular economies. The actual question to raise is how circular economy can contribute to cities' economic, social and environmental resilience. (Ellen MacArthur Foundation 2017) To answer this question and to achieve true multi-dimensional circularity in existing urban fabrics, industrial ecology requires additional instruments and approaches.

Holistic perspectives on circularity

[2] See for example https://amsterdamsmartcity.com/themes/circular-city or https://www.circularglasgow.com/. The European continent is especially vulnerable to resource scarcity, since its natural material stocks are limited and Europe mostly depends on other continents for raw materials.

[3] http://www.symbiosis.dk/en/

[4] See http://terraurbis.com/?page_id=193

[5] http://www.circulareconomy.brussels/be-circular-annual-meeting-2017/?lang=en. As in previous editions, the 2017 session strongly emphasized business initiatives as drivers of circular cities.

Realizing circular cities requires holistic resource flow approaches engaging with existing situations and relating material flows to their multidimensional spatial, social, ecological, cultural and political contexts. Contrarily to industrial ecology's quantitative methodological starting point aimed at resource efficiency, urban design has many "spheres of urbanistic action" (Krieger 2003), representing distinct avenues for engaging and facilitating urbanity. Urban Design operates at the intersection of disciplines such as ecology, engineering, design, programming and social policy. Traditionally departing from an existing spatial context, urban design addresses specific situations in particular places, deals with the city's physical form and its relationships with surroundings, independent from preconceived boundaries. (Harvard University 1956) In line with landscape architects and landscape urbanists emphasizing territories' dynamic and fluid character, (McHarg 1969, Corner 2006), contemporary urban design practice considers territories across scales and systems (Berger 2009), as networks of inter-relationships and "gradients of varied landscapes supported by networks of food, energy, resources, culture, transportation and capital."[6]. Consequently, modernist spatial instruments such as blueprint masterplans fixing solutions in space are replaced with alternatives integrating dynamic information and anticipating change. (Corner 2006, Orff 2016)

Opposed to industrial ecology's focus on material flow accounting to start designing circularity, urban design departs from a contextual understanding of physical sites entangled with numerous visible and invisible material and non-material networks. In the footsteps of environmentalists, urban designers approach the territory itself as a renewable resource (Viganò 2012) and consider changing hinterlands one of the architect-planner's most prominent action arenas (Correa 2016). In line with Paola Viganò's interpretation of recycling as "an ample understanding of the process of territorial transformation observed as expressions of rhythms and lifecycles" (Sanchez 2012), urban design essentially works with what already exists. As such, urban design has the capacity to approach circularity holistically, primarily considering land itself as a (scarce) resource to be protected from further development, for example by reusing and densifying already existing urban fabrics (Van Broeck 2017). From this holistic perspective, brand new techno-utopic circular cities such as 'Masdar City'[7] in the Abu Dhabi desert are in fact the opposite of circular, consuming untouched land and requiring massive amounts of new materials and resources for its construction. Urban design on the other hand engages with existing urban fabrics, natural and manmade infrastructural systems, and approaches places as part of larger or smaller existing networks. Besides limiting land consumption caused by human occupation, circular economy's shift from linear to circular resource practices has other spatial consequences. In a circular economy, places of disposal and abandoned places or material stocks become new resource mines. Not only the extraction and disposal spaces will dramatically shift, so will the infrastructural networks supporting these material flows.

Urban landscape design instruments spatializing and contextualizing circularity
The first section of this paper articulates the need for holistic perspectives on circularity, potentially complementing prevailing numbers driven functionalistic circular city approaches, instruments to spatialize and contextualize circularity. 'Blueprint' masterplans are not fit for this task requiring open-ended, multiscalar analysis and design instruments addressing place-specificity and multiplicity. Rather than shifting to other plan types, this shift in urbanism requires reinvention of design investigation instruments supporting new ways of looking at the territory as a resource and representing its embedded potentials as a basis to reimagine new lifecycles for resilient urbanized territories integrating multiple layers of tangible and intangible components, going beyond classical cartographic representations. (Viganò 2012)

This section elaborates on four urban (landscape) design instruments applied in two design case studies on circular economy transition in Antwerp and Central Limburg. Resource cartographies (a) show two mapping explorations geographically locating potential future resource stocks from waste(d) materials. Considering new potential resource geographies, the path materials will follow between extraction, production and consumption sites will alter. Metabolic transects (b) focus on this change. Additionally, logistical chains supporting circular material flows will be reorganized in circular resource sheds (c) requiring new coalitions between the various material flow agents (d). The presented design research inserts urban design instruments into actual _predominantly technocratic_ circular economy practices. By doing this, it aims to spatialize and contextualize contemporary circularity practices dominated by credos of 'efficiency', 'technology' and 'circular economy business models'.

a) Resource cartographies [material locations/conditions]
The first presented map on wasted water in Central Limburg [fig.2] is one of a set of synchronic interpretative mappings on water, energy, waste and people in Central Limburg. For each theme the stacked maps give a general overview of the existing system articulating its fragilities and wasteful conditions, as well

[6] See Columbia University's Graduate School or Architecture, Planning and Design's program statement
https://www.arch.columbia.edu/programs/9-m-s-architecture-and-urban-design
[7] http://www.masdar.ae/

as its invisible flows and potentials. The water maps graphically inventorise and spatialize the state of the art of 'waste(d)' water data in Central Limburg from a variety of government departments and knowledge institutes. The top water map summarizes the current disturbed natural regional water system. Resulting from centuries of accumulated water manipulations, natural water flows are locked into infrastructures piping, burying and containing water. Combined with large sealed asphalt surfaces, the region suffers flooding in case of heavy rainfall. The second map articulates the man made sewage network, consisting of pipes, overflows and treatment plants, as well as the Albert Canal, a concrete 'waterway' completely disconnected from the natural ecosystems it crosses. The third water map [fig.3] locates mining subsidence areas sunken below the ground water table following collapsing mining excavation tunnels. It also shows the yearly discarded water volumes, data collected from *Limburgse Reconversie Maatschappij LRM*, the agency responsible for continuously pumping out this water since the mine closure in the 1960s. As such the drawing makes evident the enormous wasted water volumes, energy and capital supporting this linear technological fix of the post-mining era. The bottom map concludes with the area's remaining natural rivers, water surfaces and wetlands. All the maps and information together set the stage for investigating how the restoration of Central Limburg's water metabolism could become a component of circular economy, while contributing to local ecologies.
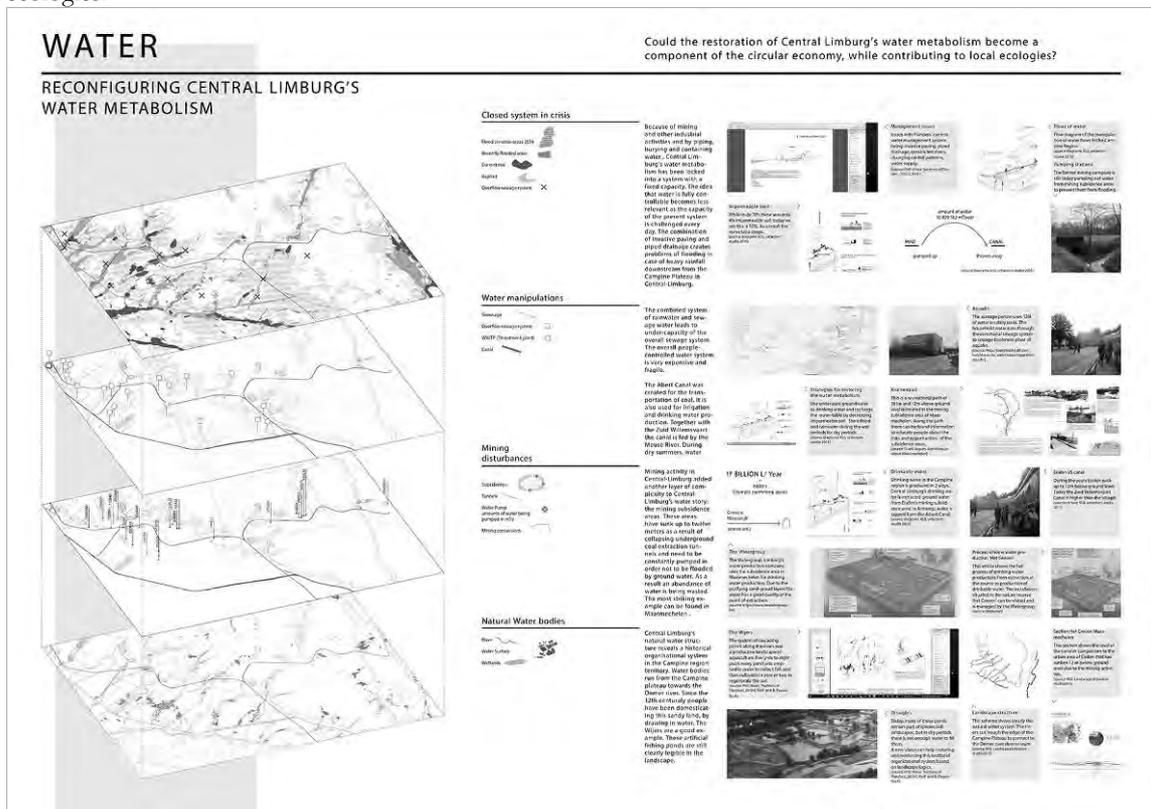
[fig.2] State of the art of reports and data on water flows in Central Limburg. Source: Marin, J., Motti, M., De Meulder, B. 2016. Atelier # 1. *In: Het kolenspoor getest.* Mechelen: Public space. p.10-11
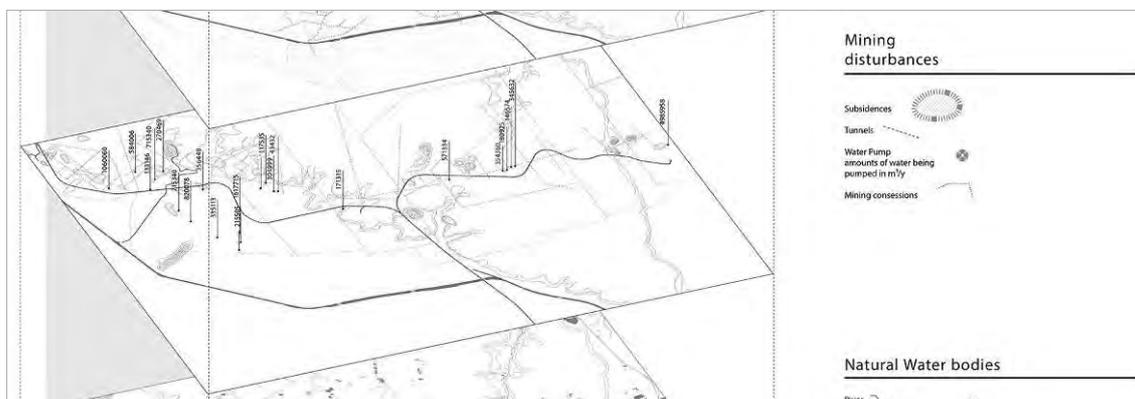
[fig.3] Zoom in on third map of fig.2 showing the mining subsidence areas and the pumped out (and discarded) water volumes in 2013. Data sources: LRM 2013, Ruimte Vlaanderen.

In the Central Limburg Atlas (Marin, Motti, De Meulder 2016), similarly to the Central Limburg water maps, energy, waste and people maps identify material locations and conditions, places where resources are present but currently wasted or untapped, ranging from geothermal energy potential, heat producing industries, former landfills, water pumped from mining subsidence areas, landscape management waste to areas with high youth unemployment. Besides waste(d) material flows, the maps also indicate oversized and underused infrastructural spaces, such as the oversized Albert Canal or an abandoned railway track.

In summary, Central Limburg's resource cartographies locate waste(d), unused or underused resources precisely in space, revealing a geography of potential future hinterlands for local circular practices. Supplemented with additional key information, they offer systemic understandings of Central-Limburg's material flows in their spatial contexts. The water, energy, waste and people maps were co-produced with Ruimte Vlaanderen during Spring 2016 in a format easily allowing additions and updates. Integrating core quantitative and geographical data in one overview, the mappings offer synopses of previously scattered and disparate data, anchored in their physical context and in relation to other 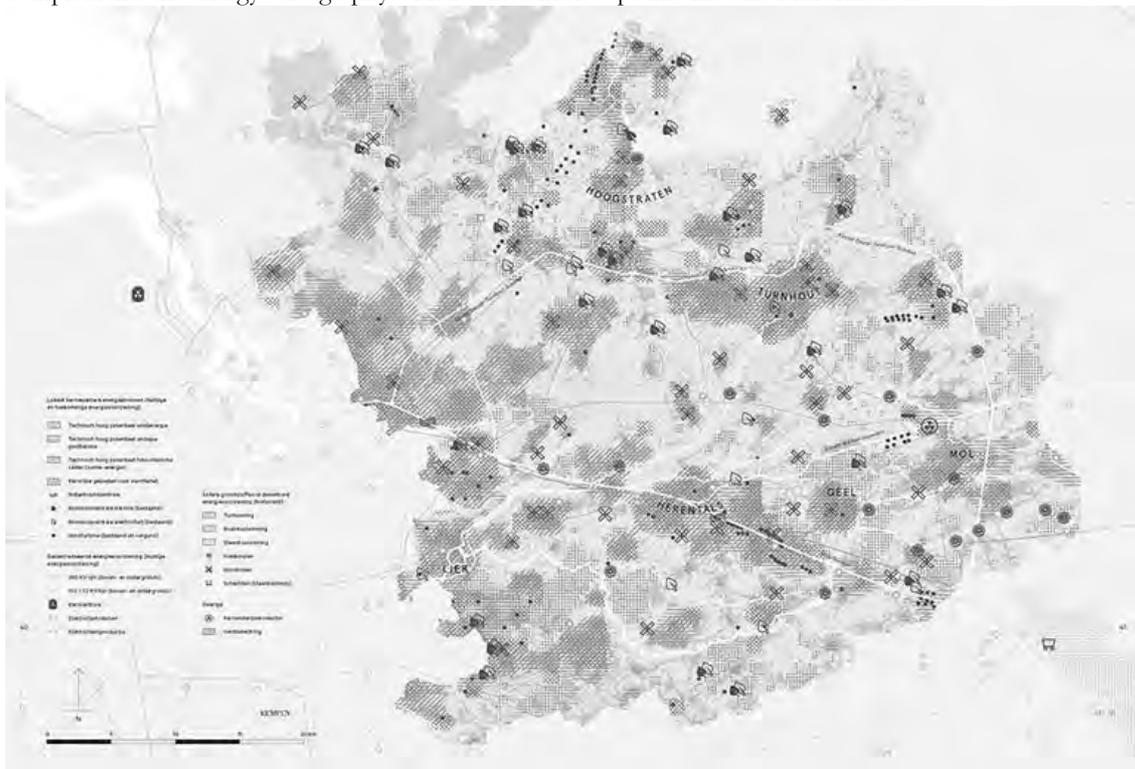data. [fig.2] The resource mappings contribute to territorial analyses in the light of the region's territorial redevelopment, supporting urbanistic practices reusing existing resources and envisioning new lifecycles as a driver for the region's future circular spatial developments. (Marin, De Meulder 2018) Articulating waste(d) resources embedded in the landscape, the maps support government intervention in waste(d) material flows related to infrastructural spaces, outside the scope or responsibility of businesses currently primarily driving the circular economy transition.

Another resource cartography is the energy map [fig.4] MUST cartographers created for the *Kempenatlas*, supporting the essay *Naar een hernieuwbaar energielandschap* (Laenen, Marin 2017). The map integrates diachronic layers of the Campine Region's spatial interplay between landscape and energy production. It overlays pre-20th century local resources supporting decentralized energy production such as peat, lignite, charcoal, water- and wind(mills) with contemporary centralized infrastructural components such as high tension lines. Blue indicates the potential geographical areas to support a future renewable energy landscape running on existing biomass, geothermal energy, sun and wind, revealing in one glance a potential revitalized interdependency between landscape and energy. This map merges exact datasets provided by the Flemish Technological Institute VITO with historical and contemporary databases and aerial photography interpretation. The energy map and essay represent one of twelve themes in the *Kempenatlas*, supporting 21st century sustainable and resource efficient urban design and planning and offering a framework for research by design and policy priorities (Van Leuven, Wouters 2017). The second part of the atlas zooms in on twenty particular places in the Campine relating to the twelve themes. As such a historical essay by Leen Huet on Nieuwmoer, a village originating in the peat bogs, where peat industry's canals are still characterizing the contemporary landscape, complements the energy cartography with zoomed in site specific historical information.

Combining urban landscape layers such as water structures with engineering data such as sewage or pumping systems, the presented maps mix "hard science and practical wisdom" (Dehaene, De Vree 2013), as such constructing a context for concretizing an unknown sustainable future. As any good urbanistic map, the mentioned water and energy cartographies function as revealer, sound board and receptor of imagined futures. They anticipate problem-solution combinations, but also enable imagining alternative solutions. (Dehaene, De Vree 2013) In that sense the cartography is both a strong, substantiating and an open signifier. As such, resource cartographies show a renewed interest in CIAM-like Functional City surveys with a clearly defined data selection enabling identification of specific connections (Weiss et al. 2014: 15), be it as one component in a complementary set of multi-scalar analysis and design investigation instruments.

From their initial conception, both the water and energy maps triggered cross sectoral data collection and exchange. In the Central Limburg case, gathering rough data and georeferencing this data coincided with government actor mapping and engagement.

b) Metabolic transects (analytical + projective)
"A transect is a straight line or narrow section through an object or natural feature or across the earth's surface, along which observations are made or measurements taken." (Weller, Talarowski 2014)

Transects at various scales supported successive design investigations on circular economy transition in Central Limburg between 2015 and 2017. The metabolic transect basis is a section line showing the physical conditions along this line. Besides spatial information, the transects gather data related to material flows, articulating space-flow interdependencies. Hence the naming 'metabolic transects'. Above ground the transect shows the nature and scale of urbanized and natural areas, below ground it reveals geological conditions such as soil types and water flows. This so called 'deep section' representation has the unique ability to address complex issues such as storm surge or pollution and the underlying processes at play, in time and space, with more nuance and dynamism than conventional plans and perspectives. (Carlisle, Pevzner 2012) Therefore, this representation simplifies complex interdependencies between spaces and flows. As such, the metabolic transect serves as an analysis tool for understanding existing conditions. During the analysis process, components can be added or adjusted for example when consulting different experts such as geologists or utility experts. The metabolic section applies a geographical scale, exaggerating site conditions where needed to reveal the issue at hand.

Figure 5 shows a regional transect from Houthalen-Helchteren to Maasmechelen across the Campine Plateau. It summarizes interdependencies between material flows and the territory. This transect reveals some of the complex spatial consequences of for example mining subsidence areas, both above and below the surface. For example, in Maasmechelen the area east of the Zuidwillemsvaart subsided about twelve meters, creating a natural wet zone below the ground water table. The regional water company Watergroep recovers this water for drinking water production in the Limburg province. [fig.5 top right] In Houthalen-Helchteren, the transect articulates different ways waste constructs the landscape. [fig.5 top left] Firstly, Helchteren's former sand extraction site amidst the pine forests, houses one of three remaining Flemish active landfills, Remo. Here pilot projects in enhanced landfill mining[8] are running, converting this waste into new materials and resources such as hydrogen or water. A bit more to the south, in Houthalen, the former mining slag heap, waste from coal extraction, was flattened in 1973 into an industrial platform extending the Campine Plateau to colonize marshland. Complementing the regional resource mappings discussed in section a, the regional systemic transect offers insights in coherences and disruptions between visible and invisible material flows, human an natural processes. It identifies strategic areas to intervene in material flows, such as Houthalen-Helchteren in this case, where materials recycling is strongly intertwined with the landscape.

As shown in figure 5, the metabolic transect serves as a receptor of relevant quantitative data about water volumes pumped in the mining subsidence areas, waste volumes burned in incinerator Bionerga and sludge dried in the Aquafin sludge drying station. Material flow data in these areas was collected in several stages through on site stakeholder interviews, since this labour intensive method appeared the only way to obtain any numbers.

Finally, at the architectural scale [fig.6], the metabolic transect depicts opportunities to design architecture and public space in relation to underground utilities, such as a bike path through industry park Centrum-Zuid, branching off the regional coal track bicycle trail and heat network, taking advantage of heat pipes conducting geothermal heat as well as excess heat from industries to defrost the bike path during winter time.

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[8] Enhanced landfill mining aims to bring landfilled waste back into the economy by using modern techniques to convert it into materials and energy. See https://www.eurelco.org/
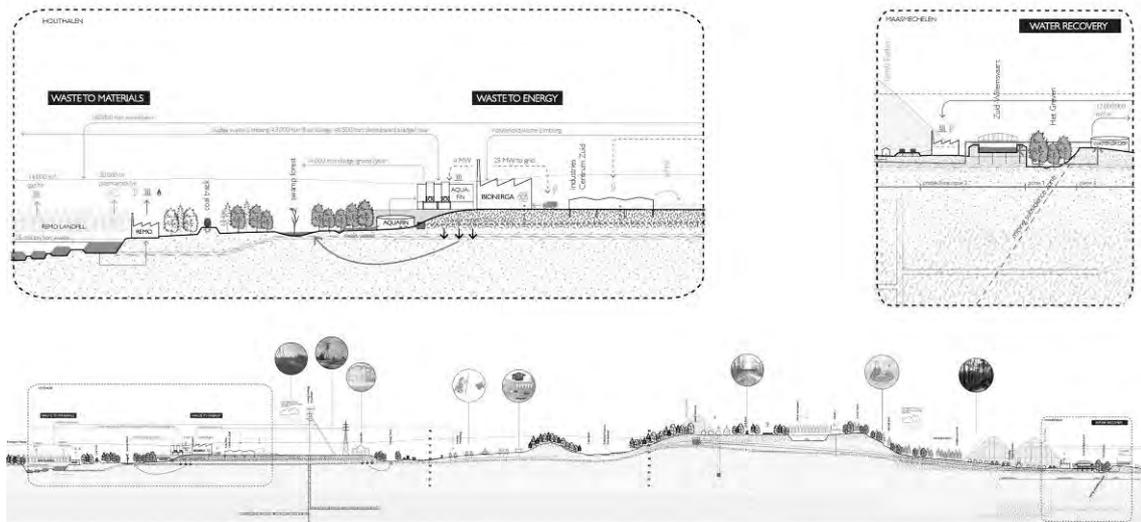
[fig.5] Metabolic transect showing space-flow interdependencies from Houthalen to Maasmechelen across the Campine Plateau (bottom). Zoom ins on material recoveries in Remo landfill and industry park Centrum Zuid and in het Greven in Maasmechelen clarifying existing flow exchanges. Source: Marin, J., Vandaele, E.; De Meulder, B. 2015. Upcycling Limburg. Samples of transition along the coal track. *In:* K.U.LEUVEN, MaHS., MAUSP (ed.) *Studio Investigations.* Leuven: KU Leuven. p. 12-13.

[fig.6] Design for a public spine across industry park Centrum-Zuid in Houthalen spatially integrating material flows such as heat to defrost the bicycle path. Source: Marin, J., Motti, M., De Meulder, B. 2016. Atelier # 1. *In: Het kolenspoor getest.* Mechelen: Public space. p.21

A territorial deep section serves as a basis to add site specific quantitative and qualitative data in a synoptic overview. As such, the metabolic transect spatially summarizes coherences and disruptions between visible and invisible material flows, manmade and natural processes. At the architectural scale, the metabolic transect spatially articulates interplays between material flows and spatial (re)production.

In the second Central Limburg design case, Atelier Track Design, iterations of the same metabolic transect throughout time, demonstrate how the interplay between resource flows and spatial conditions gradually evolves. Atelier Track Design is a design study for an abandoned Ford manufacturing site in Genk, commissioned by Flanders' Spatial Planning Department (Ruimte Vlaanderen) and the Flemish Waste Agency (OVAM) in 2016. It was executed by WIT architecten, OSA KU Leuven, Lateral Thinking Factory, consultancy on circular economy implementation, and engineering firm Technum Hasselt. Atelier Track Design adopted metabolic transects, one cross and one longitudinal site section, throughout the entire

process for multiple purposes. Firstly, it served as a medium for the multidisciplinary team to grasp the (potential) interactions between material flows and the Ford Genk site's spatial layout. As such, it served as an accelerator to spatialize Lateral Thinking Factory's abstract material flow simulations linked to potential future site occupants [fig.7].
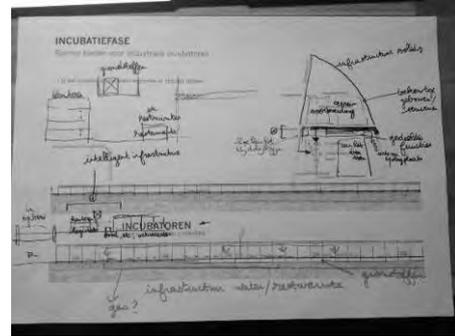
[fig.7] The systemic transect as working tool in multidisciplinary design sessions for Atelier Track Design. Source: author, 2016

Simultaneously, the transect enabled articulation of the spatial impact of subsurface conditions such as soil pollutions. For example, the transect made evident the productive capacity of an existing phytoremediation landscape [fig.8], left from a pilot project by Hasselt University, nevertheless seemingly forgotten by the Economic Development Agency in charge of the site's redevelopment.
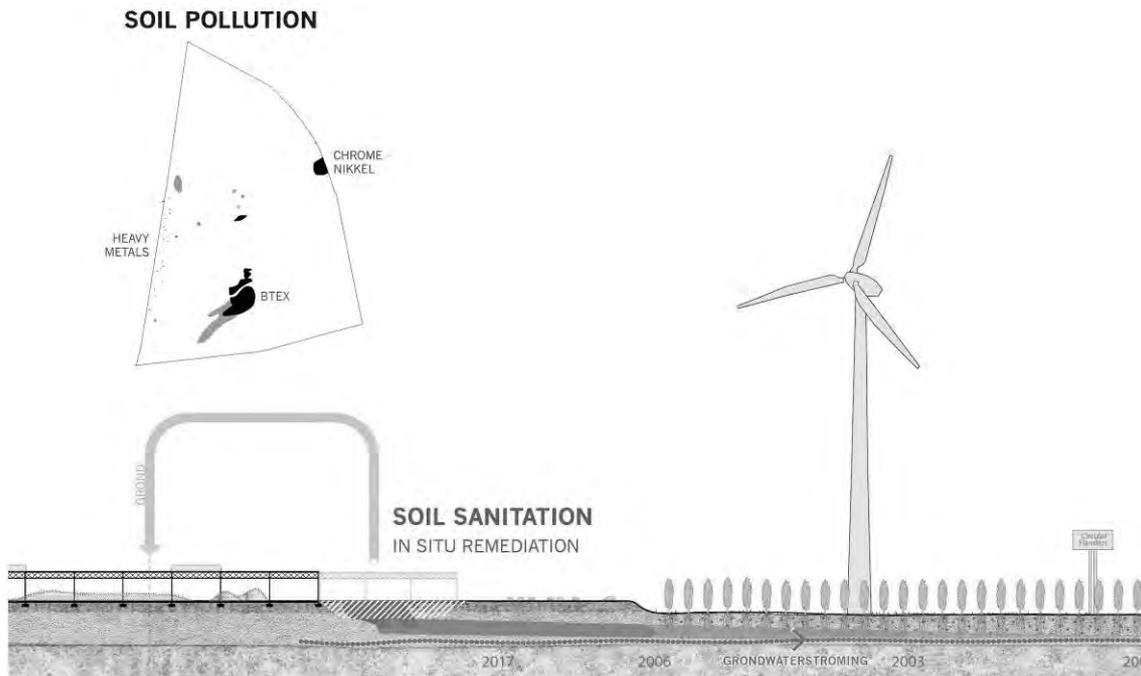
[fig.8] Systemic transect showing the in situ phytoremediation strategy for BTEX ground water pollution. Source: MOONEN, J. M., J.; CARMELIET, D.; BENOIT, N.; DE MEULDER, B. 2016. Atelier Track Design. Brussels: Departement Omgeving and OVAM.p. 28 and 49

Finally, the metabolic transect connects all design strategies across spatial scales and time [fig. 9]. Three development phases, activation, incubation and circulation, articulate how site reprofiling goes hand in hand with redirecting material flows and intensifying material flow exchanges. The activation phase couples circular terrain preparation with a large scale 'Circular Flanders' fair announcing the former Ford site as a pioneer in circular redevelopment. In this phase, all material is treated and repurposed on site and underused rail and water infrastructure is activated in the framework of the fair. In the incubation phase industrial startups and system changers colonize the existing infrastructure to start experimenting and learning about the required infrastructure to support circular economic activity on site. In the meantime, the existing phytoremediation landscape is expanded with a productive green infrastructure capturing and diverting rain water, providing short rotation coppice and cleaning water and soil. Finally, the circulation phase offers a flexible

infrastructural network supporting circular economic activity on one of Flanders' largest industrial plots. A hybrid infrastructural network, consisting of conduits with place for pipes and landscapes, and a productive landscape, redirects material flows while providing ecosystem services.
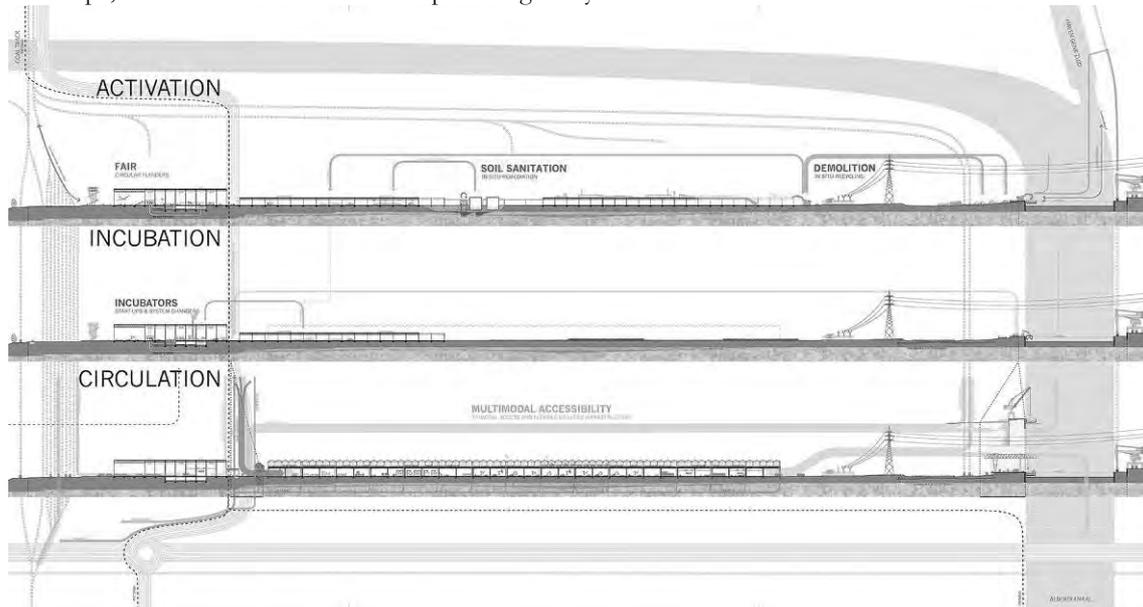
[fig. 9] Three redevelopment phases gradually construct an infrastructural framework for circularity on the former Ford Genk site. Source: MOONEN, J. M., J.; CARMELIET, D.; BENOIT, N.; DE MEULDER, B. 2016. Atelier Track Design. Brussels: Departement Omgeving and OVAM.

Projecting how material flow changes could be realized, which actors should be engaged or take the lead, the metabolic transect becomes a spatial framework cutting through time, space and actors. It allows the incorporation of actions, interventions, programs and stakeholders.

As the Central Limburg cases show, metabolic transects synopsize multi-scalar resource-urbanization dependencies. As such, they have the capacity to spatialize as well as contextualize material flow data, commonly represented in abstract Sankey diagrams[9]. Indebted to von Humboldt's transects synthesizing ecological systems' interconnectedness (Desimini Waldheim 2016: 190), they posit site knowledge as open-ended evolutionary knowledge, "crossing boundaries between areas of study and exploring their interrelatedness and relational dynamics" (Diedrich, Lee, Braae 2014). Metabolic transects do not depict nature as found (von Humboldt), but constructed nature of the Anthropocene. They serve multiple purposes: as potentiality sections of existing situations they identify spaces to intervene in flows, and to record mixed data. Additionally they serve as a basis and working instrument to design with material flows.

c) Circular resource sheds

Following Magnaghi, territoriality considers the urban bioregion as a network of synergistic relationships between landscape, infrastructure and heritage elements opposed to the view of metropolises "as metabolic black holes imbedded in a functionally subordinate territory." (Vandenbroeck, Dehaene 2013: 5) As a design tool, territoriality "aims to recognize the unique, the self, both in natural and social processes."(Viganò 2014: 139) In the context of circular territorial development circular resource sheds define new forms of territoriality, "reconfiguring the agents, infrastructures, conditions, and tendencies brought into proximity and interrelation within a given shed geography" (Thun, Velikov, Ripley 2015). Similarly to water sheds collecting water from a geographical area into the same river or water basin, circular resource sheds collect materials previously considered waste to be redistributed as raw material for another application.

The first example of circular resource sheds was developed in the master thesis 'Dirty Antwerp' (Van Maercke, Rosso 2015). This thesis spatially explores the shift from hierarchically organized centralized waste handling infrastructures to decentralized infrastructures in Antwerp's twentieth century belt. The design proposes a cellular multi-scalar waste network, dimensioning decentralized infrastructures according to economies of scale. For example a small scale paper recycling machine can handle household paper waste of 400 people, using 2500 liters of water to recycle 75 kilograms of paper, requiring about 400 square meters of

[9] "Sankey diagrams are a specific type of flow diagram, in which the width of the arrows is shown proportionally to the flow quantity. They are typically used to visualize energy or material transfers between processes."(source: Wikipedia, article 'Sankey diagram) from http://www.sankey-diagrams.com/sankey-definitions/

operational space. In terms of biodegradable waste, one pig can eat two to three kilograms food waste daily. Using similar data, the thesis translates a number of technical studies into decentralized waste sheds for rain water, grey water, black water, paper, biodegradable and residual waste. A design investigation then simulates the application of these new waste sheds in an area in Deurne Zuid, investigating potential synergies between circular resource sheds and the existing urban fabric in Antwerp's twentieth century belt. [Fig. 10] The design reflects on how shifting waste flows could simultaneously reconfigure agent interactions, such as schools, parks and inhabitants, while adding layers of multiplicity to the urban and natural fabric. For example, a landfill covered by the Rivierenhof park is reopened and remined through enhanced landfill mining[10] and consecutively repurposed as an urban pig farm receiving biodegradable waste from the neighborhood. Community facilities such as a school or hospital function as intermediate receptors of biodegradable waste flows from households. Where different circular resource sheds overlap, new opportunities arise, such as cleaning grey household water in plant beds and reusing this water in a small scale paper recycling machine. As such, initially rather technical waste flow reconfigurations become levers for integrated urban development, finding synergies with other urban spaces and actors and defining new micro centralities. [fig.11] This exploration resonates with Christopher Alexander's plea to design cities as 'semi-lattices' rather than hierarchical 'simplistic' tree structures. (Alexander 1965) The presented design exploration reveals how overlapping different circular material sheds in an existing urban fabric could start reinforcing existing social networks and creating opportunities for new interactions. These semi-lattice configurations are endless, acknowledging the richness of the existing urban fabric's complexity.
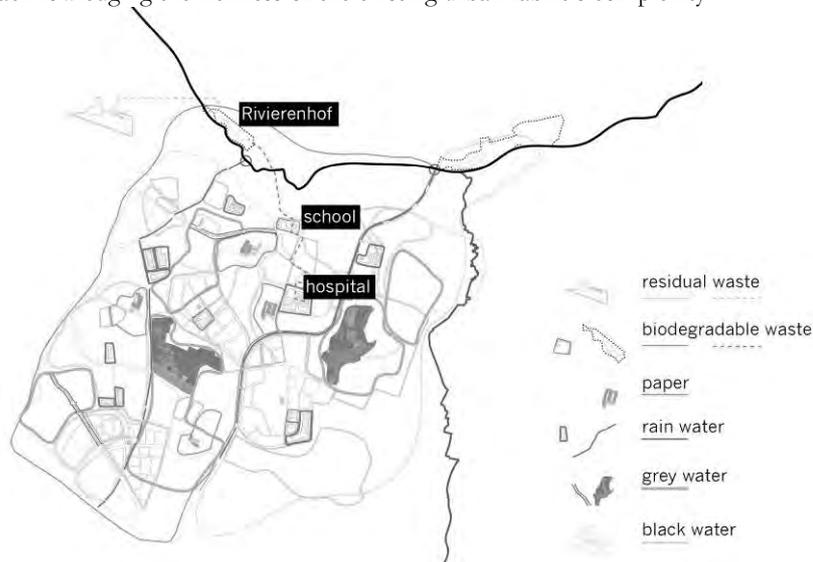
[fig. 10] Overlapping circular resource sheds for various household waste flows in Deurne Zuid. Source: Rosso, C., Van Maercke, C. 2015. *Dirty Antwerp. Re-engineering flows, editing the 20th century belt.* Master in Urban and Strategic Planning KU Leuven.

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[10] See note 8

Another master thesis 'Biomassing Houthalen-Helchteren' (Timmers 2017) investigates how the implementation of a biomass hub infrastructure in Houthalen-Helchteren could simultaneously enhance the landscape's ecological value and find synergies with education, job creation, water management and biodiversity enhancement. Currently, the municipality and Regional Landscape Low Campine (RLLK) are developing this 1.000.000 euro project for a biomass hub that will collect and sort regional landscape waste from landscape maintenance, such as grasses and branches, to be redistributed as raw material. It is located in Houthalen-Helchteren, because of its strategic location amidst Limburg's extensive landscapes (Gillabel et al. 2012). Limburg houses four main landscape types, mixed woodlands, forested wetlands, managed hedgerows, heath and heather, which all have varying maintenance cycles and require different machinery. Taking these technical parameters in account, the design exploration in 'Biomassing Houthalen-Helchteren' lays out a phasing scheme that goes largely beyond 'biomass collection'. In the first phase it integrates land swaps supporting the creation of a required ecological corridor. As the biomass infrastructure is rolled out, strategic partners such as Greenville clean tech incubator and Meulenberg social housing estate, are envisioned to become active partners in the biomass logistical chain. The biomass shed gradually expands, while restoring historical hedgerows, constructing an ecological corridor and including new site actors. As such, the growing biomass shed is not just a response to technical requirements, but aims to make strategic use of the planned infrastructure investments to find synergies with other ecological, cultural and social challenges and opportunities in Houthalen-Helchteren.
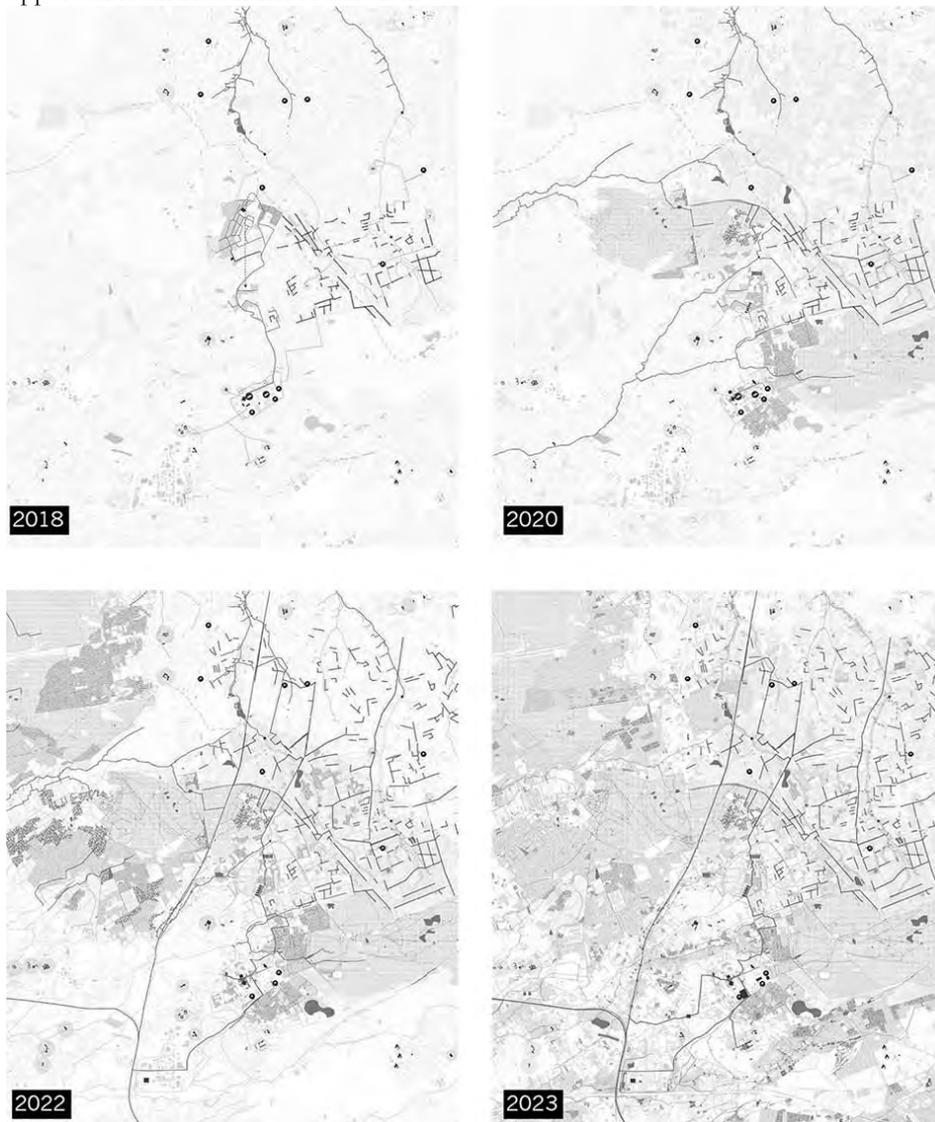
[fig. 12] Gradual buildup of biomass shed in Houthalen, including local actors such as industry park Europark, schools and social housing estate Meulenberg. Source: TIMMERS, C. 2017. *Biomassing Central Limburg. Towards a socio-ecological structuring of Houthalen-Helchteren.* . KU Leuven.

The two described examples demonstrate how conceptually embedding circular practices in their social and ecological geographical contexts, circular resource sheds define new forms of territoriality and civic centralities, simultaneously restructuring and rescaling the urban fabric. Circular resource sheds shift the reference measurement in Christaller's central Place theory from humans to the material world.

d) Dynamic flow agent diagrams

Reconfiguring material flows to context embedded circularity as projected in the above examples, requires new coalitions between agents owning, extracting, transporting, producing, consuming and discarding these material flows. Dynamic flow agent diagrams depict this process. The first flow agent diagram for Houthalen-Helchteren [Fig.13] identifies stakeholders currently engaged in Houthalen-Helchteren's clean tech economy, hydrogen economy, water economy and biomass economy. Subsequent diagrams then project how new stakeholder coalitions and actors could make synergetic connections between these currently disconnected economies and their related material flows. As such, the dynamic flow agent diagrams project ever growing and collaborating stakeholder clusters with project offsprings collectively realizing a complex economic transition rooted in a regional landscape economy.
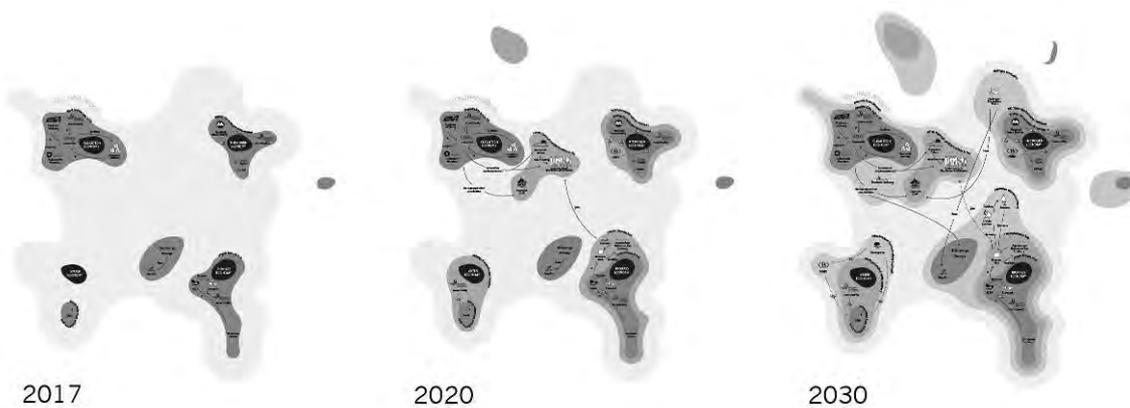
[fig. 13] Stakeholder diagrams for the gradual buildup of a circular landscape economy in Houthalen-Helchteren. Source: MARIN, J., MOTTI, M., DE MEULDER, B. 2016. Atelier # 1. In: SPACE, P. (ed.) Het kolenspoor getest. Mechelen: Public space. p.26, 30, 32

Similarly to the Houthalen-Helchteren case dynamic flow agent diagrams for Atelier Track Design's three development phases connect stakeholders to the concrete proposed actions on Ford Genk. As such, stakeholder clusters for a 'Living Lab Circular Genk' gather operational and regional partners as well as expert organizations such as the Flemish Waste Agency and the Ellen MacArthur Foundation for circular economy. 'Task Force circular terrain preparation' centers around in situ soil sanitation and deconstruction material management. It gathers representatives from the soil sanitation, steel and concrete construction sectors, experts on soil sanitation and deconstruction as well as transportation. In the last phase, circulation, both flow agent constellations evolve into 'Working Group Infrastructure'[Fig.14] and 'Circular Ford Genk site', further supporting new circular material flow exchanges.
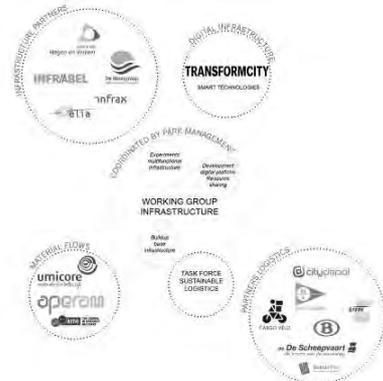
[fig. 14] Stakeholder diagram Atelier Track Design. Source: Source: Moonen, J., Marin, J., Carmeliet, D., Benoit, N., De Meulder, B. 2016. Atelier Track Design. Brussels: Departement Omgeving and OVAM. p.62

Reflections

Designing with flows requires synoptic combinations of urban design instruments spatializing and contextualizing circularity

This research's disciplinary contribution does not lie in the instruments themselves, but in their rediscovery, reuse and recombination as a renewed language for a form of urbanism, led by an evolving understanding of the way in which flows and infrastructures connect different socio-economic agendas in specific places.

The specific examples presented in this paper each played distinct roles in spatializing, contextualizing and designing site specific circularity in Central Limburg, the Campine and Antwerp. In isolation the instruments each take on multiple circular economy transition dimensions relating various scales, navigating between region and site, with different space-time perspectives under the form of maps, sections, process and actor constellations and flow-space interdependencies. Resource cartographies locate the materials embedded in the landscape that can potentially be reinscribed in territorial circular resource flows. As such, they serve as potentiality maps, spatializing material stocks. Metabolic transects offer multiscalar site specific overviews of interplays between physical spaces and material flows, above and below ground, natural and artificial. They support understanding of these complex interplays in particular places, and simultaneously offer a basis for re-designing these interplays. Finally, circular resource sheds spatialize the entire new circular material flow chains, linking spaces and infrastructures supporting extraction to production. Applied in actual spatial contexts, circular resource sheds facilitate identification of potential synergies with contextual situational resources, such as local ecology, people or culture. By themselves, the discussed design instruments enable to focus on isolated parts of the extraction-production-consumption-disposal chain. For example, the resource cartographies locate the materials (D), while the metabolic transects spatialize the 'in-between' moments when flows navigate through infrastructures from place to place. Circular resource sheds materialize the new 'circular' material flow paths.

Throughout the design investigations in Antwerp and Central-Limburg, the different design instruments where simultaneously unfolded in new combinations. Synoptic combinations of the different instruments constructed holistic perspectives on territorial circular urbanization and resource interplays with the stakeholders involved. For example, the 'Atlas Central Limburg project' [Fig.15] combines design drawings navigating between scales and perspectives. Each right page shows a plan of Houthalen-Helchteren highlighting potential resource flows recovered from the landscape, such as hydrogen from the Remo landfill and biomass from landscape waste in distributed collection points. These pages focus on potential programmatic synergies between Greenville, a clean tech incubator on the former mining site, bionerga, a waste incinerator that will leave the industry park and Meulenberg, the historical mining cité nowadays a social housing estate, physically and socially rather disconnected from the rest of Houthalen. The forward looking design scenario connects Houthalen-Helchteren's potential circular landscape economies based on hydrogen, cleantech, water and biomass, to social programs in Meulenberg. A large parking lot in Meulenberg bordered by a vacant housing slab that will be demolished is envisioned as a clean tech campus satellite location, bringing prototypes from Greenville to Meulenberg as testing ground. For example, the Billiebin, a household scale composting bin, can be tested in this community where cooking and community gardening are important activities in the daily social fabric. The vacant housing slab could be occupied with pop-up programs catering to community needs. On the left page, a deep section spatially articulates the scenario's resource flow exchanges. Finally, an actor diagram visualises which actors should sit around the table if they would like this integrated scenario to happen. A repetition of the same double page layout projects in 2020 and 2030 which spatial and flow requalifications could be triggered by the initially proposed new stakeholder coalitions. As such, the design instrument combinations emphasize one possible future project outcome, while revealing the necessary stakeholder coalitions and process to achieve it. In this way, the atlas serves as a synthesis of co-productive design sessions with the municipality and other stakeholders, as well as a reference for further (design) collaborations.[11]

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[11] The design scenarios were presented and debated with other Limburg municipalities at the International Architecture Biennale Rotterdam in 2016 'The next economy – envisioning new coalitions'. Collaborations with the municipality continue with urban design studio 'Complex Project Grote Baan Houthalen-Helchteren' in 2017 as well as the project direction for 'pilootproject terug in Omloop CTC³ Houthalen-Helchteren' 2017.
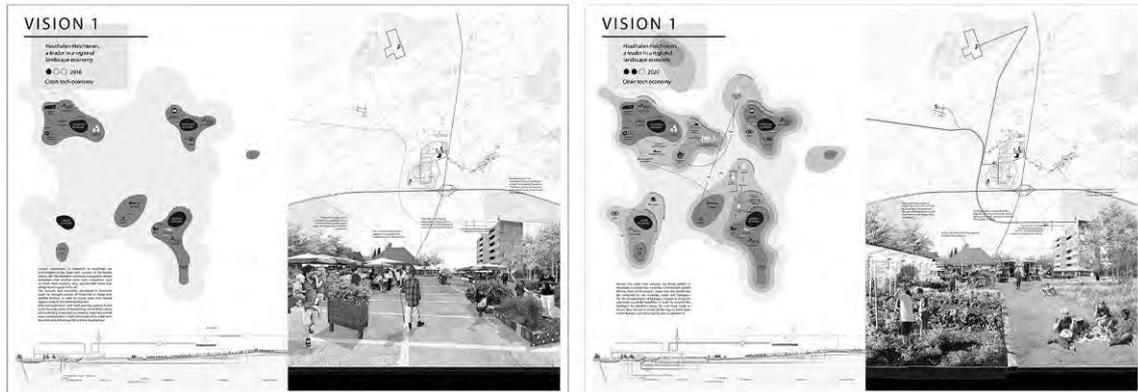
[fig. 15] Double pages combining design instruments. Source: MARIN, J., MOTTI, M., DE MEULDER, B. 2016. Atelier # 1. In: SPACE, P. (ed.) Het kolenspoor getest. Mechelen: Public space. p.27, 35

Design instruments can support the long transition process by reinterpreting the territory's resourcefulness
Considering the territory from a circular economy perspective, circular territorial development is an ecological territorial approach, reinterpreting the territory's resourcefulness. (Marin 2017)
This paper unfolds concrete instruments to support the reinterpretation of the territory's resourcefulness from a more holistic point of view. In the two case studies, the presented instruments functioned in multiple ways, as analysis and design instruments, potentiality mappings and sections, open-ended formats absorbing multi-scalarity, expert knowledge and data, synthesized in context specific formats.
As discussed in the beginning of this paper, cities transitioning to circularity are mainly focusing on circular entrepreneurship whereas their larger social, ecological and spatial contexts are rarely part of the discourse. Nevertheless, circular economy ultimately takes place in space and space becomes an integration medium for multiple circular economy dimensions. The above discussed plan and design formats strongly intertwine two or more circular economy dimensions with their spatial contexts. Spatial representations appear to be very helpful to imagine place specific multi-dimensional transitions to circular economy. They act as visual synoptic instruments, synthesizing how multiple circular economy dimensions could merge in space. The projective images' accessible and attractive capacity, break through the status quo. Using them in a co-productive way, they act as mediators between experts and stakeholders, offering tangible and accessible spatial representations in often abstract conversations about circular economy dimensions. Depending on the specific research question, expertise from different sectors is integrated in the discussed circular spatial scenarios.
Throughout the design processes, the mentioned design investigation instruments supported co-producing holistic perspectives on territorial urbanization and resource interplays with the stakeholders involved. Documenting the existing as well as taking note of potentials, the mentioned instruments catalyzed the exploration of context embedded alternative circular futures in different co-production design processes. The drawings also functioned as reference points for data collection, identifying where to dig for precise data rather than the other way around. Unlike traditional masterplans fixing comprehensive solutions in space, resource cartographies, metabolic transects and circular resource sheds pin down essential elements in space, while giving room to imagination and speculation about what is not necessary to (already) define. Hence, their open-endedness nurtures conversations and insights on what 'could' happen. (Marin 2017) Applied in real-time circular economy transition processes, the design instruments reframe circularity as essentially territorial questions addressing interdependencies between urbanization and resources. Adopting these instruments, urban design can act as a medium to reinvent, to mediate between discourse and practice, between definition and lack of definition.

Acknowledgements

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From Pipeline to Landscape –
a Landscape-Driven Design for Stormwater Management

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The creek-opening project "Kjørbekk: From Pipeline to Landscape" is a case study and a chapter in the author's PhD thesis on stormwater management (SWM) in the greater Oslo territory. The dissertation is an investigation into how SWM and an associated landscape perspective can inform urban development from the territorial to the district scale through implementation of a designed project. This chapter focuses on how SWM can be a structuring element and how ecosystem services can help to reposition water as a fundamental consideration in planning, and to ensure a balance between natural values and urban pressure.

The PhD as a whole includes different research perspectives on SWM, developed through education, critical research, and design practice. The Kjørbekk creek-opening project has been researched from a landscape practitioner's position within a project group including hydrologists, geo-technicians, civil engineers, a fish ecologist, and a biologist.

This project, situated in a mid-sized municipality in Norway, reveals dimensions of a possible system change as well as issues of regulation and economy relating to its potential implementation.

Background

Frequent news on flooding in the Oslo region has increased awareness of the need to rethink rainwater management in urbanised areas (ref). Climate change effects will bring more precipitation in briefer periods of time (EEA report 2017), which necessitates reconsideration of current planning practice. This is the case in Skien, a municipality with 50,000 inhabitants 100 km southwest of Oslo. The area of Kjørbekk in the southwest part of the municipality is named after the creek that formerly ran through it. Today the Kjørbekk creek is unseen in the urbanised area, as it was buried as a piped sewage system in the 1970s. This was done in many urban areas and satellite cities in Norway at the time and for a number of reasons: to increase sanitation, to gain land for development, and even to ensure children's safety (Moland 2017). However, the piped stormwater (SW) infrastructure has since exceeded its capacity and does not accommodate increasing quantities of intense and heavy rain. This dilemma forms the basis of this project .

Kjørbekk creek had originally flowed through various landscapes, from the natural areas of the dammed Lake Hvitsteintjern to the west, through urban areas with single family housing, industry and major business areas, before crossing under the highway and discharging into the Skienselva river.

Image: Historical map showing the creek Kjørbekk before implantation of industrial area. approx. 1950. Source Skien Municipality

The pipes that replaced Kjørbekk creek were positioned along its course on the valley bottom. The valley was filled in with excavation material from the new industrial area alongside waste that would otherwise be directed to a garbage dump. This infill was later partially built upon with new industrial buildings.
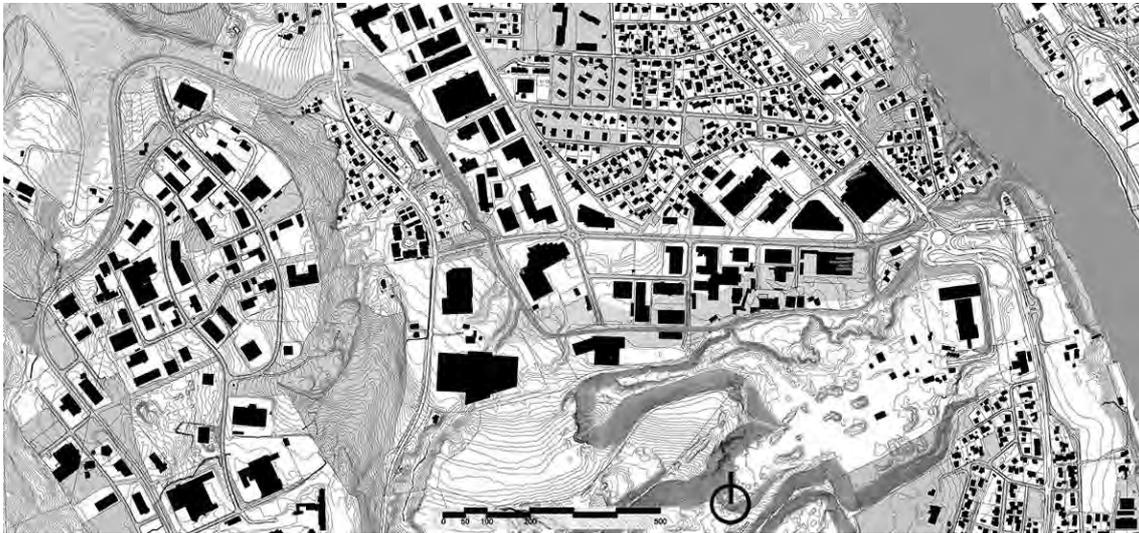
Illustration of the waste areas (marked in pink) that corresponds to the old creek. The green areas corresponds to public property, elaborated by author 2017.

Today this infrastructure is highly unstable, and in some places, the terrain has sunk by half a meter. The rigid pipe system cannot handle the stress of lateral movements of the terrain, causing breakage and disconnections. The toxic domestic waste infill exacerbates the situation and provides the additional challenge of potential water contamination.

This project aims to remediate this situation and is supported by funds from the Environment Directorate for Climate Change Adaptation. Skien municipality is a member of the National Climate Change Network, which emerged from the *Fremtidens Byer* (Cities of the Future) program. "Kjørbekk: From Pipeline to Landscape" is the municipality's pilot project in this network.

Method:

Research by Design is used to investigate the implementation of SWM management, with the purpose of uncovering additional knowledge on the analytical and mapping phases of the project. The research also includes an element of Action Research, in which participation in a multidisciplinary team permit me to map reflections on SWM from various professional perspectives. These include the planning perspective of the municipality and its rationale on the regulation on SWM on and underground, as well as the hydrologist's knowledge on water dynamics and dam burst, the fish ecologist's knowledge on the form and design of a creek for fish habitats, and the geotechnologist's input on the toxins in the ground. As a landscape architect and urban planner, my role was to weave the different inputs together and provide form for a wholly integrated design and planning proposal.

It is possible to study each of these professional perspectives individually, but the research revealed the collective reasoning on what is the most important in each specific case, and how the different knowledges are brought together in a project. Donald Schön explains how design knowledge is "knowing-in-action", revealed in and by actually designing (1983). He describes the design process as "seeing, moving and seeing", where the doing is triggering the thinking. The process evolves the intentions of the project, and the output successively defines the research questions more precisely.

Each phase within the Kjørbekk project process opens up new perspectives, each giving rise to new questions. These include deeper inquiries into areas such as site-specific information about waste, or how local biodiversity and invasive plants influence the opening of the creek as a water corridor for seeds.

Formulating
Definition of the problematic to be studied:
The confrontation between the inundation areas and the built environment

Representing
The mapping, allows to visualize the the context and the interplay of the different water related layers

Reflecting
Outside perspective and evaluation the whole process, including the initial framing of the problematic.

Moving
"seeing, moving and seeing"
Where the doing is triggering the thinking.   Donald Schön
The process evolves the intentions of the project, and the outputs are defining successively the research questions more precise

The moving corresponds to the action and the search for possible solutions, by analysing which parts of the landscape that is closely related to the water management and has a high capacity of absorption in occasions of heavy rains.

Evaluating
Once the studied theme is clearly visualized the 'evaluation', analyse is possible to be made

Bryan Lawson
"How Designers Think" 2005

Illustration of the design process as described by Bryan Lawson, elaborated by author 2016.

Bryan Lawson describes the design process by formulating, representing, moving, evaluating and reflecting from an outsider perspective (2005, p.23X). Important here is that reflecting happens by taking one step back from the design process. A time gap from the action of design to reflection helps to create a distance and an observers position towards the project. To reflect on the design work from an outsider's perspective permits one to see what parts in the design work that can be generalised. It equally helps the design, by taking a step back and zoom out from a problem, to reformulate the initial design question. As such, the designer's work is not only an answer to a question but a redefinition and reframing in a given situation. A technique within the design process to create a new perspective is to change scale. At the moment of zooming out, new possibilities are often revealed.

The change of perspectives happens to a certain extent in a design phase where the different scales of the intervention are interwoven. All parts are interlinked across scales. For instance, when a design detail in the Kjørbekk project changes, it can alter the whole section and have influences two kilometres away where the creek has to pass under the level of the infrastructure.

The design phase has to remain "fluid", which is the opposite of the distanced reflecting phase. This means that the "seeing, moving, seeing" has to be done in a way where new opportunities appear. This is seldom a straight line of actions, where the design phase is reflected upon *posteriori*.

Sigrun Langner describes the design process of long-term large-scale projects as open-ended and draws parallels to navigation. "The metaphorical comparison with 'navigation' emphasizes the process of gradual advancement in response to given and shifting conditions, as opposed to a 'finished' design concept or product. The process of navigating involves continuously determining one's position in relation to a set of conditions or context." (2014: p.17)

In the Kjørbekk project it has been important to gradually develop a shared understanding of the greater goals of the project and of what the destination is. How to get there is a collaborative work where each discipline used their particular methods. Today, in multidisciplinary work, the challenge is to combine different working methods and work together. With the reopening of a 4 km creek, there is a need for having both the capacity to understand the creek's role within the urban fabric as well as an understanding of the SW system that is to be connected to the future creek. Thus, it is important to clearly establish the overarching goal of the collaboration , and from there each discipline can add their information to the project elaborated through their methods and programs. In the Kjørbekk project, certain disciplines have a tendency to focus narrowly on issues. However, the landscape architect, as a designer, is more of a generalist who has to articulate the overarching vision which permits zooming out and reimagining the project as a whole.

Process: The reparation of the antiquated SWM system at Kjørbekk has been shown to be extremely expensive and complicated (1,5 million NOK per manhole in 2017) as the pipes are in some areas 15 meters below ground. In response, the municipality initiated a preliminary scoping project in the summer of 2015 to show how a possible creek-opening could take form. This was based on the estimations of Gunnar Mosevoll, the former chief water engineer in the municipality. Mosevoll's work showed a great difference in water flow quantities ranging from 6 l/s during the driest season of the year to 6 000 l/s corresponding to a potential

dam burst.

The preliminary scoping project was to serve as a foundational resource when the municipality announced a call in 2016 for a multidisciplinary team to design and plan the creek-opening project. The task defined by the municipality consisted of the transformation from closed to open SWM management by using the landscape as infrastructure. The blue-green structure along the corridor was to be strengthened and restored, and new paths should be established to connect the natural areas as an integrated green corridor between the river and the natural area of Hvitsteintjern.

The municipality explicitly stipulated a request for multidisciplinary teams to apply which should consist of experts in landscape planning, urbanism, fish and plant ecology, hydraulics and eco-hydraulics, flood safety and flood calculation, watercourse restoration, regulation planning, wastewater systems, and sustainable water technology for climate adaptation.

The call was announced in Doffin, the official Norwegian database for public procurement. A core team was created with the assistance of the consultancy firm Multiconsult. This consisted of a fish ecologist from Uni-research in Bergen, a regulation planner, a hydrologist, a civil engineer and a project manager from Multiconsult. The landscape and urbanism qualifications were fulfilled by the author, a landscape architect and planner from Worksonland Architecture and Landscape, and architect Dr. Celia Martinez Hidalgo. The Multiconsult team, having previous experience with dam burst calculations and risks, had the main responsibility over quality control and project management. The multidisciplinary nature of the project was further reflected by the municipal project management team. The planning department initiated and developed the project, but oversight of the design phase and regulation was transferred to the water and sewage department.

There was a clear will to integrate research into the project, as it was a funded pilot project, and call applicants were asked for relevant publications. Education and experience opportunities were to be made available to students, including establishing relationships with relevant research and teaching environments. Communication skills and graphic competence were equally emphasised.
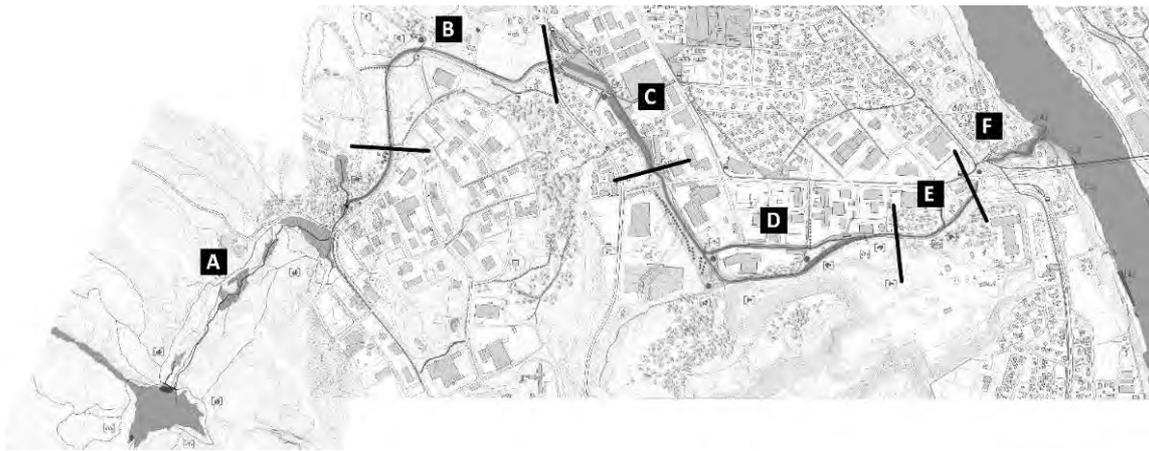
Illustration from the preliminary project 2015.

The preliminary project subdivided the four kilometre long creek into six areas according to character and particular challenges:
A. In this first area, the risk of dam failure should be of high consideration, and should include possibilities for facilitating natural wave breakers in the waterway;
B. Lack of public land is a challenge in this area;
C. Here, public land is available, allowing for a park and a varied program of activities. In dialogue with the municipality, new boundaries would eventually be suggested in order to facilitate various different local interests;
D. In this section Kjørbekken's trajectory should be coordinated with the future development of the industrial area, so that the water would become functional and positive for the cityscape;
E. An area for possible entry to the future creek and path, with bus stops, hiking networks and existing bike paths;
F. Finally, a design facilitating natural cleaning should be included in this section before the water reaches Skienselva.

The competitive advantage for our team was in creating design strategies based in local context, founded on the natural and economic conditions of the site. The funding ability of a mid-size municipality is limited. Therefore, the design strategy was to utilise the existing context as much as possible, and to make minimal interventions with as big a positive impact as possible for the inhabitants and the area's biodiversity.

The project that started in February 2017 had as an ambition to have drawings ready for construction in autumn 2017. Therefore, the municipality promptly arranged a fieldtrip on site with all involved partners. The walk was important for getting to know the site as well as establishing common ground for the collaborators. "Walkers can generate knowledge, exchange ideas, and discuss their experience with other walkers of different professional backgrounds" (Schultz, 2014).

Each expert made a chart on what information they needed at what time in the process to complete the work. This was used to produce a schedule and to program the individual and collective work. Meetings were documented to reflect the stage of the project, and to inform what the next steps would be. Workshops were organised to integrate different aspects of the project.

In the working process, each discipline used their specific working methods to produce new information. The biologist, for example, engaged in fieldwork. The hydrologist collected data from the meteorological institute and nearby rivers, as well as went on fieldwork for the evaluation of the dam and the risk of dam failure. The architect and landscape architect combined fieldwork with design processes that elaborated upon possible solutions in relation to the input from the other contributing disciplines. The work started with an analyse of the landscape. "Because landscape is by definition a complex unity of parts, transforming a site first implies considering all its components and the relationships before attempting to change anything" (Bava H., 2009, 124p).

This process made it clear that different disciplinary priorities collide, but through a design perspective a set of design criteria emerged:
- A variation of the longitudinal section was needed to create a variety of water movements in order to oxygenise the water, and to facilitate for visual and biological diversity.
- When the transversal section was elaborated, it became clear that a wide section was desirable in order to facilitate access from the lateral areas, reduce erosion, and create a greater surface area to contain the water volumes.
- While the fluctuation in water quantities was important, all sections of the courseway should be centred on a V-shaped depression that accumulates and maintains a water minimum during dry periods.
- The creek and its floodplain should preferably be guided through public land to avoid expropriation and thus increase project costs.
- The longitudinal section of the creek should be not too steep, in order to facilitate ecological diversity by allowing fish to swim as upstream as possible

The fact that the Hvitsteinstjern dam was in bad shape made it a primary necessity to consider for dam failure[1]. The hydrologist ran hydrological estimations and scenarios in HEC-RAS.[2] The generated hydrological model was based on the natural terrain together with the proposed opened creek. Once the model was established for the new floodway, it was also used to simulate a dam failure after the new measurements of the depth of the dam. These important hydrological calculations were only provided late in the process, therefor the work process has been relatively slow, a fact that was exacerbated by lacking information on the existing underground SW system.

One of the challenging characteristics of this specific watercourse was the great range in potential quantity of water, from dam failure to a situation where the river can go completely dry a few days of the year. This gave critical input to the design in terms of how areas hold and contain water in order to permit fauna to survive when the creek is dry.
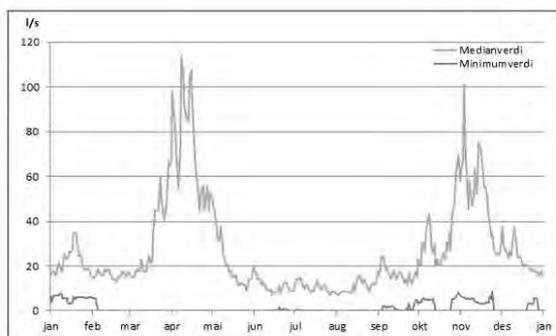
Illustration of water flow in the Kjørbekk creek along the year (l/s), yellow-median value, grey-minimum value. Made by Multiconsult in 2017.

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[1] The calculation of the damburst from 2007 made by Multiconsult was here used as a base.
[2] A computer program created by the US Department of Defense, Army Corps of Engineers in 1995 to elaborate the water flows of rivers and and harbours.
HEC-RAS corresponds to: "The Hydrologic Engineering Center" (HEC) and "River Analysis System" (RAS).
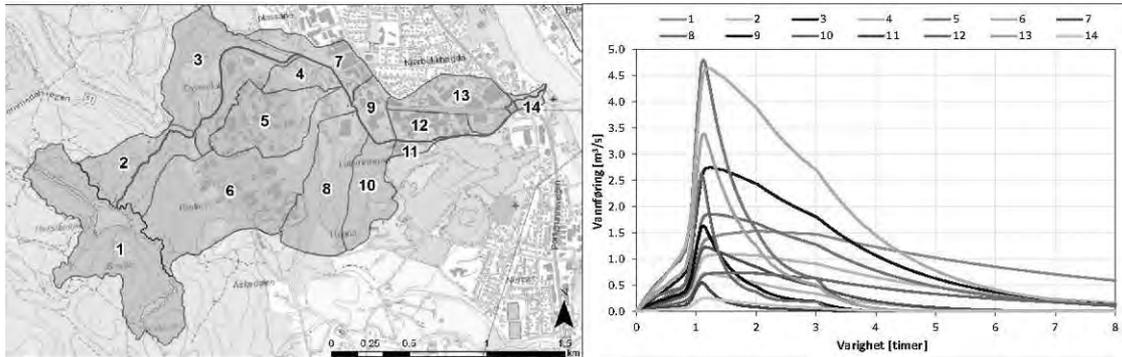
Illustration of the catchment area and its subzones with correspondent water flow (m3/s) Made by Multiconsult in 2017.
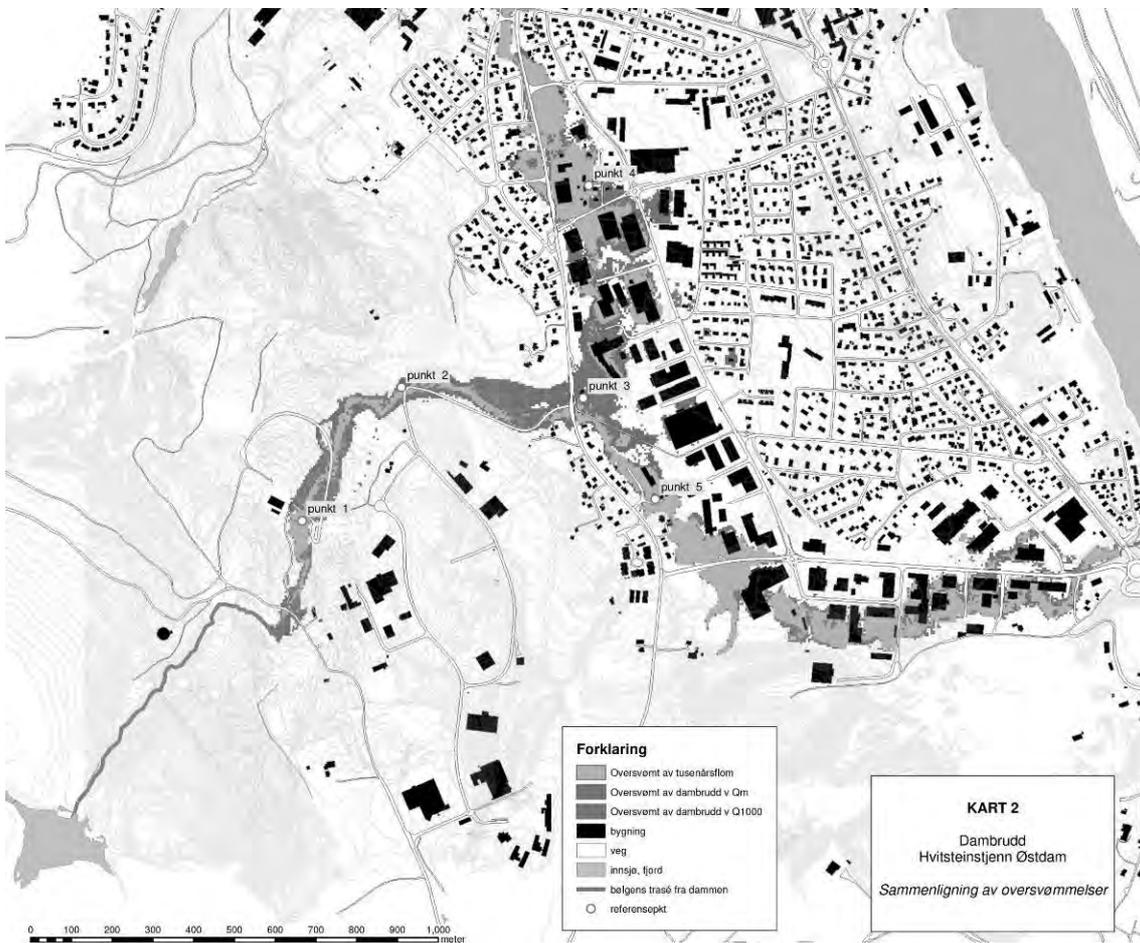
Illustration of the effects of dam failure elaborated by author in 2017, on the basis of the estimation done in 2007.

Normal and minimum water levels for Kjørbekken were calculated using regional hydrological analyses. Flood drainage for Kjørbekken was calculated using regional flood rate analysis and precipitation drainage modelling. In view of climate adaptations, a climate factor of 1.4 had been applied to dimensional flood watering.

As existing installations are to be found underground, a 3D model of the system and the landscape was established in Infraworks[3]. The model had been used in the design phase to verify the superposition of various systems such as the sewage system, the fresh water system, the rainwater system, energy

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[3] Infraworks is a software by autodesk that permits working with infrastructure design in "real world" setting.

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infrastructural systems, former waste dumps in relation to the new water way, and the presence and location of existing valuable species in the area.

An initial geotechnical report was done in 2007, which showed the extent of waste deposits, and excavation tests raised doubts about the reliance of the perimeter of the dump. This lead to a study of old topographic maps in order to re-estimate the perimeter and volume of the dumped waste. Documentation of groundwater was missing during the process, which made it difficult to estimate the movement of toxins from the waste dumps.

Topographical map showing the trace of the Kjørbekk river from Hvitsteinstjern in the west to Skiens elva in the East, elaborated by author 2017.

One month into the project the sense of urgency waned. Rather, it was determined to begin with a regulation plan for the whole area. This was made evident by the fact that during the project process, several building permits were issued in the area that went against the creek-opening project. One of the projects that did not incorporate the open Kjørbekk creek was a large industrial facility positioned directly on top of one of the tributaries to Kjørbekk. Another was a municipal school that had newly installed pipelines running over the creek bed at a depth that conflicted with the proposed longitudinal section of the creek.

During the project, an additional difficulty arose. The Kjørbekk area was found to be completely lacking in flood infrastructure, but the municipality has a legal responsibility to provide safe floodways. The water and wastewater engineers of the municipality made a calculated cost analysis of providing this infrastructure based on linear meters of pipe installation against the cost of a linear structure of open creek. This grossly simplified cost comparison in linear meters of each entity, however, and did not include a sufficiently broad picture of the risk of inundation nor the positive ecological and social outcomes of the proposed blue-green structure.

In the project development phase, it thus became critical to make evident the benefits of doing a landscape-integrated solution, including the positive health effects of the blue-green structure in terms of recreation and social cohesion. Other benefits of such a solution include rising property value in the area, increased biodiversity, enhanced floodway facilitation, and climate change adaptation. Further, it would increase general awareness of the water qualities in an open system in line with the EU water framework directive (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy), and facilitate integration of blue-green infrastructure with the establishment of an alternative car-free network of movement.

In order to facilitate for the inclusion of such perspectives in the process, calculations on the basis of the TEEB[4] (The Economics of Ecosystem and Biodiversity) elaborated by the Netherlands National Institute for Health and Environment, system can be carried out. These evaluate benefits in health, energy consumption, property value, recreation, social aspects, and water management. The aim of this was to valuate future aspects of the proposed blue-green system, but also to evaluate how a TEEB system calculation would work in an actual SWM system. The water management consists in the calculation of the reduced risk for flooding and number of households that would be affected by flooding. The capacity of storage of rainwater in the landscape is equally calculated to estimate the reduction of investment in SWM.

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[4] https://www.teebstad.nl/user/reset/5261 latest used dec. 2017

Findings:

The implementation phase brought the question of economy to the fore and the possibilities of project actualisation. This part comments on three economical aspects of the project: 1) the cost of a project depending on how the calculation is done; 2) the opportunity to execute two (or more) projects in one; and finally, 3) the economic aspect of *how* to execute the project.

Firstly, the costs of expenses per linear meter of piped SWM versus landscape integrated SWM revealed the need for an alternative calculation. What would it cost if a landscape-designed floodway is not chosen, and what would the redevelopment expenses be resulting from consequent flooding damages? Here the ecosystem services becomes equally valuable when estimating the costs and positive values of the project in terms of health, energy consumption, property value, recreation, social aspects, and water management. In relation to the TEEB water management calculation, there are a few aspects that can be added, such as maintenance of a system over time (especially concerning the great depths of the buried SW system), and the purification costs of SW. The greater amount of water created by SW run-off demands equivalent expansions of the purification plants capacity to absorb the peaks created by heavy rains.

Secondly, it became clear that having a good overview of short and long term interventions can make it possible to execute several projects at once, which can be an efficient way to reduce the cost per intervention. For instance, a 300m stretch of new riverbed in Kjørbekk was executed by being incorporated into a section of a new bicycle lane. This became a feasible way to consolidate expenses while executing a project, as labour costs associated with having people on-site and with machinery required to perform both projects is far greater than the total material value of the final surface forms. As another cost-sharing example, when a fresh water pipe-system has to be added within the area, the terrain remodelling could be done in such a way that the SW is collected on top and guided towards the creek and river system. If the destination creek stretch is not already remediated, a local retention riverbed or pond can be created to capture the water.

In a longer-term example, the southern part of the Kjørbekk creek crosses through a sand quarry. This terrain must, by Norwegian regulations, be re-established after mining to an inclination of 1:2 and replanted with local species. This means that an extra one-kilometre stretch can be integrated into the overall creek-opening project if this post operational re-modelling of the quarry terrain is collaboratively planned well in advance.

This leads to the third economic aspect – how to execute the project. Long-term coordination would require an enhanced overview of planned and on-going processes, such as a digital map database that registers future works in order to coordinate the many different interventions within a municipality. In this project, it was found that information on executed projects was missing within the municipal database. This made the working process slow, as it was especially time-consuming to update information on underground installations that were not easily accessible. Today, the digital maps of the municipality are constantly updated with projects as they are completed.

As well, the implementation of a system change itself has to be done in steps, as there are many short- and long-term, and small- and large-scale interventions to consider as part of the greater whole. In some cases, municipal subsidies would be the cheapest alternative to create change in the existing urban tissue. For example, a singular building that drains down to 5m under the new riverbed cannot be an exception that forces changes to the bigger picture and demands a new subterranean system. Here it would be more cost effective for the municipality to offer incentives that would encourage such a private building owner to build a roof that externally drains stormwater to ground level.[5]

The Kjørbekk project revealed that one of the greater costs of the creek-opening project relates to the movement of earth materials (soil and clay), which could be elaborated as a redistribution-project in itself. Once the municipality has the layout of the whole project it could be organised in such a way that materials are dug out and filled up in coordination with the overall mass distribution plan. The knowledge of where infill can be removed and where it needs to be turns the creek valley into a long-term terrain shaping and management project. The plan would be refined and evolve over time with the aim of lowering the need for extraneous transport and increasing the local sourcing of earth materials.

In terms of design, this water project strongly links local intervention with the large structural scale of the landscape. Even the smaller detail of a sidewalk can redirect SW flow from one direction to another. This demands an ability in the design process to constantly shift scales.

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[5] In a stormwater management project in Oslo the general cost of up scaling the capacity of the pipe system of an area of 30 000m2 was estimated to 57 million NOK. The cost of a rehabilitation of the existing system, together with the implantation of rain beds would be around 25% of that cost. In this calculation, the subvention of private raingardens with 70,000 NOK each was included. Even though the cost would be more advantaged, and the public ground not large enough to take the superficial water, the municipality can not today juridical make investments on private ground. (ref. B. Braskerud lecture, VAV Oslo.Dec. 4th 2017).

Conclusion:

Being a part of a multidisciplinary design team provided greater insight into the variety of perspectives of the practical work of a surface- and landscape-based SWM project. The design process was important in revealing additional challenges to the mapping and analysis phases of this SWM project. The design phase revealed more questions, created more interactions with various entities involved, and showed the complexity of project implementation. "(T)he way towards a sustainable urban drainage is not always so easy and it often takes an unexpectedly long time" (Stahre 2008; p.3). There is a gap between theory and practice. For example, Luna Leopold stated in the 1960's, that the built environment worsens SW runoff up to six times.

There are many similarities between the creek- and river-opening projects of Trondheim, Oslo, and Skien. Various rivers in Norwegian urban settings have been buried for sanitary reasons. In the case of Skien, however, an additional complexity was added as buildings were constructed atop the old riverbed and waste deposit, further complicating the transformation to a surface creek runoff system. The fact that building permits have recently been given to build over the most important tributary creeks shows that there remains a need for an understanding of the landscape's logic in relation to the built environment. While Skien Municipality intends to create a sustainable society, it is belied by these recent building permit allowances, which shows that the easiest solution is the cheapest in the short run and follows a logic that acquiesces to the old system. There is great resistance in the system for the implementation of change.

In terms of financing, it is better to divide the projects into economically feasible phases, and to build slowly towards the desirable solution in a greater time perspective.

Lessons from the Kjørbekk projects show not just a project process but also dimensions of a wider system change in planning for urban water management. When the conventional way of working becomes impossible by being insufficient or too expensive it triggers change (Stahre, 2008). Such change includes both physical structures (such as when interior drainage of roofs transform to exterior systems through the changing of architectural roof-forms) as well as changes to expert and planning practice (such as the need of an extended scope of water and wastewater engineering) when the SWM has to be solved in the landscape.

There are judicial and administrative questions raised in relation to the potential system change of SWM that are still to be solved in the Norwegian setting; What happens when the landscape *is* an infrastructure? Does all the land need to be owned by the public when crossing through private entities? This has not been a question for the water and sewage-engineer working underground until now. Also, insurance companies currently cover the damages in cases of flooding. This has changed internationally, and it is most likely to change in Norway with increased flooding occurrences. This would accentuate the economical calculation on the risk side of the project and the costs of not doing a creek-opening project such as Kjørbekk to provide floodways.

The real economic force of the municipality is to be found in the traditional planning tools such as the regulation plan, in which future interventions can be conditioned in order to accommodate SWM predicated on the landscape.

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Brussels. (De)construction of a productive narrative

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This article is part of a research on the spatial organization of economic activities in the Brussels metropolitan area which investigates through historical analysis and prospective design the potential to reconcile habitat and economic activity – living and working – at the heart of the metropolis. It aims to question the concept of functional mixité and to survey the uses and practices of space by those who actually make the built and unbuilt environment but are mostly relegated to the margins of Brussels territory. This research seizes the redevelopment of the Canal as an opportunity to reverse this trend and articulate the tension between productive, domesic and collaborative economies. The research aims at evaluate the spatial impact of the ERDF investments in Brussels-Capital Region. The purpose of this article is first to draw the method and theoretical framework, by combining the contributions of three authors: Fernand Braudel (1979, 1985), Philippe Hugon (1988), and Jane Jacobs (1961). This theoretical framework will be used to make a first attempt of the historical reading of Brussels. Finally, the case study of CoopCity (ERDF) will inform the statement.

Introduction

This article aims to report on an ongoing doctoral research on the historical evolution of the concept of functional mixité and, more generally, on the tension between city and work. Focusing on the Brussels metropolitan area, the research analyzes the evolution, since the Middle Ages, of the intimacy relations between the spaces of the inhabitant and the activities related to the craft enterprises: spaces of production, transformation, circulation storage and distribution. On the one side, it comes back on the forms of location and spatial occupation of space by the activities; on a second side, it narrates an evolution based on the Belgian social history of the uses and practices of workers, to describe the way in which these practices are part of the games of actors. The question we ask is: what forms and spatial organizations can accommodate a functional mixité that generates urban intensity in Brussels?

More specifically, the investigation questions the tension between city and word through three recurring figures: the street, the public equipment, and the specialized equipment. It seeks to establish how and to what extent these places were supports of what we will call the communality, notion to be established and which refers to the creation of urban intensities through a quest for common and uses-based urbanism.

The purpose of this article is first to draw the method and theoretical framework of this investigation, by combining the contributions of three authors: Fernand Braudel (1979, 1985), Philippe Hugon (1988), and Jane Jacobs (1961). We will show how these references allow an original description of spatial figures of the tension between the spaces of work and the ways of inhabiting Brussels. The second aim of the article is to put in place the guidelines for empirical work to be undertaken from a body of case studies. From the perspective of our research, this empirical work aims to feed, on the basis of contemporary examples, a theoretical debate to be carried out on the relationship between the notion of urban mixité, which has become central in the urban planning discourse in Brussels[1], and the one of mutualized working-spaces. The article reports a first sequence of this work, through the presentation of the CoopCity project, a social entrepreneurship project supported by the Brussels-Capital Region, which will highlight the proximities but also the contradictions between spatial and economic policies that influence the maintenance and development of urban crafts enterprises. This will allow us to make the link with the notion of productive narrative, convened in the title of the article to put into perspective the final objective of our investigation. Generically, the notion of the narrative refers to a global conception of politics, representations, mental facts and tools that allow collectives to identify with the city, to represent it and to tell it; and which materialize in unifying devices to which they give meaning (Genard, 2013). Our hypothesis is that in Brussels, the productive narrative at work since the foundation of the city is full of nostalgia. While the discourse is centered on the figure of functional mixité – a notion of which we will try to highlight the spatial figures at different times and on different scales – the reality of the facts encourages the decline of productive activities and their maintenance in the dense city (destruction of workshop spaces, increase in land prices, rules associated with environmental permits, etc.).

Theoretical framework

Our theoretical framework is based on three concepts: the levels of human development of Fernand Braudel (1979, 1985) reinterpreted by Jean-Philippe Peemans (2010), the actors' chains of Philippe Hugon (1988), and

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[1] Especially around the issue of new Enterprise Zones in Urban Areas (ZEMU).

the concepts of primary and secondary mixité of Jane Jacobs (1961)[2]. The analysis aims to understand the different levels of integration of the daily practices of living and to reconstruct the different visions that have emerged around the question of the spatiality of trades and work-habitat relationship in Brussels.

Braudel strives to build the history of everyday life, of material civilization. It is this attachment to the everyday and the long time of history that makes it the key to our theoretical framework. This attachment to everyday structures, uses and the anthropological description of space is also found in Hugon and Jane Jacobs. In our approach to the concept of functional mixité is not only considered as the concentration of different functions in a common physical space but also refers to the presence in the same space of different steps of a chain: production, intermediation (trade, transport, finance, storage), processing, distribution, end use. This double reading of the concept of mixité involves carefully considering the phenomena at different scales (macro, meso, micro).

Fernand Braudel and Jean-Philippe Peemans: levels of human development

In his text *Dynamiques du capitalisme* (1985)[3], Braudel proposes a method that makes possible to read the evolution of the long times of the urban history from three levels of development of the territory: the first level of the construction of the bases of the material life, the second level of trade and the third level of capitalism. We resume here the reading that Jean-Philippe Peemans makes of these three levels in his text *Acteurs, histoire, territoires et la recherche d'une économie politique d'un développement durable* (2010). The first level is that of the construction of material life that leads people to gradually master their natural environment, and to mobilize resources to ensure living conditions bearable. This level is always local, although spatial dimensions vary across times and regions of the world. The economy is tense between production and self-consumption by the family or the village and the exchanges to which it gives rise do not give rise to the constitution of real circuits or market sectors. According to Braudel, it is on this historical foundation that a second level is built, which he calls the level of trade, the one from which the market economy appears. The emergence of the market economy is a powerful link between towns and villages. It organizes production, directs and controls consumption. The market economy is distinguished in two registers: the lower register of markets, shops and hawkers and the higher register of fairs and stock exchanges. The actors of these two levels (peasants, artisans, merchants and small shopkeepers) are in the sphere of self-production, production for local needs and, at the same time, in the sphere of trade. For Braudel (1979), the emergence of capitalism linked to the change of the historical context in Europe from the fifteenth century is associated with the affirmation of powerful networks of actors, whose interests converge, in business as in the political field. Capitalism is characterized by the rise to power of coalitions of actors seeking to establish monopolies. It is the economy of the third level which, becoming dominant, imposes its law gradually on the other two levels. The first two levels are not destined to disappear: they undergo the domination of the third level, but they survive, or can resist, and keep a certain identity (Peemans, 2010). Peemans adds to the three levels of Braudel a fourth level which is the one of the changeover in financial capitalism.

This approach allows us to sketch a periodisation of Brussels history by identifying the moments of rupture between these different levels of human development. We use it as a framework for interpreting the ruptures that occur between the old regime, the industrialization regime and the metropolitan regime [fig.1]. Moreover, it allows us to imagine the coexistence of these four levels in the current history of Brussels [fig.2]. Our hypothesis is that each level reinvents the concept of an exchange hub. It redefines both the purpose of the exchanges, the meeting places, the games of actors and the forms of functional mixité.

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[2] This cross-reading of the contributions of Braudel, Peemans, and Hugon was developed by Bernard Declève as part of the course *Acteurs, Territoires et contextes de développement* and is part of the online course on *Urbanisme des communs* (EdX march 2018). The specificity of our contribution is to work on the reading of its phenomena and their spatial translations in Brussels.

[3] Although published in 1985, the text *Dynamiques du capitalisme* is prior to the publication of the book *Civilisation matérielle, économie et capitalisme* (1979). The text was written for a cycle of three lectures that Braudel gave in 1976 at the Johns Hopkins University in the United States. It was intended to present the content of the 1979 book (currently being written at the time) in its broadest lines.

IV. Fourth level. Financial capitalism
Transnational regulatory chain

Metropolitan regime
Bxl. 1989-

III. Third level. Capitalist economy
State regulated chain

Industrialisation regime
Bxl. 1561-1989

II. Second level of the market economy
Market regulated chain

Old regimes
Bxl. 1230-1561

I. First level of the exchange economy
Domestic regulated chain

Old regimes
Bxl. 977-1230

[Fig.1] Chronological approach of territorial regimes, levels of human development; actors' chains and periodisation applied to the case of Brussels. Source: elaborated by the author.

Production of intangible goods

Européen - Mondial

Metropolitan

Local

Dominant importance of the exchange value

Dominant importance of the value of use

Value of use and exchange value :
All that remains outside the market has a value of use, everything that passes through the narrow door acquires an exchange value.

Depending on whether it is on one side or the other of the elementary market, the individual is or is not included in the exchange.

This is what Braudel has called the economic life he opposes to material life.

Production of material goods

[Fig.2] Cyclic approach: we can find in any dial any period of history. Source: elaborated by the author.

Philippe Hugon: the actors' chains[4]

The reading of Philippe Hugon's chains can be used as a mode of division of a productive system characterized by a linearity of the process, by partially decomposable productive subsystems and by transformation activities. Beyond sales / customer relations or upstream / downstream technical links, the sector highlights stakeholder strategies, cooperation and power relations (Hugon 1988). Philippe Hugon distinguishes four chains: the domestic chain (subsistence logic and sometimes basic exchanges - local area), the commodity chain (basic economic exchanges - regional territory), the state sector (state control - national territory), the capitalist sector (logic of accumulation of capital - international space)
Each of these chains obeys various temporalities and operates on clean spaces. Production systems determine consumption patterns and are achieved by traffic systems that support changes in space (transport), time (storage), allocation (distribution). Each mode of production and consumption also refers to social systems. The division in terms of spatialized channels makes it possible to take into account the interdependence between links in the production chain, the different stages (production, processing, circulation and storage and use of products), as well as the organizational modes and relationships (market and non-market) that are formed between the actors. Each stage of the sector is materialized in the city by a series of infrastructures that shape the space and contribute to building the city: along the transport axes of the goods, in specialized districts, in shopping streets, and spaces of workshops which organize themselves into island interiors. Since the industrial revolution, the chains have not ceased to grow to the point where we have reached a critical threshold that pushes us to return to the short supply chains by reducing or eliminating the intermediate stages (return to the first and second levels of Braudel). The division of the productive system into several chains makes it possible to define different modes of relationships: codified, competitive, administered and to reveal the relations of competition and complementarity.

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[4] Hugon's analysis focuses on the agri-food sector. We take again the theoretical markers allowing to analyze the productive process independently of the sector in question.

Dominant mode of regulation of the chain	Production mode	Circulation mode	Space	Time	Dominant actors	Regulation mode	Functions, goals
Domestic (not-artificialized)	Traditional technique Codified social reports (eg Lineages)	Benefit, redistribution (barter, donation / counter-donation) stock	Family (lineage) and local (villages, neighborhoods)	Random production / circulation control and use	Families: elders, notables, lineages Production and self-consumption units	Consolidated rules Control devices	Life Reproduction or Intergeneration of Family Units
Merchant (artisanal)	Craft techniques, local or imported Controlled by direct producers (patriarchal lineage relations)	Excessive trading by multitude of operations and actors Essential role of the intermediation function (speculative stock)	Local, regional and city / rural markets	Random production / circulation control and use Adaptation and mobility vis-à-vis an uncontrolled time	Small producers merchants Intermediaries (non-state intervention, role of domestic units)	Price on the official or parallel markets. Competition on localized markets (rules of mutual aid and solidarity)	Reproduction of the urban essential work force. Access to cash income and urban markets
State (industrial)	Imported industrial technique Salaried or quasi-salaried Administrative supervision, banking	Constraint Contractual or integration relations (market relations) Stabilization crates	Urban and national market	Medium and long term planning in a random, internal and international universe	State apparatus and national firms	Administered prices Monopolistic circuits Protectionism	Substitution, imports or exports. Mobilization of the surplus Reproduction of the state apparatus
Transnational capitalist	Technological revolution Industrial complexes Salary reports	Inter-firm integration relations: company / state agreements oligopolistic competition on international circuits (futures markets)	International	Controlling hazards through information control and organizational systems Medium and long term strategy	Multinational groups and country states	International oligopolitical market Inter-firm integration relations Firm / State Agreements	Valuation, accumulation of capital Social regulation by surplus flow Reproduction of groups

Table 1: Typology of chains. Source: Philippe Hugon (1988) pp.674-675.

Jane Jacobs: primary and secondary mixité
In the history of urbanism, Jane Jacobs' book *Death and Life in Great American Cities* (1961) is identified as one of the references in the critical debate on the issue of mixed functions. This text allows to question the urbanism and land-use planning models inherited from modernism, and in particular the paradigm of separation of functions (Living, Working, Entertainment, Circulating) which dominated since the 1930s and the publication of the Athens Charter. For Jane Jacobs, the zoning reduces the plan to a repertoire of uses of the city. It has neither an overall vision nor a social anchor, and can only produce a monotonous and featureless environment at the mercy of promoters and speculation (Jacobs, 1961). Its text contains a series of recommendations on the measures to be taken in order to create a richer and more diversified urban space: 1. The district and indeed as many of its internal parts as possible must serve more than one function. 2. Most of the blocks must be short. 3. The district must mingle buildings that vary in age. 4. There must be sufficiently dense concentration of people (Jacobs, 1961). Jane Jacobs' observations emphasize the need for synergy between a mix of functions and a specific physical setting in the light of which we would like to observe the cases in our analysis.

Exercise of application to the history of mixité in Brussels

The first essay of a Brussels mixité spatial history is based on the work of the Centre d'Etude, de Recherche et d'Action en Architecture (CERAA), *Morphologie urbaine à Bruxelles* (1987), and Louis Hymans, *Bruxelles à travers les âges* (1882). In the perspective of our investigation, this detour through history is intended to feed the inventory of opportunities available to think on the workspaces of tomorrow. In this perspective, the idea is to identify for each period the perimeter of the city influenced by the productive activities (I), the criteria of location of the activities (II), the networks and infrastructures which determine these activities (III) and the spatial patterns of the mixité (IV) a) at the city scale, b) at the street and neighborhood scale, c) at the building scale, d) at the scale of the specialized equipment (a school, a gallery, a craftsman's house)[5].
The chronological approach corresponds to the periodization at the crossroads of the human development levels of Braudel and Peemans and Hugon's chains. In this first approach, we adopt a periodization based on the observation of the dynamics of exchanges, on the basis of the hypothesis that the observable changes in the trade regimes determine the socio-temporal ruptures: movements of the customs and the enclosures, modification of influential commercial axes, relocation of activities, specializations, evolution of the relations of competition and cooperation between cities, regions, states. On this basis, four periods will successively be considered: 977-1230[6] as the first level of human development that corresponds to domestic and market regulated chains; 1230-1561[7] as a second level of human development that corresponds to merchantable commodity chains; 1561-1989[8] as the third level of human development that corresponds to the state regulated chains with two sub-periods: a) 1561-1832[9] the emergence of manufacturing capitalism, b) 1832-1958[10] the consolidation of industrial capitalism; 1958-2020 as the fourth level of human development (post-industrialization) which corresponds to the transnational capitalist sectors with again two sub-periods: a) 1958-

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[5] We will increase this reading in a second time by adding the role of worker associations and coalitions of actors.
[6] 977 First mention of Brussels in historical documents. 1230 End of construction of the first enclosure.
[7] 1561 End of the construction of the Willebroek canal.
[8] 1989 Creation of the Brussels-Capital Region.
[9] Belgium became independent in 1830. 1832 Opening of the Charleroi Canal.
[10] 1958 Brussels becomes the capital of the European Communities and hosts the World Exhibition on the Heysel site.
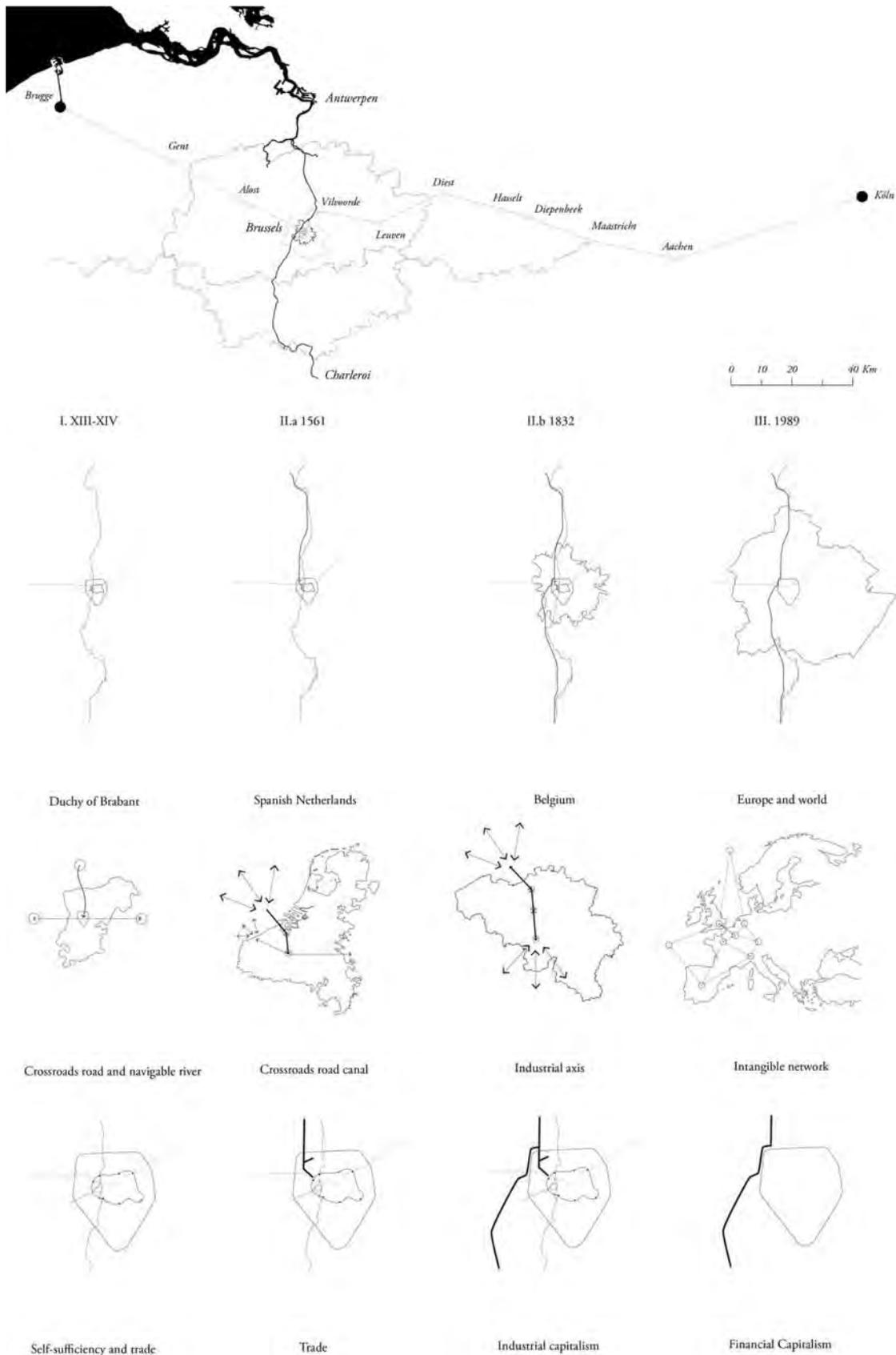
1975[11] the rise of the service economy and financial capitalism, b) 1975 -2020 the switch to a subsidized economy logic. The first two periods refer to the old regimes while the third refers to the industrialization regime and the fourth refers to the metropolitan regime. The space of this article does not allow us to develop the history of each period. Therefore, we have synthesized different elements of the analysis in a table that aims to consolidate a theoretical reading grid under construction. From a methodological point of view, this discourse shortcut is carried out in order to lay the foundations of a comparative atlas consisting of a series of maps and diagrams [fig.3.].

The figures of the functional mixité will be the object of elaborate representations whose study will be instructed by a corpus of historical iconographies. These figures will be questioned according to the conditions of Jane Jacobs, taken as analysis elements in the table [tab.2].

Spaces		Old regimes		Industrialization regime		Metropolitan regime	
		977-1230 First level of human development Domestically regulated chains	1230-1561 Second level of human development Artisanal chains with market regulation	1561-1958 Third level of human development State regulated chains		1958-2020 Fourth level of human development Transnational capitalist chains	
		Self-sufficiency and trade	Trade	a) 1561-1832 Manufacturing capitalism	b) 1832-1953 Industrial capitalism	a) 1953-1975 Financial Capitalism	b) 1975-2020 Subsidiary economy
(I) perimeter of the city		(No limits yet)	First (1230) and second enclosures (1383)	Densification inside the second enclosure which is demolished and replaced by peripheral boulevards. This densification of buildings corresponds to the development of brick factories around the urban core	The constructions begin to exceed the old enclosure of the city which will know a considerable development of the periphery around the pentagon. The influential limit becomes the one of the Belgian state	Perimeter of the city. Brussels is no longer limited.	In 1989, the process of regionalization crystallizes the administrative perimeter of the city to that of the Brussels-Capital Region. From 1958, Brussels became the seat of the European communities. The impact on the city is reflected in the phenomenon of Brussels, which sees the construction of office districts and motorway infrastructure following the 1958 World Expo.
(II) location of activities		Navigable end of the Senne river and intersection of the Bruges-Cologne trade road	Crossing two regular trade routes: the river (S-N) to the Scheldt, the road (O-E)	Establishments of factories along the access roads and exit of the city, traders, artisans and market gardeners will extend the city by juxtaposition of buildings blocks Along the banks of the Senne are the emerging industries: mills, breweries, laundries, tanneries and dyeing. These manufactures set up outside the enclosure by saving on the cost of the land and escaping the tyranny of corporations.	Became the political capital of Belgium (1830), the city brings together the functions: politics, stock market, banks, administration. The logic of establishment of industries is determined by access to raw materials and the distribution of goods near the places of political and financial decision. Industrial concentration will soon be predominant in the suburb of Molenbeek, and the municipalities of Anderlecht, Laeken, Schaerbeek, Etterbeek, St. Gilles, Forest, Uccle or Ixelles. The industrial concentration of all sectors is now more precise towards Halle and Vilvoorde.	Hom-based work takes up one in five people. From 1840 to 1970, secondary activities (construction trades, home furnishings, food, clothing, tools, electricity, but also chemistry, information, pharmacies) are being progressively inserted in the city, in front of roads or inside small blocks contributing to the constitution of a very mixed urban landscape. Until the late 1960s, the productive enterprises were looking for land in the dense city, and the largest ones on the industrial axis formed by the canals of Willebroek and Charleroi.	From 1975, some industries inserted in the urban fabricsuffer from the lack of space necessary for the production, join the new peripheral zones near the motorway networks of the transport became competitive. Brussels remains the second largest manufacturing center after Antwerp, whose business characteristic is its large number, its diversification and its small size. Small and medium-sized enterprises are located in the center where they share the territory with the numerous administrative headquarters. Space-consuming businesses are generally located at both ends of the industrial axis, but some, including the repair shops of major public transport operators, still remain in the dense and complex urban fabric below the second belt of boulevards.
(III) Infrastructure and networks Analysis: 1. linear or circular process transformation activities 2. relations of cooperation, competition and interdependence of productive subsystems 3. Market relations 4. Technical links	a) networking	Network of artisans to serve the Prince's courtyard	Network of Cities: Brugge, Gent, Aalst, Brussels, Vilvoorde, Leuven, Diest, Hasselt, Diepenbeek, Maastricht, Aachen	The economic axis moves towards ocean navigation from Antwerp. The corporate organization remained predominant until 1795. The abolition of corporations gave way to the competitive conditions of the labor market and the product. The city is a hub of major postal routes that connect the main cities in a diligent way.	The geographical position of Brussels in the whole of the Netherlands is at the crossroads of the large port of Scheldt and the agricultural and industrial hinterland. Brussels becomes a center of distribution of raw materials (arrival of iron and coal from Hainaut in the south, industrious region of the Meuse in the East, agricultural productions of Flanders in the West) and manufactured products.	Telecommunications, TGV network	World Wide Web (Intangible Network)
	b) infrastructure	Axis of the commercial route between the seaport of Bruges to the river port of Cologne	The relationship with the territory is established by the roads that connect the cities to each other	1. Basins development and reversal of the commercial axis. Opening of the Willebroeck canal in 1561. 2. The city is now connected by a new network of wide roads to Gent, Louvain, Waterloo, Charleroi, Namur and Mons.	The industrial axis Antwerp-Brussels-Charleroi. The industrial channel of Charleroi was opened in 1832. Located between Wallonia and Antwerp, the port now controls the trade routes, waterways and the daily service of heavy transport on the canal.	Urban highways	1. The construction of the ring road and the motorway network and the planning of the zonings made the north and south sections of the industrial axis more attractive. 2. Server locations.
(IV) Spatial figures influencing gender diversity Analysis: 1.number of functions 2.average size of the blocks 3.range of building's age 4.density	a) city scale	Portus	The enclosure and its doors that regulate the commercial chain	Specialization of the industrious and popular districts in the lower valley	Network of railway stations and industrial axis, fairs (Grand'Place, Sablon, Place des Martyrs, Brussels Park, Cinquantenaire) and international exhibitions (Terrains des Manoeuvres (1880, 1897), Solbosch 1910), and Heysel (1935, 1958).	The interest of planners is to defend the habitat against offices and to free the city to live from the alienation associated rightly or wrongly with workplaces	Separation of functions, PRAS rules
	b) street and neighborhood scale	Crossing of the Dieweg and Steenweg	Organization of trades in specialized neighborhoods	Dead ends, main outward streets, Notre-Dame-aux-Neiges neighborhood	Slaughterhouses (1841)	The Leopold district	Industrial zoning of Drogenbos and ZEMU
	c) building scale	The abbey of Forest (1106)	Guild Houses	factories	Maison du Peuple (1882)	Audi Forest	South Station
	d) scale of specialized equipment (a school, a gallery, a craftsman's house)	The houses of craftsmen associate a shop with a workshop in the back and a housing on the floor.	Nedermerct (covered markets, halls and warehouses)	Posts (Monopoly of the international postal service granted to the princes of the House Thurn & Taxis from 1516), The Jesuit Colleges (eg Saint-Michel 1604)	Railway, maritime and road stations of Tour and Taxis, Galeries St-Hubert (1847), Economic Union COOP (1890)	Martini Tower	CoopCity

Table 2: Consolidation of the theoretical grid and application to the history of the mixity in Brussels (first essay).

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[11] 1975 Creation of peripheral zonings.

Brugge
Antwerpen
Gent
Diest
Alost
Hasselt
Vilvoorde
Diepenbeek
Brussels
Maastricht
Leuven
Aachen
Köln
Charleroi

0 10 20 40 Km

I. XIII-XIV	II.a 1561	II.b 1832	III. 1989
Duchy of Brabant	Spanish Netherlands	Belgium	Europe and world
Crossroads road and navigable river	Crossroads road canal	Industrial axis	Intangible network
Self-sufficiency and trade	Trade	Industrial capitalism	Financial Capitalism

[Fig.3] Historical evolution of the crossroads concept. Test for a plate of the atlas.

CoopCity. Centre for social entrepreneurship
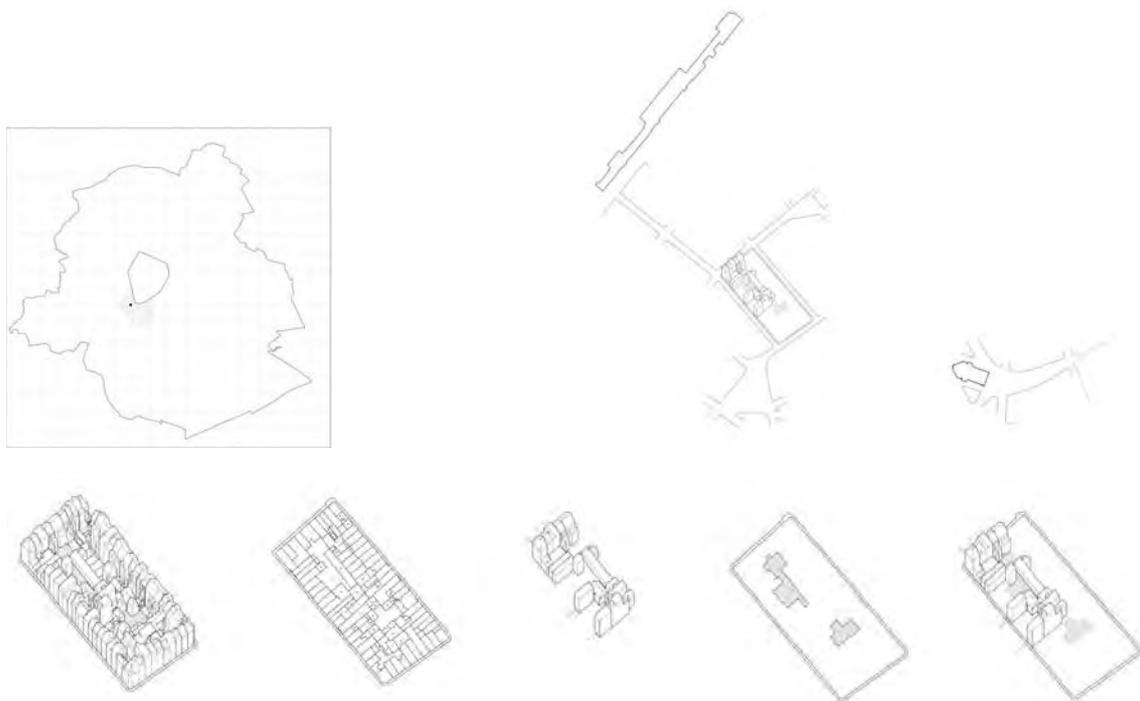
[fig.4] Localisation of the project, analysis of CoopCity block and implication in Saint-Gilles neighborhood.
Source: elaborated by the author from Urbis 2017.

From a chronological point of view, the case of CoopCity lies in the fourth level of human development and the transnational regulatory sector. We noted however that all levels could co-exist. It is in the perspective of studying the nowadays interpretations of the first two levels of Braudel, which refers to the domestic and local chains that we decided to investigate this case.

Indeed, the case study of CoopCity brings together eighteen projects of social enterprises[12] that allow us to inform the debate that is taking place today on the one hand the types of productive activities desirable in the city (industrial, domestic, collaborative) and their occupation of urban spaces [tab.3]. The approach here focuses on the principles of pooling spaces and cooperation as an entry theme to go on investigate a series of scales. Through this case study we focus on cooperatives activities. Cooperatives can be active at different scales a) scale of the municipality (example of Marinaleda in Spain); b) district scale (example of the BeesCoop in Brussels); c) scale of a SCOP company (example of Carodec in Brussels);

d) regional scale (example of CoopCity), e) national / transnational scale (example of SMArt).

In the particular case of CoopCity, it is an association which does not yet have the status of cooperative but which groups together in a single place starting projects intended to become cooperatives. Each project gives shape to a spatial sequence linked to the creation of such enterprises: a co-working space for project coordination, an intermediate testing space for production processing, a production unit.

A community of social entrepreneurs
Coopcity is a centre dedicated to social and cooperative entrepreneurship in Brussels, supported by the ERDF for a period of six years. The project contributes to the support, development and promotion of social and cooperative entrepreneurship in Brussels[13]. The ERDF grants enable them to finance five-year support programs and also to produce the co-working space that hosts the entire community ecosystem (coordinators, entrepreneurs, coaches). This community of entrepreneurs is built around the principle of mutual exchange of knowledge and each project is brought to offer its know-how (yoga class, organization of a Christmas meal by one of the companies active in food, proposal for training in computer software).

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[12] "The social economy brings together the economic activities carried out by companies, mainly cooperatives, mutual societies and associations, whose ethics are reflected in the following principles : 1. The purpose of serving the community or members rather than the purpose of profit; 2. Management autonomy; 3.Democratic decision process; 4.Productivity of persons and labor over capital in the distribution of income. " (Conseil wallon de l'économie sociale, 1990)

[13] The project brings together seven partners active in the field of social entrepreneurship: Impulse.brussels, Solidarité des alternatives Wallonie Bruxelles (SAW-B), Brussels Emergence, ICHEC Enterprises, Cascade (Solvay Entrepreneurs), FEBECOOP.

Mutualisation and cooperation

The opportunity to settle inside the SMArt buildings allowed CoopCity community of entrepreneurs to have both a private co-working space and a shared space with others associations. It responded to the desire of CoopCity to be a meeting point for the actors of the social and cooperative entrepreneurship in Brussels. On its side, the Société Mutuelle des Artistes (SMArt) advocates for the creation of a large cooperative where the self-employed could be autonomous while maintaining the social benefits. SMArt and CoopCity share common values on the evolution of the working conditions, the evolution of entrepreneurship, and the way people carry their projects until the end. The sharing of these social concerns leads them to have common projects such as a documentation centre, a program of conferences in the evenings, on lunchtimes, etc. Co-operation and mutualisation have a central role to counter the tendency to recreate entities when urban space and resources are lacking. CoopCity therefore seized the opportunity to regroup and occupy under-exploited SMArt spaces to pool certain services (such as reception) and integrate a friendly place. From another perspective, the concentration of entrepreneurs in the same space induces a network of cooperation that is a source of innovation and economies of scale for their needs in external services.

A co-working space for start-up companies

The co-working space and the community are the elements that support all the projects and create the link between the different promotions. Social entrepreneurs come to work in the co-working space for the coordination of their projects, their professional meetings, but also to meet other actors. This access to a co-working space is interesting for start-up companies because it is a mailing address (the reception of deliveries by SMart is a valuable advantage for neighborhood co-operators), a place of professional meetings, an office with the necessary infrastructures (printer, internet connection). This pooling of office costs is not insignificant to reduce the budget of autoentrepreneurs. It is also a place where knowledge is shared and where the notion of mutual aid between projects is fundamental. Privatized access from Coenrats Street allows a total flexibility for entrepreneurs' working hours and schedules.

Location and localisation of production units

CoopCity's co-working space is located in Saint-Gilles, in a street perpendicular to the South station (Rue Coenrats). The production units of each project are scattered throughout the metropolitan area: on the 18 projects from the 2016-2017 promotion, 8 of them have a temporary production unit located in Brussels, 1 has its production unit outside Brussels. Some project leaders do not have (yet) production spaces (or do not need them) and produce temporarily at home [tab.3].

The opening on the neighborhood

The Coopcity space is not intended to host a showcase of productions, the promotion of products is rather done through demonstrations during events like ethics' markets, conferences, neighborhood parties and other events around new forms of working, entrepreneurship and social economy. This desire to assert itself as the centre of social entrepreneurship gives the place a logic of address that generates a centrality effect: a crossroads of exchange. The space does not open to the neighborhood following a regular agenda, as it is the case, for example, at the Atelier des Tanneurs, another Brussels co-working space that hosts an organic market. Similarly, this workspace does not offer a cafeteria service, the will of the co-operators being to avoid the autarkic effect of an incubator, staying open on the neighborhood and taking advantage of local trade. The businesses they mobilize in the neighborhood extend from the *Gare du Midi* to *Parvis de Saint-Gilles* via *Place Bethlehem* and *Place des Héros*. For all their events, the association uses catering services in the area: *Ateliers du Midi*, *Entre-Nous*, *Village Partenaire*. There is a willingness that the place remains welcoming for the people of the neighborhood even if it is mainly frequented by the cooperating network. SMArt is very anchored in the neighborhood, they have many cooperators who live nearby. We could therefore think this logic of address will attract cooperatives to settle in this neighborhood.

A need for intermediate spaces to test the production

At Coopcity these projects are in incubation phase. This incubation phase over, there is an in-between time, a testing phase, before they start their activities. The supply of accessible (in the sense not-too-expensive) intermediate spaces for production processing seems to lack in Brussels. A project like Brasserette labours to find a space to test its products for six months, or a year before launching it. For projects related to food production such spaces are set up on the side of Saw-B with the Grennscop project (food processing test spaces) or on the Boeren Bruxsel Paysans project (market gardening test space). In addition, the difficulties linked to the accessibility of land jeopardize the projects of alternative housing or collective facilities such as Cinécité.

Temporary occupation

The development of its activities focuses on the temporary occupation of spaces[14], the temporary partnership with other projects (Refresh, Abattoirs) or home-based work; formulas that are not always optimal for the development of an economic activity. To start their activities properly, these companies need spaces that are not (or very little) subject to land pressure but still attractive. In the quest for urban vitality, it is conceivable that mixed-used projects (developed by real estate developers) have as impact on land pressure as strong as residential real estate projects since these projects are not intended primarily to facilitate access to land for the small crafts enterprises.

Project names	Function	Social object	Project leaders	Program	Production places
Abricoop	Housing	Creation of alternatives to traditional real estate development with a view of proposing an offer of quality rental housing at an affordable price under the model of the cooperative.	4	Seeds	Not yet
Aquaponie Bxl	Food	Food production through an integrated aquaculture process that combines a plant culture in symbiosis with fish farming.	2	Seeds	Anderlecht (Recy-K)
Beer Food	Food	Valorisation of brewer's dough (malt waste for beer production) into healthy, local and responsible products (cereal bars, chips, biscuits, waffles, breads, etc.).	3	Seeds	Anderlecht (Cureghem)
Ciné-Cité	Collective equipment	A cinema in the city to rediscover a bold and accessible cinematographic offer privileging cultural openness and social exchange.	3	Seeds	Not yet
Cobea Coop	Services to workers	Cooperative for digital communication that aims to develop a community of mutual assistance and mutual service to effectively fight against the digital divide.		Blossom	Saint-Gilles (BAF)
Cocori-CO	Services to workers	Development of a program to support the job seeker in the definition of a professional project that is consistent with his personal aspirations and profitable.	2	Seeds	Not yet
Coop IT Easy	Services to workers	Cooperative computer scientists whose mission is to provide the social economy sector with open source computerized management tools. Their service offering focuses on the implementation of Odoo, an open source software that can manage the different aspects of an organization.	2	Seeds	Saint-Gilles (CoopCity)
Cosy Care	Services to workers	Humanize care and help for the elderly. Accompanying leaders and teams from the home help sector, rest homes, revalidation, hospitals, etc. to foster team dynamics, skills development, and practice improvement.		Seeds	Not yet
Déclic en perspectivES	Services to workers	Accompanying people who wish to propose economic, environmental or social alternatives, to identify possible ways of putting themselves into action. The project favors the creation of a community of change actors who wish to act to transform the society in which they live, to put the human at the heart of the economic project.	3	Seeds	Not yet
Gammes	Services to people	Home care services in the 19 Brussels municipalities and home care training (professional integration).		Blossom	Saint-Gilles
Into the spoon	Food	Production of meals for young children (6 months to 3 years), prepared with ingredients from local and organic farming.	3	Seeds	Ixelles (Refresh)
Kilti	Services to people	Inspired by short-circuit organic fruit and vegetable baskets, the cultural basket is an initiative to consume local cultural creation and venues and discover new cultural initiatives.	2	Seeds	Not yet
La Brasserette	Food	Development of a local, sustainable and collaborative brewing economy in the form of a cooperative. La Brasserette is a place in the heart of Brussels where amateur brewers and beginners form, brew, create craft beer recipes through quality facilities available to them.	4	Seeds	Not yet
Labolobo	Collective equipment	Intergenerational place, recreational space to re-establish links by developing the values of social cohesion, mutual aid and transmission. The association organizes creative workshops for children and seniors based on the mutual enrichment of intergenerational exchanges.		Blossom	Jette
Molenbike	Collective equipment	Co-operative of Brussels couriers for bicycle delivery of eco-responsible and local products. Molenbike is developing quality bike logistics to promote the short circuit.	6	Seeds	Molenbeek
Passâges	Housing	Creation of a living space that combines intergenerational group housing with a birth house and an end-of-life home. This project proposes a new form of intergenerational grouped housing by privileging a quality of presence and links, and an accompaniment of the life and the passages of life: to be born, to cohabit, to grow, to age, to die.	3	Seeds	Not yet
Quai 41	Collective equipment	Theatrical creation house focused on supporting and empowering artists in a listening and creative environment. Mutualizing know-how and tools: artistic, administrative and technical support; help for the realization of scenography; rehearsal rooms; construction workshop; technical materials.	4	Seeds	Saint-Josse
Simone a soif	Food	Production of hydrolade, a 100% natural beverage made from plant steam mixed with freshly squeezed local fruits and vegetables. The cooperative has set an ambitious growth plan for all Belgian cities. It aims to replicate its artisanal and local model by spinning in different European cities from 2018.	3	Blossom	Outside of Brussels

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[14] As such we will note the action of the non-profit association Communa, whose action tries to revalue unoccupied spaces.

Table 3: Analysis of projects supported by CoopCity. Promotion 2016-2017.

Opening of the debate on functional mixité in Brussels

Reading the historical evolution of the Brussels context reveals that it is not the primary sector but the secondary sector (material processing) which is the main lever of the Brussels manufacturing economic development. It is therefore in the perspective of the long time of history that we question, through the case of a project gathering a series of current initiatives, the possibilities of setting up these types of businesses in the current urban fabric.

The return to history is therefore thought as a way to instruct the debate and understand the vocabulary and grammar of different elements of the productive narrative. The historical evolution of Brussels informs us about the tension between a productive and an inhabited city which reveals continuously new interpretations of the productive narrative and the way it forms of the city.

This historical reading reveals very different scales and processes, 1. in urban projects that materialize productive economies of industrial types (destined for the world market) in zonings and zones of partitioned enterprises; domestic types (shops and crafts related to the economy of everyday life) in real estate projects and spaces dedicated to international tourism; collaborative types (sharing economy and pooling of associations of autoentrepreneurs and cooperatives) in spaces of co-workings, start-ups and other fablabs. 2. In the markets (and the size of the markets) specific to these cooperative enterprises where we aim to identify production processes (artisanal or industrial), consumption processes (characteristics of markets and customers), and the ecosystems of the resources they mobilize as well as their possibilities to survive outside the subsidized system.

The case of CoopCity reveals the practices of mutualisation taht supposes a community of users ready to invest together. This kind of community are not lacking and their constitution are encourage by the action of some public actors. We is lacking is an offer of affordable land. We question the inadequacy of urban planning in Brussels to meet these communities of workers, and consider the possibility of defining the framework of uses-based urbanism. Indeed, the spaces most suitable for hosting social economy enterprises seem to be concentrated in projects that escape urban planning projects: we think of companies that occupy spaces temporarily but also those that have found in the head of a cooperating owner the opportunity to expand their business[15]. Inaction or unoccupation brings out potential encounters.

Today, the Senne valley and the axis of the Brussels-Charleroi canal occupy a central place in the narrative of the Brussels territory[16] and the question that arises about the productive city and its formulation in terms of urban spaces revolves around the possibility of redefining functional diversity. The loop formed by line 2 of the metro allowed the connection to the centre of many neighborhoods and strategic sites. For the public actor, the redevelopment of the canal and its edges must achieve a triple objective: strengthen the residential function and serve public facilities; Ensure a better urban integration of the economic activity and employment of Brussels residents residing in this territory; Improve the quality of public spaces and new mobility infrastructures, connecting neighborhoods that the canal continues to divide today.

In this perspective, the demographic PRAS adopted in 2012 created a new regulatory status that mixes residential and productive activities within urban industrial zones (ZIU), previously forbidden from a residential function. This new status is the one of the Enterprise Zone in Urban Area (ZEMU)[17].

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[15] In particular, we are thinking of the building of the former Farcy flour mill, which now houses a number of companies linked either to the creative trades or to the social economy.

[16] See recent studies such as Brussels 2040, the Metropolitan Netherlands or the Canal Plan and the Regional Plan for Sustainable Development (PRDD, 2013).

[17] ZEMUs have one or more of the following characteristics: they are accessible by public transport; they are located in or near inhabited urban tissues and can easily be attached to them; they are only very partially built today and the introduction of housing could be done without jeopardizing the main economic function; they offer opportunities for qualitative improvement through an overall urban recomposition; the economic activities which are implanted there today do not produce nuisances rendering incompatible the cohabitation with the function housing. Six ZEMU poles have been identified: the Pôle des Usines; the Haren pole; the Reyers pole; the Birmingham cluster; the Biestebroeck pole; the Erasmus pole.

[fig.5] Location of the new Enterprise Zones in Urban Areas (ZEMU) and projects financed by the European Regional Development Fund (ERDF). Source: elaborated by the author from BruGis: ZEUS area; Metrolab Brussels: FEDER projects areas redraw by Pauline Varloteaux; PRAS Demographic: ZEMU, ZIU, Zone of port and transport activities; VG: Bedrijventerreinen.

The regional organizations CityDev[18] and Impulse[19] invest in business incubator projects developed, in particular through the operational programs of the European Regional Development Fund (ERDF).
It is these projects – which are not located in the ZEMU perimeters – that produce the entrepreneurs likely to develop their activities in the spaces proposed by the spatial definition of the new ZEMU [fig.5].
The offer offered by CityDev requires already having an important own fund to rent a space or have an activity sufficiently developed to enroll in larger projects and which can be an interesting tool for projects that are growing and which are looking for more spaces (like Tournevie, Microfactory, Habitat and Humanism).
This final statement outlines a dynamic with two meanings: on the one hand, we anticipate the creation of workspaces without knowing the users and on the other hand we finance start-up companies that do not have privileged access to land or public workshops spaces. What we therefore question is the possibility to find a system that allows small businesses to develop their activities having privileged and sustainable access to part of urban land inside the ZEMU. Or maybe this would happen elsewhere than in the canal area.

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[18] Founded in 1974, the Development Corporation for the Brussels-Capital Region (citydev.brussels) is a public-law company whose missions have three objectives: to maintain and bring back residents in the Brussels Region through the creation of housing units; boost the city's economic development by offering tailor-made solutions for businesses; respond to new urban challenges (demography, environment, mobility, employment, economy, cultural development, health, education, urban planning, etc.) by providing project management for mixed projects. citydev.brussels to companies wishing to develop in the Brussels-Capital Region. For this purpose, it provides 45 industrial sites offering several thousand square meters, 8 business centres consisting of cells of a few dozen square meters and 3 incubators.

[19] Created in 2003 by the Government of the Brussels-Capital Region, the Brussels Agency for Business - renamed impulse.brussels in 2013 - has quickly become one of the preferred contacts for any new or experienced entrepreneur in the Brussels-Capital Region. Capital city. Impulse is at the same time an interface which allows all those who undertake in the Brussels Region, to find immediately and easily the concrete information they need, and to identify the people who, within the public and private organizations, go to them. help to consolidate their projects and one-off support very focused when this support is not accessible on the market. Impulse.brussels also manages several European programs. The organization is indeed the National Contact Point (NCP) for Horizon2020, the European Union's research and innovation funding program for 2014-2020.

CityDev has carried out the Espace PME Paepsem projects (5,540 m2 of office space and modular workshops) and Brussels Greenbiz for the 2007-2013 program; it supports the Espace Marco Polo and Irisphere projects for the 2014-2020 program. Impulse carries out Boost your talent and Brussels sustainable economy support programs for the 207-2013 program and the accompanying programs living labs Brussels retrofit and CoopCity for the 2014-2020 program.

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Expected date of defence: Summer-Autumn 2018

Working title of dissertation: Enabling factors of urban systemic transition to the post-growth city, the role of the micro-business agency in Athens and Barcelona

Full paper submission, title: The cities in the Post-growth Society: Towards a research agenda for the post-growth city

Abstract

Since the beginning of the sustainability debate and especially after the recession caused by the global economic crisis of the capitalist economies in 2008 there has been a proliferation of critical literature that questions the ability of mainstream economic thought and practise to meet the environmental and social needs of our epoch. If we intend to address the challenges of the anthropocene from a heterodox political economy approach (Swyngedouw & Ernstson, Forth) we engage with literature on re-discovered concepts of alternative economies and in particular with the growth-critique economic thinking. This socio-ecological stream of thought is anchored in various macro-economic frameworks and counter-narratives that heavily criticize the concept of economic growth (de-growth, steady-state economy, circular economy, new economics, post-growth economy etc.), and calls for structural changes in the production and consumption systems as well as, a fundamental socio-cultural transformation towards a smaller but socially just and environmentally sustainable economy. At the early phase of growth-criticism, a more segregated debate observed, from either a bio-economical perspective and critique to growth (Malthusian thinking and resource scarcity, e.g. Georgescu-Roegen, 1975), or a cultural perspective (critique of development theories, e.g. Illich, 1973). The contemporary debate on the post-growth societal alternatives (e.g. Paech, 2012; Kallis, et al, 2012) is a result of the greater sustainability dispute, the increasing prevalence of systems perspective in scientific thought and the surge of the interdisciplinary research since the 90's. Drawing on the early cultural and technical critiques of the past and acknowledging the socio-political, socio-economic and technological developments of their time, contemporary authors further developed integrated macro-economic frameworks and a post-growth economic vision. This paper advocates in favour of these alternative economic models and the advocated global transition to a post-growth society contributing to a scientific debate that remains mainly hosted by the disciplines of environmental macro-economics, political economy and environmental justice. In this paper, I seek to present a framework for "urbanization" of the post-growth collective narratives and material practices. More specifically, the paper adds

to the so far limited literature in urban studies that engages with growth-critique concepts and develops an urban post-growth narrative that gives a spatial (urban) dimension to the post-growth macro discourse. Doing so, it identifies research streams in those cities of the economically developed world, where the socio-economic and socio-political dynamics create a fertile ground for the applicability of post-growth associated practices. This narrative may serve both as an analytical tool for studying spatial, regulatory, institutional, and cultural aspects of the post growth society in the urban scale, as well as a normative framework that helps to adjust/translate macro concepts of post-growth theories to local practices. Finally, I present a methodological outline that can applied to assist place specific research in diverse urban environments of the economic developed world where a transition to a post growth society is a viable or already visible case.

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Re-emerging landscapes: militarised territories from the Cold War period

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This paper is part of my research that investigates the large-scale remains of military activities from the Cold War period. The aim of the research is to provide a meta-perspective on the post-militarised spaces and their different developmental trajectories, that may lead to various outcomes, such as heritage status, requalifiaction or destruction. I am conducting the research on the evolution of the remains, the discourses concerning their transformation and the relevant heritage policies. Different case studies from the Belgian and the European mainland context are taken into account, where artefacts of Cold War military spaces are found within or in the immediate proximity of inhabited areas.

Throughout the history of the modern military, different warfare techniques have created a non-linear succession of distinct military spaces. Such large-scale military heritage from the past has been subject to preservation efforts as well as thorough redevelopment. This led to structures becoming urban heritage in their original form, or by undergoing subsequent transformations. However, the transformation process of the large scale Cold War military structures brings particular challenges, due to the dual nature of the military institutions in this period, that is being both 'invisible' and 'omnispresent'.

Looking at the various case studies in my research, the artefacts of Cold War military spaces are being (re)interpreted in the frameworks of different landscape transformation processes. Relating to the overall topic of this seminar, my research is presented in the light of the relevance of this research for the nowadays state of urbanism as a discipline. The paper is discussing the complex situation that arises from the perceived 'vacant' spaces and the 'disappearance' of a powerful agent such as the military. Namely, the transformation of the post-militarised structures comes in part as a result of the neo-liberal tendencies ('less state'). Furthermore, the very transformation process is a result of negotiations performed within networks that involve a myriad of actors and agencies, with often conflicting views and agendas. The main working hypothesis is that the 'non-human' agency of the material artefacts, renders these networks as flat, rather than hierarchical structures. This in turn allows both for multiple meanings to be ascribed to the artefacts, coming from actors and agencies that are usually perceived as acting from different 'levels' (local, national, global). As a consequence, the transformation policies come as a result of the process, rather than a predefined guideline.

The paper takes closer look at the transformation of the military domain in Koksijde. There, a vast area has been used by the military during few decades, resulting in significant changes to the surrounding system of settlements, while preserving certain landscape elements that were otherwise lost outside of the domain. At the present moment, there is an ongoing procedure for defining a vision as well as legal framework for the transformation of the domain that would include various non-military activities.

Introduction

The current geopolitical situation and the technological advancements are quite different from the moment that the Berlin Wall feel, now almost 30 years ago. In a nutshell, new arenas of conflict are emerging in different geographical settings, while the scenarios of a mass conflict in the European continent are giving way to other types of limited conflicts and the prospect of regions being suspended in continuous state of uncertainty. The disappearance of the clear divide between the two ideological blocks, and the acceptance of the capitalism i.e. the neo-liberalism as a default economical mode had its influence on the role of the nation state – and the military as its fundamental component Consequently, the decreasing of the public spending, along with the technological advancements have led to an increasing number of decommissioned military sites, especially in mainland Europe, where the total area of the military sites becoming 'available for development' is increasing. Such situation can is comparable to other historical periods when vast areas previously assigned to military use have been made available for urban development, creating an opportunity for an application and testing of the urban paradigms of the time. Therefore, by looking at the trajectories of the transformation of the territories that were militarized according to the doctrines of Cold War period warfare, one can obtain a better inside on the state of the urban and landscape planning theory and practice.

In the first section of the paper, I will give a more detailed description on the particularities of the above mentioned territories, as well as the material artefacts found within them. In this description I will first discuss the discourse on the 'continuous development' of the military structures. Then, I will outline few distinct spatial and material aspect of the Cold War warfare doctrines: the changing relation towards the urban areas and the double nature of 'hidden' and 'omnipresent', the multiple advancements that occurred within the period itself and the narrative of a non-occurring conflict.

Then I will provide an account of the dynamics of militarization of the territories, through a discussion of the nature of the military presence. I will argue that the result of this presence is the distinct 'militarized taskscape' that eventually becomes a part of the continuity of the landscape. I will continue by discussing the

act of abandonment, where the main hypothesis on the role of the material remains of the military presence will be further explained.

Finally, I will give a short description of the military domain in Koksijde, which is one of the case studies that my research is focusing upon. I will discuss the latest stage of developments in the transformation trajectory, in light of the previous arguments.

On the militarized territories from the Cold War

Artefacts of a continuous development

Very relevant to the topic of militarized territories and their 'heritage' in terms of material artefacts are the concepts of Manuel De Landa, who elaborates that "changes of state" occur regularly in a given system. These loses of stability are resolved by a "bifurcation", which offers the possible trajectories: upgrade or downgrade to a new stability. This continuous process results in the "mineralisations" (De Landa, 1997) - material artefacts arranged into spatial structures. In this case, the 'changes of state' are the introductions of new warfare techniques and strategies, while 'mineralisations' are the physical structures that were consequently produced. At the same time, other 'changes of state' may lead to 'mineralisations' from the previous cycles to be rendered obsolete – thus becoming subject to the transformations that are the focus of my research.

Large-scale military infrastructures from before the Cold War period have underwent various transformations that differ from each other because they all depend on different parameters, one of the most prominent being the type of warfare that the infrastructures were built for. Therefore, in each case we see the spatial implication i.e. the 'mineralisations' of a certain type of warfare at a different scale. Some of the examples are the urban impact of the castles and fortified walls of the Middle Ages and the urban fortifications of the Baroque until the 18th century. Then, the French *pré carré* has implications upon the urban dimension of the national territory, whereas the *Hollandse Waterlinie* has to do with the regional territory and the landscape dimension. Finally, the front zones of World War I had serious implications upon the landscape, while World War II produced, amongst other, the Atlantic Wall as a combined territorial and naval infrastructure. In each of these cases, we find a certain type of 'military space' that became heritage, either through preservation, further development and/or transformation (e.g. boulevards replacing urban fortifications).

Particularities of the Cold War period military infrastructures

The military infrastructures from the Cold War differ from those of the previous periods in terms of their scale, distribution and versatility. First, the military infrastructures in the Cold War period were planned and built with a very different relation to the urban areas in mind. If for centuries the military was an integral part of the city, be it through the city walls or the military districts with the casernes built as integral urban blocks, the Cold War military planners relinquished these links by organising its built structures in large-scale domains, where the single floor barrack was used as a basic module [fig.1]. The military units became both more specialised and more connected, due to the rise of the communication equipment. This prompted a decisive movement out of the urban areas and into the hinterland, as well as an increase in the areas used by the military. The military now operated within restricted areas, in order to remain 'hidden' - while retaining representational features that were both a relict of the previous periods as well as display of power: parades, Houses of the Officers etc. At the same time, the military was able to gain more knowledge of both its own as well as the territory of the enemy, which in combination with advanced weapons such as long range missiles, effectively rendered the entire planet as battlefield. This meant that the military became 'omnipresent', consequently getting institutionally involved in the decision making on various aspects of spatial and urban planning.

Second, the material artefacts of the warfare from the Cold War period have evolved over time: in the early years tendency towards 'passive' defences existed, but later on the military apparatus was forced to constantly match the abilities of the enemy, leading to the Mutual Assured Destruction (Hirst, 2005). Yet, besides the nuclear-related infrastructure, conventional military structures and technology were developed at an unprecedented pace and scale. Large infrastructures, such as airports and shipyards but also communication networks were instructed for exclusive military use. The conscription was an important element that was maintained throughout the Cold War, which in turn set out a demand for large accommodation facilities within the military domains. Furthermore, during the period of the Cold War several technological leaps have occurred, among which are miniaturisation and computerisation, as well as few generations of communicational systems (De Landa, 1991). As a consequence, the need to engineer and manufacture advanced types of weapons gave rise to the military-industrial complex, which has in turn created an ever-more entangled relation between the military and the civil society. Overall, the technological advancements

meant that infrastructures as well as entire instalments were rendered obsolete in a short period of time after their construction[1].
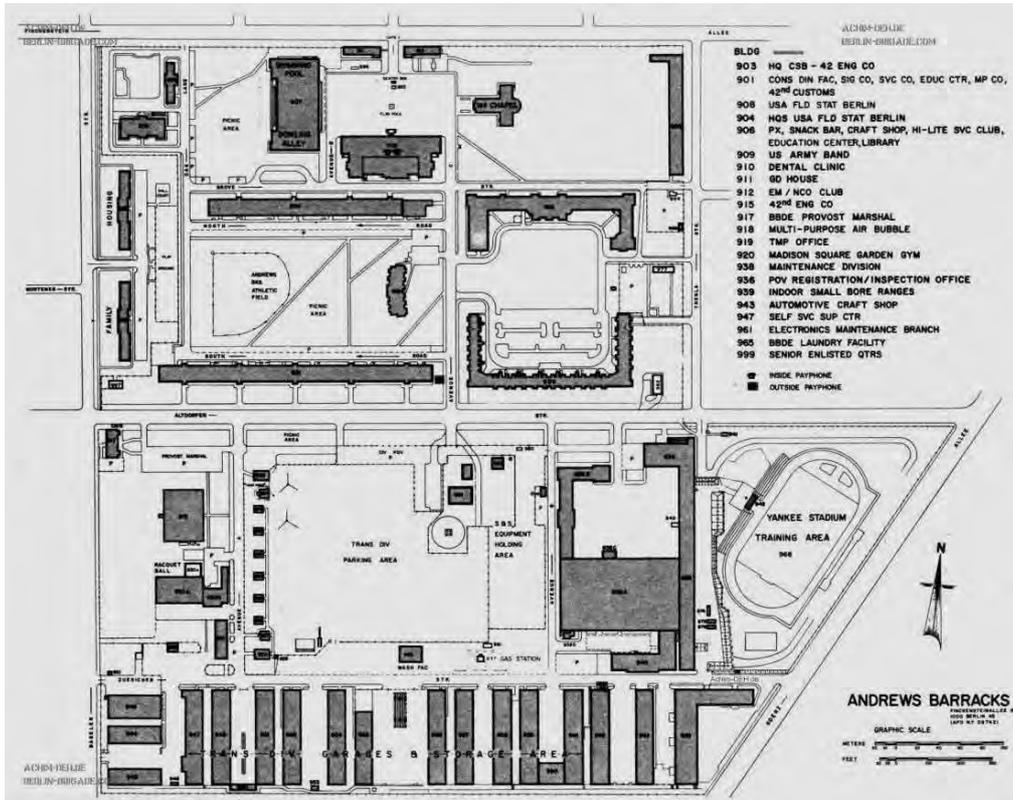
[fig.1] The layout of Andrews Barracks in Berlin. Source: US Army (public domain).

Finally, there is another important particularity of the Cold War period that is relevant for the formation of the general public's discourse and the establishing of the relevant heritage policies: unlike the other warfare techniques and their 'mineralisations', the ones from the Cold War period were never used in an actual war. Namely, the Cold War could be described both as a 'war in reverse' and an 'omnipresent state of preparedness'. Regarding the previous, the nuclear weapons were never used during the entire length of the confrontation between the two blocks. It was only the images of Hiroshima and the fictional narratives of the post-nuclear holocaust future that are evoked when one is confronted with the physical remains of the nuclear weapon facilities, or any 'secret' facilities from this period in general. The perceived 'end of the Cold War' yielded the creation of Cold War heritage status for various nuclear silos and bunkers, creating an archetypical imagery yet obscuring the fact that the threat of nuclear warfare nowadays remains present and active. As for the latter description, the conventional military installations that were spread out all across Europe were never used - as the big invasion never occurred. The often prosaic appearance of the countless barracks seldom offers any architectural values, while there rarely any events that deserve the attention of the historians – albeit there are cases where the abandonment of the structures makes an important event for the national identity, such as in the Baltic states. The fringe narratives and meanings ascribed to the 'mineralisations' from the Cold War period come mainly from the personal histories of former officers and conscripts, the actions of the civic peace movements, but also from the contemporary urban explorers seeking for 'brutalist' or 'ruin-porn' imagery.

The dynamics of the (post)militarised territories

Militarising the landscape, establishing taskscapes
As discussed above, the Cold War warfare required large swats of land to be assigned for exclusive military use and as such they became exempted from the urban planning processes and regulations [fig.2]. The size of

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1   Some of the examples are the early generations of radars spread all over Alaska and Canada, but also the pre-nuclear bunkers such as the *Commandobunker Kemmel,* whch is another case study for my research.

these domains often exceeds the one of the adjacent settlements themselves, thereby further influencing their functional and growth patterns. In terms of their appearance the militarised territories had restricted access, and this often caused for discontinuities in the perception of the territory with profound effects on the spatial and functional continuity. By the means of the land expropriation, the military presence provokes changes in methods of production and the formation of invisible and co-existing boundaries. However discreet, the military structures are "deeply engrained in the cultural fabric of facilities, the infrastructural layers of installations, and the ecological dynamics of the landscape" (Arroyo, Belanger, 2016). Moreover, The militarised territories were part of a network that involved different levels (local vs. national / supranational) and this network insisted on uniformity of both function as well as appearance – guided by the abstract nature of the military doctrines. In terms of the spatial aspects of the military doctrines, the military has been described as a "cyclothimic animal, asleep during peace and awake for war" (Virilio, 1994)– thereby implying that there are different modes of functionality within the same spatial setting. And yet, there are aspects of the "more prosaic military act of just being there" (Woodward, 2011). This means that in there was an array of 'accommodations' made in order to apply the 'uniform' structure and appearance and more importantly the military equipment and infrastructure upon different territories and local settings. Therefore, the 'deterritorialisation' process that isolated the militarised territories from their surroundings , ran in parallel to the 'territorialisation' process of the military doctrine.
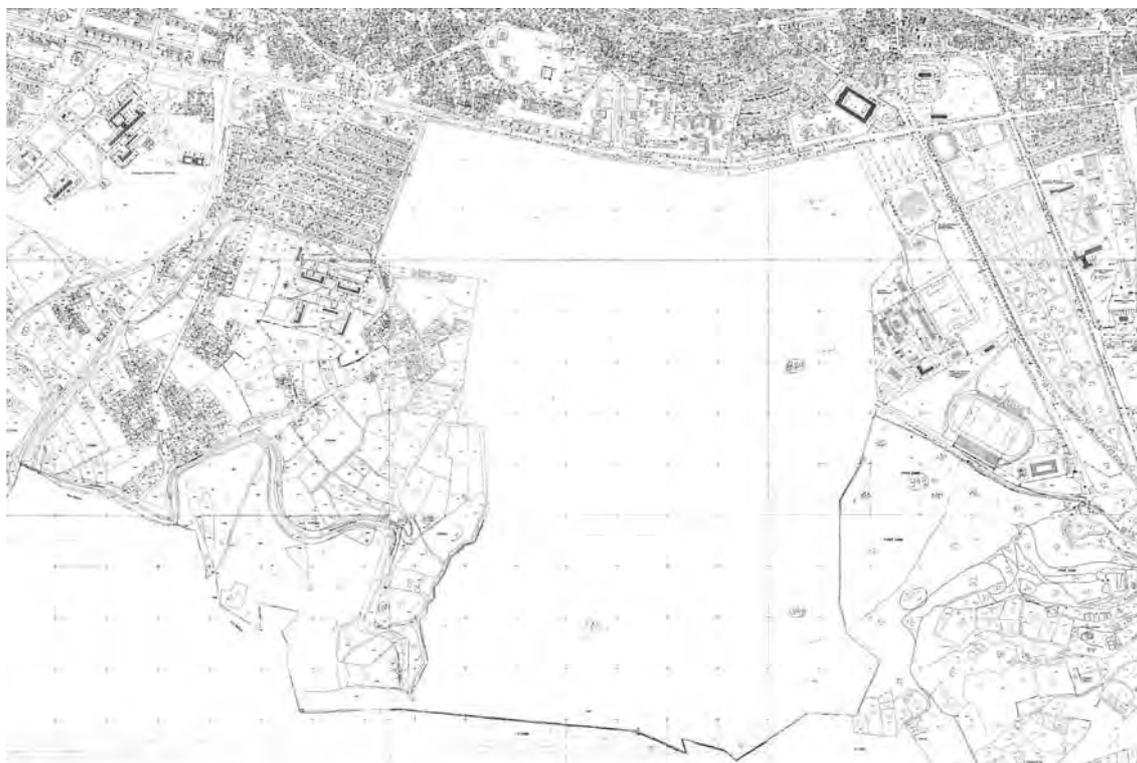
[fig.2] A cadastral survey of Bitola, Macedonia from the 1980's showing the void left by the exclusion of the military domain. Source: State Geodetic Agency, Skopje.

In order to make sense of these 'interconnected arrangements' which are nevertheless embedded into the landscape, we look towards the concept of the 'taskscape', being a socially constructed space of human activity, which is perpetually in the process of transformation (Ingold, 1993). Following this concept, it can be argued that the military institutions and their actions have always been an integral part of the landscape transformation process. Likewise, the material artefacts of the military presence i.e. the ex-militarised landscapes are not in any way exempted from the continuity of the landscape transformation process. However, the perception of the former militarised spaces as separate and restricted areas creates a specific discourse among both the general public and the specialists, which is the focus of this paper.

The act of abandonment
Although the actual end of the cold War period remains to be determined, with current debates taking place on whether it is over at all, one can clearly perceive the new types of threats that the military has to tackle nowadays. As the Cold War warfare was designed to combat i.e. maintain a status -quo against a symmetrical threat, it is being rendered obsolete by the current asymmetrical conflicts that are rapidly distributed by the

means of terrorism and propaganda. On a different note, after the abolishment of the military service, that led to professional army forces in a manner of a decade, there is now an increased demand for presence of the troops outside of the country, leading to formation of regular multinational units. These new types of military engagement are then further combined with the developments of the new military technologies and the new economic constellations / austerity measures, a combined products of the rise of the artificial intelligence and the proliferation of the neo-liberal policies. All of the above leads to an increased shortening of the military budgets or at least a severely reduced spending on personnel and non-combat infrastructure, while there is a push towards militarized artificial intelligence and tactical weapons of mass destruction. As an end-result, but also with an added incentive to transform the ownership of the public land, military domains are being abandoned throughout 'the West'.

My research is developed using the argument that once the military institutions have abandoned the spatial structures, the perceived 'military taskscape' ceases to exist, or is at least degraded. Being an integral part of the landscape, such absence / modification creates a rupture that is subsequently reinterpreted through the means of the urban production and/or heritage protection. In doing so, the different agencies have to work with the 'mineralisations' and their 'non-human' agency.

The abandonment of the military domains takes place over a distinct period of time, and three non-consequent events could be well observed in most of the cases: the abandonment, the (re)discovery and the acceptance. In each event, the non-human agency of the material artefacts takes precedence and reveals the network. The abandonment of the structures might have taken place either as a prepared and planned action, or as a consequence of a sudden retreat of the military personnel. Such act may hold a symbolic value, yet it always has an economic and demographic impact on the local community. It results in an array of material artefacts that define the appearance of the territory, and are subject to physical deterioration. The discovery by the next generation usually occurs after a certain period, during which there is a relative loss of political and historical context. Different groups and individuals access the material remains, creating or appropriating new narratives. On the other hand, some of the remains undergo important physical transformations, even destruction. The acceptance is defined by the actions of the urban and landscape planners and /or heritage professionals establish a certain regime of (re)development and/or protection by applying the available legislation upon the material artefacts.

In general, the transformations of the military structures of the Cold War period and/or the territories they occupy are frequently caught up in lengthy procedures. I will try to speculate on this through several aspects, the first one being their sheer size that requires specific approach and must often be handled through lengthy procedures that involve multiple levels of governance. Further on, the transaction of the property that must occur at some point invokes multiple decision making and is subject to different kinds of pressure. Finally, the aforementioned character of the Cold War heritage in terms of its material appearance and narrative leaves multiple entry points for various agencies to join the process, yet might also be perceived as vague and unattractive. Altogether, these aspects are leading to a protracted transformation process, during which the material is experiences decay, while the complex political and socio-economical alignments might shift.

Throughout the abandonment process, the artefacts of the military presence have significant effects on the development dynamic of the landscape. The de-composure of the military 'taskscape' has diverse effects which often run in parallel, yet opposite tendencies. Namely, structures may disappear completely (the movable equipment), become obsolete (large sheds, hangars), subject to decay and/or re-definition of their meaning (the fence, communication masts). However other 'materialisations' may appear where there was a presumed void (the bunkers) or simply become accessible (ports, airfields). In terms of the urban and landscape production though, the large military domains present us with the unique condition in which the land as limited resource is being expanded. The militarised territories occupied strategic location and yet were out of reach for virtually all the actors usually involved: planners, real-estate developers, local administration etc. Their (re)appearance is an act that "reveals the networks" (Latour, 2007)on more than one occasion. And it is the material, the 'mineralisations' that lay abandoned, remnants of the former 'taskscape' that have to be engaged with. The outcome is therefore a negotiation within a network around the 'non-human agency of the material'. This will be further elaborated upon the case study of the military domain in Koksijde.

The transformation of the military domain in Koksijde

A short description

The present-day military domain in Koksijde [fig.3] has developed from the Luftwaffe airport that was built during the Second World war. Despite the poor condition of the runway and of the complex in general at the end of the war, the military presence was maintained. New structures were built to accommodate warplanes and later on helicopter squadrons, as well as a number of conscripts and officers. The limits of the domain seem to have evolved in relation to the requirements of the airfields i.e. 'the military machine', but also in regard to the everyday life of the personnel, the act of 'being there'. Namely, the barracks, the officer's

dwellings and the headquarters were developed on the side of Koksijde, creating ambiguous links with the non-military built environment. It is in this part of the domain that the military structures stand in certain relation to the surroundings, such as in terms of the buildings' size and alignment, dwelling function. Worth mentioning is the part of the military domain in the dunes where there is a holiday centre built and maintained for exclusive use by the members of the Belgian armed forces and their families. At the same time, the domain has determined a sharp borderline for the urban development of the town itself, which has subsequently expanded towards Ostduinkerke.

Parallel to these developments, the surroundings have underwent major changes in terms of landscape transformation. Major infrastructures were presumably planned in relation to the domain, such as the trace of the E40 highway that makes a loop south of Veurne. The main national roads are running along the limits of the domain as well, making large detours in order to connect the neighbouring towns and villages. On an even larger scale, the airfield affects the flight patterns by establishing exclusion zones and special corridors for the take-off and landing of military jets and helicopters.

By contrast, and as a result of the state of exclusion enacted by the military presence, some historical landscape features have been preserved – such as the dune landscape, which has been mainly lost along the Belgian coast due to the rapid expansion of the built environment after the WWII. Also, there is an enclave within the domain: the farm on the east side is officially not part of the domain, but rather an entity of its own. From the above said, one can conclude that the taskscape of the military domain in Koksijde presents a range of 'times', from the endlessly rehearsed and ever-prepared strategical and technical manoeuvres to the leisure patterns of the Belgian riviera.

[fig.4] An aerial photo of themilitary domain in Koksijde. Source: VTM Nieuws.

Although the formal act of the abandonment of the domain has been announced relatively recently, the secretive military taskscape has been going through a protracted process of transformation. The end of the conscription meant that the barracks were obsolete, thereby significantly reducing the actual number soldiers present on the site. Then, long before any intention on transformation of the domain was announced, civilians - more precisely aviation enthusiasts, were allowed access into the military base in Koksijde. This could be referred to as the first 'discovery' of the military domain, one that occurred long before the 'abandonment'. This allowed for a parallel 'taskscape' to emerge, one related to the airport as a functional entity, and which will later become much more important in terms of the transformation of the domain. Another 'discovery' was performed through the television documentaries depicting the work of the Search and Rescue units of the Belgian army[2]. Finally, the barracks have recently been used as accommodation for asylum seekers. Though it may seem like a radical change in the use of the domain, in this case we can observe the way in which the state apparatus deals with 'designated' populations, eg. conscripts, prisoners or refugees and assigns them to 'unincorporated' territories to be used for dwelling.

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2   The Search and Rescue services are now the only military component that is present within the domain, with a prospect of abandoning the site as well – which further discussed towards the end of this paper.

The transformation process

This paper is being written parallel to very important documents on this transformation process becoming publicly available towards the end of 2017[3]. The following analysis is based upon these documents, while the aim remains to expand the research upon data that should become available in the immediate future, as well as other relevant sources. As stated in the documents, the transformation of the military domain in Koksijde begun in 2012 as a process led by the province of West Flanders, as the project was deemed to be implemented at a strategical level and through participation of more than one commune. Yet, Koksijde remains the key partner in the process, as most of the domain lays within the limits of the municipality. The agenda for the transformation of the military domain follows the procedures for a *Provinciaal Ruimtelijk Uitvoeringsplan (PRUP)*, which have been dully laid out in the *Processnota*. This process operates on the presumption that all the concerned agencies have been involved at different phases and that the general public has been or will be given the opportunity to contribute to the process at few predetermined occasions. The goal of this paper is to analyse the discourse of this approach, through the produced documents in regard to the previously elaborated distinct nature of the large scale military structures from the Cold War. Nevertheless, the question remains as to the use of the predetermined process trajectories in tackling new landscape dynamics, such as the 'emerging' areas that were previously exempted from the urban regulations and development dynamics, yet nevertheless existed as a part of the continuity of the landscape.
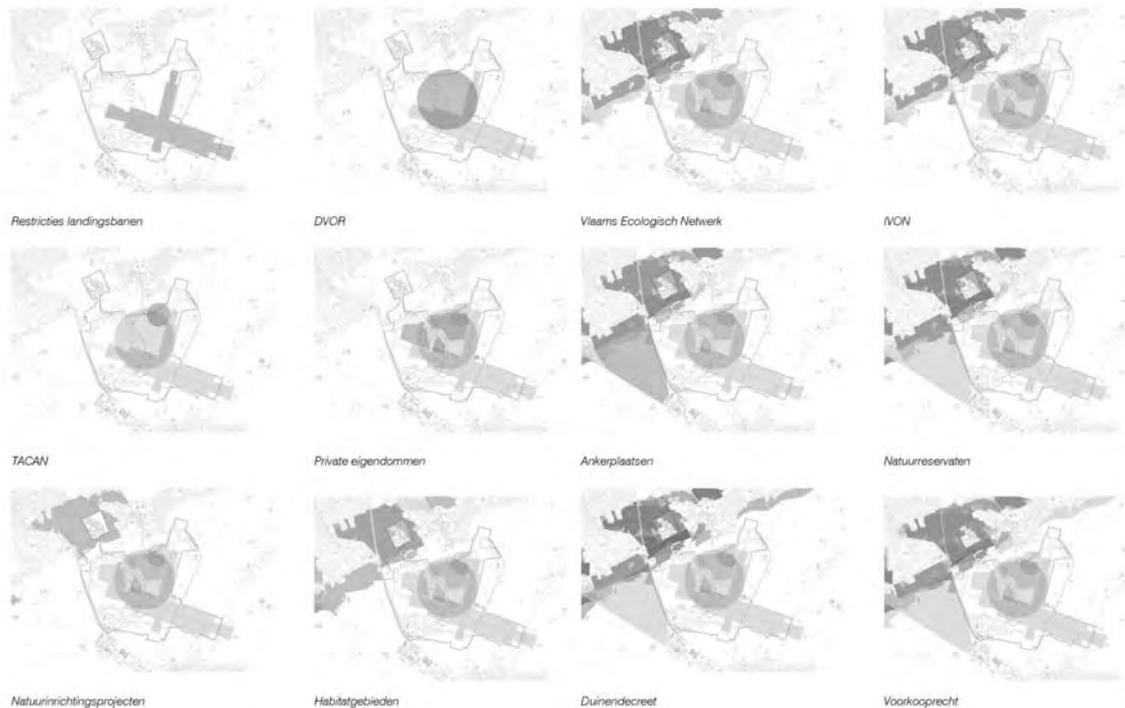
[fig.4] The "conditions" of the domain, appart. Source: BUUR.

The 'flight polder'

The proposed Masterplan for the transformation of the military domain in Koksijde has been prepared by the renowned Belgian urban design and strategic planning office BUUR, along with the participation of a number of experts during the 'design week' organised by the commune of Koksijde[4]. The report begins with a series of 'readings' of the domain's position, with the first benchmark being the system of recreational airfields around the English Channel. The second tier 'attractors' are analysed within the framework of the immediate coastal system. At his scale, aspects of the current and the historical landscape, mobility and connections between the settlements (mostly concerning Koksijde and Veurne) are analysed. Next, the 'conditions' of the site are explored through a graphic analysis that first presents them apart [fig.4] and then overlapped [fig.5], a well known method in spatial planning that aims at graphically revealing areas that offer certain opportunities

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3   The *Startnota,* the *Processnota* prepared by the provincial governor/ administration, the *Masterplan* by BUUR, the proposed *RUP* by the public administration, the MER study by Antea Group as well as the SWOT analysis that came as a result of the initial meetings back in 2012 were all published on a special page hosted by the province of West Flanders on the 20 December 2018.

4   The invited experts were: Lieven Achtergael (Architecten Achtergael), Philip Moyerson (MOP Urban Design), Dirk Criel (Driekwart Groen), David Verhoestraete (Cluster Landschap + Stedenbouw), Tomas Vanderplaetsen (Destination expert).

– in this case the ones with less restrictions. As for the conditions themselves, they are related to some juridical aspects (eg. the ownership and the rights for pre-emptive purchase) but mostly to the aspects of the non-human agencies: the airfield elements (runways, radars) and the landscape elements (the dunes). This instance could therefore be identified as the first occurrence of the non-human agency.

Following the analysis, the ambitions for the domain are set out, the maintaining of the 'flight' as a programme being the first one. The next challenge is defined in relation to making the site publicly accessible. Here, a very interesting statement is given in relation to the future of the site that "must become more than just an open, empty landscape with few pathways". Following this. the basic concept for the development is titled as the '(recreational) flight polder'.

Such framing of the transformation process could be interpreted as an entry point for an intervention that would bring more quality in terms of the landscape, as well as more variety in terms of program. The ultimate goal is therefore twofold, yet somewhat contradictory: to both integrate the territory into the existing coastal system, and still to make it recognizable i.e. unique. In relation to this, I will further discuss two aspects that are paramount both to such approach, as well as to the agency of the (post)militarised 'taskskape': the limits of the domain and the material remains (the runways and the radars).
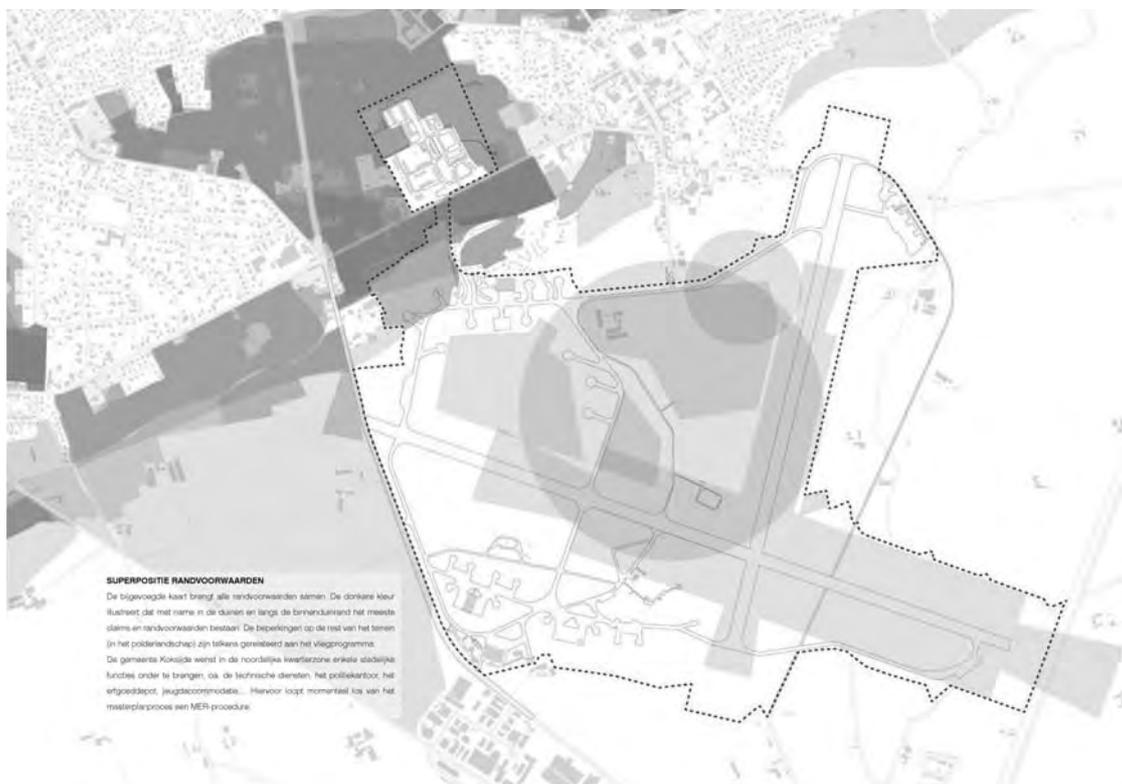
[fig.5] Superposition of the "conditions". Source: BUUR.

The limit as a frame of possibilities

As described before, the limits of the military domain in Koksijde are not homogeneous, but rather influenced by the surroundings. The visibility of the limits and their effects is variable as well. However, there was a prolonged period of time during which the area was subject to different set of rules i.e. was not subject to the urban planning rules and the forces of pressure of urbanisation. The consequence of this imposed status is the treatment of what is essentially a part of the continuous landscape as special case, an area in which new possibilities could be tested. This is not to say that the approach of the planners is one of an 'empty canvas' - which happens once too often in many areas to which the access was restricted during the Cold War. Quite the opposite, there is vast array of analysis performed upon the site and its surroundings and there is a clear tendency towards 'integration'.

Certain agencies are 'penetrating' the site as they are inextricably linked to other material aspects of the site. For example, the nature conservation agency applies the legal framework of the *Dune decreet* – thereby rendering a certain area inaccessible to general public and consequently creating another discontinuity. However, the act of "giving back the dunes to the nature" is made possible by the pre-existing 'taskscape' of the military institutions, and its mineralisations – most notably the simple chicken-wire fence that defined the limits of the domain. A different example are the efforts to bring back aspects of the historical landscape, such as the re-oppening of the Langeleed river bed that is planned within the domain. It is understood that

this is a part of a wider effort to recover this river as a landscape element in its entire length. Yet, the transformation of the domain offers a framework to begin this process. It is very likely that in order to achieve this vision beyond the limits of the domain, other tools and procedures will be needed.

In conclusion to this part, the domain itself and its limits are one example of the non-human agency of the material. The actions of the other agents are framed by the limits of the domain, and yet it is exactly these limits that allow for the actions to happen in the first place.

[fig.6] Visualisations of the proposed concept, featuring existing materials. Source: BUUR.

The runways and the radars

The 'vision' that is proposed by the planners for the 'transformation' of the Koksijde military domain includes the maintenance of a functional airfield as key aspect of the proposed (re)development. Moreover, the 'airfield' is stipulated as a key attractor, one that basically shapes both the imagery of the area - 'the flight', as well as the activity that consumes most of the 'available' area.

Once again, it is the agency of the material that the entire network is revolving around, in two different aspects. First, it is the material aspects of the 'mineralisation' that are more that evident: the size and the length of the runways and the taxi areas, their foundations, the amount of stabilized ground and asphalt coverage, as well as the entire ground modification made in order to allow for high performance take-off and landing. One could hardly plan a sustainable intervention that would result in removal of these structures. The images presented in the plan show the runways being used as promenades and the large concrete surfaces in front of the hangars becoming common areas of the future small manufacture and service zoning [fig.6]. Pending further inquiries into the decision process, we can already conclude that the non-human agency of the material remains had predetermined the transformation process .

Second, as the structures are there to stay, they need to be used in some way: either for their original purpose, which is flight infrastructure, or to be re-purposed – once again as infrastructure for other types of vehicles. In order to maintain the requirements for an operational airfield, while introducing other functions, the planners are obliged to comply to the requirements of the flight procedures. These procedures take into account the planes and the helicopters, as well as the necessary equipment , such as the radars. In conclusion, it is these elements with their non-human agency that are determining the future transformation, both applying restrictions as well as offering distinct features.

The uncertain future

Before the conclusion, one last aspect that I will discuss is the uncertainty that surrounds this process of transformation of post-militarised territories. Namely, the military has been included in the planning process

from its very beginning and its requirements have been embedded into the proposed plans, an example being the length of the runways. Yet, there have been a number of statements by politicians pointing towards a complete removal of the military presence from the domain in Koksijde[5]. It remains uncertain how soon will the decisions take place and how will the procedures be then completed i.e. whether this would require a new spatial planning procedure.

Also, at the present moment, the general population is allowed to express its opinion and give new proposals. This may or may not lead to change of the plans, be it in detail or as a whole concept. Finally, the following phases will need to deliver a more detailed design, and this would mean even more interaction with the material artefacts of the military presence, as they should be fitted for 'civilian' use. The aim of my research is to closely follow the process as it unfolds.

Conclusion

In this paper I have argued that the end of the Cold War period has led to an increased number of military sites and structures being decommissioned. This has in turn generated a significant amount of land that is readily available for development. The contemporary urban and landscape theory and practice are therefore presented with a challenge on how to approach these territories, given the scarcity of land as a resource, but also the tendencies for production of public amenities. However, the large scale military structures from the Cold War have their own particularities which were explained in more detail, followed by a description of the dynamics of appropriation and abandonment of territories by the military institutions. The notion of the militarised 'taskscape' was put forwards and it was argued that the transformation process occurs within a network in which the non-human agency of the material takes central position.

The case of the transformation of the Koksijde military domain was used to illustrate the previously described tendencies, but also to provide more insight on this particular site. This was done by analysing the present state of affairs, as well as the proposed Masterplan for the domain. Two relevant aspects were described in order to point out the aforementioned non-human agency of the material: the persistent limits of the domain and the agency of the material artefacts i.e. the flight related infrastructure.

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5   A number of news articles indicate that the search and rescue service are pondering a move to the Oostende airport, given the possibility of sharing various maintenance services with the civil aviation component.

The industrialization and the construction of the Alpine city-territory

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Assuming that today intensive tourism cannot occupy in exclusive way the horizon of the economic development of the Alps and that the urban polarization of the territory should be controlled and confronted with the increase of inequalities, this contribution aims to foster the debate on the role of secondary sector in the construction of a new vision for the alpine city-territory. The hypothesis of the paper posits that industry could be able to direct the socio-economic/demographic development of the alpine region, with greater equilibrium and environmental awareness than in past times. Concepts such as green economy, recycling of existing urban materials, new forms of work, together with dynamics of re-industrialization and re-shoring of productive activities will be the starting point to re-frame the role of secondary sector as an engine of development and prosperity linked to the real economy and therefore to the welfare of the territory and its inhabitants.

Introduction

The document deals with changes in industrial territorialisation processes, in the exploitation of natural resources and in urban development within Alpine territories. This contribution is part of the doctoral thesis entitled 'New Alpine Ecologies', which is expected to be discussed at the EPFL Lausanne during the first half of 2018. This thesis proposes a reflection on Alpine urbanity through the observation of the productive spaces of two cross-border Alpine territories: the Province of Verbano-Cusio-Ossola in Italy and the Canton of Valais in Switzerland. The (industrial) production is seen as a lens through which to read and conceptualize the issue of settlement development in the Alps, offering a different perspective that allows the future project for the 'Alpine city-territory'[1] to be faced with greater awareness.

The goals of this paper are: a) to discuss the evolutionary conflict between economy and territory within the Alpine context; b) to introduce two key paradoxes concerning the attractiveness and territorial cohesion policies of the Alpine region, both accompanied – to better contextualize the theoretical frame – by two 'productive micro-histories' referring to the territories of the case studies; c) to explore – in spatial terms – a possible re-framing of the role of secondary sector as an engine of development and prosperity, linked to the real economy and therefore to the welfare of the territory and its inhabitants, within the hypothesis that a new type of industry could be able to direct the socio-economic/demographic development of the Alpine region, with greater equilibrium and ecological awareness than in the past.

The construction of the Alps: history of a continuous change in the relationship between economy and territory

Today the romantic imaginary associated with the mountains contributes to underestimating the industrial presence in the Alps. However, industry has had a decisive role in dictating the entity of the urban and infrastructural development of the Alpine region. The arrival of industrial progress and urbanization have been, for those territories, at the same time a reason for emancipation and the cause of an unsustainable exploitation of territory and resources.

The 18th century proto-Alpine industry used the manpower tied to the rhythms of the countryside, family capital and was traditionally based on two strictly endogenous energy sources: water and wood (the latter very often turned into charcoal)[2]. Both resources were essentially exploited on the spot, given the condition of isolation in which the Alpine region found itself at the time: a condition that forced the first industries to settle "close to the mineral deposits, close to the forests" which provided the charcoal used for smelting, "and along the waterways for availability of motive power" (Abrate 1960)[3]. This decentralized production localization was therefore dispersed along the secondary valleys or at the intersections of the latter with the main Alpine valleys (in the vicinity of the small urban settlements located above the alluvial cones). The case of the pre-industrial Valais is here cited as an example, where more than 2,000 waterwheels were situated along the streams, designed to make the small-farmers-craftsmen as independent as possible (Bellwald,

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[1] The expression 'city-territory' was used in Italy in 1962 by Piccinato, Quilici and Tafuri to describe not only the widespread urban condition of some territories, but also to focus the attention on a possible method of development necessary to define a new urban dimension. Our research laboratory 'lab-U' is currently addressing the project of the city-territory through the concept of 'Horizontal Metropolis' (Viganò and others 2016).

[2] The first Alpine iron and steel industry destroyed whole forests to make charcoal necessary for the smelting of metals.

[3] Abrate p.9, cited in: Raffestin, C. and Crivelli, R., 1988. L'industria alpina dal XVIII al XX secolo sfide e adattamenti. In: E. Martinengo, ed., *Le Alpi per l'Europa : una proposta politica*. Milan: Jaca Book, pp.161–184.

Guzzi-Heeb 2006). To cite an expression by Rousseau (1763, Lettre 87) used by him to narrate the dispersed territorial structure typical of the Swiss territory of the time, Switzerland was "like a big city, divided into thirteen districts, some of which in the valleys, others on the slopes and others in the mountains. [...] Some districts are populated, others less so, but all enough to indicate that we are still in the city: only the houses, instead of being aligned, are scattered asymmetrically and without order, as were those of ancient Rome. One no longer believes one is crossing the desert when there are steeples among the firs, farms on the rocky slopes, factories in the precipices and workshops along the streams. This odd mix has something animated, lively about it, that breathes freedom, affluence and well-being, and that will always make the country where this is located a unique spectacle of its kind, but only for the eyes that are capable of seeing" (Rousseau 1736). With the first industrial revolution, economic growth, population growth and migration to a great extent favoured the industrial towns and cities of the plains and major sea ports, producing economic marginalisation in the Alps. The introduction of coke in smelting processes as a substitute for wood caused the crisis of Alpine metallurgy, responsible up to that moment in time for massive deforestation and the consequent environmental damage undermining the stability of the slopes. The advent of the steam engine allowed industry to free itself from the geographical constraints to which it had been previously bound (the motive power of the streams), leading to a complete redefinition of the territorial structure of the Alps. Alpine industry was thus forced to abandon the more marginal extraction/production sites along with some unprofitable activities, to gradually integrate into a system of national and international economic relations (Raffestin, Crivelli 1988). At the same time the building of the upland thoroughfares and continuous improvement of the Alpine road network, in direct support of extra-Alpine industry and trade, accentuated the instability of the natural Alpine ecosystems on a micro as well as on a macro scale.

The coming of the railway to the Alps (1848) brought about further economic, social and spatial discontinuities for the mountain areas. The railway tunnels placed alpine society in contact with extra-Alpine society, and at the same time contributed to the abandonment of farming and the decline of traditional economic activities[4]. The second half of the 19th century saw a facilitated localization of the new industrial activities essentially along the great valley floors, at low altitude, thus discouraging the new economies from penetrating the innermost regions, hence forcing the population to abandon remote areas.

The advent of the second industrial revolution again put the Alps in a leadership position thanks to the ability to harness hydroelectric power (1869). The energy that was lacking in the Alps in the former industrial phase henceforth became present in abundance and at low cost. This produced new phenomena of industrial territorialisation linked to the convenience of exploiting industrial energy produced by hydroelectric power plants on the spot (because ways of transporting the energy produced without losing large quantities still had to be discovered). Large energy devouring facilities such as chemical and metallurgical plants for the production of calcium carbide, steel, aluminium and other alloys, with all the accompanying environmental impact, thus saw the light along the Alpine valley floors, close to the hydroelectric works (which were often under the same ownership). Despite the endogenous presence of water resources, it should be emphasised that it was exclusively extra-Alpine economic initiative and capital that fomented this exploitation and enabled the creation of the necessary technical infrastructure, including the transalpine rail links for easy transport of raw materials and processed products inside and outside the Alps. This phase of industrial development simultaneously saw the birth of the mountain tourism of the '*Belle Epoque*' (1880-1914), still considered at the time an activity for the elite, but that helped increase the accessibility of the more extreme mountain areas, connecting them to the main valley floor, thus activating the first economies in peripheral places and developing interesting synergies with the energy and industrial sector. Large industries, tunnels, dams, penstocks, hydroelectric power stations, along with rack railways and '*grands hôtels*' thus quickly became the superabundant 'monuments' of a new modern Alpine landscape.

"Despite the First World War, the crisis of the nineteen-thirties and the Second World War, the period from 1895-1945, nearly half a century, was extremely significant from an industrial point of view for the Alps" (Raffestin, Crivelli 1988). Numerous Alpine industrial activities even became strategic for the military purposes of the respective nations, inasmuch as they could produce explosives, weapons and steel for cannons and armoured vehicles.

The post-war period witnessed the installation of new activities associated with the electrochemical, petrochemical and pharmaceutical industries, some of which in more recent times, given the accidents that have occurred there, have proven to be extremely hazardous from an environmental point of view and from that of the workers' health and safety. In many cases, as the years passed, this kind of heavy industry has proven unsustainable and left the municipalities of the valley in which they were established a difficult legacy in terms of disposal and remediation. With regard to hydropower, the various countries have increased the exploitation of the Alpine region, continuing to build dams and penstocks but now more for national self-

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[4] Some examples of social and territorial impact produced by the new Alpine thoroughfares (works with extra-Alpine capital in the Alpine territories, but not for the Alpine territories) can be found in the writings of Roger Crivelli on the valle Leventina and the Gotthard axis (Crivelli 1987 and 2006).

sufficiency and market and economic reasons rather than to encourage the birth of new industries. The exploitation of natural resources overlaps that of the mass tourism industry (1955-1985), through the creation of "a multitude of projects that would nowadays seem totally over dimensioned" (Bätzing 2003). A 'disseminated' investment economy that came to affect two thirds of the Alpine communities[5]. The secondary and tertiary sector grew alongside each other up until the seventies, when for the first time many Alpine territories registered a drop in the number of people employed in industry, that would subsequently materialize in the long process of de-industrialization that reaches down to this day. Since 2000, and after a period of stagnation, there has been newfound stage of expansion of tourism in the Alps, that necessitated a new and modern infrastructure in the Alpine region (think of the accessibility of tourist centers, the need for new parking lots and areas with facilities, the internet and in general of all the comforts and services of an urban area, which the modern tourist appears to be unable to do without). The increasing mistrust of the secondary sector has opened the gates to the tourism industry, the economy of construction, services and trade. The spatial consequences are this time to be found in the proliferation of second homes in the mountains and in the dramatic land use of the valley floor. The Alpine region has quickly become a 'playground' for the big towns and cities of the plains and tends to be only represented as a snow district, or as an ecological oasis of good living on the edge of the metropolitan model (Meili et al. 2006, Bonomi 2010). However, the tourist industry, especially the winter one, seems today to have reached a critical point in terms of sustainability. Among all the costly investments which characterise 'white tourism', the construction of huge reservoirs for artificial snow in ski resorts – made as compensatory measure to climate change – expresses well the limitations and contradictions of an economic system that, to survive, is compelled to continually renew itself by egoistically changing the Alpine region without heed or foresight. It is also for this reason that it seems necessary to nurture today's debate about the possible role of a rediscovered secondary sector in settlement restructuring of secondary territories, notably the mountainous areas.

[fig.1] Production space in the Alpine cross-border territory of study.
To the west, the Swiss canton of Valais crossed by the river Rhone, to the southeast the province of Verbano-Cusio-Ossola crossed by the river Toce. Industry (in black) is exclusively located along the two valley floors (grey) in connection with the major transport axes (railways and highways). The valley floor corridor system is fed and physically attached to the inner mountains and their resources thanks to a multitude of hydraulic-energy and road connections that branch off from the main axis. The great 'industrial plaques' are mostly at the intersection with the side valleys due to the presence of hydroelectric plants, which are connected to large reservoirs through the many penstocks (black dashed lines). The high-voltage power lines (represented in grey) traverse the territory more freely, cross the Alps, run along the secondary valleys and the main valley floor, concentrate in the presence of large energy-consuming industries and reach the towns and cities of the plains in service of the same.
Source: maps elaborated by the author from the following database: Vector25 (Swisstopo) and BDTRE (Geoportal Piedmont) for the built-up areas, DTM (ec) for topography.

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[5] Estimate indicated in Bätzing-Perlik (1995).
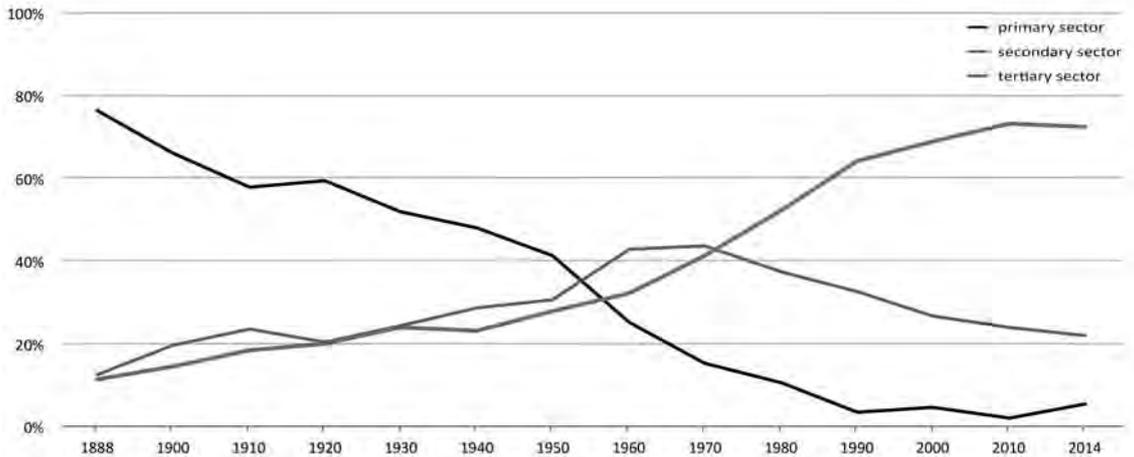
[fig.2] Graph representing the number of employees in percentage in the 3 economic sectors for the Valais area.
Source: elaborated by the author from OFS database.

Two paradoxes of the Alpine region

We will now attempt to go into the specifics of the current situation, presenting two key paradoxes of the Alpine territory which, in our opinion, help to conceptualize the current settlement dynamics and take a stand on the arising of some contradictions linked to the polarisation of the Alpine space and to cross-border development policies. The emergence of the two paradoxes reveals spatial, social and economic instability that can lead to a 'territorial crisis' destabilizing the development of the settlement structure. Both paradoxes are faced here in relation to the dynamics of industrialization and construction of the Alpine city-territory. The description of these dynamics is accompanied by two 'microstories' located in the two study territories: the Valais and Verbano-Cusio-Ossola.

The paradox of metropolisation

The 'paradox of metropolisation' reveals the contradictions related to the urban development of the Alps. The Alpine region as a whole is considered to be a marginal area, while it is experiencing a demographic growth rate significantly higher than the European growth average[6]. Although the demographic balance has a positive trend, many lateral Alpine valleys and marginal zones have an aging population and will thus suffer a demographic decline. We are therefore experiencing the polarisation of the Alpine territory, where only the most accessible territories and those closest to metropolises will keep growing and densifying. Hence, critical issues arise, associated on the one hand with the neglect of marginal areas and, on the other with the densification of the main Alpine valleys: a land consumption which is often implemented in areas exposed to flood risk, subtracting space for agricultural and industrial production[7]. Examining the maps related to the demographic trend of the last two censuses (produced by the DIAMONT research[8]) and crossing them with the Alpine topography and the different morphologies of the built environment, we can identify at least four distinct phenomena of urban growth in 'privileged' territories and in zones well connected to the metropolitan dynamics of the plains: 1) the growth of the major inland Alpine cities; 2) the attractiveness of the mountain periphery of the metropolises on the plains; 3) the development around the tourist centres in high mountain areas; 4) the phenomena of urban coalescence on the main valley floors [fig.3].

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[6] Already in the 1970s, the average population growth of the Alpine territories exceeded the growth of their respective national territories. The Alpine growth rate in 2000 was 7.8%, while the average for the 15 EU countries was 3.2% (DIAMONT data).
[7] New buildings are mainly built on greenfields. This reduces the already marginal spaces that can be used by agriculture in the Alpine context and poses problems of functional compatibility between residential and productive zones that are increasingly closer to each other.
[8] Total population growth between the last two censuses. In Tappeiner, U., 2008. Mapping the Alps: society - economy - environment. Heidelberg: Spektrum Akademischer Verl. P.104.

1. THE MAJOR INLAND ALPINE CITIES
2. THE MOUNTAIN SUBURBS OF THE PLAIN'S METROPOLISES
3. THE 'ALPINE RESORTS'
4. THE MAIN VALLEY FLOORS

—— Perimeter of the Alpine Convention	▪ Topography > 2500 m	▬ F.U.A.	⊢ Main valley floors
···· Perimeter of the Alpine Space	✛ Alpine Resorts	— Topography between 0 and 1200 m	— Main rivers

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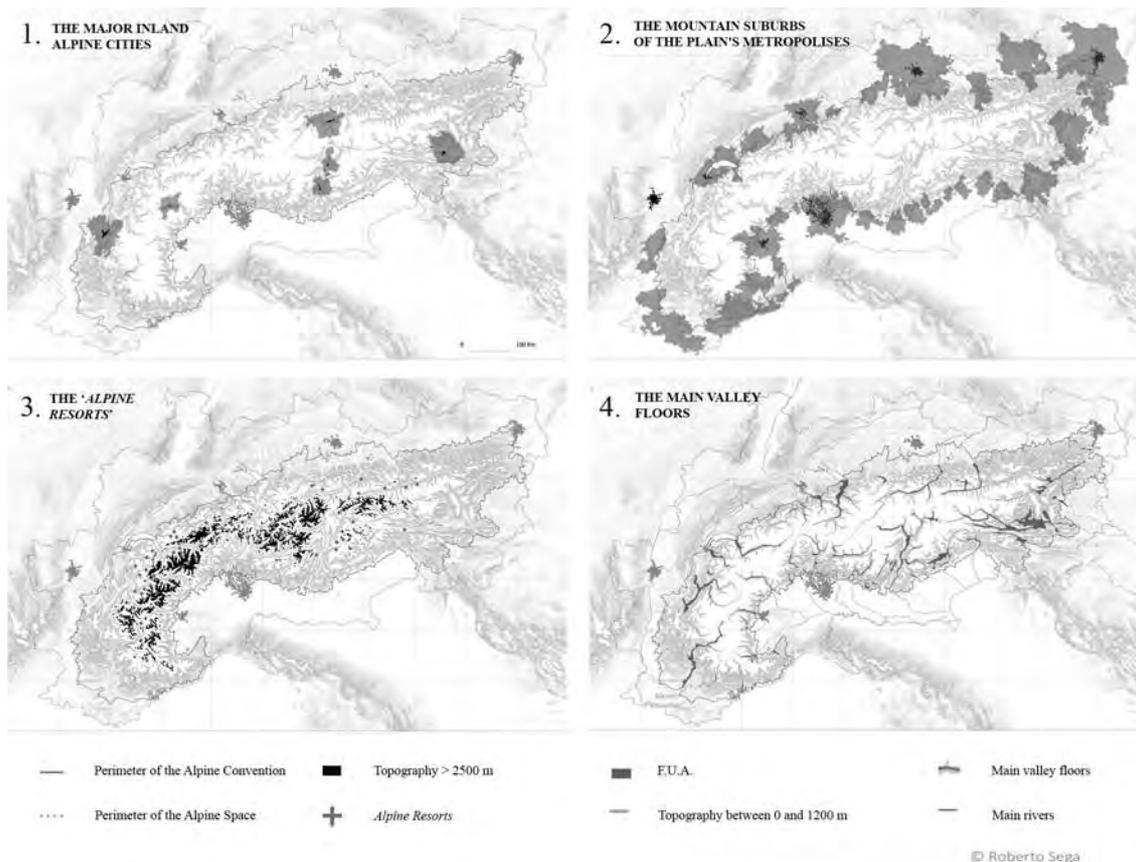
[fig.3] The growth in the Alps.
Source: cartographies made by the author using the following databases: UMZ (EEA) for urban settlements, DTM (ec) for topography, OECD metropolitan database for the Functional Urban Areas (FUA).

We will now analyse the case of the Swiss Chablais, the region at the end of the Rhone valley located near an important lowland metropolitan area (the *Métropole Lémanique*), as an example of an attractive Alpine territory whose development is strongly linked to the industrial presence there. Historically the economic activities of this region only began after the construction of the railway line connecting this region to Brig, between 1853 and 1878, and then to Italy, thanks to the construction of the Simplon tunnel (1905). It is from this moment onwards that certain big industries became interested in establishing themselves in the Rhone Valley, marking the development of this territory up until this day. The main attractive factors that promoted industrial territorialisation were: the presence of hydropower (using proprietary power plants), the availability of flowing water to be used in production processes, the direct connection to the Simplon railway line, the presence of large open areas for factory expansion, the role of the 'worker-farmer' and in general the possibility of paying low salaries to the factory workers.

In particular, we find it interesting to investigate the productive micro-history of a sugar factory built in Monthey in 1891 thanks to foreign capital, which then became the Syngenta chemical plant. Its founder's intention was to take advantage of the great availability of agricultural fields in the region to produce sugar beet. To start production, a power station owned by the same factory was built on the Vièze torrent. Unfortunately however it was difficult to persuade local farmers to grow sugar beet, and after only three years, production had to stop (Weissbrodt 1997). In 1897 the sugar factory went bankrupt and it was bought by the '*Société des Usines de Produits chimiques*' with the intention of producing new synthetic colours for the textile industry. This new production attracted a large amount of labour and put Monthey (at that time a small town of 3000 inhabitants) in contact with the Far East and the United States (supplying Levi-Strauss with the famous blue dye for its jeans). German chemists were called in to work for the factory, while many factory hands were 'worker-farmers'. The investment proved a success thanks to the proximity of the Bex salt mines, from which came the brine necessary to produce, through electrolysis, the caustic soda, chlorine, hydrogen and a whole series of basic chemicals required. A second hydroelectric power station was built to exploit the waters of the Avançon, a torrent flowing on the other side of the valley. The company changed its name several times following various commercial and financial consolidations, but always remained linked to the Basle multinational group, and therefore dependent on the external Alpine world. This sometimes gave the

impression that Valais had become an economic colony (Luyet 1992). As time passed, the chemical industry expanded to such an extent that it superseded the old town centre in terms of surface area. Population censuses since the beginning of the 1900s demonstrate the impact of industry on population growth, from about 3400 to over 17000 inhabitants. At the beginning of the '60s a strong immigration rate was recorded, corresponding to the peak of industrial employment, while the energy crisis of the '70s registered a slower demographic rise up to the '80s. Today, with its 870 employees, Monthey's chemical plant is the largest of its kind in the world belonging to the multinational colossus Syngenta, and which produces herbicides, fungicides and insecticides. It is not difficult to imagine that these products are used today on the same soil that was previously identified as the sugar beet production basin.

There is no doubt that industrial activity has contributed to the development of this region both in terms of infrastructure and employment, despite this the dependence on a single, strong multinational economic actor demonstrated to be dramatic during the different phases of economic crisis, several times putting the administration in difficulty, alarmed by the threat of relocation (Guzzi-Heeb 2006). According to the statistics (see graph of [fig.4] made by the author with OFS data), the municipality of Monthey and in general the territory of the Swiss Chablais has continued to attract companies moving away from densely urbanized areas (such as the periphery of Lausanne). Since the years 2000, population growth in these areas has increased significantly (compared with the national growth). The explanation, in this case, is to be found mainly in the dynamics of urbanization linked to the proximity of the region with the *Métropole lémanique*. This dual attractiveness (urban and industrial) is challenging agriculture and the valley's Alpine ecosystem, which will be affected by the high land consumption considering the flood risk associated with the presence of the Rhône River. This raises the question of how in the future the territory will manage an increasingly close spatial relationship between residential fabric and productive zones, all within an ecological challenge that is becoming increasingly difficult and more restrictive.
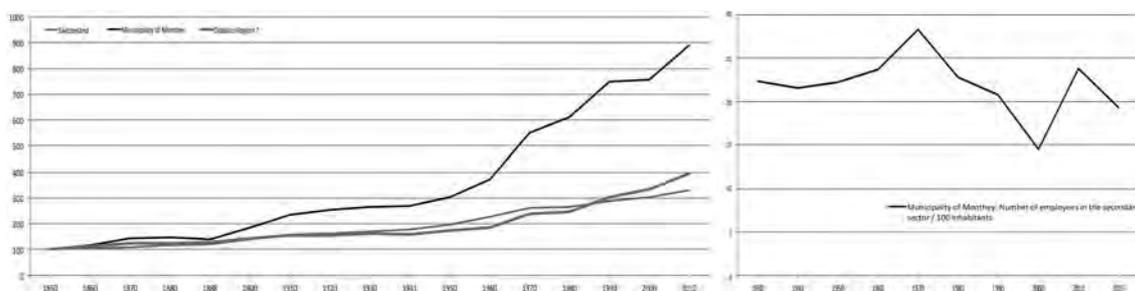
[fig.4] Graph on the left representing the strong growth of the municipality of Monthey compared with Switzerland and Chablais region *(Municipality of Collombey-Muraz, Monthey, Port-Valais, Vionnaz, Vouvry, Aigle, Bex, Chessel, Lavey-Morcles, Noville, Ollon, Rennaz, Roche, Villeneuve, Yvorne); the values have been normalized (1850=100). Graph on the right representing the population growth of the Municipality of Monthey in relation to the number of employees in the secondary sector between 1930 and 2015.
Source: elaborated by the author from OFS database.

The cross-border paradox
The second paradox proposed - the cross-border paradox - highlights the contradictions of national policies (and their local repercussions in spatial terms) regarding the great European federal project for the future of the Alps. In 2015, in fact, the European Commission established the *EUSALPS Macroregion*[9]: a Community strategy (operational since 2017) the objective of which is to direct a cohesive development of the Alpine territory within a transnational logic. Since the foundation of the National States, the processes of development and emancipation of the individual Alpine territories have been seen to be different, especially in relation to the various national policies of the states the areas belong to. In the federal states (such as Austria, Germany and Switzerland), peripheral regions, such as the Alpine ones, are generally more integrated into the development process than those belonging to more centralized states (such as France and Italy). In addition, both for France and Italy, the Alps occupy a small area of the country and are in both cases situated in a marginal geographical position[10]. The whole Alpine area is surrounded by important urban agglomerations [fig.5], while the area itself is considered peripheral, "located at the periphery of social and

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[9] EUSALP: AN EU STRATEGY FOR THE ALPINE REGION (2015), The strategy concerns 48 regions in 7 countries (Austria, France, Germany, Italy, Slovenia, Liechtenstein and Switzerland). This EU Strategy, therefore, « will seek to unlock the potential of the Alpine Region, by encouraging participants to overcome barriers to thinking more strategically and imaginatively about the opportunities available». EUSALP Core Document, http://ec.europa.eu/regional_policy/sources/consultation/eusalp/pdf/ core_doc_en.pdf.
[10] « These two nations are increasingly giving to the Alps a role of 'complementary space' (before 1945: military security of the border, after: tourism and entertainment zone. » Bätzing, W., 2003. *Die Alpen: Geschichte und Zukunft einer europäischen Kulturlandschaft*. München: Beck.

economic development" (Perlik 2012). It is therefore evident that the economic role of the different Alpine territories - and consequently their development - is influenced by the different political and cultural attitudes specific to each individual country. For this reason, we believe it is important to read and understand the new European cross-border projects in a different way, verifying the 'emancipation from metropolitan plain hegemony' of each mountain territory.
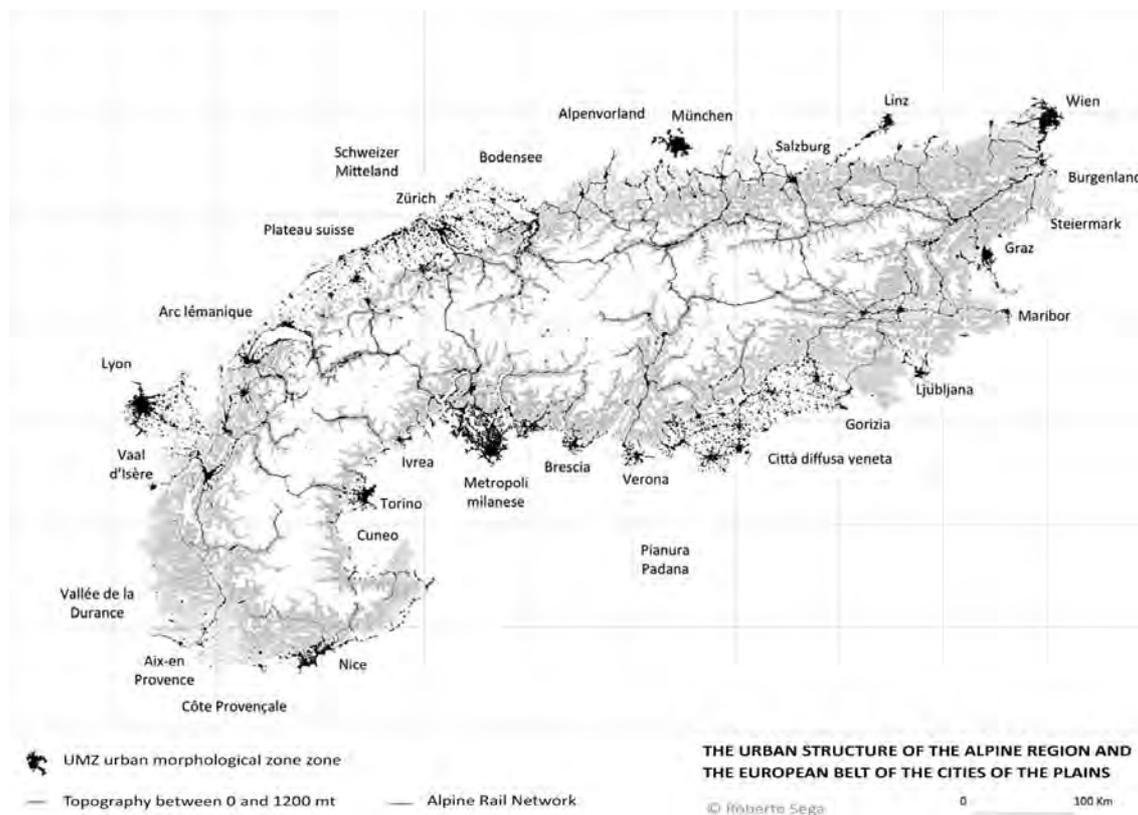
[fig.5] The real spatial consistence of the Alpine urban network
Source: elaborated by the author. Databases: UMZ (EEA) for urban settlements, DTM (ec) for topography, OECD metropolitan database.

Together with the issue of natural resource management and trade, a major issue relating to cross-border policies and territorial cohesion is certainly that of accessibility. In the Alpine context it is possible to distinguish, more than elsewhere, when an infrastructure has been built "for" the territory or simply to cross it[11]. Crivelli, for example, stated in his studies on the Gotthard axis, that the train had arrived "in the Alps, and not for the Alps" (Crivelli 1999). In fact, "unlike roads, built at first by mountain communities and then [....] by the National States, the construction of the railway quickly becomes a business of high international finance, where, in struggles without goods, the strategy of great banking capitalism could be played out" (Guichonnet 1980). At present, there are 4 Alpine 'core corridors' that constitute the backbone of the Trans European Network-Transport (TEN-T), defined by European Regulation 1315/2013 which must be completed by 2030.

Thanks to the Simplon and Lötschberg line, the study territory is located along the Genoa-Rotterdam corridor. This is an exemplary corridor because it constitutes the backbone of the "*Blue Banana*"[12] (RECLUS-DATAR 1989), and offers us the opportunity to investigate the contradictions arising from the overlapping of two interests: on the one hand the non-Alpine economies (exclusively interested in eliminating the topographical obstacle represented by the Alpine chain) and on the other hand the local realities of the Canton of Valais and the Province of Verbano-Cusio-Ossola, directly affected by the economic, social and

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[11] One example is the conflict between the local committees and the Italian central government over the construction of the Turin-Lyon high-speed international railway line in Val Susa.

[12] The main economic-demographic development direction of Europe that, starting from south-eastern England descends southwards along the Rhine axis, limited to the west by Paris, and to the east by the urban-industrial systems of Hamburg and Hanover, ending, after crossing the Alps, in the 'industrial triangle' of Po Valley in Italy.

settlement development generated by the passage of this infrastructure. As we have already seen in the previous paragraph, the Simplon line (which took half a century to be completed) started a great phase of industrialization and transformation of the territory. It can be said that at the time of its construction the train tracks were a sort of 'regulatory element' that rationalized the development of the two valleys. The railway climbed the Rhone valley and the Toce valley at a constant gradient (from 375 m above sea level to 680 m above sea level for the Valais, and from 205 m to 630 m above sea level for the Verbano-Cusio-Ossola), and its stations, bringing a new modernity, were generally built in the middle of the valley floor, at a regular interval of about 4-5 km from each other. This new spatial rationality in many cases entailed a considerable distance between the station and the existing urban centres[13] (both in terms of linear distance and gradient[14]). Looking at the settlement development in the two valleys, it is possible to recognize the settlement logics of the large productive sites, all of which settled between urban centres and stations. In cases of a lesser distance between the station and the centre, the urban development was denser and and the industrial zone generally limited to the other side of the track [fig.6]; in cases of a greater distance, the inhabited area extended towards the station (which in some cases takes a linear form along the classic '*Avenue de la gare*' or '*Via della Stazione*' as the case would have it).
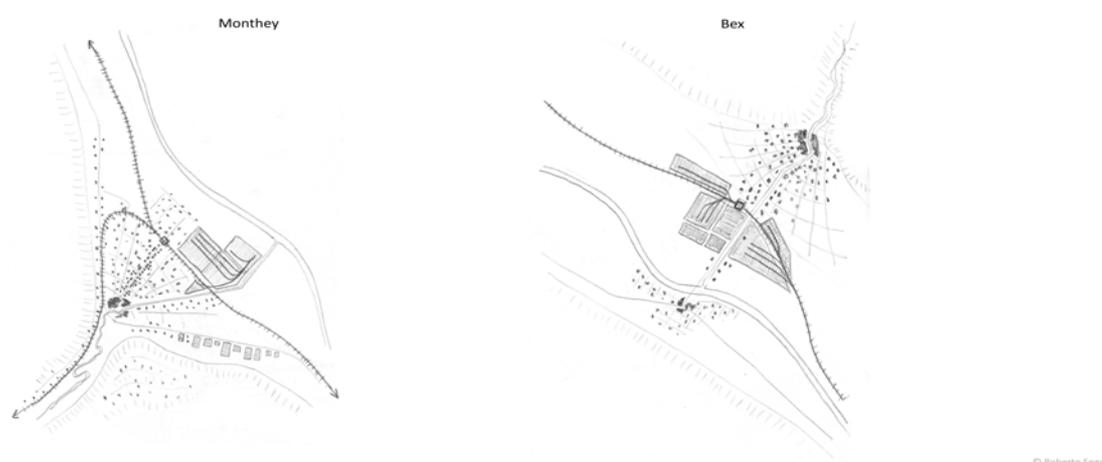
[fig.6] Diagrams showing the relation of industry with railways and urban centres in the alpine context.
Source: elaborated by the author.

Today, the high-speed connections between Milan-Geneva and Milan-Basle create a 'tunnel effect' along the Alpine valleys. The large cities of the plains are firmly linked together by fast and comfortable trains, while trips using regional transportation can be more harrowing, especially along the Italian side. Hence the spatial effects of of the different national public transport policies can be recognised when considering the two valleys. The efficiency and capillarity of the Swiss passenger rail network contrasts significantly with the Italian one. In Val d' Ossola, for example, despite the presence of two railway lines (one to the right and the other to the left of the Toce river), the regional public transport rail system is now considerably underused[15]. These differences in terms of accessibility have an impact on spatial planning by framing two different settlement models: the Swiss model entails a spatial network of public transport and widespread accessibility, which favours an enlarged habitability of the territory, the Italian one is more hierarchical and essentially focused on private transport, a factor which contributes to isolating the lateral valleys from the main valley. The freight transport policies of the two nations also feature a different spatial planning. In Switzerland, according to the Swiss Federal Office of Transport, 67% of goods in transit through the Alps are already transported by rail and this also thanks to a new logistics system (TCC 2017), which will increase network capacity by offering a personalised booking service for each manufacturer. This percentage is expected to increase considerably[16], thus encouraging the centralisation of production activities in limited strategic

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[13] Between Lake Léman and Lake Maggiore, on a total of 40 stations, the average distance between the rail and the city centre was 850 metres. For major cities such as Brig, Domodossola and Sion this distance was not more than 500m.
[14] The historical core of the urban settlements in the Alpine valleys are generally located upon the alluvial cones, in an elevated position with respect to the river, away from the frequent flooding that occurred periodically because the course of the rivers had not yet been regulated.
[15] In 2014, along the Milan-Domodossala line, the Candoglia-Ornavasso and Beura-Cardezza passenger stations, which had been in operation since 1905, were closed.
[16] Today, rail freight traffic amounts to 36% of all road/rail traffic in Switzerland, which will rise to 44% by 2030, according to the SBB. The Eurispes Observatory on Mobility estimates that in Italy, on the other hand, a value of only 6% is now reached. According to

locations along the rail network. On the other side of the border there is the project - that never took off - of 'Domo 2': the large Ossolano railway terminal measuring 900 thousand square meters, which came into operation in 1992 and was conceived as a crucial hub for the connections between Italy and Northern Europe. The terminal was built because European policies require a drastic reduction in road freight traffic across the Alps by 2030. As Italian industry is very dispersed throughout the territory, and hence better served by the road network rather than the railway system, the future logistics of Verbano-Cusio-Ossola as a place of interchange between road and rail traffic, seems to now take on, extensive wavering of national policies[17], a strategic role for the whole country (Tadini, Violi 2013).

Towards the Alpine production platform

'Switzerland an Urban Portrait (Meili et al. 2006) proposes the spatial category of "Alpine fallow lands" to indicate Alpine territories in decline and in gradual recession. Territories are considered 'pending' zones, like fallow fields set aside to restore fertility. The metaphor is used by the authors as a provocation against current political indecisions regarding the future of these territories. In the light of the EUSALP strategy (2017), the question is therefore what role the Alps could play in Europe today? Will it be decided to pursue policies of welfare dependency, "bound to fail, because they do not give freedom to the inhabitants of marginal areas but still push them towards major agglomerations" (Barca 2016)? Or can the Alps become the laboratory itself for building a federal, less nationalistic and more regionalist Europe, capable of embracing different identities and different speeds of development? It is within the second option that we will try to develop, in this last paragraph, some reflections about the hypothesis of a possible reorganization of the settlement of the Alpine area driven by a rediscovered secondary sector.

As we have previously explained through the two paradoxes, there is now a risk of associating the future of the Alps exclusively with development of tourism and a polarized urbanization of the territory[18]. Today climate change, the economic crisis and the scarcity of resources show that intensive land use is no longer sustainable. New strategies of 'mutual aid' for the governance of economic and environmental risks - between downstream and upstream territories - can now give rise to federative territorial projects for the real sustainable development of the Alps. A cohesive development of the territory that therefore proposes a new spatial structure of reference, less hierarchical than the present one, and that involves all its altimetric levels and all the secondary valleys. Assuming today that intensive tourism cannot exclusively occupy horizon of the economic development of the Alps, and that the urbanization of the valley floor cannot be the only answer in terms of urban development, in our opinion what is required is the proposal for a new, more balanced economic model, in which a new, innovative, small-scale secondary sector linked to the resources of the territory can play a fundamental role in supporting the regeneration of marginal territories, giving them greater emancipation. Concepts such as green economy, recycling the grey energy of existing urban materials, new forms of part-time work, together with the dynamics of re-industrialisation, re-shoring and rationalisation of existing productive activities will be the starting point to re-frame the role of the secondary sector as an engine for development and prosperity linked to the real economy and therefore to the welfare and the well-being of the territory and its inhabitants. The concept-design image of an 'Alpine production platform'[19] reveals the potential of a multiplicity of economic activities working in synergy under shared identity and values. To give a specific example, the territory we have analysed, with its 354 power plants, has an expected energy production of about 13,000 GWh/a (9679 GWh/a for Valais + 3,303 GWh/a for the Province of Verbano-Cusio-Ossola), equivalent to the energy produced by a 1.6 GW nuclear power plant. In the light of this and other endogenous potentials, linked to other possible Alpine production commodity chains, the need emerges to consider these two regions as an inseparable pair of a single cross-border territory. Other synergies and potentials should therefore be further explored and exploited throughout the Alps, in order to build a network of twin territories that work together to develop an infinity of 'weak links' or 'new Alpine ecologies' that strengthen the most vulnerable and marginal localities from a spatial and economic point of view. This new 'wealth' will support the position of the Alps in the event of a rediscussion of the economic and settlement balance between the Alpine territories and the respective lowland metropolises.

European Union legislation, the objectives set out in the 'White Book of Transport' are to achieve a 30% transfer of rail freight transport by 2030.

[17] « The Domo2 terminal was conceived as a pole that was supposed to provide employment for a thousand people, but now there are approximately 200 people working there» http://www.lastampa.it/2017/02/06/edizioni/verbania/domo-lo-scalo-dimenticato-costato-miliardi-di-lire-1fmjsNh8yXepMwpNNwoAoO/pagina.html

[18] This development takes place according to a 'corridor logic' along the main infrastructures of the valley floor, or in relation to the major tourist resorts.

[19] In 2010, Aldo Bonomi introduced the concept of the 'Alpine production platform', defining it more than a reality, a great project "which, in order to be realized, requires a project able to take the mountain away from an idea of development linked to the fair of marginality and typical character, in order to identify those common factors that can increase the ability of territories to represent themselves as a multi-identity yet collective entity" (Bonomi, 2010).
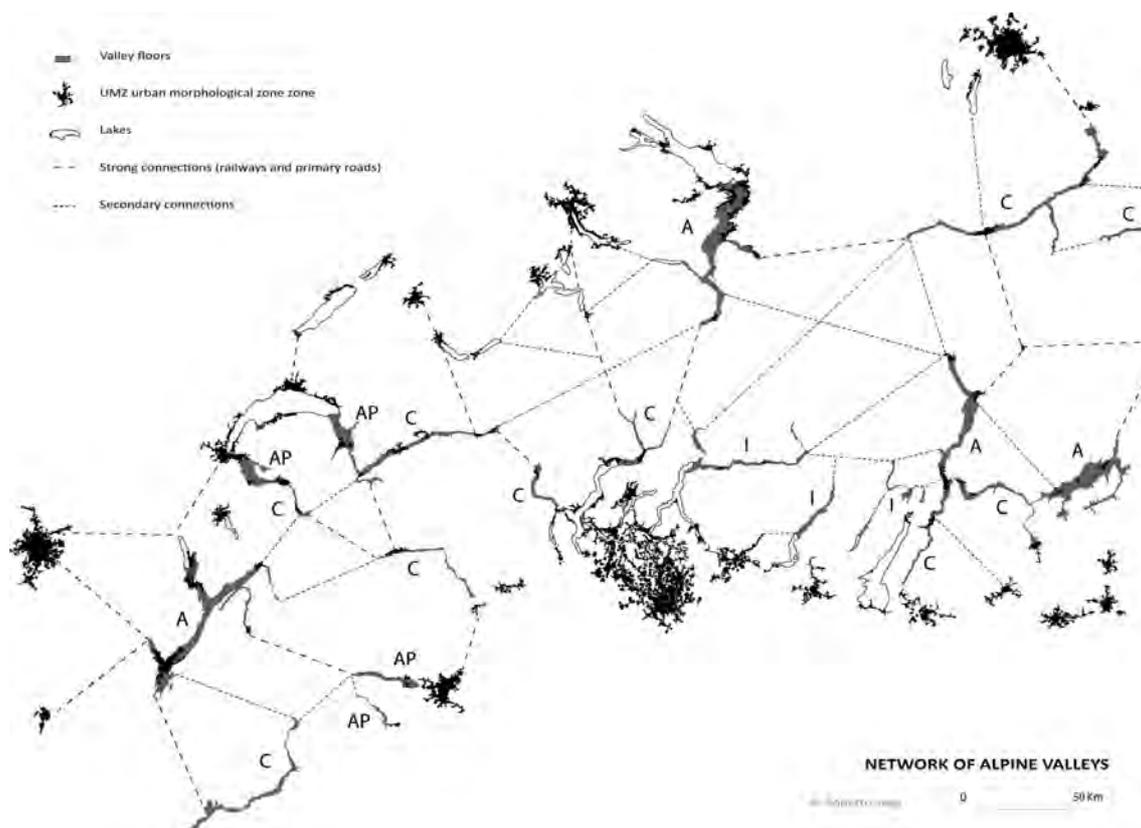
[fig.7] Network of Alpine valleys
Source: elaborated by the author. Databases: UMZ (EEA) for urban settlements.

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The Congenital Defective Impetuses and Postnatal Distorted Development

— Research on the Impetuses and Problems in the New Towns' Development of China

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Abstract: In this part of research, I have tried to analyze the main impetuses of the large-scale and high-speed new towns' construction in China on the factors of land, capital and population, and concluded that the development of new towns in China is a top-down urbanization process dominated by governments. The problems caused by this top-down mode have also been reviewed and analyzed. Based on this mode, the power of governments and the private capital unite for more benefits to promote the rapid urbanization on the material plane, which mainly refers to land, and refuse to subsidize the urbanization of population. Consequently, the social living space of the peasants and urban low-class population is compressed because of the urban sprawl. New towns, which are supposed to improve the housing condition, adjust the allocation of the social resources, and bring more living space to the lower-class or new urban population, has just become a method of wealth accumulation for city governments and capitalists.

The alliance of city governments and capitalists, as the leader of urban space reproduction, is very successful in the commercial operation, however, when they get almost all the interests brought by the great construction of new towns, the local peasants and residents will be compulsorily moved to the more marginal space in the terms of physical or psychological. The great distribution contradiction of interests and liabilities deepens the income gap of different social classes. The gentrification realized by the marginalization of lower class people is just a superficial scam. New towns, with the inner city, will just become the gentrified islands in the greater poverty ocean. The so-called trickle-down effect, which means every citizen will benefit from the increase of the urban economic and development, will not happen in practice.

In this paper, as a part of my dissertation, I'd like to use the new Marxist urban sociology as the theorical background in the unique political and economic mechanism of China, and try to connect the theory with my case study and field work, taking the construction and development of new towns as the implement of urban space reproduction, to specifically review and analyze the impetuses, development process, urban problems and social conflicts.

Key Words: new town, impetus, institutions, land finance, household registration

Introduction

Since the reform and opening up, especially after the 1990s, China has experienced a period of rapid urbanization. With a growth rate of nearly 1% per year, China's urbanized population increased from 20% to 50% in the last 40 years. This stage of development is expected to continue for the next 15 or 20 years and basically completed by the 2030s. (Yao Shimou, 2014) New towns' construction, in various forms, is an essential part of this process, both for the land or population urbanization.

Stages	1949-1957	1958-1978	1979-2011
Total Urbanization Rate (%)	4.8	2.5	25.8
Average Growth Rate per Annum (%)	0.60	0.12	1.10

Table 1: Three stages of China's Urbanization

The forms of China's new town was constantly changing with the different political environment and economic policies in every period. In the industrialization stage from the 1980s to around 2000, development zones and industrial districts were the primary type of the new towns in China. After the reform of housing marketization in 1998, a large number of resident areas were constructed. The construction scale was incredibly huge in the whole China. According to the incomplete statistics, there were 6015 development zones of various forms up to 2004, with the planning area of 35,400 square kilometers. A great deal of high speed rail way new towns, university towns, and other kinds of new towns are still be planned and constructed at the present.

The large-scale of new towns' construction needs the support of abundant supply of land, investment of capital, and transfer of population. The unique transforming political and economic institutions precisely offers necessary and sufficient conditions to this support. The collective and national ownership and the land transfer market produce huge profit to every level of governments. The tax sharing system between central and local government brings budget deficits to the local government. Therefore, local governments have great motivation to require and sell lands to the new urban constructions. The profits of the land and housing markets absorb both governments and developers invest to the construction. On the other hand, hukou system and urban-rural dual system makes the cities seize the labors from country, but doesn't need to offer them public service. This situation greatly alleviates the following fiscal burden of the local government. All these favorable conditions provide enough impetuses to the top-bottom planning modes of the new towns' development.

However, these new towns exposed a variety of issues after being activated. Some industrial areas were developed in an inefficient way and had a lower economic productivity. The housing districts could not share the pressure with

the urban center areas due to their functional imperfection or infrastructure's deficiency, but caused greater traffic and environment burdens on the contrary. Some new towns based on the undeveloped cities could not attract enough population and became into ghost city gradually. The original residents and farmers who lost their housings and lands in the process of new town's transformation suffered the high living cost and housing price which obstruct them go back into the new town's life. All these problems are the consequences of the congenital defective institutions which are impacting on the land supply, capital investment and population transfer.

This paper attempted to analyze the key impetuses of the large-scale new towns' construction in China, and the existing problems in this urbanization process caused by the inherent defects of these impetuses. This analysis may provide suggestions and ideas to the future improvement.

Literature Review

There are plenty of research about the reasons of large-scale and high-speed development of China's urbanization and new towns. The Research Group on China's Economic Growth have analyzed the relationship of fiscal demand, economic increase and urbanization.(Growth, 2011) Li Qiang and his partners have classified China's urban development into seven modes, such as new towns, industrial development districts, CBD and others, and considered governments' willing as the most important impetus. (Li Qiang, 2012) The research about the connect between land financial and urban sprawl was numerous.(Tang Peng, 2014; Yanjing, 2014; Ziying, 2015) And in the terms of the negative influences brought by land ownership and household registration system, some researchers also presented their elaboration, such as the reason of the speed difference between land urbanization and population urbanization (Zilian, 2013), the peasants' economic dependence of farmland (Zhao Shuqin, 2011), the defects of land financial (Sun Xiulin, 2013), and the lack expenditure of public services(Shuo, 2010), to analyze the development difficulties of new towns' in China.

However, these studies mostly focused on one aspect of the land financial, household registration or new towns' development, and did not have an integration structure of the whole institution mechanism which impacted on the now towns. And few researchers concerned about the relationship between institutions and urban planning and construction. This paper attempts to have an overall perspective of the production factors and development phases of the new towns' demand, research on the connection and conflicts of land, capital, population, planning, construction, and public services to discuss the impetuses and defects brought by the unique economic and political mechanism of China.

The Necessary Elements and Congenial Dfective Impetuses

The top-bottom development mode

Compared with the new town's development in the western countries, the planning and construction of China's new town are dominated by the government just as with other economic activities. (Li Qiang, 2012) Although China has always been faced considerable population pressure and people have high motivation to leave for cities from the rural life to in pursuit of better living conditions, the unique urban-rural dual resident system and land institution limit the population mobility and land transaction to develop new urban areas spontaneously. There are no conditions of the bottom-up mode of urban transformation from floating population settlements to cities like the examples in Brazil or India. Because of this current situation and the long-term impact of the planned economy background, the China's new town movement has been directly promoted by the government. The government led an unprecedented large-scale urban sprawl and new towns' construction for the demand of economic development, land finance and urban transformation in the last 20 years.

Under the pressure of performance appraisal which take GDP as one of the most significant indicators, economic growth has remarkable effect on the political future of the local officials. And as the China's economic increase is primarily hauled by investment, the local governments will undoubtedly choose the most efficient way to invest or attract investment.

In the 30-year rapid development period after reform and opening up, the major impetus of economic growth alternated from industrialization to urbanization in the middle of 1990s. The Table 2 clearly shows that the economic contribution of industry increased gradually and reached a peak before 1994, and basically maintained stable after that. Since 1994, the speed of urbanization has accelerated significantly.(Sun Xiulin, 2013) China began the transformation process from industrialization to urbanization, and urbanization became the most momentous driving force of the GDP growth.
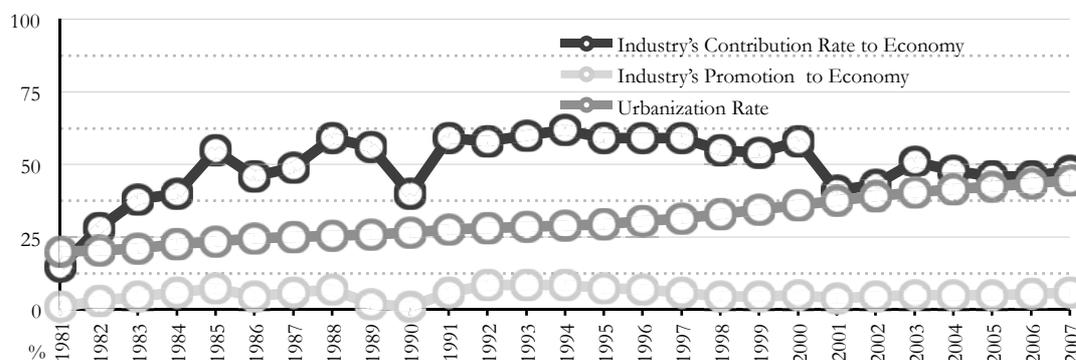

Table 2: The Development of Industrialization and Urbanization

Therefore, local governments used to remising land at a very low price to attract the investment from foreign enterprise for the construction of industrial development districts or other urban development areas before the mid-1990s.(Shuo, 2010) And from the late 1990s to present, especially after the housing marketization reform, they began to concentrate on making the real estate as a pillar, and achieving the economic growth from the land auction, housing town's construction and real estate market. The industrial development districts and housing towns became the two major types of China's new town with their promotion.

The new town's construction can attract investment, tot up the housing price, increase GDP and fiscal revenue, and become vanity projects. In addition, GDP, as the primary evaluation indicator of China's local officials, (Ruili, 2011) does not take the issue of sustainability into consideration. For this reason, the new towns' development, which can produce GDP during both large-scale demolition and construction process, are greatly welcomed by the local government.

The motivation of superfluous land supply
The tax-sharing system reform divided all the consumption tax and 75% of the value-added tax into the central budget in 1994. The income tax also began to be shared by the central and local governments after 2002. The various business taxes, which mostly belonged to the local government, have been all alternated into value-added tax since 2015. These series of reforms caused that the proportion of local fiscal revenue to the total fiscal revenue of the country had a sudden decline from 78% to 44.3%, while the proportion of local fiscal expenditure still remained at around 70%. This significant gap (Table 3) made the local governments raise funds through other ways. The land transfer income, which did not need to be turned over to the central government, become a vital source of extra budget money.(Tang Peng, 2014) The urban sprawl and new towns' construction based on the land remising were the unintended consequence of this tax-sharing reform. (Sun Xiulin, 2013)

The local governments got the quick and efficient way of making money by the land transfer and development, and then became the leading player in this land market promptly. The high development speed of the urban expansion and new towns' construction in the last 20 years, firstly, relied on the increasing demands of urban industrial, commercial and housing land, secondly, was because of the economic growth mode based on land transaction and investment which was the local governments' proactive choice.

Local governments monopolized the primary land market, acquired untapped land at a very low price, and provided for developers for urban construction at a high price after basic leveling and property transition. The governments could rake in massive profits from land-transferring fees, and get new land by these funds. This circle promoted the unimaginable scale of new towns' planning and development in the last two decades.

The land compensation transfer began in 1987 in China. But before the real estate marketization, local government mainly increase their fiscal revenue by propelling industrial and GDP growth. Therefore, selling lands to enterprises with the low-price agreement to attract capitals and construct industrial development districts was the major pattern of new towns' development. Since the real estate institution reform in 1998, the ever-growing housing price has become another quite effective imputes of economic increase. The central government proposed a series of policies

on the land compensation transfer system in the early 2000s which help local governments get huge money from the land market. The land sales revenue of the whole country increased rapidly form 51.4 billion RMB in 1999 to 3.1 trillion RMB in 2011. (Tang Peng, 2014) The increasing economic benefits brought by housing price and the vast amounts of land supplied by the local governments for transferring income turned into the important driving forces of the new towns' construction in China after 2000.

The profits from land finance
The important condition and imputes of China's large-scale construction of new towns are the exclusive land ownership. Besides the state-owned urban construction land, there are agricultural land and rural homestead which belong to the village collective organizations. However, the collective-owned lands could not be directly transferred to others by villagers through the land market. They have to be expropriated with a compensation price by governments first. The local government will level these lands, construct some essential infrastructures and shift their status to urban construction land. After that, they can be sold with agreement or bid by governments.
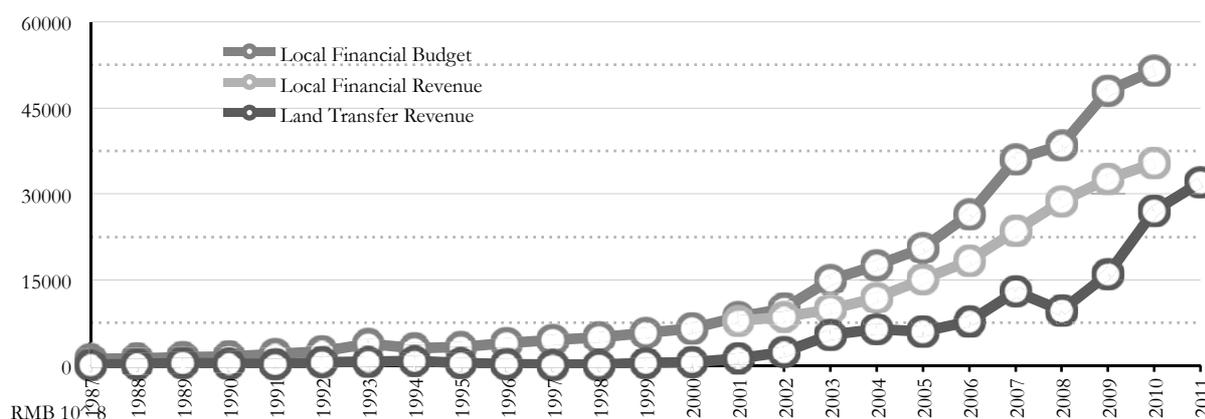

Table 3: Trends of Local Financial Budget and Revenue and Land Transfer Revenue in China

The local governments expropriate lands from peasant with a compensation price which is calculated according to the agricultural income. The total price is 20 to 30 times of the average annual profits of the previous three years. In contrast to that, after the status changes, the governments will remise the urban construction land with the price based on the expected future return. The difference between these two valuation methods makes the land get several or even more times in the transfer process. (Sun Xiulin, 2013) This price scissors is the huge profits earned by local governments.
The governments play roles of administrators, participants and operators in this market, and they have a strong motivation of maximizing their own interests. (Meng Fanyu, 2015) The convenience of being both rule makers and players motivates them acquire more and more land from peasants and put the land into cities continuously. From 1978 to 2008, the agricultural land decreased by 0.95 million hectares on average per year, with a peak of 2.88 million hectares in 2003. (Meng Fanyu, 2015)

The limit of population mobility caused by registered household system
Compared with the land urbanization in the urban sprawl and new towns' transformation mode driven by population urbanization in the other countries, China's up-bottom new towns' development pattern usually begins from land urbanization which is dominated by governments. The governments propose large-scale industrial development areas or housing districts first, and then find investment for construction. After the land urbanization, people will move into these new towns' for working opportunities or better resident conditions. But in this process, the population mobility and urbanization may be blocked by the unaffordable housing price, incomplete urban functions or shortage of public services. But besides these reasons, there is another overriding one is the registered household system of China.

The New Towns' Existing Problems Brought by the Impetuses and Institutions
The development of new towns requires land, people and capital as essential production factors. Planning, design, construction and administration are also the necessary segments for the whole procedure. The unique political and economic institutions, such as national land ownership, land financial, rural-urban dual mechanism and registered household system, make up a unique background and environment for the new towns. And all the superiorities and inferiorities of the institutional mechanism have unavoidably influenced on the new towns' development of China.

Problems caused by land supply mechanism

For seizing greater profits from land finance, some local governments propose new towns or industrial districts planning just in order to get the approval of land requisition from the upper governments, so these plans and designs are quite extensive. Due to the low price of land, the initial development costs are also very low. Immature plans and low costs emphasize the inefficiency and disorder of the new towns' construction. However, after this initial and inefficient urbanization, the subsequent transformation have to bear the compensation for removal and the land cost which is several times higher than before. Consequently, the transformation and renewal are very tough, and a large number of low-density and low-quality urban construction in the new towns. What's more, some new towns' plans are too large to attract enough residents, and become to be ghost cities gradually.

According to the statistics of the Yearbook of Chinese Cities, from 2000 to 2009, the urban population increased by 26%, while the urban built-up area increased by 41%. The situation of low-density and low-efficiency development was getting more severe. (Li Qiang, 2012)

In the meanwhile, this separation between rural and urban land market leads to the loss of benefits for peasants during the land transfer. It is estimated that farmers can only get 5-10% of the land transfer fees as compensation for their agricultural land, and 25-30% of these incomes are gained by the village collectives, while the left 60-70% belong to the local government. (Weiwei, 2015) The urban residents also cannot receive enough removal compensation for a new house in the same area after the urban transformation. The urban removal and rural land requisition are both a kind of property loss to the urban population and farmers. This loss is mandatory sometimes, and people cannot defend their interests through normal channels in the current situation. They may tend to use gatherings, petitioning or other drastic measures for their rights. However, these measures are also not encouraged by the authorities and become destabilizing factors.

China's society was divided into agriculture and industry as two broad categories in the period of planned economy. The accumulation of farming has been transferred to the industrial sector for several decades. The state completed the industrialization process with the subsidy from the countryside to cities. Even till nowadays, the local government are still gaining low-price land from peasants, and achieving low-cost industrialization and urbanization with improper cheap production factors. But the urbanization brought by urban construction is just about land. If the peasants cannot get reasonable compensation from the land urbanization, there will not be enough resources and ability to support them complete the population urbanization process.

The present land market and urban expansion mode dominated by governments cannot guarantee the interests of peasants in the land requisition process. But if the village collective organizations or individual farmer want to participate in the operation themselves, as the policies just proposed by Ministry of Land and Resources allows, the changes of land status is an institutional obstacle, and the farmers' willingness may still be not respected.

The construction of new towns in China is mainly promoted by local governments in the top-bottom way. The relevant departments of governments at every level strictly control and determine or even directly invest and operate the new towns' all phases of the development including site choice, planning, land approval, infrastructure construction, architecture renewal, and resident resettlement. (Li Qiang, 2012) This kind of centralized power makes the planning and construction of new towns in China tend to be large-scale and fast completed.

At the same time, the new town's planning oriented by governments, which do not have a previous foundation of population concentration or economic development, often present the appearance of the unreasonable area, improper location, or inefficient design. From 2000 to 2009, the urban built-up area of China expanded by more than 40%, while the urban population density began to decline from 2,238 people to 2147 people per square kilometer from 2006 to 2009. (Growth, 2011) The efficiency of urban land utilization has been drooping with the urbanization improvement.

The new towns are planned and designed for the urban functional or spatial demand in the first-tier cities, but still cannot achieve the objectives of attracting enough people from the central areas because of imperfect planning, deficiency of follow-up investment, or lack of infrastructure. Some new towns are just constructed for the better housing without few other functions. People may choose to live in these housing towns for the relatively lower real estate price, but they still have to commute to the central cities every day to go to work or other activities. These commuter towns, on the contrary, aggravate the traffic and environmental pressure of the city.

There are some bottom-up mode examples like urban villages, which is the spontaneous settlements of floating migrants and low-income people. Urban villages are also the areas where the population urbanization completes before the land urbanization. But all the urban villages will be demolished during the new towns' construction. After that transformation, the urban middle class and people from the central cities are not willing to move in because of the inconvenient living condition, while the original low-income residents are also not able to move back due to the several times higher housing price. These low-income people have to find another further place to live and form a new settlement waiting for an uncertain transformation in the future. The gentrification and new towns' transformation of urban villages usually fall into this loop led by the planning mode with overall demolishment and renewal.

In consequence of that, all kinds of new towns have the problem of weak attraction. In the aspect of planning, local government should adjust the functional allocation, introduce public facilities, develop infrastructures, improve

public transportation, and increase employment opportunities to make these ghost towns or sleeping towns active and attractive urban areas.

Problems caused by land finance system

Because of the fiscal gap pressure and development financing, local governments promote land financial actively, and new towns' construction benefits from the highly increased land leasing. GDP have a continuous increase along with the land selling and urban development, and the local officials can get promoted because of the performance. Nevertheless, the new towns' development not just only need the land and initial investment of the infrastructure. The long term expenditure of public service and facilities after the completion is the heavier load for the local finance.

The governments could get enough money from plenty of available lands in the low-urbanization period, and the urban public cost was not that high when cities were small-sized. But the sellable land would decrease with the new towns' construction, and the public services need more funds with the cities' expansion. The profits of local government would droop down and finally sunk into deficit. The prosperity of construction and fiscal surplus based on land financial is not a sustainable mechanism.

Besides, the land revenue also gradually decreases after deduction the compensation of land acquisition with the increase of development cost. In some cities, the compensation and other cost have reached more than 85% of the land transfer price. (Ruili, 2011) Therefore the local governments promote the growth of land price which leads to unaffordable housings.

Local governments and enterprises also use land as one of the major collateral for obtaining loans from banks. Once land value sinks with housing price, the local government cannot fill the budget gap with land finance, and even will face the more severe problems of debt default and bad bank loans. But land finance is a kind of financing essentially. As long as the land financial exists, real estate will inevitably become investment commodities. Governments, developers and people will create a large number of new towns which are beyond the actual needs. These new towns are the predictable risks and damages both for the financial system and the real economy.

From all that mentioned above, although the land finance has promoted the urbanization and new towns' construction of China, this kind of up-bottom development mode inherited from planned economy is not sustainable and desirable.

According to the estimation in various methods, the local government need to invest at least 80,000 to 250,000 RMB, changing with the regional development levels, for the settlement of every migrant. The total fund demand of population urbanization in the new towns in China will reach about 10 to 20 trillion. (Xue Cuicui, 2013)

The cost of infrastructure construction of new towns' pre-development basically relies on the governments' land transfer profits. Developers will invest the architectural construction after they get the land. However, the long-term public service demand, such as education, public health, medical facilities, and social security which are necessary for the population urbanization, can only come from governments.

China's new town construction is increasing with the land finance demand of local governments, and this fiscal demand is rooted in the budget pressure after the tax-sharing reform. Because of this pressure, local governments are not willing to afford the long-term public services after investing the necessary infrastructure construction. The prior objective of governments is promoting economic growth by putting the limit resources into the pre-development first to attract foreign capital for the new towns' construction. Other public services, which are not considered to be the decisive factor for political promotion or beyond the official tenure, are ignored by them. The lack of public services is also a weakness for the attraction of new towns.

	Fiscal Expenditure in Basic Education	Fiscal Expenditure in Public Health
the Sixth Five-Year Plan (1981-1985)	10.77%	2.86%
the Seventh Five-Year Plan (1986-1990)	13.34%	2.43%
the Eighth Five-Year Plan (1991-1995)	14.34%	2.46%
the Nineth Five-Year Plan (1996-2000)	14.27%	2.00%
the Tenth Five-Year Plan (2001-2005)	14.00%	1.71%

Table 4: The Proportion of Basic Education and Public Health in the Local Fiscal Expenditure

As the table 4 shows, the proportion of local fiscal expenditure on the public services gradually decreased while the urbanization of China began a fast developing period after the mid-1990s. The insufficiency of public expenditure had a profound impact on the plenty of new towns.

To change this situation, the local governments should bring the land transfer payments under the regular budgetary management first, use them to increase the proportion of expenditure for public services, and control the speculative behaviors in the financial revenue management. And then, the private capital can be brought in the public service investment to diverse the investor besides the governments. Other financing channels, such as PPP mode or municipal bond, can be used to reduce the responsibilities and pressures of governments. Moreover,

breaking the land financial system, shifting the one-off payment of land transfer to the long-term payment of taxes, or even changing the performance appraisal standard of the officials as the deeper institutional reform should be taken into consideration.

The population problem brought by rural-urban dual mechanism and registered household system
Firstly, the household system limits the population mobility from small-sized cities to big cities due to the bundle of household registration and public services like education, medical treatment, and social security.

In the meantime, the rural-urban dual system links peasants with their land by the household registration. The agricultural land takes responsibility for rural social security. Farmers cannot get enough public services when they live in cities. The people who have no registered household in their living places will be discriminated in many situations.

The unbalanced development between urban and rural areas or different urban areas causes the imbalance in the supply of public services. The investment gap of education, health care, social security, and infrastructure construction for every people is huge in different places. (Meng Fanyu, 2015) Economic development requires a regional demographic dividend, but the local government in the developed areas are not willing to pay for the public services and welfares of the migrants. The construction of enterprises or projects rely on the circulation of migrant labors, but sends the people beyond a certain age back to their household registered places to avoid the social security responsibility. (Li Qiang, 2012) The industrial development districts all over the country clearly show this situation. The household registration system and the urban-rural dual mechanism impede the population urbanization by severely limiting the population mobility. (Meng Fanyu, 2015) The countryside and small cities cannot get the development radiation of developed areas, and conversely, undertake the public services pressure of the out-migration which are thrown out by the big cities.

Secondly, due to the downward growth rate of population, people was leaving from small cities and increasingly concentrated in the developed metropolises. This kind of polarization effect is aggravating in the recent period of economic slack. The population of Beijing, Shanghai, and other big cities constantly broke the planning upper limit, while the small and undeveloped cities, such as that in the northeast region, were shrinking in the last ten years. From 2000 to 2011, the population growth in the super cities with over 4 million residents reached 126.6%, on the contrary, 112 small cities which have less than 200,000 population were removed because of resident decline. (Houkai, 2014) Local governments in the outmigration and less developed cities tend to promote more land transfer and new towns' construction to stimulate the economy and get more fiscal revenue. Therefore, plenty of new towns in these cities cannot attract enough people and become ghost cities. In the meanwhile, the new towns in the top cities with unbearable population also cannot absorb people from the central cities and share the urban functional pressure because of the inconvenient living condition and work opportunity shortage brought by the planning faults. Some cities are trying to reform the household registration system and break the urban-rural dual mechanism to promote the migrant movement from the countryside, and expecting the migrants to digest the housing backlog of new towns. But the large-scale population transformation has not presented as anticipated.

This is because the household registration barrier between the rural and urban areas in the same region is not the biggest gap in present China. In the less developed cities, the living conditions and work opportunities are not that attractive to the peasant. It is difficult to cover the rise of living cost of whole families with the new income for farmer migrants. The development gap between the countryside and cities in the same is not that significant. So even if the governments abolish the rural registration household, there still are not enough motivation to peasants to settle in these cities.

The more imbalanced situation is the differences in different regions. The barrier between the top cities and the less developed cities is much higher than that between the urban and rural areas in the same city. The household registration block of Beijing and Shanghai is also much more unbreakable than the urban-rural dual system. Migrants with no registered household in these cities will face a lot of discrimination in education, employment, social security, and every aspect of their lives.

The fundamental way of household registration reform relies on the development of small cities and elimination of regional differentials instead of breaking the urban-rural dual system in the same undeveloped area. Although the urban-rural barrier has been weakening, the gap between first-tier and other cities, and the unfair treatment to the non-registered migrants in the top cities are increasingly conspicuous. The single urban-rural dual-system has become a triple dual-system of cities with the countryside, big cities with small cities, and non-registered migrants with local residents. (Houkai, 2014)

Thirdly, the living habits and working skills of farmers are heavily dependent on the agricultural land, and the social security of them are also bound up with their land. The profit of farming is the main income of peasants, and the other wage revenue is just a supplemented part. (Zhao Shuqin, 2011) They cannot support their own lives without land after they settle in the city. If the local governments cut their link with farmland and force them to move into the new towns through the rude reform of household registration, the peasants may be urbanized and change their lifestyle in a short time. Most of them still cannot adapt to the urban life and higher living costs without proper working opportunities, skills, and personal qualities. Moreover, plenty of peasants just live on the house rent after they get the compensation money and resettlement housing, and become separated with the city and urban life. If

the farmland and homestead can be transferred by the peasants personally, they may sell them irresponsibly and recklessly just for a lump-sum payment, or be exploited by the commercial capital. (Meng Fanyu, 2015)

Considering all the above, the bundle of household registration and public services, the barrier of household registration in the relatively developed cities, the economic backwardness of small cities, and the accustomed life and production mode of peasant combine together to impede the population urbanization of China. The central government should provide more policy leanings and resources to the small cities instead of the first-tier ones, and help the less developed areas improve the economy and increase employment. The local governments of less developed cities need to accelerate the real economic growth instead of real estate investment to attract migrants and digest the housing inventory. Governments also can offer some training about the urban life and work skills to the farmers to help them adapt the environment changes. At the same time, land transfer profits should be allocated more to land-lost peasants as their basic life and social security for the future urban life.

These interventions can improve the issues of new towns in the undeveloped area, but do not apply to these in top cities, which have a large demographic dividend because of the aggregation effect of population and resources. The new towns in these cities cannot decentralize the population and share the pressure from the cities due to the incomplete urban functions and inconvenient life brought by the planning and design compared with the central urban area. Governments should fill them with public facilities, work opportunities, commercial services to improve the living quality, and also can provide relatively preferential treatment of to the non-registered migrants who are willing to settle in the new towns. For example, the housing restriction and children education limit can be more flexible and loose than the central cities.

In addition, the high housing price leads to the process of de-industrialization in the first-tier cities. (Growth, 2011) These industries can be absorbed by the lower-tier cities to promote the economic development and create work opportunities. But this kind of transfer is different from what happens now in some cities of China. Beijing, Shanghai, and some other cities are cleaning the low-end industries and urban functions, such as farmers' market and wholesale market, and impose the excessive barrier for the household registration settling to move the low-income people out and limit the population growth. The usual operation of a city needs different classes of people. Without the affordable services offered by the low-income labors, the other classes cannot have the convenient and high-quality living environments.

Conclusion

In conclusion, due to the special household registration system and land ownership institution, the major impetuses of new towns' development is governments' intentions instead of population gatherings and settlements. And because of the significant effect of promoting economic increase and the enormous profits earned by the local governments in the land transfer process, the governments concentrated on the big-scale and fast planning and construction in the last 20 years, and created plenty of new towns.

However, the land, financial and household registration mechanism, inherited from the planned economy period, all have some congenital defectiveness, which makes the governments just want to benefit from the land market and urban construction, and avoid the necessary expenditure of the following infrastructure improvement and long-term public services. Consequently, most of the new towns in China have to face the troubles like imperfect planning, resource waste, unfair profit distribution, unbalanced population, and unsustainable fiscal investment.

These postnatal distorted issues are rooted in the unique political and economic system. The institutional reform is very slow and unassured. Therefore, the local governments can start with some partial policies, such as breaking the urban-rural dual household registration, increasing the land transfer revenue of peasants, bringing the private capital in the public services, providing prior policies and resource investment, or adjusting the urban fictional and spatial structure, to improve the weak population attraction and other defects of new towns in China.

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Waterscapes in transformation in the *'Uitkerkse Polder'*
Water as a protagonist for changing accessibility in landscapes challenged by infrastructures for climate resilience

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The socio-economic impact of nature in Belgian coastal landscapes on a regional scale is high (Berends, 2007 and Ruimte Vlaanderen, 2013) due to their general attractiveness for visitors, their strongly developed tertiary service economies and other related sectors (tourism, residential, agriculture, etc.). Due to climate change however, these coastal landscapes and their required accessibility and continuous character are threatened by the unavoidable planned infrastructure (dikes, new connections, floodable areas, etc.) that will generate ruptures, frictions and additional transition spaces within the landscape.

In Flanders, water issues, drought and storm damage are the core issues of climate shocks. No matter what happens next, Flanders urgently needs to unfold policies and strategies to avoid or reduce the undesirable effects of the expected changes. The landscapes of the coastal zones will be the first to be confronted with these climate change effects. The most influential changes for the coastal zone will be: rising sea levels, an increase in temperature, changing rainfall patterns, an increase of wind power, floods, fragmentation of the ecological system, salinization of the soil and reduced drainage capabilities to sea (Vlaamse Milieumaatschappij, 2015). A thoughtful planning policy forms the necessary key to a sustainable development.

As an answer to the challenge of climate change on the Belgian coast, policies and plans have been developed and implemented at a European, national, regional and local level (Ruimtelijk Structuurplan Vlaanderen 1997-2011; Coast Action Plan "Nature and Landscape" as a EU LIFE project 2007; Marien Ruimtelijk Plan voor Noordzee 2014; Masterplan Kustveiligheid 2013, Masterplan Vlaamse Baaien MOW; Metropolitaan Kustlandschap 2100 by Team Vlaams Bouwmeester/Mobiliteit Openbare Werken/Ruimte Vlaanderen 2013 etc). These policies and plans led to the formulation of spatial proposals for mitigation and adaptation, related to major infrastructural works planned for the next decades. Most of these infrastructures, conceived at a large scale, generate a different model of accessibility for the Belgian Coastal landscape (CcASPAR, 2012): the relation dry/wet is often inverted, topographic changes imply discontinuities in the landscape, and roadways and paths need to be reconfigured to guarantee connectivity. These measures change the overall accessibility and permeability of the region and will drastically change how this landscape can be inhabited.

The aim (or objective) of the research is to produce insights on how to improve access to the coastal landscapes by developing a case study situated on the Belgian Coast, the *Uitkerkse Polders*. This case study and the following exploration of spatial strategies to improve accessibility contributes to the discussion on maintaining or even improving the socio-economic impact of nature in this region. The objective is to provide answers on how climatological pressure will manifest itself in the landscape, more specifically in an area like the *Uitkerkse Polders*, and to what extent the pressure of climate change will have an impact on access to agricultural, urbanized or natural systems.

The research consists of a literature and policy review, in situ analysis and data mining (site visits, stays and interviews), (photo)graphic and GIS mapping, facilitating discussion forums, testing spatial strategies and permanent evaluation of insights and conclusions.

This research takes place in the context of a Research & Design Platform, a collaboration between the academic and professional field: KU Leuven and Team Vlaams Bouwmeester, together with local stakeholders and a number of governmental and private research and design agencies and offices that deal with climate resilience in architecture and urban design and that are already involved in these processes of landscape transformation. The Research & Design Platform's task is to deliver input and implement strategies. This intersection provides the opportunity to test theoretical strategies and assumptions in the Platform and on-site. As the research progresses, the platform becomes a feedback group.

Narrative and reflection on the Belgian coastline

The scene of the Belgian coastline today is unique in Europe, both in its quirkiness and its abomination. Until the 19th century, the coastal zone was a unique entity on a geo-morphological level, with only limited occupancy. Social phenomena caused a transformation of this coast at the North Sea, with privileged groups enjoying seaside holidays. The spatial impact on the coastal landscape was until then non-existent. Entrepreneurs saw a chance to profit from this uncultivated landscape. From the middle of the 19th until the beginning of the 20th century, they transformed fisher villages into seaside resorts and they even created new

seaside villages in the untouched dunes. The curative aspect of tourism shifted towards leisure and entertainment, towards "see and to be seen." New facilities and structures resulted from this development, including sea dikes and walking promenades. These structures became the symbol of the coastal villages. The Belgian Pier of *Blankenberge* [fig.1] is the clearest example of this development. Real estate companies and property developers took initiatives. The city of Oostende and seafront fishing villages (Blankenberge, Heist, Wenduine) were developing towards coastal towns with a more urban lifestyle, with compact buildings replacing the original houses.

The construction of the tramline (1886) caused a definitive uptick in tourism in the coastal zone. New coastal villages emerged in a short time.

[fig.1] The Belgian Pier of *Blankenberge*, from Pillen, S., 2017.

The first example of an entire new coastal village is Nieuwpoort. Middelkerke, Westende and Knokke followed. These developments had a linear division of building blocks. In other coastal villages, the starting point of organization was not the closed building block, but a romantic image of landscape and nature formed the source of inspiration. The urban concept of the garden city was the base for the design of those new villages with a more elite public as final user (Het Zoute, Duinbergen, De Haan).

One may say that the spatial structure of the coastal zone was fixed before World War I. Hotels and villas were the only form of lodging. The touristic clientele was international and belonged to the upper class. Despite these urban developments, the large, untouched dune landscapes were still the dominant character of the coastal landscape.

This changed slowly after Word War I. The 8-hour workday and the law decreeing annually paid holidays (1936) for workers and employees had a clear influence on the holiday phenomenon. New, cheap lodging facilities appeared. Entrepreneurs got permission to set up camping zones, even in dune landscapes. Social holiday homes spread out in a short period. The 'Royal road', parallel to the coastline, was completed in 1933, stimulating new built-up areas. At this time, large dune landscapes were still connected to each other.[1, 2]

After the disappearance of the 'concrete defensive barrier' of the German occupier following World War II, property developers

[fig.2] The Royal road, Bredene, from NMVB, groep Kust, 1980.

took over the network of bunkers and defences. Within a few decades, another 'concrete rampart' appeared, where revenue builders and mediocrity flourished. Inside this narrow 'concrete line', all aesthetic standards were violated. Extremely liberal construction policies were dominant in Belgium during the second half of the previous century and were most visible at the coastline, reducing architecture to a play of blocks of flats, whereby urban design rules were lifted.

Now, a web of social structures appears as a kind of neurotic urbanization. It is clear that the Belgians placed individual comfort above the greater good, Apartments exist for the 'the common citizen', offering a sea view to many at the same time.

Eric de Kuyper states, in his work "*Met zicht op zee*" [With a sea view]: "That's the way the Belgian thinks. We regard this coastal architecture as kitsch, secretly we hang our heads in shame, but we can live with it when it suits us. So it is opportunistic Architecture." [3]

The fact is that the flow of tourists that makes its way to the sea along several main arteries every summer does not consist of architecture fans, but of sun-seekers. What motivates them, what attracts them, is the sea itself, and the wide sandy beach in front of it. The architecture and urbanism are purely functional and, because of their compact form and tasteless design, still affordable.

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[1] (Charles Vermeersch, De teloorgang van de Belgische Kust, in Ruimtelijke Planning, 15, 1986).

[2] (Dubois, M. Bouwen langs de Vlaamse Kust, in Vlaanderen, nr. 279, mei-juni 2000).

[3] (De Kuyper, E. Met zicht op zee. Veertig jaar later, Nijmegen, SUN: pp.33-34, 1988).

This starkly contrasts with the architecture from the end of the 19th century. Traces of this period are still noticeable, with the 'belle epoque'-style visible in parts of Blankenberge and Oostende. Later on, in the first half of the 20th century, some buildings with architectural quality were built too. Unfortunately, many of these went down during the building boom during the second part of the same century. [4]

Charles Vermeersch drew a diagram [fig.3] that shows how human land use took over open coastal spaces during a period of only one-and-a-half century. In 2012, the coastal zone of Belgium had 417.570 inhabitants; an increase of 4% compared to 2002. The aging population of this region is evident: almost half of the inhabitants (49,4%) is over 50 years old, over 25% is over 65 years old [fig.4].

Another notable number is the amount of housing units situated in apartment blocks in the Belgian coastal towns: 54%. Beside this figure, 39% of the housing units in the coastal zone are not used for permanent living. Compared to other European countries, figure 5 proves that the Belgian coastline is a very dense region. Compared with other nearby coastal zones, the zone is also the most artificial one [fig.5].

Cités de sable, the working title of a photo publication by Christian Meynen [fig.7], perfectly reflects the ephemeral character of our constantly rebuilt coastline. Just as an incoming tide is enough to wash away the sandcastles in a single afternoon, it takes less than a generation for a block of apartments to be demolished and another one to be erected in its place. Many plots were redeveloped four times or more in the last century.[5] As Willy Van den Bussche, former Chief curator of the Museum of Modern Art Ostend, put it: "The coastal strip is constantly regenerated. Like the edge of a forest where vegetation is poor, shoots spring up and trunks waste away." [6]

The Belgian coastline was never a border or a limit, but a very dynamic landscape that was always changing. However, humans created a firm line of buildings in the 20th century.

This line can cause problems at the level of resilience. How can we deal with these limitations? Is the linear construction of the coastline an advantage or a disadvantage when creating landscape resilience for the future in terms of climate change? Those limits may serve as a starting point for a clear view on the future.

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[5] (Dubois, M. Bouwen langs de Vlaamse Kust, in Vlaanderen, nr. 279, mei-juni 2000).

[6] (Willy Van den Bussche, Chief curator Museum of Modern Art Ostend).
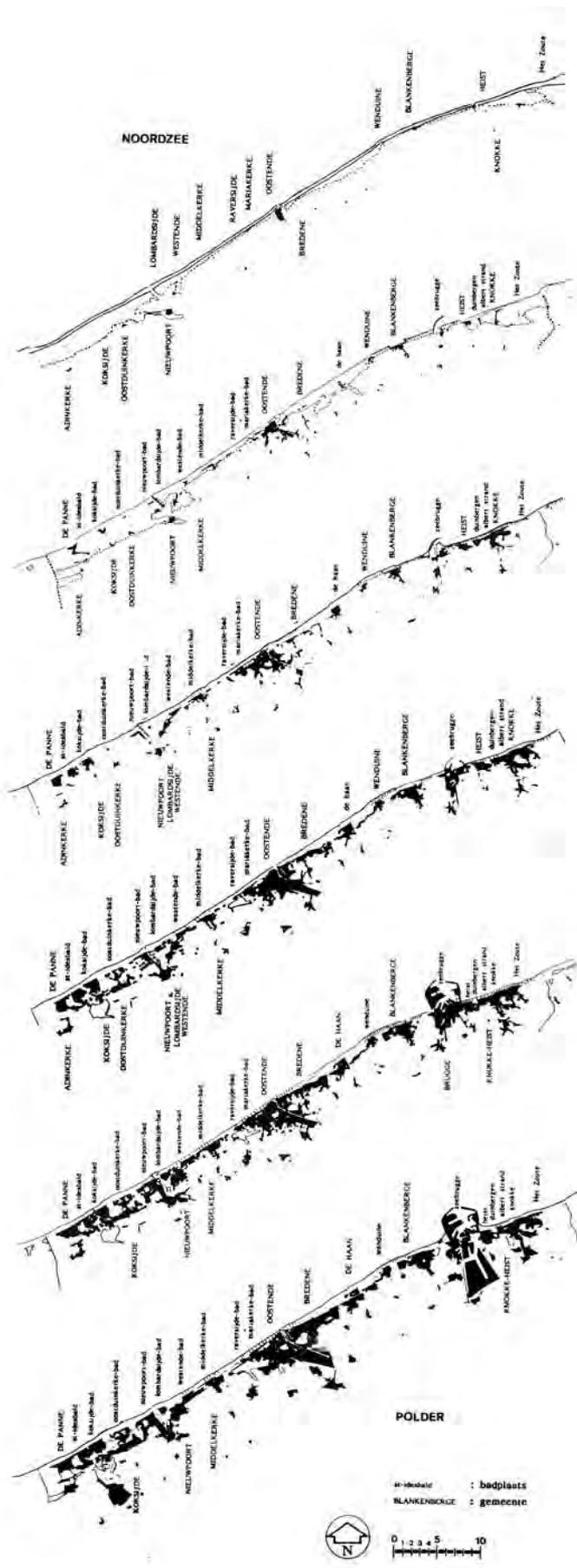
[fig.3] Human occupation Belgian coastline from 1850 until 1982, from Vermeersch, C., 1985.
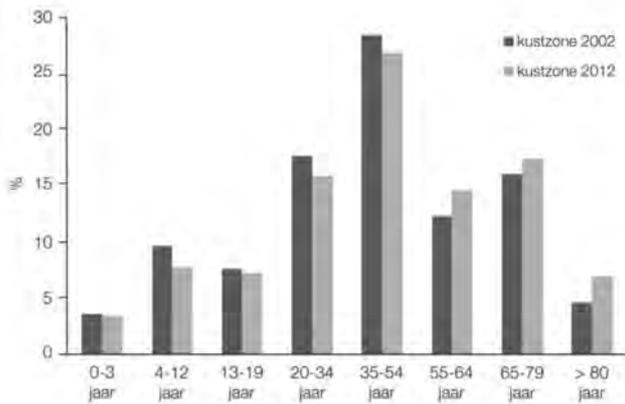
[fig.4] The evolution of distribution by age of the Belgian coastal zone population, from Kust en compendium, Social structures, the coast and its inhabitants, 2015.
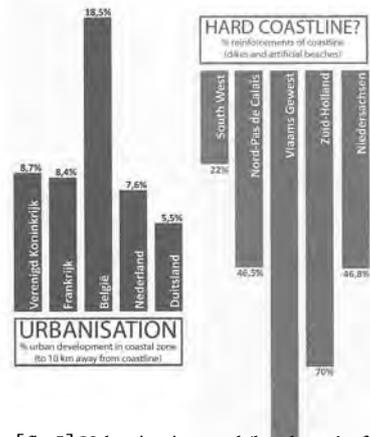
[fig.5] Urbanization and 'hardness' of the Belgian coast, Eurosian, , 2004.

[fig.6] Image of the actual Belgian coastline, from Pillen, S., 2014.
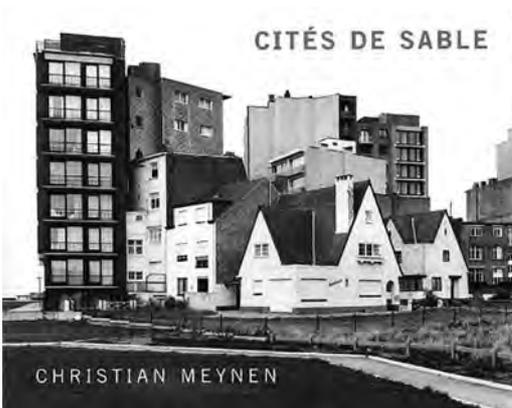
[fig.7] Front cover Cités de sable, from Meynen, C., 2001.

Landscape as palimpsest

A palimpsest landscape is one where, in any given region, the different landforms that make up the landscape are not of the same age. Spatially, therefore, landscapes are composed of a mosaic of active and relict (inactive) landforms of different ages.

As André Corboz stated: "The land, so heavily charged with traces and with past readings, seems very similar to a palimpsest. To set up new developments, to exploit more rationally certain lands, it is often necessary to modify their substance in an irreversible manner. But the land is not a throw-away wrapper or a consumer product which can be replaced. Every land is unique, whence the need to "recycle", to scrape clean once more (if possible) with the greatest care the ancient text where men have written across the irreplaceable surface of the soil, in order to make it available again so that it meets today's needs before being done away with in its turn." [7]

Some landscapes are very sensitive to external shaping by climate or human activity, and can change very dynamically over short timescales, whereas other landscapes appear to have changed very little over timescales of millions of years.

Physical landscapes worldwide have been strongly affected by human activity since the development of settled agriculture around 7000 years ago, and humans are now the most powerful geomorphic agents on Earth.[8]

The relationship between physical and human landscape elements can be considered in a hierarchical context

[fig.8] Illustration showing the interrelationships of landscape elements of different ages, from Knight, J., University of the Witwatersrand, School of Geography, Archeology and Environmental Studies, 2014.

[fig.8], in which human activity responds to and is influenced by landscape physical patterns and the distribution of geological and geomorphologic resources. An important principle that this hierarchical relationship represents is the role of time in landscape evolution and thus in the development of landscape palimpsests.

The Belgian coastal landscape changed constantly during in course of its history, and drastically through human activity in recent history. In geological timescales, our coastline has always been in motion. Because of a daily pattern of fluctuating seawater, different landscapes or depositional environments (coastal barriers, sand flats, tidal flats, marshes, coastal peat swamps, all intersected by tidal channels) arose. They all have their specific relationship with seawater levels. The intertidal area, the zone between the high-water mark and the low-water mark, is characterized by tidal flats and marshes that are very dynamic, adapting themselves to the smallest rise of seawater levels. As tidal flats are silting higher up, and parts of the gutter are becoming land, the area is less influenced by the tide. Marshes are expanding more seaward, followed by coastal peat wetlands landward. When those marshes were influenced again by the tide because of a displaced gutter for example, they evolved quite fast towards tidal flats again. This evolution was active during the general seawater level rising that happened over 7500 years ago (a rise of 7m/1000year).[9] Gutters reached the hinterland increasingly; tidal flats expanded over marshes and basal peat, which in their turn shifted inland. Such shifts of different depositional environments were constantly present during history, due to the driving force of the sea level rising.

The result of the first slowdown in rising sea levels between 7500 and 5500 years ago was that parts of the tidal area became high enough to stay dry, leading to the appearance of freshwater marshes. Reeds piled onto peat, gutters continued to move, looking for space to get rid of their sediments. Peat lands evolved again towards tidal areas and through the gutter abandoned zones had the chance to evolve towards tidal flats, marshes and freshwater marshes. The place where the sediments were dropped by the sea were important for the inhabitation that followed later. This inhabitation, the actual topography and the agriculture all linked with the way of sedimentation.

These dynamic processes were determined by nature and the daily rhythm of the sea. The 'Wadden Sea' is an actual example of this dynamic process. [Fig. 9, Land van Saeftinghe / Wadden Sea / Zwin]
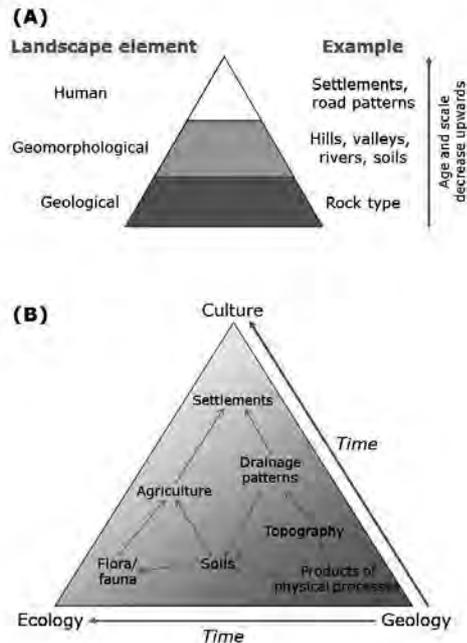
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[7] (André Corboz, The land as a palimpsest, 1983).

[8] (Hooke, R. On the history of humans as geomorphic agents. Geology, 28: pp.843-846, 2000).

[9] (Baeteman, C., Scott, D.B., Van Strydonck, M. Changes in coastal zone processes at a high sea-level stand: a late Holocene example from Belgium. Journal of Quaternay Science 17 (5-6): pp.547-559, 2002).
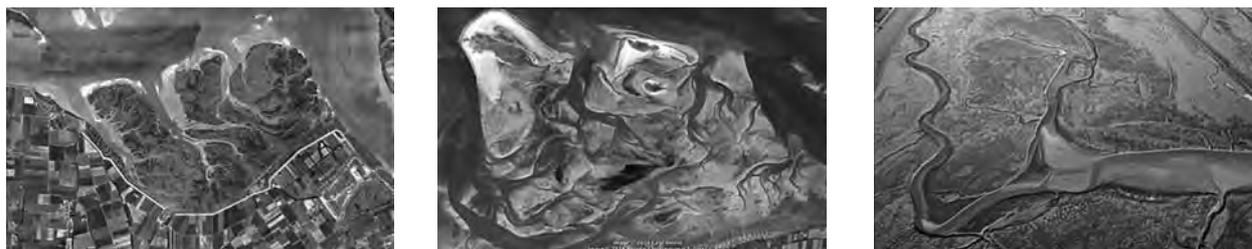
[fig.9] Land van Saeftinghe (NL) / Wadden Sea (NL) / 't Zwin (BE), from Google Earth, 2017.

At the second decrease in rising sea levels (between 5500 and 5000 years ago), the rising lost its driving force. Peat lands became more expansive and existed for a longer time. Peat had the chance to keep on growing and piled up during 2000 to 3000 years. There was also a lateral extension, and about 4800 years ago, the entire coastal area was transformed into coastal peat and swamps, with the exception of '*de Moeren*' and the former seaward areas where the deposition of sand and clay continued. In the central and eastern part, the coastal area stretched even further seaward than today, by two to three kilometres.

The 'Dunkirk-transgressions theory' explains large fluctuations, even floods, in the coastline during the Roman period and the early Middle Ages. A transgression occurred when the coastline shifted inland over a greater length. Between periods of transgression, there were periods where the coastline shifted seaward again, a period of regression. Recent studies are showing that this theory is not correct, since those evolutions happened more gradually. [10]

Tidal flats and marshes are separated from the sea by natural coastal barriers (dunes); they have a temporary character because they exist in a dynamic balance with the sea level. When sea levels rise, sand is eroded and brought into the tidal flat zone. This happens through sea inlets or waves knocking over the barrier. Now the coastal barrier shifts gradually inland and can continue filling the flats in relation to the rising sea level.

When surface-peat is developing, the coastal barrier is moving seaward. This dynamic character explains why dunes develop well on a coastal barrier when sea level rising is stable.

The first traces of human activity date from the 9th century. Landowners exploited sheep on the higher

points of the marshes landscape. In the 11th century, Dunkirk- transgression III took place. In the form of a system of creeks, this gradual flood threatened inhabited regions. The threatened population started to defend their habitation by constructing dikes. Other areas remained under the influence of tidal gutters. In the region of what is Oostende today, there was an active gutter until the year 860. In Veurne, the total reclamation happened only in 1400. Because of the diking of the region, water drainage of the land had to be arranged through channels and locks.

This drainage system was the cause of the compression of the upper soil deposits

[fig.10] The inversion of the relief, from Pillen, S., 2014.

and surface lowering. Peat compacts two times more than clay and twenty times more than sand. This difference is the cause for differential compaction. This micro-relief is defined as 'inversion of the relief'. [11] [fig.10] term This can be explained by the deposited selective sedimentation: sand is to the in creeks and clay in zones next took place creeks. The inversion of the relief drainage when dikes were constructed, landscape systems were built and the layer became dry. The peat and clay

subsidence was much stronger than the sand layer of the creek, that stayed on the same level. Here, creek ridges were formed [fig.11]. There are some contradictory theories about the cause of this inversion, but it resulted in landscapes with settlements on those dry creek ridges, and infrastructure roads on the higher creek ridges. [12]
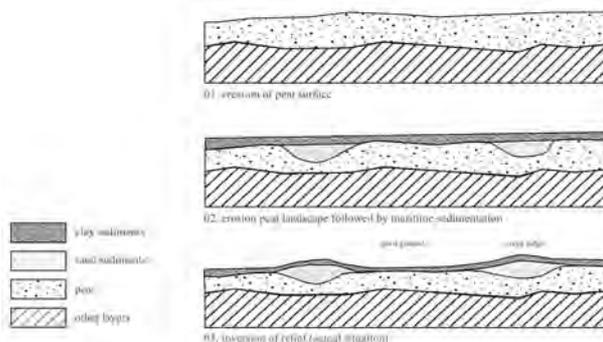
[fig.11] The inversion of the relief, from Tavernier, R., 1970.

[10] (Baeteman, C. De ontstaansgeschiedenis van onze kustvlakte, VLIZ, 2007).

[11] (Baeteman, C. De ontstaansgeschiedenis van onze kustvlakte, VLIZ, 2007).

'Landscape as palimpsest', characterises the dynamic character of the coastline and the landscape. The coastal landscape, the impoldering and the inhabitation of the coast, among other factors, left traces in the landscape that are currently still present. These traces were formed by a natural, dynamic border (in time and space gradient) between land and water. Is it possible to introduce a tidal area into the existing polder landscape of today? Can this resilient zone create a more natural, more secure boundary between land and water? How will

[fig.12] Old creeks in the Belgian coastal zone are visible in aerial views, from Decleer, M., Kustfotografie.

a prospective tidal zone react to other climate change effects (increase of precipitation, droughts, etc.)?

Coast as line never been questioned
Belgians are used to it: the coast as one straight line. It provides an easy landscape to connect and develop; 'the royal road' and the tramline go hand-in-hand with tourism and urbanization.

But how can we protect our coast against the effects of climate change? The Flemish government has a Coastline Safety Masterplan[13] to protect our coast, in the first phase on the short term. The whole Masterplan is based upon the coastal defence principle: 'hold the line'. The Masterplan is designed 'to combat' a '1000-year storm.' [14] It maps the weak points and searches for a solution to ensure the safety for the entire coast until 2050. Another project of the Flemish government, "*Vlaamse baaien*" ["Flemish bays"], [15] looks further ahead, with a time-frame until 2100. Its main goal is to approach climate change and sea level rises in an integral way using five pillars: Safety, Nature Quality, Attractiveness, Sustainability and Economic development. Here, the government is working closely with private dredging companies.

Effective measures included in the Coastline Safety Masterplan for 2050 are dune supplementations, beach elevations, storm surge barriers, the construction of storm walls, the reinforcement of existing dikes, the adaptation of dike slopes, etc. The entire Masterplan will cost 300 million euros, with 8 million to be added annually to the total cost in order to maintain the beaches. [16]

The government decided to defend these zones by the 'hold the line' principle. When one zooms in on the safety Masterplan (underneath the eastern part), we see that the coastline is divided into different zones, characterized by different colour codes. Red stands for seawall security problems according to a 1000-year storm, and orange translates as problems for the hinterland when there is a breach.

When one zooms in even more, on the small coastal village of 'Wenduine' [fig.13], we see where the weak zones are situated. Specific measures include beach supplementation with low beach (lower than dike). The amount of sand needed will be around 700.000 m³. This will be combined with a high wall around the roundabout and a storm wall on the dike.

[12] (Baeteman, C. De ontstaansgeschiedenis van onze kustvlakte, VLIZ, 2007).

[13] (Masterplan Kustveiligheid, http://afdelingkust.be/, 2014).

[14] (The method of designation with 'years' translates the impact of the storm, with his reflexive character. A '1000-year storm' is for example more powerful than a '100-year storm').

[15] (Vlaamse Baaien, http://www.vlaamsebaaien.com/, 2014).

[16] (Waterbouwkundig Laboratorium Vlaanderen, 2011).

Both climate plans, the safety Masterplan 2050 and "*Vlaamse baaien 2100*" are fixated on the sea defence issue and start from the same perspective: protect. Actual developments and security levels are not questioned, and should in the future be maintained at all costs. Other coastal defence principles are 'Managed Retreat'
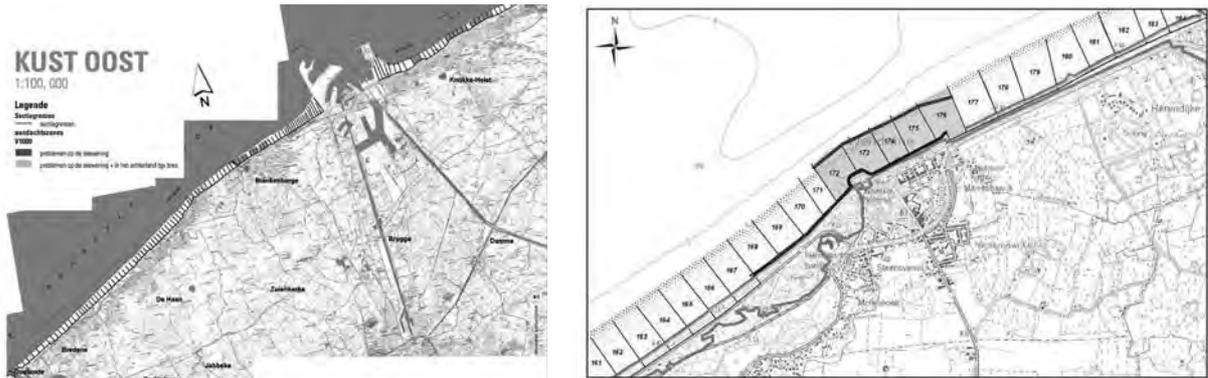
[fig.13] Fragment of the 'Coastal Safety Masterplan', zoom on the eastern Belgian coastal zone and zoom on the coastal fillage Wenduine, from afdeling kust, 2011.

(through planned interventions; the coastline is allowed to retreat in a controlled way), 'Acceptance' (involves no defence activity other than ensuring safety) and 'Advance the line' (involves moving defences seaward). [17]

Other negative climate effects like extreme rainfall periods (hinterland floods with troubles of drainage), periods of drought and salinization of the soil are not mentioned in the Flemish Coastline Safety Masterplan. Repeated sand elevations, continuous benches on the dike and a concrete railing as disguised dike defences suffice for now. The question is whether these measures of the Masterplan remain feasible and affordable after 2050. The rise in sea levels continues and any mitigation measure is only temporary. The measures taken are short-term solutions, not solutions for a more distant future; because of this small-step approach, too much time is wasted. To maintain the current levels of safety, the system should be elaborated. Time after time however, structures are expanded, making it increasingly difficult to return and invest in a more resilient concept to deal with the effects of climate change in the Belgian coastal zone [fig.14].

The Masterplan suggests that the measures taken provide the necessary flexibility. The plan talks about 'solutions that we will not regret' and suggests the pursuit of a resilient coastal front. But the conventional measures and the natural resilience of the coast seem irreconcilable today. [18]

I am questioning whether dredging companies create their own work and are pursuing profit due to this safety Masterplan. They are enlarging the beaches with sand supplementations mentioned in the plan. This sand will erode within a short period of time and will flow towards the lower sea parts (shipping channels), that will be dredged out again to ensure the continued existence of the harbours.

There are other interpretations on how to deal with our coast and its future. In 2013, the exhibition '*Wisselland*' displayed another way of dealing with the future of our coast. One of the projects was the project CcASPAR [19], an alternative approach that will be clarified in the next chapter.

The coast as a resilient zone

The project CcASPAR was initiated in January 2009. It took the initiative to look at the spatial effects of climate change in Flanders. CcASPAR (Climate change And changes in SPAtial structures Research project) is an inter-academic and interdisciplinary strategic research project funded by the Flemish Agency for Innovation by Science and Technology. Next to the climate effect of the sea level rising, the project is

[fig.14] Interpretation of the Flemish Coastal Safety Masterplan, horizon 2200, from Pillen, S.„ 2014.

2014

2050

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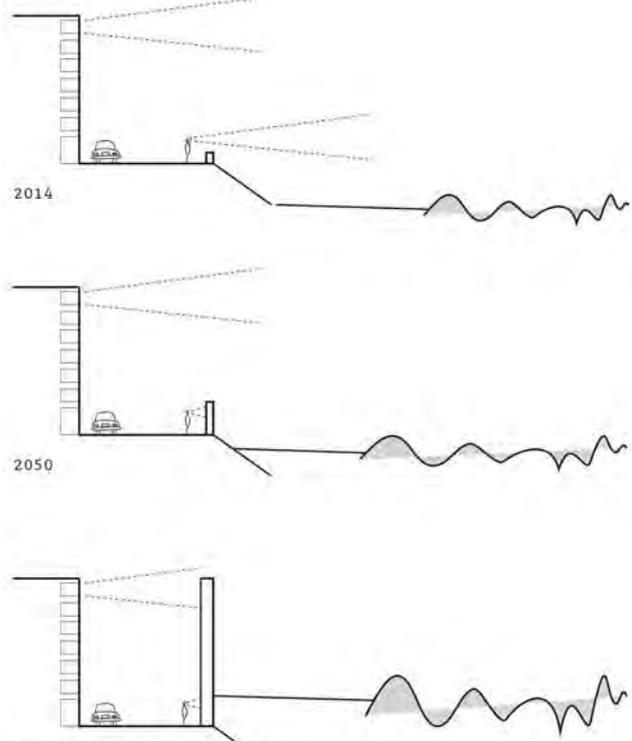
[17] (IPCC).

[18] (Exhibition Wisselland, Knokke, 2013-2014).

[19] (CcASPAR: Klimaat in Vlaanderen als ruimtelijke uitdaging, (

zooming in on other effects that are often disregarded, such as: the rise in temperature, changing rainfall patterns, river drainages... The objectives and research approaches are:
- An exploration of Flemish spatial structures, to define and situate the most vulnerable areas due to climate change.
- A qualitative exploration through research by design of possible planning concepts for a more adaptive approach towards changes in spatial structures as a result of climate change.
- A review and evaluation of existing planning instruments and governance mechanisms for the implementation of spatial planning strategies in relation to climate change. [20]

CcASPAR looked at different case studies in Flanders, including the coast. They also questioned whether the current system of uniform coast defence will remain feasible. Natural coastal dynamics cannot be ignored; these dynamics can reach us spontaneous suggestions, like the natural dune formation along the coastline.
CcASPAR argues for the use of existing structures. Every layer of old dike-structures, roads, railway structures... forms artificial micro-reliefs in the landscape, elements for a redesign [fig.15].
The redesign of the coast is questioning the notion of 'risk'. Inspiration can be found in shipbuilding, where instead of strengthening the body of the ship, partitions are placed. An incident is possible, but a disaster is prevented by the partitions. The ship is still floating and the damage can be restored.[21] Another clearer example for architects can be found in fire safety where public buildings are divided into different compartments to minimize damage during a fire.
Instead of one strict line that divides sea and land, the concept of compartmentalization divides the coastal strip into zones. In this way, the coastal zone becomes a dynamic linking system of diverse coastal landscapes. Some compartments are bordered by technical structures like dikes, motorways, railways... Others are focused on natural coastal dynamic systems. A composition of dunes, polders, bath villages, water landscapes, marshes, inlet polders, salt grasslands, and mud flats... appears.[22]
Compartmentalisation allows for a differentiated climate adaptation. This differentiated approach requires the creation of a vision on two scales: the coastal area as a whole and the local compartment. The vision on both scales requires knowledge produced by both science and local actors. The general climate impacts in the coastal region must be listed, but the local vulnerability must also be mapped. As for the field of socio-economic development, there is a need for a vision that encompasses both the coast as a whole and the various components. Only when a broadly supported vision has been developed on both scales can one work on an integrated climate adaptation. The strategies for the coast as a whole ensure long-term sustainability. Considering local points of attention makes it possible to actively adapt adaptations for area development.[23]

The research 'Waterscapes in transformation: insights on landscape accessibility challenged by new infrastructures for climate resilience: The case of the Belgian Coastal area' focuses on a specific area or compartment, 'de Uitkerkse Polder'. The research objective is to produce insights and design strategies on how to maintain or improve accessibility and permeability in landscapes challenged by new infrastructures for climate resilience, to maintain the socio-economic impact of nature in the coastal region.
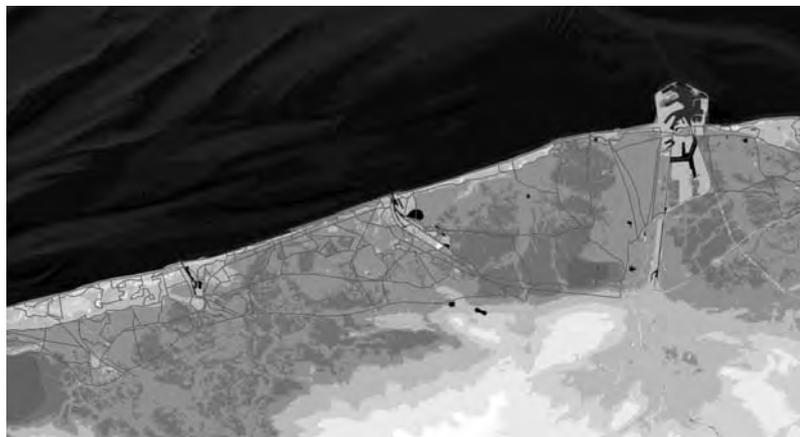
[fig.15] Drawing of the CcASPAR project, from the exhibition *Wisselland*, presentation of the CcASPAR project, Knokke, 2013-2014.

Conclusion: water as a protagonist, landscape resilience for a tolerant accessibility
Our society has to be adapted to the effects of climate change: we have to protect our vulnerable structures in a resilient and sustainable way. This vulnerability applies to our ports, our cities and our transport systems; but also to our drinking water supply, natural landscapes and agriculture. In Flanders, water issues, drought and storm damage are the core issues of climate shocks. Whichever evolution occurs in the near future,

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[20] (Exhibition Wisselland, Project presentation CcASPAR, Knokke, 2013-2014).
[21] (Exhibition Wisselland, Project presentation CcASPAR, Knokke, 2013-2014).
[22] (CcASPAR: Klimaat in Vlaanderen als ruimtelijke uitdaging, Gent: Academia Press, 2012, pp. 187).
[23] (IPCC, 2014).

Flanders urgently needs to unfold policies and strategies to avoid or reduce the undesirable effects of the expected changes. The landscapes of the coastal zones will the first to be confronted with climate change effects. The most influential changes for the coastal zone will be: rising sea levels, an increase in temperature, changing rainfall patterns, floods, fragmentation of the ecological system, salinization of the soil and reduced drainage capabilities to the sea.

A thoughtful planning policy forms the necessary key to sustainable development. This message is also expressed in the 'white book' for the new urban plan of Flanders': "In Flanders, we want to increase spatial resilience to be less vulnerable to the impacts of climate change." [24] As an answer to the challenge of climate change on the Belgian coast, policies and plans have been developed and implemented at a European, national, regional and local level.[25] These policies and plans led to the formulation of spatial proposals for mitigation and adaptation, to be executed by major infrastructural works planned for the next decades. Most of these infrastructures, conceived at a large scale, generate a different model of accessibility for the Belgian Coastal landscape: [26] the relation dry/wet is often inverted, topographic changes imply discontinuities in the landscape, roadways and paths need to be reconfigured to guarantee connectivity... These measures change the overall accessibility and permeability of the region. Connecting large-scale infrastructures with the local, small and intermediate scales is crucial for socio-economic development.

Spatial decisions have to be made with water as a guide for spatial planning and architectural decisions on the small and intermediate scale. In the case study of this research, '*de Uitkerkse Polder*', space is made for water. Space for both sides (seaside and shore side), space for salt and fresh water and a controlled zone where the fresh water meets the salt water. A tidal zone as a statement and good practice for a resilient and sustainable approach to the effects of climate change.

The research strategy of the project '*Waterscapes in transformation*' contains the coupling of the long-term transformation of the landscape (in function of climate changes and often initiated by the government) with relatively short-term, small-scale (often individual/private) spatial interventions that guarantee the accessibility of this landscape, as a condition for maintaining or improving its socioeconomic impact. For example: how to position and build a needed water contention barrier in a way that still allows access to the landscape? How to articulate a community building in a flood proof manner without conditioning its full appropriation by the inhabitants? How to maintain the continuity of experience in the landscape while designing the needed landscape adaption measures such as dikes, topographic changes, flood fields etc.? This allows for a bet on gains in terms of spatial quality (landscape and architectural) and an acceleration of its implementation processes in the long term (efficiency gains over time, gains in the budget, acceptance by the environment, etc.).

Every corner of the researched triangle Governance (A) – Market (B) – Civil society (C) has its own strategic dimension. The intention is to project spatial qualities on future landscape transformations caused by climate change, and by doing so to define models of spatial strategies for landscape accessibility and permeability. By developing efficient and coherent high-resolution interventions today, coherent with a future and broad vision, strategic plans and policies (A) can be further developed by a plurality of companies, stakeholders, universities and research institutions. The risk of a negative socio-economic impact on pressured landscapes, because of a loss of accessibility and permeability when new dikes, bridges, flood fields, etc. are constructed, will be countered through this research. Through defining spatial strategy models, within the context of a Research & Design Platform, that guarantee continued landscape accessibility, existing economies will not disappear and possible future economies can appear (B). By giving 'spatial quality' a place in today's doom-thinking about the future, this 'doom and gloom' shifts to positive action: spatial interventions of tomorrow that encourage action today. By providing opportunities for future architectural and landscape scenarios, people will have the courage to take bigger steps, and policymakers (A) will see opportunities, preparing ourselves in a positive way for a world in flux. The topic 'climate change' is a contemporary issue. There have been numerous studies benefitting this research: results of completed studies may be included in the process and reinterpreted. The project requires research into the history of dynamic landscapes and the impact humanity has played and will play. The architectural testing of interventions will question existing structures, but also provide solutions to future-oriented issues. yet, the subject of the majority of research will be the end user; the daily user (C) of our changing landscapes, today and tomorrow. The research is a call to maximise the intentions of urban architecture in times of change.

The creation of an overall risk-free unconditional access to a landscape like the *Uitkerkse Polder* in the future is impossible. But the creation of an ephemeral, ever-changing accessibility in a resilient landscape has to be the ambition.

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[24] (RWO, 2012).

[25] (Ruimtelijk Structuurplan Vlaanderen 1997-2011; Coast Action Plan "Nature and Landscape" as an EU LIFE project 2007; Marien Ruimtelijk Plan voor Noordzee 2014; Masterplan Kustveiligheid 2013, Masterplan Vlaamse Baaien MOW; Metropolitaan Kustlandschap 2100 by Team Vlaams Bouwmeester/Mobiliteit Openbare Werken/Ruimte Vlaanderen, 2014 etc.).

[26] (CcASPAR: Klimaat in Vlaanderen als ruimtelijke uitdaging, Gent: Academia Press, 2012).

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Reviewing post-mining procedures in view of the potential incursion of landscape urbanism in resource extraction

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Urbanization is the central demand for resource extraction. Thus planners and designers, the allegedly official operators behind city making, can no longer exempt themselves from the substantial challenges of mining closure in guaranteeing that cities and hinterlands will not inherit post-mining landscape liabilities. Through a visual representation of desired scenarios, design has always performed as a medium to integrate, synthesize, and transcend fields, domains and disciplines. As a variation on urbanism with an emphasis on the urban-structuring capacity of landscapes, landscape urbanism is the urbanism that expands design to the territorial scale while simultaneously working with the concrete extent of the landscape's physical materiality.

This paper presents a review of contemporary post-mining procedures and landscape urbanism design jurisdictions in light of exploring possible alliances between them. The analysis evaluates the performance of current post-mining practices in attesting the production of landscape assets and the capacity of landscape urbanism design to underpin that mission. The study combines a critical review of related literature with fieldwork observation of post-mining procedures in the Cajamarca region - Northern Andes of Peru. This case study provides the specific frame of large-scale surface gold extraction as a delimited field to analyze among the vast range of existing mining typologies.

Introduction

Mines are ephemeral working sites. Local resources availability and conjunctions, added to global market trends of mineral prices, altogether determine the inevitable and imminent end of a mine's life. Though current policies of resource extraction regulate mining companies to restore disturbed lands before their ultimate retreat, the smallest chance of mine abandoning cannot demand enough guarantees. Cities, hinterlands, and broader ecologies, post-mining primary heirs, are vulnerable to the unpredictable behavior of the landscape 'dysfunctional' machinery that resource extraction leaves behind. The unawareness of this global emergency is however very significant, as mines are imagined to operate in remote places geographically and conceptually detached from the everyday urban activity (Carlisle & Pevzner 2015). Paradoxically, urbanization is the central demand for resource extraction (Albanese & McGagh 2011). Thus planners and designers, the allegedly official operators behind city making, can no longer exempt themselves from the substantial challenges of mining closure in guaranteeing that cities and hinterlands will not inherit post-mining landscape liabilities.

To the end of guiding the spatial organization of urban activities, the discipline of urbanism operates through the professional practices of planners and designers in different scales of action. Designers are mostly in charge of projects with delimited site-scale boundaries to the extent of the urban built environment. Urbanism is for this purpose a discipline that combines the understanding of the city and the definition of action upon the city. In that attempt, design might be a central medium of urbanism to outline the action on the city, the project for the city. Through a visual representation of desired scenarios, design has always performed as a medium to integrate, synthesize, and transcend fields, domains and disciplines.

As a variation on urbanism with an emphasis on the urban-structuring capacity of landscapes, landscape urbanism is the urbanism that expands design to the territorial scale while simultaneously working with the concrete extent of the landscape's physical materiality: vegetation, water, soil, urban tissue, infrastructure, etc. Not only that, landscape urbanism enmeshes this materiality with the cultural elements as the forces that give shape to its concrete and evolving form. As such, landscape urbanism assumes that the understanding of complex ecologies allows enabling landscapes as recipients of the cultural and ecological needs and programs of today. While zooming in and out, from the vast territorial scale to the site scale, landscape urbanism shows the wires between sites and broader ecosystems. Rather than simplifying reality, landscape urbanism amplifies the complexity of territories to inform the design of future scenarios. Within a current rise of environmental awareness, landscape urbanism moreover translates ecological responsibility into an environmentally conscious design of the territorial and urban space.

The development of this paper refers to the state of the art and hypothesis formulation of the author's doctoral research 'Landscape urbanism of resource extraction: anticipatory design strategies for mining closure in the Northern Andean region of Peru'. The Ph.D. research addresses the question of how to guarantee the production of landscape assets in (post)mining scenarios of young-industrialized contexts, where it is still possible to anticipate mining closure and to avoid mine abandoning. In the particular case of the Andean region of Peru, the possibility of mine abandoning compromises the performance of headwater livelihoods with high ecological values for the country's overall hydric security. Water has therefore become the primary resource of contestation in mining conflicts. What is in the stake in the exploration of

(post)mining design strategies is the resilience of mining communities and broader ecologies in the face of an imminent, yet so far no enough anticipated, mining closure. This paper argues on the capacity of landscape urbanism design to contribute to the accomplishment of that mission.

As part of the doctoral theoretical frame, this paper presents a review of landscape urbanism design jurisdictions and contemporary post-mining procedures in light of exploring possible alliances between them. The analysis evaluates the performance of current post-mining practices in attesting the production of landscape assets and the capacity of landscape urbanism design to underpin that mission. The study method combines a critical review of related literature with fieldwork observation of post-mining procedures in Cajamarca region - Northern Andes of Peru –in the large-scale gold mines of Yanacocha, Tantahuatay and La Zanja. Literature sources vary from the domains of landscape urbanism, landscape architecture, environmental engineering, mining engineering, official reports and global-local mining policies documentation. The case study simultaneously provides the specific frame of large-scale surface gold extraction as a delimited field to analyze among the vast range of existing mining typologies. Two rigorous fieldwork surveys (in December 2015 and February 2017) make use of detailed site inspections, interviews, and interpretative mapping exercises to register and synthesize the logics of post-mining procedures in Cajamarca. The large-scale mines of the region, confronted to the medium-small size urban and rural livelihoods, will close in 2025.

The first part of this paper provides a detailed dissection of post-mining procedures of closure and reclamation. While doing so, it simultaneously analyzes the efficiency of these practices and exposes the implicit landscape urbanism logic presumably embedded in them. This analysis not only argues on the improvable efficiency of post-mining procedures; it also prepares the grounds for making the interaction between landscape urbanism and resource extraction explicit, as a basis for this improvement.

The second part of this essay presents and re-interprets the contribution of Keneth Schellie in introducing a new method for mining (closure) operations of the sand and gravel industry in the United States. In order to calibrate his proposal for other contexts of resource extraction, the essay introduces Schellie's work in challenging the mechanic transformation of post-mining landscapes into mere wastelands, while adding to it an implicit landscape urbanism perspective in the exploration of alternative post-mining land uses. The contextualization of Schellie's propositions in the closure of large-scale metal extraction sites not only justifies but entails the lens of Landscape Urbanism in search of new design strategies for post-mining landscapes.

In the last part, the paper enlarges the design scope of Landscape Urbanism while unfolding its instrumentality for improving the efficiency of mining (closure) procedures. This revision necessarily demands to elaborate on the application of landscape urbanism in young-industrialized contexts of the Andes (South America) where large-scale surface extraction is incipient; thus it is still possible to test new anticipatory modes of mining closure. This shift introduces a landscape urbanism of resource extraction as a prequel to the post-industrial landscape urbanism that began to operate in already abandoned brownfields of European and North American cities.

This study expects to show that the sole action of contemporary post-mining procedures does not guarantee the resilience of broader ecosystems beyond the limits of the mining sites. The findings of this paper prepare the grounds for (landscape urbanism) designers to make an explicit incursion in the domains of resource extraction and mining closure, in order to enlarge the framework of post-mining rehabilitation. Designers might as well engage with mining (closure) in the spatial formation of landscapes while still-operative resources are the most available. By considering mining as a transitional use, it is possible to design and prepare desirable post-mining landscapes simultaneously to mining operations. In the future this research can further build up in other typologies and contexts of resource extraction to the aim of systematizing a method of action for designers and planners of (post-mining) rehabilitation.

The gap in post-mining procedures

Environmental engineers are the primary drivers of post-mining procedures. For so long, at least "four major design professions –urbanism, urban design, architecture, landscape architecture–" (Corner 2006) have learned to keep distance from the environmental challenges of post-mining landscapes. Alternatively, landscape urbanism introduces itself as a hybrid discipline with the potential to integrate planning, design, and science together for the benefit of a more efficient action on the (built) environment (including land rehabilitation) (Weller 2006). The following analysis unfolds the agency of post-mining procedures, disciplinarily unilateral as they are, in their valuable efforts to guarantee "acceptable levels of ecological functionality for post-mining landscapes" (Tongway & Ludwig 2011). Later on, this inquiry dares to shed light on the latent landscape urbanism operations already embedded in those procedures. In the disclosure of environmental engineering and implicit landscape urbanism operations, the gaps in post-mining procedures and the potentials of landscape urbanism to make an incursion aim to become evident.

Post-mining procedures operate within uncertain time frames. Depending on both local and global factors that are external to the extraction sites, a mine's life can extend up to 20, 50 years or even centuries. As ore

extraction technology continuously improves and increases profitability margins, the prorogation of a mine's closure is more than usual. Given this uncertainty, international (and local) mining policies not only demand to elaborate a closure plan from the beginning of operations; but also to continually update it according to the evolving situations (ICMM 2008). Mining policies encourage the production of conservative closure plans, however. The discredit of the landscape manipulations executed during mining justifies the tendency of mining closure to minimize further transformations on site. Additional alterations –design or engineering projects of land re-shaping- are only completed in the attempt to "return the landscape, as much as possible, to its original form or function" (Congreso de la República del Perú 2003).
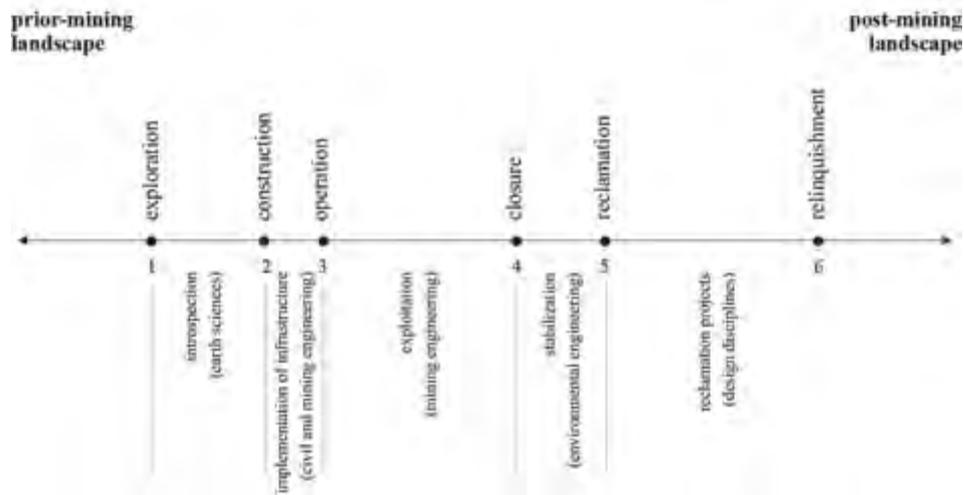
[fig.1] Linear articulation of mining phases, procedures and professional domains. Source: elaborated by the author from Integrated Mine Closure Toolkit (ICMM, 2008).

Mining closure implicates the execution of sophisticated environmental engineering practices of stabilization to restore the geotechnical, geochemical, biological, and hydrological balances of the disturbed landscape (Sánchez, lecture notes, February 1st, 2017). Stabilization procedures depart from the premise that exhausted mining sites are unstable and dysfunctional (Del Tredici 2008). Its engineering aims to cover up and reverse the constructive (or destructive) logic of extraction. The threatening environmental hazards that mining landscapes might cause in broader ecosystems justifies the emergency of taking measures of stabilization. For that matter, soil and water resources from extraction sites are the primary issues in which stabilization processes operate. The contingency of stabilization stands on the implicit assumption that water and soil resources wire to broader landscapes to which not only extraction sites but also rural and urban livelihoods submit.

The geotechnical stabilization consists of re-contouring topography and fortifying slopes to avoid erosion and landslides. As we can observe in the progressive closure of the Quinoa pit in Yanacocha re-contouring operations can locally redistribute soil matter from (top) soil deposits to exhausted open pits (SVS Ingenieros S.A.C 2010; Minera Yanacocha S.R.L. 2012). Different techniques of erosion prevention, such as the row re-vegetation of (native) species, follow these soil migrations. Re-contouring and fortifying techniques reconfigure the topography of closed sites while providing the geographic structures for post-mining landscapes to settle in; structures that will also guide the course and speed of rainfall water. While doing so, these operations tend to (re)create conditions for the "primary succession of native ecosystems in compliance with the immediate flora and fauna surrounding" (Bradshaw 2000; Bradshaw 1997). The manipulation of landforms as a basis to (re)produce substantial grounds for new ecosystems to take over closed sites is the primary purpose of geotechnical stabilization procedures.

As the slopes of a closed site are adequate for the colonization of new (native) species, the biological stabilization phase starts. A biologically stable environment is mostly the result of re-vegetation practices and primary succession processes (Bradshaw 1983). While re-vegetation can be executed in human scale periods of time, natural succession processes play among geological time scales of 50-100 years or more (Antrop 1998; Antrop 2000). Crucial is the reinstallation of top soils to guarantee a prosperous and attractive environment for vegetation to grow (Sánchez, lecture notes, February 1st, 2017) . Modern mining closure practices in Cajamarca Region carefully treasure this valuable resource in deposits to maintain the organic quality of the soil until its necessary reinstallation. In general terms, the biological stabilization is an open-ended engineering operation, where its successive results, depending on the resistance or adaptability of

species, are unpredictable. Biological stabilization procedures aim to initiate processes rather than defining a determined post-mining scenario.

Re-vegetation also serves to geochemical stabilization in processes of phytoremediation, where carefully selected plants can clean up toxic soils. Equally relevant are the actions focused on mitigating the production of Acid Mine Drainage (AMD) through geochemical stabilization techniques (Akcil & Koldas 2006; Gazea et al. 1996; Robb & Robinson 1995). In practical terms, these procedures aim to isolate pyrite soils from direct contact with oxygen or water. Recent research on closure in Cajamarca experiments on kinds of soil covers and layers of geotextiles, clays, and drainages systems to isolate from each other the components that together produce AMD. The engineering of soil covers has to do with the guidance of desirable sub-soil performances. Composition, granulation, and thicknesses of the various underground layers are some of the engineering decisions that accompany the procedures of geochemical stabilization.

[fig.2] Geotechnical stabilization in progressive closure of La Quinua Pit in Yanacocha mine, Cajamarca 2015. Re-filling, top-soil installation and row plantation of rice bales for erosion prevention. Source: photographed by the author.

In the attempt to neutralize AMD, hydrological stabilization procedures make use of passive (constructed wetlands, drainage systems) or active (processing plants) water treatment techniques. Depending on the local policies over water quality by activities and the referential environmental baseline (water quality prior mining), this hydrological stabilization tries to reach acceptable levels of acidity in water (Ministerio del Ambiente del Perú 2017; Gorchev & Ozolins 2011). Meanwhile, the problematic production of muds as a by-product of this water treatment triggers the quest for material recycling experiments. Recent studies in the Mashcon basin contemplate to use this mud as a primary material for the fabrication of bricks (Sánchez, personal interview, December 10th, 2015) .

The manipulation of topography plays a role in the structuring of surface and underground water bodies of surface mining sites. Mining closure operations not only imply the engineering of the necessary landforms to guide water to desirable places, while isolating AMD sources from them. Since open pit excavation involves pumping out water from water tables, significant challenges in hydrological stabilization procedures are also related to restoring the underground and surface hydric balance in the basins where mines, cities, and hinterlands operate (Vela-Almeida et al. 2016; Younger et al. 2002a; Younger et al. 2002b). The necessary actions to calibrate hydric balance necessarily implies to all at once deal with the multilateral aspects of water use in the urban, rural and mining domain. A hydric balance restoration demands to work with globally interconnected ecosystems, interrelationships, networks and hybrid space-time ecologies (of water).

Although clearly being matters of environmental engineering, many of the above-described operations can also be framed into a landscape urbanism rationale. While restoring certain environmental balance, closure procedures concur with landscape urbanism in the process of "ecology (re)construction" (Waldheim 2002). As such, mining closure practices get along with a degree of uncertainty. Forged by an open-ended, however robust (landscape urbanism) design, the resultant synthetic ecosystems require "to adapt, yet to resist change" (Berger 2002). Mining closure executions, as landscape urbanism, prioritize "the design of processes and

performances over the exact form" (Corner 2006). For mining closure procedures, and landscape urbanism practices, "the landscape is a model for process" (Allen 2001).

Landscape and urbanism realms are consistently present in mining closure procedures, as these not only impact on the performance of the exhausted mining sites. Mining closure procedures indeed also (re)configure the terms for the interaction between cities, hinterlands, a more extensive landscape machinery, after the retreat of mining. They indeed define, amongst others through the water management measures, a quite vast landscape machinery. By doing so, they fall into the systematic and integrative logic of landscape urbanism. Mining landscapes encompass a multiple number of scales and much larger ecological systems than the specific site of extraction. The necessary multi-scalar tools to confront such thick scenarios are however absent in current practices of closure. Environmental engineering procedures could use the back up of other disciplines to enlarge the mining closure framework, a discipline that simultaneously accommodates the sophisticated apparatus of urban, rural, and mining landscapes.

[fig.3] Biological stabilization of re-filled La Quinua Pit in Yanacocha mine, Cajamarca 2015. Plantation of Ichu, a native species from the Jalca Andean ecosystem of Cajamarca Region. Source: photographed by the author.

More explicit landscape urbanism practices are mostly present in post-mining procedures of reclamation. Later on mining closure, reclamation projects can follow up on projecting new land uses in a 'stable' environment. Different from closure practices, reclamation projects do admit the participation of planning and design. Most of these projects are concrete landscape design commissions with delimited spatial frames. The legitimate incursion of landscape urbanism in the remediation of brownfields challenges these projects' spatial frames to re-insert them in broader ecologies and to optimize the "intelligence of the place" (Shannon 2009). While doing so, reclamation projects assign alternative land uses in compliance with the rural and urban programmatic necessities, and ecological necessities in general. New post-industrial programs vary from the cultural and recreational facilities to biodiversity corridors and water management infrastructures (Shannon 2006).

Based on the interval between them and their absent participation in each other's decision making processes, it is fair to say that closure and reclamation practices are independent of each other; and moreover unarticulated from mining exploitation. As a consequence, both closure (from mining exploitation) and reclamation (from mining closure) inherit 'raw' landscapes from previous phases and autonomous agendas. The strict spatial conditions on disturbed mining sites limit the ecological processes over which landscape urbanism can influence in reclamation practices.

During and after exploitation, mining (closure) procedures impact the most on the spatial formation of post-mining landscapes. Although without necessarily taking space into consideration, mining (closure) creates indeed space. In that sense, landscape urbanism has almost naturally an interest in the instrumentality of mining and closure procedures (rather than those of reclamation). Distant from merely re-vegetation and surface site-planning, landscape urbanism is more interested in the spatial formation and organization of ecosystems, networks, and infrastructures. When reclamation projects attempt to make structural, spatial changes on the post-mining landscape, they involve the manipulation of massive volumes of soil. But their

isolation from the earth-movement engineering of mining (and closure) makes this massive manipulation of soils extremely expensive. This restricts reclamation in general to rather modest interventions. Once mining operations are finished, the execution of interventions that require directing more significant soil manipulations is quickly considered uneconomic. The overall linear articulation in separate time segments of exploitation-closure-reclamation procedures plays against their genuinely useful potential to shape influential geographies for urban and rural communities and whole ecologies.

[fig.4] Top-soil storage in La Zanja mine, Cajamarca 2015. Source: photographed by the author.

phyto-remediation practices

phyto-extraction	phyto-stabilization	phyto-stimulation	phyto-volatilization
Metals are absorbed by plant's leafs	Metals are absorbed by plant's roots	Metals are neutralized by bacteries	Metals are transformed to a gaseous state

covering typologies

'natural' covering

When there is no AMD production. The sterile disturbed soil is covered up with top-soil

'intermediate' covering

When AMD production is uncertain. The sterile disturbed soil is partially isolated and covered up

'artifitial' covering

When there is AMD production. The sterile disturbed soil is completely isolated and covered up

Acid Mine Drainage is produced when oxygen, water and sulfates are put together. This tends to occurs as a result of excavation procedures, when sulfates from the underground get exposed to the surface environment.

AMD mitigation is possible when at least one of the three components are isolated from the rest. For instance, soil coverings aim to isolate sulfate soils (FeS2) from air (o2) and rain (h2o).

[fig.5] Geochemical stabilization practices. Phytoremediation and covering typologies. Source: elaborated by the author from fieldwork notes (Cajamarca 2015, 2017).

loadings per day:
1600 tons of rich soil (x)
11000 of sterile soils (1.5x)

Pit

Drilling + excavation by
benches of 6m. height.
Mining is performed 20 hours
per day, 300 days per year.

Pad

Disposal of rich soils in
piramidal platforms of 10-16
m. height, in layers of 10cm,
up to 120 meters height.

Deposits

Disposal of sterile soils in piramidal platforms of 10
m. height, in layers of 10cm. Deposits are sorted by
their capacity to produce AMD or not: sulfate soil, or
non-sulfate soil deposits

closure's reversing operations
pit filling/recountouring with
soils from deposits

[fig.6] Spatial formation of mining landscapes. Constructive logic of pits, pads and deposits in Yanacocha mine, Cajamarca. Source: elaborated by the author from 'Introduction to Open-Pit Mining' (A. Wetherelt, K. Wielen, 2011) and Yanacocha's Environmental Impact Study (SVS Ingenieros S.A.C., 2010).

Mining, a transitional land use

The review of post-mining procedures puts in evidence a tendency of reversing the constructive logic of extraction in the engineering of post-mining landscapes. In the endeavor to pretend that mining never happened, earth filling supplants excavation, and geotextiles or clays mitigate the exposure of AMD sources to later cover them up with healthy top soils and vegetation. This reversal logic of construction puts the break on the full efficiency of (post)mining procedures to certify the making of landscape assets. To efficiently articulate the spatial development of post-mining landscapes, the role of mining operations has to be rethought necessarily.

An alternative is to think of mining from the start of as a "transitional land use" (Schellie 1977), in other words to anticipate the closure during the mine exploitation and hence prepare the post-mining during and, more importantly, as much as possible, actually through the mining operations. Mining is in this line of thinking conceived as a series of procedures that can potentially join closure and reclamation in the construction of post-mining landscapes. To consider mining as a transitional land use means to acknowledge extraction sites as landforms in passage to become something else, potentially desirable scenarios. This operational shift makes possible to build up post-mining landscapes simultaneously to resource extraction,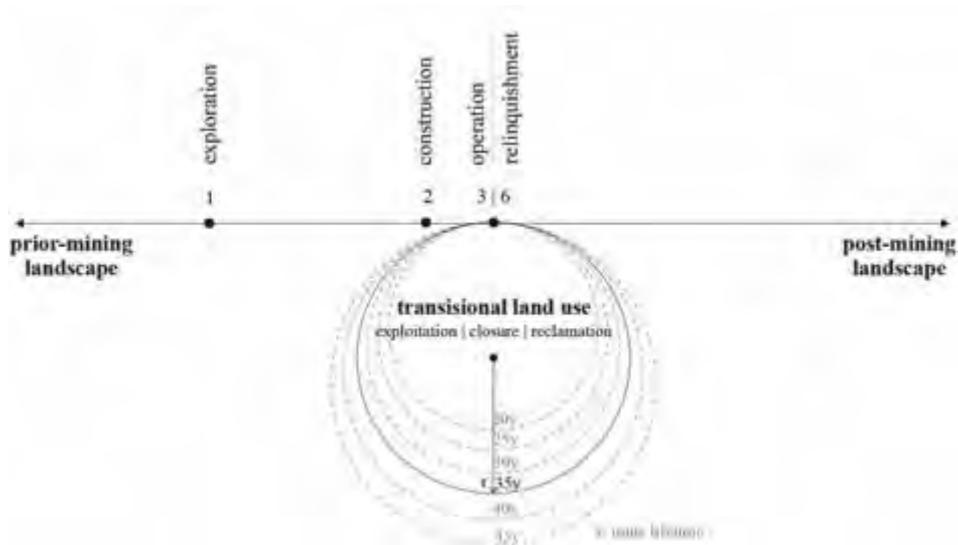 optimizing in this way the efficiency of closure and reclamation procedures to guarantee the production of reliable landscapes for future urban and rural communities. Such is the original idea of the landscape architect Kenneth Schellie, in the face of the imminent closure of sand and gravel sites of the United States.

[fig.7] Cyclic articulation of mining phases and procedures with mining as a transitional land use. Source: elaborated by the author.

The work of Kenneth Schellie sets a precedent for the operational use of the extractive industry to construct post-mining landscapes. Sand and gravel sites were, according to the survey work of Schellie, de facto often strategically located in the North American cities' edges and they provided primary materials for buildings. With the inevitable extension of the city, Schellie envisions the extraction sites simultaneously as future platforms for real estate development; platforms that the sand and gravel earth moving machinery can progressively construct (Schellie 1977; Johnson 1966; Bauer 1965). The idea of a simultaneous excavation and rehabilitation includes to design forward the urbanization project (plots distribution, roads, public space, etc.); and then to design backward (and to execute) the necessary earth movements to materialize those projects. This more cyclic type of method involves to inventor and carefully study the machinery of extraction, its designated use, and construction operability. Besides the final design vision, Schellie's resultant post-mining projects include a detailed phasing and tracing of earth movements and the inventory of the necessary machinery to execute them. Schellie's contribution not only articulates the operative forces of extraction to post-mining procedures; it also establishes a full resource utilization policy for the construction of post-mining land.

To implement a simultaneous excavation and rehabilitation of surface metal (large scale) mining contexts would demand, however, to recalibrate Schellie's approach. As a method, it has to be tailored to scale, site, parameters of urban development and rural situations, etc. Comparatively, the broad environmental impacts of the modern metal extraction do not allow accommodating in-situ post-mining urbanization. In the Mashcon case, as in many other contemporary extraction sites, mining operations settle apart from cities. Although paired with its human resources, infrastructure network, and facilities, most metal extraction sites,

don't require or induce further urban development. In fact, as mines currently tend to extend their life spam and refine their exploitation methods, there is no certainty on what the spatial needs of urban and rural communities would be at the true moment of closure. Extraction sites often form part of valuable and vulnerable ecological systems, what makes one to one equations between mining operations and later urban development even less a relevant agenda. That is the case of the gold mines of the Mashcon, located in Jalcas ecosystems where water retention plays a crucial role in the basins overall water management. Such environmental complexity surely demands a broader approach than the one initially framed by the discipline of landscape architecture.

Landscape urbanism as a transdisciplinary approach that aims to integrate urban design, engineering and other fields of knowledge, while interpreting the landscape as a support to canalize development and balance economy and ecology, might be sufficiently inclusive and synthetic to offer this broadened approach. It might indeed be the necessary tool to explore further Schellie's proposal on the possible organization and performance of post-mining landscapes. The transitional character of mining offers then a framework to prepare the necessary spatial landscape structures that can accommodate desired environmental results. A progressive design and construction of post-mining landscapes can potentially structure, guide, incite beneficial ecological processes through topography manipulation. Through the "spatial assembly of synthetic ecologies" (Waldheim 2002) a landscape urbanism design approach can direct the construction of post-mining landscapes to set up determined ecosystem services for urban and rural communities. Thus, the most structural work of spatial formation can also relate to programs of landscape performance.

The potential incursion of landscape urbanism in resource extraction

From its origins, landscape urbanism makes incursion in the recovering of post-industrial brownfields and the re-insertion of these sites into broader ecologies (Waldheim 2016). The discipline of landscape urbanism has acquired the credentials to deal with post-industrial contexts where urban-mechanized economies confront rural-agricultural developments, and where the ultimate retreat of industries leaves orphan wastelands within urban territories (Shannon 2006). Contemporary geographies of resource extraction differ however from this typical framework of landscape urbanism. Today mining tends to settle apart from cities, in regions and altitudes where resource extraction is like an instant introduction of foreign capital and technology, an intensive industry contrasted to country-sides with own kinds of (age-old lasting) habits, capitals, and technologies. These large-scale industrial developments are associated with only prime matter exportation (Bridge 2004). Particularly in the case of Peru, modern, corporative and mechanized mining with large-scale surface extraction (established since the 90s) is a relatively recent practice. In such a situation, landscape urbanism can contribute by envisioning exploitation strategies that avoid the production of brownfields in the first place, by anticipating and preparing sustainable post-mining environmental conditions during mining operations.

To anticipate closure and the production of brownfields necessarily demands to get involved with still operative mining, which presents a series of challenges for landscape urbanism. Operating simultaneously with resource extraction tests the capacity of landscape urbanism to efficiently articulate multidisciplinary knowledge through design and engineering. To take part in (post)mining procedures necessarily demands from (landscape urbanism) designers to seriously master the most technical engineering aspects of extraction, closure and reclamation procedures. To make use of the forces of mining for a progressive construction of geographies requires a genuine commitment to understanding the logic behind the structure and operations of mines. Simultaneously it expects to be able to mediate and engineer mining operations in their co-evolution with rural and urban communities, with a fair balance of economy and ecology. Beyond the contexts of mining, to anticipate closure tests the genuinely integrative synthesizing nature of landscape urbanism.

By acting on the remote landscapes that anyway structure them, mining certainly impacts on human settlements. Thus, the particular features of mining landscapes (physical-chemical-biological properties and spatial typologies) might deserve a specific attention from landscape urbanism. The potential encounter of landscape urbanism and resource extraction might be necessary as it becomes evident that only a deep understanding of mining processes can ground the drafting of sustainable scenarios for (post-mining) cities, hinterlands, and broader ecosystems. Distributed across different altitudes, as in the case of the Andean Region, mines, urban/rural livelihoods and ecologies tend to co-evolve with resource extraction. It has also become a tendency that mining strategically settles in or nearby headwater ecosystems, where a privileged access to water for the necessary mineral processing is guaranteed. As earth manipulation is the basis of resource extraction, the modified topographies of these headwater ecosystems inevitably disturb the water management mechanisms of downstream livelihoods. This situation not only clearly positions mining as a tough contender for the demand of hydric resources (Bebbington & Williams 2008). It also fundamentally links contemporary mining activities to water management.

Since mining essentially deals with earth but also water, the contact of landscape urbanism with resource extraction logically needs to turn to the rationale of "water urbanism" (Shannon et al., 2008). As one of the articulations of landscape urbanism, water urbanism can play an important role to use the hydrological structures of (mining) landscapes to give orientation to a sustainable urbanism, one that simultaneously watches over the development of spatial frames that support equitable access to water and fair hydric balances among users (De Meulder & Shannon 2013). For water urbanism, to work on the hydrological structures of landscapes is a zero-degree procedure that can potentially form the base of any planning operation. The meeting of landscape urbanism and resource extraction takes over this modus operandi and adds to it a zero-degree articulation of earth: topography manipulation through mining operations. Although applied in contexts where mining is not necessarily present, this substantial topography manipulation to guide water management is indeed present in several explorations on 'water topographies' in contexts as Vietnam and Bogotá (Shannon 2009; Rojas et al. 2015).

For landscape urbanism to tackle the above described complexities of resource extraction necessarily requires using new communicational models, such as an initially interpretative mapping. "Interpretative mapping, as a creative and projective practice" (Corner 1999), can intelligently establish a synopsis of the development issues (social, economic, environmental, technical) as a visual synthesis that is simultaneously accessible to all kind of actors. In other words, mapping enables a commonly understood language, so that it allows an open conversation between (post) mining specialists and stakeholders. The machinery inventory and visual glossary developed by Schellie would compose in that sense only one of the facets of a landscape urbanism interpretative mapping and surely the frame under consideration would expand from only mining operation fields to cities, productive lands, nature, etc., in short: the territory in which the mine operates and all its essential environmental dimensions. While problematizing, through the visualization of sources of conflicts and coincidences in space, an interpretative mapping allows unveiling the potentialities of the (post-mining) territory. In the particular case of contemporary mining, water and soil are not only the primary disturbed and contested resources during extraction; they potentially are the main entries for landscape urbanism to map and operate across natural, rural, urban and industrial geographies. It is indeed inevitably what these different geographies have to share willy-nilly.

The review of the existing gaps in (post) mining procedures, unilateral and linearly articulated, reveals that the sole action of the environmental engineering cannot fully guarantee the resilience of broader rural and urban landscape apparatus in the face of mining closure. Only the acknowledgment of a necessary fuller action frame can endorse the legitimacy of a landscape urbanism incursion in anticipating and dealing with mining closure. Mining as a transitional land use opens the scope for landscape urbanism to articulate cyclic processes of designing and constructing (post)mining landscapes; to design forward desirable scenarios, and backward to the necessary operations to materialize them.

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Suburban place-making: 'place distinctiveness' as manifestation of political-economic coalitions (case: Antwerp, c.1860-c.1940)

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This paper is a preliminary version of the introduction of my PhD, which is concerned with place-making in the urban periphery of Antwerp during the periurban period and with the role of political economic elites in processes of (sub)urbanisation. We want to develop a theoretically founded historical perspective on how these nineteenth- and early-twentieth-century suburbs were being made during the important transitional phase from no longer being rural to almost being suburban. This period is denominated in literature as the 'periurban phase', and is for Antwerp to be situated between c. 1860-c. 1940. Questioning (1) how the discourse on place evolved during the periurban period and how this impacted on place-making processes in the urban periphery; (2) researching the actors involved in these place-making processes; and (3) analysing the materialisation of place distinctiveness in the pre-World War II built environment in the suburban belt of Antwerp, is what this research project is about.

Place, an elusive yet fundamental concept

Although 'place' is a much-used word in our day-to-day language, the concept is, from a theoretical point of view, much more elusive. Ever since the so-called 'spatial turn', space and place have become highly debated concepts within the social sciences. A common approach, however not uncontested, is the conceptualisation of 'space' as abstract and of 'place' as meaningful (Lupi 2008, pp.17-19). According to John Agnew meaningful place has three fundamental elements: location – indicated with geographic coordinates –, locale – the material setting – and sense of place – the subjective attachment people have to place (Cresswell 2015, pp.12-14). To illustrate with an example from Belgium: Latitude 51°09'58.4"N Longitude 4°22'06.6"E is the location of *Schoonselhof* cemetery in Wilrijk and Hoboken, two suburbs of the city of Antwerp. Next to its geographic coordinates, this place is also determined by a material setting – currently it is a graveyard located on former grounds of a noble country house (a so-called *villa rustica* or *hof van plaisantie*) – and by subjective attachments and emotions attached to it – nowadays mostly grief and commemoration, but in former days notions of prestige and noble pastimes. Note the historical 'layeredness' and changeability of both locale and sense of place. We will come back to this later onwards.

These definitions and conceptualisations have however been contested, for example by Lefebvre, who distinguishes between absolute space – an abstract account of space – and social space – lived and meaningful space (Cresswell 2015, p.19). For Lefebvre, there is not one single understanding of space; "space *is* not, but *becomes* in dynamic ways" (Warf 2006, p.2297; italic in original). Lefebvre therefore argued that space is a social product, produced on three interconnected levels and resulting in a tripartite division of material space (experienced space), representation of space (conceptualized space) and spaces of representation (lived space). Whereas the first level is about the tactile interaction with matter, the second level has to do with representations through maps, words, images etc. and the third level is about emotions, imaginations and meanings (Harvey 2006, p.279). Lefebvre's thinking on the production of space has deeply influenced the ideas of many authors in the fields of urban theory and human geography, especially those of social constructivists.

These different ways to perceive and define place and space draw back to the use of the concept in several disciplines and on differing levels. In his introductory book, Tim Cresswell (2015, p.56) gives a clear overview of the different perspectives that have been developed on place. He distinguishes between three levels at which various disciplines and writers approach place, ranking them from concrete to abstract. The first level is a descriptive approach to place and is concerned with the particularity of a particular place. Examples are studies on the geography or the 'soul' of a specific place, ranging from regions to the micro level of a neighbourhood. The second approach, from which this PhD will take its clues, is a social constructivist approach to place. By studying specific places, social constructivist researchers want to unveil structural conditions underlying the place-making process. Studying a place is then a means to detect the structural conditions such as capitalism, patriarchy or post-colonialism, which are steering the place-making process. The third level, at last, is more abstract and is concerned with 'Place' as a phenomenological concept rather than with particular places.

The second approach delignated by Cresswell, social constructivism, has been explored by several authors, among whom David Harvey. When writing about place, he stated that "the only interesting question that can then be asked is: by what social process(es) is place constructed?" (Harvey 1996, p.261 quoted in Cresswell

2015, p.46).[1] When talking about place as a social construct, two aspects are highlighted: its meaning and its materiality. In the Western world, this means that the meaning we ascribe to place is strongly influenced by Western cultural values and capitalist forces. The materiality of a place is socially constructed as well. People erect buildings, parks and roads for various reasons (Cresswell 2015, pp.46-47). Others point to the social constructiveness of geographic systems and mapping. Geographic coordinates are not a natural given but draw back to a convention made by humans (Crampton 2010).

Place-making and development coalitions: a political-economic approach

The political economy of place

Social constructivist approaches to place-making cover a wide arrange of theories and models. In this PhD, we are not so much interested in the post-colonial or feminist approaches to place, but want to study the impact of political-economic interests on suburban place-making processes. The political and economic stakes are after all high in the suburbanisation process, with different political-economic actors competing against each other (Walker 1981; Hayden 2003). The investments in land that are at the root of this competition are not only an important means for developers to acquire wealth, but also impact to a large extent on how urban agglomerations grow (Gottdiener, Hutchison 2006, p.70). In order to unveil the political-economic stakes in the suburbanisation process, we will be looking into political-economic theories on place-making.

These theories emerged as a critique on the urban ecology of the Chicago School, known for Burgess' 'concentric zone model' and their conceptualisation of inner-city migration and segregation as natural and automatic processes. Political-economic writers underscored that there is nothing natural about the material forms and cultural meanings of cities. On the contrary, in the Western world, these are aligned with economic and political interests, dominated by macro socio-spatial dynamics of capitalist accumulation and associated power struggles. However, just as the ecological models they contest, these first political-economic theories were contaminated with some kind of structural determinism. Both approaches are criticized for overlooking the role of agency and historical contingency in the place-making process (Gieryn 2000, pp.469-470). In the 1980s, several authors acknowledged the conceptual importance of agency in what became to be known as the 'urban political economy' (Harding, Blokland 2014, p.90).

A well-known and influential theory within the field of 'urban political economy' is the growth machine thesis, firstly developed by Harvey Molotch in 1976 and further elaborated in Logan and Molotch's Urban Fortunes, published in 1987. In studying the 'political economy of place', Molotch is concerned with the role of human agency in place-making processes (Harding, Blokland 2014, p.93). Starting point of the growth machine theory is that, in capitalist societies, commodification of place is fundamental to urban life. Due to its nature as commodity, Logan and Molotch highlight how local public and private actors, with strong interests in urban growth (such as landlords, utility and building companies, the mayor, shopkeepers) will organise themselves in growth coalitions in order to increase the exchange value of place when it is bought, sold or rented. Place-making here becomes subject and instrument of a desired 'growth dynamic', which at times may be opposed by groups defending particular use values that may be threatened by urban growth (such as open space and mobility infrastructure) (Logan, Molotch 1987).

Central to growth machines are local landowners who want to gain economic surplus from their land ownership. Since these rentiers cannot achieve their goals on their own, they need to create alliances with other actors. Logan and Molotch distinguish three different groups. The first group are those who benefit directly from local development and growth. Examples are architects, contractors and real estate agents. Their interest will be largest when it concerns small, locally bound companies, which are only active in a specific area. However, even large firms could have a local interest, at least when they have local branches, with local management eager to prove themselves. The second group are those who gain indirectly because of a growing customer base, such as local media and utility companies. The third group is more heterogeneous. It consists of universities, cultural institutions, professional sport clubs and small retailers. These actors will support development that coincides with their interests but will protest against other kinds of development. Local politicians at last, are not necessarily part of a growth coalition, but often support it (Harding, Blokland 2014, pp.95-97).

An important, but according to Jonas and Wilson (1999, p.8), often overlooked element of the growth machine thesis is the crucial role of discourse in urban growth and politics. Molotch states that growth coalitions develop several boosterish tactics to promote local growth, including advertisements and sponsorships of parades and city events. Their goal is to create some kind of 'we feeling', which would facilitate urban developments and diminish protests against them (Molotch 1976, p.314). Although the growth machine theory is developed in order to study urban areas in the United States during the second half

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1 Several authors have contested this view by introducing a more philosophical point of view. Sack and Malpas, for example, think about place as primary to the social, natural and cultural: there is no society without place. Although this view adds valid points to the discussion, an empirical basis is missing (Cresswell 2015, p.50).

of the 20th century, this boosterism is not just a contemporary phenomenon. Dolores Hayden (2003, pp.83-86) has demonstrated in her study on American suburbs that already in the 19th century advertisements and festivities were used by developers to boost specific places. One developer, Samuel E. Gross even organized train excursions for potential buyers to his properties, where musicians, refreshments and entertainment were welcoming the potential buyers. Hayden's (2003, p.4) study illustrates that growth machines already emerged in the United States in the midst of the 19th century.

Whilst the growth coalition theory has proven its merits for studying 19th century urban development in the United States, it might be harder to apply it to other institutional contexts. Molotch realised this when stating that "the exchange of land is at the very essence of local politics, but most particularly 'in places ... where land and buildings are commodities, unfettered by cultural or state policy constraints'" (Molotch 1993, p.49, cited in Jonas, Wilson 1999, p.4). Typically, land use powers are decentralized in the United States, leaving much political freedom for local politicians. Also, and perhaps even more importantly, cities depend on taxes for their revenue. Therefore, they are constantly battling with other places to attract developments that will increase their tax base. In order to test the transferability of the growth machine thesis outside the United States, one needs to look into the local specificities and regulations, and determine whether these would support or counteract the formation of growth coalitions (Jonas, Wilson 1999, pp.14-15).

Related to this problem of transferability is the returning critique that the growth coalition theory does not sufficiently take into account the shift in urban politics towards social and environmental issues, but solely focusses on growth as the dominant political agenda (Jonas, Wilson 1999). The urban regime thesis,[2] another influential political-economic theory, has opened up the spectrum of possible motivations and goals in urban place-making processes. In contrast to growth coalitions, urban regimes are not necessarily directed at growth. Stone, for example, distinguishes four different kind of regimes, including a regime that is devoted to the emancipation of the lower class (Stone 1993). Although the urban regime theory has its merits, we do believe that the growth coalition theory is more appropriate for the purposes of this PhD-project. Main reason for this is that rentiers, who were important actors in the periphery of Antwerp during the periurban period (not only because of their landownership, but also as members of local political and community life), are the central actors in the growth coalition theory. However, in order to open up the analysis for other motives of place-making than urban growth alone, we suggest using the more open term development coalition instead. As such, the concept will be more transferable to other institutional contexts.

Place distinctiveness as a discursive construct
Another concept that we want to introduce here, next to growth coalitions, is place distinctiveness. Whereas sense of place refers to a bottom-up emotional attachment to place, place distinctiveness focuses on the discursive selection that is made by urban elites in order to single-out or boost a specific place. London, for example, is often discursively constructed as a 'financial hub'. At the same time, it is also home to many diasporic communities, a much less known aspect of the city. Since this discursive selection is mostly in hands of political and economic elites, the force of power in place-making processes becomes apparent (with constructions on place distinctiveness trickling down to the public via government documents, the media, etc.) (Jessop 1997). Place distinctiveness is important and matters, because it is through the discursive mobilization of such constructs that political-economic elites try to stamp their vision on the respective places that are being built. We should, however, remark that place distinctiveness is not completely controllable and manageable: political and economic elites are not the almighty 'puppet masters' that classic Marxist theory sometimes makes of them. Place distinctiveness as discursive construct is not merely a convenient tool that can be mobilized in any possible way at any possible time, but is a discourse that builds up through time and cannot just be changed overnight. It requires a lot of effort to bend existing ideas on place distinctiveness in a new direction.

There are some parallels between place distinctiveness and the much-used concept sense of place. Both are products of power relations in society,[3] and they have their discursive nature in common. There are however two important differences between both concepts. First, whereas sense of place is associated with emotions and subjective attachments, and can thus be seen as 'bottom-up', place distinctiveness is a 'top-down' concept. Secondly, whilst sense of place is about the subjective attachments people have to place, and can thus be associated with Lefebvre's third category of space, namely spaces of representation/lived space, place

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2 Stone defines a regime as "an informal yet relatively stable group *with access to institutional resources* that enable it to have a sustained role in making governing decisions" (Stone, 1989, p.4; italic in original). Regime theory and growth coalition theory have many similarities, with the necessity of cooperation between different actors to achieve common goals as the most important one, but also some important differences. Whilst rentiers are the central actors in growth coalitions, governments are central to the regime theory. The basic assumption here is that governments cannot govern effectively without making alliances with private actors. More importantly, whilst there is only one form of growth coalition, several types of regimes exist, which are not necessarily geared at growth (Harding, Blokland 2014, p.102).

3 Sense of place is a product of practices, carried out by people in place. These practices, however, are restrained by constraints, which are the product of social hierarchies and power (Cresswell 2015, p.65). As such, sense of place is a product of power relations.

distinctiveness belongs to the second category distinguished by Lefebvre: representations of space/conceptualized space. From our constructivist perspective, place distinctiveness does not necessarily mirror the actual development of a place, but reflects specific political-economic interests and visions of place. Of course, an industrial town will not easily be boosted as bucolic, so there is a material aspect to place distinctiveness as well. In less pronounced places, however, there might be a significant gap between how the place is boosted and how it actually develops.

From suburban myth to suburban place-making: why suburbs?

Shifting focus from cities to suburbs

The theories and concepts described above have been developed within the broader field of urban studies. Recently, several authors have been claiming that the urban studies are in crisis (Rickards, Gleeson, Boyle, Cian 2016). On the one hand, the urban seems to be everywhere. The anti-urban approach that dominated public debates in the past has been countered by a new urban enthusiasm, denominated by Gleeson (2012, p.931) as the new genre of 'urbanology'. Authors such as Brugmann, Glaeser and Florida celebrate the city and present a discourse that, despite its empirical weakness, is eagerly adopted by politicians of all ideologies (Gleeson 2012, pp.933-935). On the other hand, with the growing attention for the city and the urban, it also seems to become less clear what the urban exactly means (Rickards, Gleeson, Boyle, Cian 2016, p.1542). This has led to a paradox in urban studies; the urban is an urgent but unclear object of study. Various authors attempt to solve this paradox, for example by acknowledging the complexity (Amin, Thrift 2002) and the diversity of cities (Robinson 2011; Kenny, Madgin 2015).

Others try to solve the urban paradox by deconstructing the urban-rural dichotomy and study the suburban zone in between. Suburbs, suburbanisation and suburbia – the places, processes and lifestyles at the edges of the urban centre of metropolitan agglomerations – have been subject of public and academic debate since the 1950s. Often this debate was polarised, with advocates and opponents putting forward an idealised or, more often, dystopian version of suburbs and suburbia. Because of recent demographic prognoses, stating that in 2050 more than 60% of the world population will be living in the broader suburban belt around cities (Kotkin 2010), the urban periphery has been re-introduced into the centre of attention of both scholars and policy makers. Some scholars claim that, whilst the 20th century was an urban century, the 21st century will be a suburban one (Keil 2011).

By historically studying suburbs we can learn from the contemporary (or at least post World War II) urban studies debates on the subject and its pitfalls. Firstly, the contemporary literature on suburbanisation has for a long time been dominated by an Anglo-centric perspective, focusing on white, middle-class suburbs in England, the United States, and to a lesser degree, Canada and Australia (Jackson 1985; Fishman 1987; Clapson 2003). Recently Keil, among others, has been calling for a global perspective on suburbs, suburbanisation and suburbia (Clapson, Hutchison 2010; Keil 2011; Hamel, Keil 2015). In recent years, then, attention has turned to Asia, Africa and South-America, and in a lesser degree to Western Europe. With our focus on suburbanisation in the non-Anglo-Saxon context of the Antwerp region, we aim to contribute to this current global perspective.

Secondly, the recent revisionist literature on suburbanisation also aims to develop a longitudinal perspective. Whilst much suburban research focusses on a specific moment in time, McManus and Ethington (2007) propose a long-term perspective wherein the whole life span of a suburb – and beyond – is taken into account. Suburbs are, just as any other socio-spatial structure, changeable, and its long historical evolution should not be ignored. This PhD project explicitly adopts a longitudinal perspective on suburbanisation and focuses on the eighty years before World War II, which in contemporary urban studies research is often seen as preceding the moment when contemporary suburbanisation really took off (Filion 2015). Thirdly, in the past, suburbs were often studied from the perspective of the urban core, whereby an 'urban bias' could deform research findings (Binford 1985). Studying suburbs from within the suburb itself, instead of looking at it from the central city outwards, will allow for a better understanding of suburban agency – the impact of suburbanisation on the urban and the rural – and of suburban place-making processes by (local) development coalitions.

The suburban myth

For a long time, suburbs were seen as purely residential, low-density areas, inhabited by white middle-class families, often associated with a conformist, conservative and dull lifestyle. From the 1960's onwards, authors unveiled this stereotypical idea as the so-called suburban myth, by demonstrating its inherent diversity (Berger 1961; Gans 1968). The suburban myth however proved to be persistent and was enforced by stereotypical representation in popular media. As a result, many critics of suburbs see them as generic places, devoured of identity and distinctiveness. There are however several problems with this view.

First of all, there is the issue of urban bias. Many critics of suburbs are urbanists who lack knowledge of the suburban life and fail to appreciate the internal diversity of suburbs. Often, their critiques are pointed at the

suburban lifestyle of the middle class, as depicted in television shows and movies. As McManus and Ethington (2007, p.325) state, an important challenge is to disentangle this concatenation of suburb and the critique on the middle class. Secondly, for those aspiring a suburban live, suburbs are not generic places, but are associated with ideas of a good, prosperous life. Third, seeing suburbs as generic is a rather recent phenomenon. The term suburb is used since centuries and once referred to those areas just outside the city walls, where unpleasant, polluting or illegal activities were going on (McManus, Ethington 2007, p.320). At the same time, prosperous urban citizens were enjoying the rural life in their *villa rustica's*, located in the rural areas around towns. Later, in the 18th and 19th century, the suburban life became an aspired lifestyle for the urban well-off. From the interwar period onwards, the suburbanisation process democratized. The vast suburban areas in the United States that resulted from this democratisation process are at root of the suburban myth (Thorns 1972, p.147). Seeing suburbs as generic is thus a recent and biased conceptualisation. An important reason for the persistence of the suburban myth is that the historical layeredness of suburbs is often overlooked. Admittedly, several post World War II suburbs, especially in the United States, developed on Greenfields, and emerged from a more or less tabula rasa situation. Many other suburbs in the world, however, grew from existing villages in the urban fringe, which formed "mixed-activity population centers" and "a distinctive economic region" of their own (Binford 1985, p.44). Seeing a suburb from this perspective, and acknowledging the "complexity of its historical development" (Vaughan 2015, p.12) is crucial in order to understand how suburbs are being made.

The suburb defined
But what exactly makes a suburb suburban? What are its defining characteristics? Despite decades of research on suburbs, there is still no consensus on what this term exactly means. In her paper on suburban definitions, Forsyth identified several key dimensions such as location, characteristics of the built environment, the sort of activities that are going on in a suburb and its sociocultural characteristics (Forsyth 2012). Others have tried to establish typologies of suburbs (Jauhiainen 2013; Harris 2010), or created neologisms such as technoburb, exopolis, edge city and post-suburbia to differentiate between different sorts of suburbs (Hamers 2003). Despite efforts of several authors to come up with a widely accepted definition, there is still no consensus reached. In this PhD, Mace (2013, p.13) will be followed: "rather than seeking to define the suburb as a particular type of physical or social place – a density, social class, transport mode etc. – it is argued here that the distinctiveness of the suburb is more usefully approached as being a particular relational place between the city and the rural."
We could thus state that what is specific to suburbs is that, on the one hand, they have the benefit of proximity to an urban centre, and thus to urban amenities, whilst, on the other hand, there is, at least until the (sub)urbanisation process really takes off, a lot more and cheaper available space than there is in urban centres. The specificity of suburban areas allows thus for specific types of development and use which are not feasible, desirable and/or cost-effective in urban or rural areas. As such, suburban areas are interesting playgrounds for all kinds of developers, especially during the periurban period.[4] This is the transitional phase from no longer being rural to almost being suburban, and is for Antwerp to be situated between c. 1860-c. 1940. According to Harris (2013, p.37), it is especially during such periurban period that place distinctiveness acquires high political and economic significance and that development coalitions come to the foreground. "Once the periurban zone has filled in and become suburban, inertia sets in for a while. Pressures for development, and with it the attention of developers, shifts further outwards." Employing a political-economic perspective as a way to gain insight in suburban place-making processes during the periurban phase seems thus to be a promising research approach.
In the 1980s, authors such as Walker (1981) and Binford (1985) already illustrated the opportunities a political-economic approach on suburbanisation is offering. Recently, Kruse and Sugrue (2006) have been calling for a renewed focus on the political economy of suburbs. Therefore, and with the purposes of this PhD project in mind, we choose to develop a 'top-down' political-economic perspective, meaning that our research questions and source material will depart from ruling elites actively engaging in suburban place-making processes.

Different suburbanisation strategies: ideal-types and path-dependent trajectories?
But what do these elites and development coalitions hope to accomplish in these suburban areas? Several so-called ideal-types can be distinguished, which might help to interpret the empirical data. A first ideal-type is the residential suburb, which is probably the type that is most commonly associated with the term suburb. Whereas suburban living was in the 18th and 19th century in many parts of the Western world only affordable for the well-off, innovations in and democratisation of transportation modes from the end of the 19th and

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[4] Harris uses periurban primarily as a spatial concept, but does suggest a temporal component as well when speaking of "the periurban stage" (Harris 2013, p.34). In a recent PhD, the term has been used as a temporal concept (Sverrild 2016). Because of the historical approach of this PhD, we choose to speak of a periurban phase, rather than a periurban zone.

beginning of the 20th century onwards, made suburban living possible for large sections of the population. However, there is a lot of variety in and between countries and regions. In contrast to many other places, for example, the suburbs, or so-called *banlieues* of Paris, are not inhabited by the affluent but are designated areas for the poor and minority groups (Fishman 1987, p.12). The situation in Belgium is also different, because of the continuous efforts of the national government throughout the 19th and 20th century to encourage rural living by investments in railways, the provision of cheap workmen's fares and stimulation of home ownership in the countryside (De Decker 2011). Apart from national differences, residential suburbs take many forms, from garden city-like neighbourhoods, over upscale gated communities and unplanned slums to large social housing estates (Jauhiainen 2013). Of course, residential suburbs are very rarely purely residential, but are accommodated with facilities, shops and public space such as parks and squares.

A second ideal-type is the industrial suburb, which does not only consists of factories but also of housing for labourers and accommodation for community life. Industrial suburbs are often located alongside canals or other major transportation nodes in order to enable the supply of raw materials. In Belgium, the abolishment of urban excises in 1860 made it a lot easier for industrial companies to relocate from the cramped urban centres towards peripheral areas (Segers 2000). A third ideal-type that we identify in this PhD is the multifunctional suburb, where there is no preponderance of a specific kind of use but a mixture of housing, manufacturing and services. Where the specificity of residential and industrial suburbs compared to urban or rural areas is more obvious, the multifunctional suburb is, because of its mixed-use more closely related to urban characteristics. It is interesting then to look at what kind of discourse on place is developed by local political-economic elites in these multifunctional suburbs, and whether or not they oppose themselves from their urban counterparts.

It is important to remember that many suburbs did not emerge from a tabula rasa situation, but developed around existing and often century-old villages and centres (Binford 1985, p.3). As such, it is crucial to incorporate the historical layeredness of suburbs in the analysis. As we explained in the beginning of this paper, place, and its constitutive elements – location, locale and sense of place – are changeable. However, throughout the transformation of places, traces of the past are (partly) preserved, resulting in a complex, layered historical picture. In addition, these traces of the past impact to a greater or lesser extent on the further evolution of a place. This process is denominated in literature as path-dependency. Many authors from various disciplines have been writing on the subject, resulting in a vast amount of literature (f.e. Martin 2010; Oosterlynck 2012; Sorensen 2015).

As a result, however, path-dependency means different things to different people. Here, for example, we are not concerned with the economic approach to path-dependency, stating that specific events or decisions become 'locked in', and that the path that follows from this 'lock-in' cannot be abandoned because of several reasons, such as large investments that have been made, at least until a disruptive technology or external shock emerges (Martin 2010, p.4). When looking at infrastructural interventions, it might be possible to address this from the perspective of 'lock-ins'. When talking about discourse however it becomes a lot harder to use this economic conceptualisation of path-dependency. However, other kinds of definitions of path dependency have the downside of being too general. Bengtsson and Ruonavaara (2010, p.193) for example state that "the concept of path dependency means that if, at a certain point in time, the historical development takes one direction instead of another, some otherwise feasible alternative paths will be closed – or at least difficult to reach – at a later point." A methodological question that needs to be answered is if it is possible to speak of path-dependent suburban trajectories alongside the above-mentioned ideal-types, and if yes, how to conceptualize the concept of path-dependency.

Antwerp as a case study

As a case we have selected Antwerp, and more specifically Hoboken, Wilrijk and Mortsel, three suburbs located south of Antwerp, in between 1860 and 1940. We choose to focus on Belgium because, apart from obvious pragmatic reasons, as De Maesschalck (2011) stated, it has suburbanised significantly more than most other Western European countries. We presume that this could be partly explained by the activity of development coalitions, deliberately engaging in processes of suburbanisation as a means to gain economic surplus. Still, the topic of suburbanisation in Belgium has not been widely studied, especially not for the pre-World War II period. Whilst the 19th century context and political decisions have been incorporated in the planning histories of the current dispersed landscape pattern of Belgium (De Meulder, Schreurs, Cock, Notteboom 1999; De Decker 2011; De Block, Polasky 2011), an in-depth study of the concrete practices of suburbanisation is still missing.

As stated before, it is not an easy task to apply the growth coalition theory to other countries than the USA. However, since towns in Belgium had a rather large autonomy since the Municipal Law of 1836, and because of the quite liberal approach towards urban planning from the early 19th century onwards, this American theory might offer opportunities for the Belgian context as well. Furthermore, and even more importantly, municipal governments in Belgium had a financial interest in population growth. The more inhabitants, the

higher a town was rated. These rates determined how many council members the municipal council counted, and how much the mayor, aldermen and some civil servants would earn (Knops, Draye 1986). Additionally, the Municipal Fund, established in 1860 after the abolition of the urban excises, was until circa 1920 distributed on the basis of the prosperity of a town (Van Audenhove 1992, p.47). Towns that were growing and creating welfare were thus rewarded financially. Although this system is definitely different from the American context wherein towns needed to provide their own tax revenue, in both cases there is a financial incentive for local growth. We might thus conclude that studying 19th- and early-20th-century Belgium from the perspective of the growth coalition theory might be promising.

Within Belgium, the case of Antwerp is particularly interesting because it provides opportunities to reveal conflicts whereby local and supralocal, and private and public interests clash. The decision of the national government to build the Brialmont bulwark circa 1860 had important consequences for the development of Antwerp and its agglomeration, mainly because of the expropriations and military servitudes (Lombaerde 1997). However, there are indications that local landowners did manage to influence supralocal politics. For example, the location of one of the fortresses in Wilrijk was adapted in order to safeguard the gateway to the manor house *Schoonselhof* (Pottier 1984, p.30). Additionally, the Study Committee for the development of the Antwerp Agglomeration founded in 1907 by the ministry of Public Works, coordinated the development of Antwerp and its surroundings. Similar committees were only created in other Belgian cities from the 1920s onwards (Velle 1993, p. 498). The specificity of Antwerp offers thus opportunities to unveil the interactions between local and supralocal and public and private actors, and to study their impact on place-making processes in the suburbs of Antwerp.

Within Antwerp, we focus on the suburbs of Hoboken, Wilrijk and Mortsel because of their strong periurban growth, which might be explained by the presence of development coalitions. It is in this growth context that Hoboken, Wilrijk and Mortsel evolved from semi-rural villages to suburbs of Antwerp. Furthermore, despite the fact that they were confronted at the same time with the same external force (the construction of the Brialmont bulwark), they each developed in different ways and each represent one of the above-mentioned ideal types. Whilst Hoboken became an industrial suburb, Wilrijk developed into a residential suburb, while Mortsel became a multifunctional suburb. Although the location of Hoboken nearby the river Scheldt and of Mortsel at the crossing of two main roads probably played a role herein, some kind of agency is still required to utilize and exploit a place as such. Therefore, we want to look into the actors involved in these suburban trajectories and study their discourse on place, their interactions and coalition formation and the materialisations of their visions and ideas.

Finally, we choose to study suburban place-making processes during the period c. 1860-c. 1940, because this period covers the so-called periurban phase, wherein the places under study were no longer rural, but not yet suburban. Apart from the theoretically motivated reasons discussed above, this will also allow gaining a better understanding of the preliminary trajectory of the much better known and studied post-war suburbanisation in Belgium (f.e. Van Herck, Avermaete 2006; Meeus, De Decker 2013).

Research questions

This PhD project is structured around three main research questions (1) How did the discourse on place evolve during the periurban period and how did this impact on place-making processes in the urban periphery? (2) Which actors were involved in shaping the discourse and the materialisation of periurban place-making? Did these actors organise themselves in a way resembling development coalitions? and (3) How did the discourse on place materialise in the built environment?

As a first research question, this project will analyse how the discourse on place evolved during the periurban period and with what kind of effect on the development of the urban periphery. Sub-questions that will be addressed are: how, when and where did a discourse on place emerge and become dominant? Did these discourses on place reveal ideas on place distinctiveness? To what extent did the discourse on place align with the actual development of the suburbs under study? For example, if a place is boosted as rural, is this also reflected in its morphology? If there would be discrepancies, how can these be explained? Of course, since place distinctiveness is about the selection of a specific element of a more complex reality, it will never grasp the whole range of experiences and developments of a place. However, it will reflect the specific political-economic interests and the associated vision of place of the local and supralocal political-economic elites.

Secondly, we will look into the actors involved in the place-making process, both regarding the construction of a dominant discourse on place and regarding the concrete built materialisations. Which actors played what role? What were their motivations? Were these actors organised in one way or another? Concerning this last sub-question, we want to study if development coalitions emerged in the urban periphery during the periurban period. There are two important elements that must be highlighted here. Firstly, a development coalition is not necessarily merely local, especially not when supralocal governments play a role in determining land use. Local development coalitions might have certain ideas about the development of a place, which might contradict envisioned plans and prospects of supralocal ones. An important sub-question

then becomes: how do local and supralocal governments interact around land use decisions and does this hinder or support the formation of development coalitions? Secondly, the growth coalition theory has been developed as a means to study contemporary urban processes in the United States. Therefore, it will be crucial to historicize and contextualize the concept as such; is it even possible to speak of development coalitions in the second half of the 19th and the first decennia of the 20th century in Belgium? If so, how should these development coalitions be understood in their historical context? As such, this PhD project can contribute to the growth coalition theory by applying it to a time and place specific region.

Lastly, we will zoom in on the materialisation of place distinctiveness in the urban periphery. Of course, the materialisation of place distinctiveness is touched upon in the first two research questions. However, here we want to study this materialisation in detail. Therefore, we will be looking at the construction of roads and subdivisions and the associated regulations. Laying out streets was an important way for landowners to create economic surplus. The road construction process was however coordinated by the municipal, provincial and national government. Road construction became thus an arena wherein public and private interest clashed or, conversely, reinforced each other. Our research aims are twofold here. On the one hand, we want to investigate whether conflicts arose between the interests of the private owners and the public regulations about road construction. What kind of regulations and requirements were imposed on the construction of new roads and subdivisions? Who was in charge of this regulation process and how were the different actors involved in this process related to each other? On the other hand, we want to study how place-making processes are being translated in the built environment. The way roads are being designed – think about the dimensions, plantations, front yards and so on – has an important impact on the landscape and on the future use and development of the surrounding plots of land. As such, we can analyse if, and how, place distinctiveness materialised in the built environment of the Antwerp periphery during the periurban period. Whilst place distinctiveness is a discursive concept, there is also a material aspect to it. After all, by materialising the discourse, it is consolidated and strengthened.

Sources and overview of the PhD

These research questions will be scrutinized by looking at five different topics: land, borders, streets, subdivisions and industry. Each topic will be studied by looking into case studies. For each topic, the discourse will be analysed and the actors will be identified and examined. Where possible materialisations will also be studied. This will especially be the case for the chapters on streets and subdivisions. A wide arrange of different types of sources will be used, ranging from newspapers (available online via BelgicaPress and the archive of *Gazet van Antwerpen*), over minutes of the municipal council, correspondence, Popp maps, deeds to sale of land, statutes from industrial companies and real estate developers (via the database of the Institute for Financial Archaeology), to planning regulations and architectural plans. Some of these sources, such as the registers of deeds or the registers accompanying the Popp maps will be quantified, whilst other information will be mapped. Most information from the sources will however be subject to a qualitative analysis.

Following the introductory chapter, the first chapter will give the necessary contextual information about the research period, the suburbs under study and the actors involved. A periodization will be developed in which broader societal tendencies such as the Long Depression (1873-1896) and local peculiarities such as the Brialmont bulwark and the congestion of the Antwerp harbour will be explained. The different types of actors that are part of the growth coalition theory will be contextualised to the Antwerp situation.

In the second chapter, the topic of land will be addressed through the case study of Ferdinand Moretus, a nobleman who owned large plots of land in Hoboken. He inherited these properties in 1864 from his deceased parents, and was a few years later, at the time of the Popp map[5] the largest proprietor in Hoboken. In the following decades, he gradually sold most of his property or used them as investment in industrial companies. As such, he enabled the industrialisation of Hoboken. He was also involved in the founding of a railway company for the industrial companies on his plots of land, and evolved as such into an industrial entrepreneur. After his death, a *Société Anonyme* was founded by his inheritors and his confidants, in order to further develop the plots of land in Hoboken that were not sold throughout his lifetime. This case helps to explain not only how and why Hoboken developed into an industrial suburb but also how the nobility evolved throughout the second half of the 19th century and how the large plots of land they owned were redeveloped.

The nobility also plays an important role in the case that will be studied in the third chapter, covering the topic of borders. From the end of the 19th century onwards, the city of Antwerp attempted several times to incorporate large amounts of land of surrounding suburbs, such as Hoboken and Wilrijk, into the urban legal boundaries. These attempts were met with a lot of protest by suburban politicians and inhabitants. In 1911, the noble family della Faille saw the opportunities in these annexation attempts by the city of Antwerp and made a deal, the so-called della Faille convention. Not only did they agree to give parts of their own land to

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[5] According to the Poppkad project of Ghent University, these maps were made in between 1867 and 1871 (poppkad.ugent.be).

the city, for the formation of a public park, they also bought land from other landowners to increase the size of the transferable land. In exchange, the della Faille family was allowed to develop plots of land alongside the newly created park for villas and up class housing. As a consequence the della Faille family founded the real estate company *Extensions et Enterprises Anversoises*, later known as Extensa. This case is another example of how the nobility evolved into entrepreneurs. Furthermore, it touches upon the topic of political authority on suburban land and annexation by the central city (Stott 2004; Nicolaides, Wiese 2006).

Whereas the previous two chapters are about land, and how large plots of land of the nobility become redeveloped throughout the second half of the 19th century and the first decennium of the 20th century, the fourth chapter is concerned with what happens during and after these plots of land are assigned a new use. Construction of roads was a major way for landowners to increase the value of their plots of land. Cities and agglomerated parts of villages with more than 2000 inhabitants were since 1844 subjected to a special procedure for the creation of new roads (Zitouni 2010). Each request needed to be approved by the provincial governor, before it was sent to the minister of public works. Multiple advisory institutions were addressed by the governor, which resulted in a series of reports and extensive correspondence between private actors, municipalities and the supralocal government. These documents have been kept at the State archive in Beveren and provide insight in the arguments and motivations used by private and public, and local and supralocal actors, in favour or against the layout and requirements for a specific road or subdivision. Research that has already been conducted on road construction in Hoboken and Mortsel in the first four decades of the 20th century shows how both public and private actors involved in the construction of roads frequently referred to and discussed place distinctiveness when arguing pro or contra specific road designs. As such, we can study how ideas on place distinctiveness emerged and gained increased political-economic significance. We can explain the different political-economic mobilization of place distinctiveness in Hoboken and Mortsel by looking into the political landscape and political culture of the places under study and into national political agendas concerning spatial planning. Within such critical juncture as the timeframe studied here – the periurban phase – different visions on the urban future of the suburb are crucial to explain eventual patterns of densification, or precisely a lack of it.

The fifth chapter will look into subdivisions and will particularly focus on the numerous small real estate firms that were founded to develop suburban land, especially from the interwar period onwards. In the beginning of the 1930s several real estate companies cooperated in order to develop the unbuilt areas in between the border of Antwerp and the centres of Hoboken and Wilrijk and to connect both with each other. The sixth and last chapter, apart from the conclusion, is concerned with industrialists and their interests in suburban areas. This is already touched upon in the second chapter, but will be elaborated and deepened in this last chapter. As a case, the move of the photography factory of Lieven Gevaert from Antwerp to Mortsel will be examined.

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Spatial fragmentation and self-organisation: a negative relation in Brazilian metropolises

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While Brazilian metropolises are spatially fragmented, at the same time they have abundant bottom-up, spontaneous, self-organised initiatives that usually emerge as a response to a weak or neglected public sphere. This paper aims to answer the question: To what extent does spatial fragmentation influence self-organised initiatives? The article is based on an analysis of data collected in São Paulo. It first develops a theoretical reflection on both concepts, followed by an outline of our methods and our analysis. The results show that the spatial fragmentation pattern observed in São Paulo is defined by a strongly polarised urban structure that heavily influences the operation of self-organised initiatives, limiting their area of work. The study indicates that the relationship between spatial fragmentation and self-organised initiatives is not straightforward and that spatial fragmentation hinders the expansion of self-organised initiatives.

Introduction

Since the 1960s, urbanisation in Brazil has been changing the country from a predominantly rural society, with less than half the population living in cities in 1960, to a highly urbanised society, with an 84.5% urbanisation rate in 2010 (IBGE, 2015b). This phenomenon was accompanied by a population increase of 270% (IBGE, 2015a), similar to other cities in the Global South, resulting in the massive growth of the population in urban areas. This process has also been accompanied by intensive opportunity-led development, where traditional urban planning tools were unable to cope, and cities being built according to a strong market logic. The result in contemporary Brazilian metropolises is a fragmented and unequal urban environment.

Public urban policies have not been able to respond effectively to this challenge. Traditional urban planning tools, such as zoning strategies and top-down master plans, have successively failed to provide services, and even affordable housing in the formal sector, as needed by the population. Nevertheless, while these traditional urban planning tools were not successful, Brazilian metropolises have become fertile ground for bottom-up, self-organised initiatives. These initiatives commonly emerge in contexts where the public sphere would traditionally be the leading actor, such as in improving public spaces, providing social services or even recuperating urban infrastructure. As can be observed in some of the cases analysed below, the initiatives emerged from a popular need that was not being effectively addressed by state institutions.

Self-organised initiatives rely on a social connection between members to function effectively; moreover, in Brazil, they need to operate in a very fragmented urban environment. This paper delves deeper into the relationship between spatial fragmentation and these self-organised initiatives. In this regard, it is important to understand the challenges and difficulties that spatial fragmentation generates for self-organised initiatives. According to Caldeira (2000), the city of São Paulo is an extreme example of spatial fragmentation, which creates an inefficient urban system characterised by rigidity and violence. While a high degree of physical fragmentation is created by walls, spatial fragmentation is not only based on physical barriers but also on socioeconomic differences. In theory, creating physical connections between urban spaces would be an example of a 'good' planning strategy to promote social connectivity and therefore better conditions to generate self-organised initiatives. Nevertheless, physical connection does not necessarily promote social connection between diverse groups or individuals. There may be other factors influencing this phenomenon apart from the simple connection of spaces. As Sabatini and Salcedo (2007) suggest, in some specific contexts, the development of gated communities and the physical barriers surrounding them can, to some extent, create a social connection between residents and non-residents of such communities. The relationship between physical connection and social connection is thus not that straightforward.

Acknowledging that self-organisation is highly influenced by local conditions, this paper addresses the relationship between spatial fragmentation and some self-organised initiatives in the city of São Paulo in detail. More specifically, it asks the question: To what extent does spatial fragmentation influence self-organised initiatives? This question will be addressed using an urban policy lens, which means that the concepts of spatial fragmentation and self-organisation are to be understood in a broader urban context that goes beyond mere urban planning. The aim of this article is to develop the theoretical debate around the two concepts and elaborate on how spatial fragmentation could have a negative influence on self-organised initiatives. Additionally, the article contributes to the self-organisation literature by relating it to that on spatial fragmentation.

In Section 2, the theoretical framework will be presented. Here we will first define the concepts and present a literature review, before addressing the type of fragmentation and self-organised initiatives observed in the

city of São Paulo. Section 3 addresses the methods used in our study and Section 4 presents the results from the data collected during the fieldwork. The final section presents the conclusion, leading to some insights for future work.

Theory

What does spatial fragmentation mean?

Spatial fragmentation suggests an extremely unequal spatial pattern in the built environment. For example, the physical built environment may develop in different forms, in what Santos refers to as the 'uneven accumulation of times'. This notion of the accumulation of times refers to the development of very distinct spatial structures within the same built environment (Santos & Dias, 1982). In other words, development does not occur in an equal way in all areas. Within the same urban context, for example, it is possible to observe people living in modern skyscrapers, while others live in dwellings that are reminiscent of sixteenth-century infrastructure. This points to a linkage between development and fragmentation. Santos analyses the spatial organisation of São Paulo as a collection of different fragments (2009). This approach served as a basis for research by Balbo and Navez-Bouchanine in their case study of Rabat-Salé in Morocco. These authors define fragmentation as a characteristic of most cities in developing countries, which contrasts with the orderly space of the developed Global North. In the words of Balbo and Navez-Bouchanine:

> "[...] the city of the developing countries shows a distinct spatial pattern characterised by the variety of the physical environment or the fragmentation of urban space. From an aerial view, most Third World cities appear as a complex mosaic where the various pieces are assembled according to a logic entirely different from that of the rational and efficient industrial city model. … In this paper we consider fragmentation to be the sum of autonomous elements". (Balbo & Navez-Bouchanine, 1995, p.573)

Identifying fragmentation depends on the autonomous capacity of the various areas of a city. In this sense, metropolitan areas with a high number of slums and gated communities can be characterised as fragmented systems. In this article, the term 'fragmentation' refers not only to the difference in the spatial characteristics of distinct areas of a city, but also to the low degree of integration between the residents of these areas. The framework of Sabatini and Salcedo is used as a reference to analyse the level of integration. Fragmentation, therefore, involves more than just diversity within an urban system.

It is essential to identify what spatial fragmentation means for cities. The city of São Paulo is described by Milton Santos as a 'fragmented corporative metropolis' (translation by the author from Portuguese 'metrópole corporativa fragmentada') (2009). In addition to being led by the market, which is the corporative aspect, fragmentation in São Paulo is constrained by the polarised structure of the city, where jobs and services are concentrated in the city centre. The population living in the suburbs on the periphery have less access to these jobs and services due to an inefficient public transport network and a lack of financial means. According to the author, this centre/periphery dichotomy is the main underlying force of fragmentation in São Paulo (Santos, 2009). Since Santos began his study in 1990, it is highly appropriate to verify whether this polarised structure is still valid today.

Distinct fragmentation patterns

The fragmentation dynamics of São Paulo are linked to strong polarisation, which can be demonstrated by looking at different indicators. The concept of porosity, for example, is helpful to illustrate this. 'Porosity' is a metaphor for urban areas with spatial discontinuities, such as brownfield areas, empty spaces and disconnected neighbourhoods. A porosity index (Pessoa, Tasan-Kok, & Altes, 2016) is used to measure and understand the different types of porosity in the Brazilian context. In the case of São Paulo, porosity is mainly created by strong economic growth and the presence of informal settlements.

Metropolis	Population growth (2000-2010)	Real GDP growth per head (2000-2010)	Dwellings growth (2000-2010)	Growth as input for porosity	Houses in gated communities	Houses in slums	Dwellings without street/number identification	Output porosity
	a	b	c	[a+b+c]/3	c	d	e	[c+d+e]/3
São Paulo	0.08	0.28	0.20	0.16	0.01	0.10	0.06	0.06

Table 1: São Paulo Porosity Index. Source (Pessoa, Tasan-kok, & Altes, 2016)

A large share of informal settlements in the provision of housing is a strong indicator of fragmentation in São Paulo. The Brazilian Institute of Geography and Statistics (IBGE) uses the term 'subnormal agglomeration'

('aglomerado subnormal') to define those areas that are popularly known as favelas (slums), and introduced the following definition in the 2010 census:

> "[...] a group made up of 51 dwellings or more that have no property titles and have at least one of the following characteristics: irregularity of access routes, the shape or the size of the plots, and a lack of essential public services – for example, no garbage collection, sewage network, water network, electricity or street lighting". (IBGE, 2010)

The term 'informal settlement', as used in this article, is based on the definition of subnormal agglomerations used by IBGE. While IBGE's definition focuses on spatial and physical aspects, which are insufficient to understand the dynamics of social inequality, power struggles or other societal challenges (Kovacic & Giampietro, 2016), it is important to explore this definition in detail in order to understand how informal settlements relate to fragmentation. IBGE's definition mentions groups of 51 dwellings or more, without property titles. This characterises a collective structure outside the government legal framework. The group aspect is emphasised, as the definition focuses on collective capacity and ignores the possibility of individual dwellings without property titles. This is not only a collective deviation from the formal urban structure, but also a strong sign of a parallel legal framework.

The maps below depict the location of informal settlements in São Paulo and Rio de Janeiro [Fig. 1]. The map of São Paulo shows a strong polarised structure, with informal settlements located on the periphery, while the city centre has almost no informal settlements. Comparing São Paulo with Rio de Janeiro, Figure 1 shows different structures related to spatial fragmentation. While São Paulo has a clearly polarised structure, with the city centre being one main pole, Rio de Janeiro has a more homogenous structure, with informal settlements distributed in a rather random pattern throughout the entire municipality.
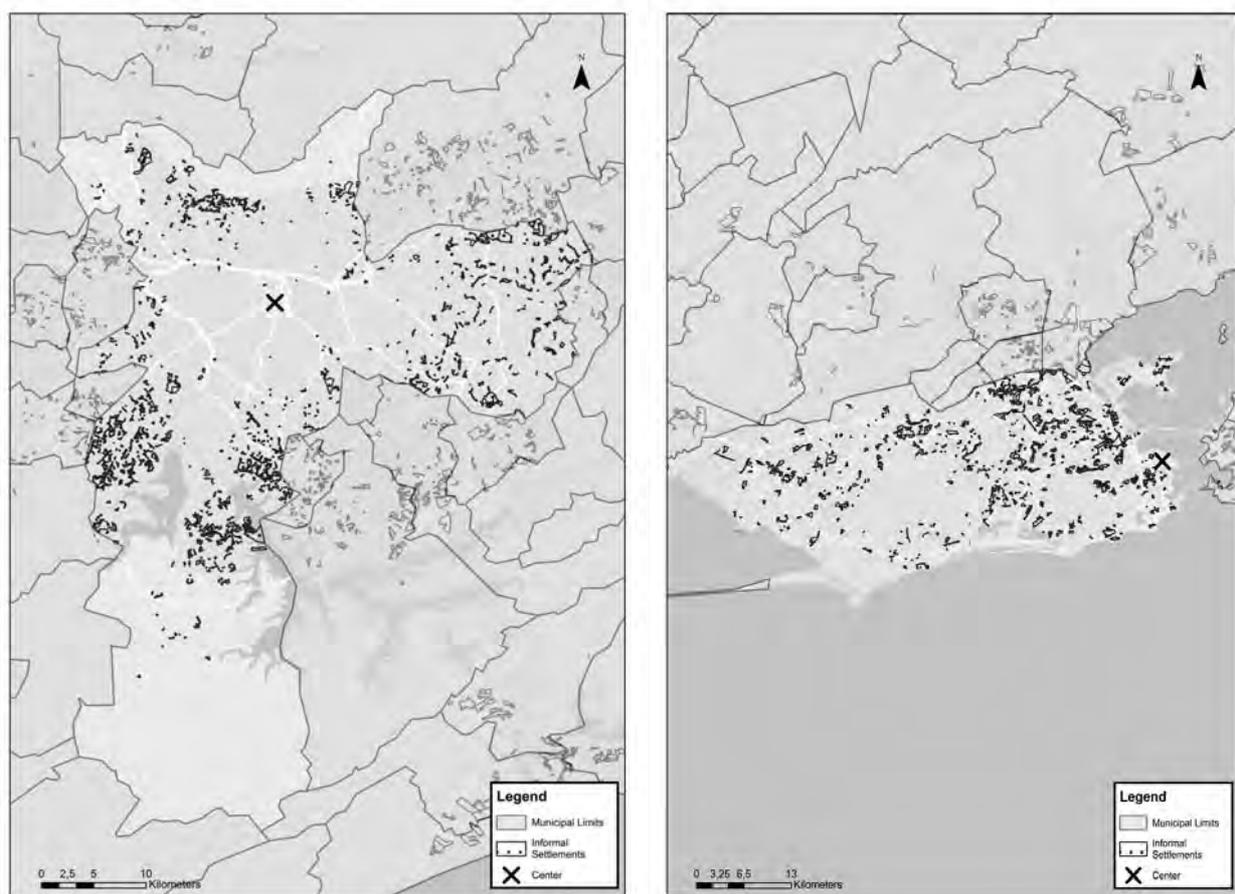
[fig.1] Informal Settlements in São Paulo (left) and in Rio de Janeiro (right). Source: elaborated by the author.

The polarisation structure is not only restricted to informal settlements in São Paulo, as gated communities are another indicator of fragmentation, because they also have the autonomous capacity mentioned by Balbo and Navez-Bouchanine (1995). This can be seen in research by D'Ottaviano (2008), which confirmed the polar structure of the development of gated communities in São Paulo. Additionally, the IBEU data shows this polarised structure, with more affluent areas concentrated in the city centre and less affluent areas on the periphery (Ribeiro & Ribeiro, 2013). Historically, the city invested in individual modes of transportation, with

the habitants of the suburbs largely dependent on cars or on a very inefficient public transport system. Santos shows that due to factors such as limited financial capacity or a poor transportation system, a fragmented structure was created, where the population outside the city centre was ultimately restricted to the vicinity. Urban fragmentation in São Paulo is manifest in this extreme polarisation.

What kind of self-organisation?

A second key concept concerns self-organisation. There are two main interpretations of 'self-organisation' in urban studies. The first relates to complexity science (Ashby, 1947; Eigen, 1971; Foerster & Zoepf, 1962; Haken, 1983), while the second is used in governance studies (Dam, Eshuis, & Aarts, 2009; Kotus & Hławka, 2010; Nunbogu, Korah, Cobbinah, & Poku-Boansi, 2017; Wunsch, 2013). Although both fields use the term 'self-organisation' and the definitions have some similarities, they are fundamentally different. Ward Rauws (2016) developed a framework to distinguish the two, in an attempt to avoid possible confusion. While self-organisation as seen through a complexity science lens focuses on the emergence of spontaneous urban patterns from individual local interactions (Heylighen, 2008; Portugali, 1999), in governance studies the focus is on processes of self-governance, where citizens take the lead from the government and act in a kind of bottom-up, grassroots, 'do-it-yourself' urbanism (Kee & Miazzo, 2014; Newman, Waldron, Dale, & Carriere, 2008). The later interpretation, aligned with governance studies, is used in this article.

According to Rauws, self-organisation considered through a governance studies perspective has four main characteristics that clearly distinguish it from the complexity science perspective: there is internal coordination, where members develop a participation and decision-making process; actions are undertaken with a collective intent, where a common goal, for example the renewal of a public space, is the aim; a change in the urban environment is the result of this deliberate action designed to achieve this common goal; and the transformation of the urban system is to some extent predictable (Rauws, 2016). In summary, the initiatives rely on an internal process of coordination, have a common goal, bring people together to act to achieve this goal and the result of this change is relatively predictable. Additionally, these self-organised initiatives work independently from the government (Dam et al., 2009; Schmidt-Thomé, Wallin, Laatikainen, Kangasoja, & Kyttä, 2014; Swyngedouw & Moulaert, 2010) and usually work around the established networks of governance and institutions (Lydon & Garcia, 2015).

The self-organised initiatives studied here share the above-mentioned criteria. Firstly, they are all managed by a civil society group, which means that they are not externally controlled by any government body or private enterprise. This does not mean that public institutions have not influenced the initiatives, but rather that the initiatives are independent and act with a bottom-up logic. The relationship of the initiatives with the private sector may vary, with some of them receiving support from private companies. This occurs more often with initiatives that started as an informal collective but then developed into a formal association or NGO, which allows companies to financially contribute to them. Secondly, they do not aim for financial gain for a specific group or person, but are focused on solving collective problems. Thus, they concentrate on the collective aspect mentioned by Wunsch (2013). There is always a factor of common concern in the initiatives that goes beyond individual financial interest. Furthermore, they focus their work on an urban challenge which traditionally would be tackled by public authorities (Tonkens, 2008). In this regard, the initiatives analysed here addressed issues that are traditionally dealt with by public agencies, focusing on urban challenges – for example, the renewal of public spaces.

Methods

The research started with a literature review on spatial fragmentation and self-organisation, outlined above. This initial section also considered the development of the concepts, the current debate and the application of both concepts in the context of the Global South. Additionally, the research used different sources of data. We accessed data from the IBGE about the location of informal settlements. The data were used in ArcGIS to develop maps and visualise the fragmented structure of the city. These maps (Figure 1) confirmed the fragmentation dynamics of São Paulo as claimed by Milton Santos, with informal settlements found to be located on the periphery, while the city centre of São Paulo had almost none.

In this regard, a qualitative strategy was developed to understand how this fragmented and polarised structure is currently affecting self-organised initiatives in the city of São Paulo. A preliminary online scan of social media and related websites was undertaken to look for initiatives, which indicated that they were concentrated in the city centre. The researcher's personal network was also used to find potential participants in these initiatives and start a snowball process. The snowball strategy worked well, but also demonstrated a relative limitation, as it did not extend to initiatives based in peripheral neighbourhoods. The initiatives contacted were limited to a network that only extended to the city centre region. Nevertheless, this did not hinder the research and it was still possible to investigate how this polarised structure influenced these initiatives in the city centre; in other words, the kind of relationship that self-organised initiatives in the city centre have with the peripheral neighbourhoods and their residents.

Ten semi-structured in-depth interviews were conducted in São Paulo with members of these organisations, as well as academics and public servants working at the municipality dealing with these initiatives. The interviews were conducted in July 2016 and took place at the office or meeting place of the initiatives, in public spaces or in cafés. The search for initiatives that would fit the criteria mentioned above was relatively easy; however, it turned out to be challenging to find a representative willing to give an interview. As will be further explained in the analysis, there was a common concern of the interviewees not to be regarded as the leader of the initiative. In São Paulo, contact was made with six initiatives:

Table 2: Self-organised initiatives studied in São Paulo.

The interviews were audio-recorded and analysed later with Atlas.ti software. Additionally, field observations during physical meetings and participation in online groups of these initiatives also provided insights during the analysis.

Spatial fragmentation and self-organised initiatives in São Paulo

Self-organised initiatives rely on the capacity to communicate and integrate the wishes of their members. Nevertheless, it is challenging to deal with public space in an urban environment that exhibits striking

Initiative	Contact	Actions
Terreyro Coreográfico	In-depth interview	Renewal of public spaces under viaducts through the organisation of dance-related events.
Bela Rua	In-depth interview	Renewal of public spaces.
Cidade Ativa	In-depth interview	Develop urban interventions to promote mobility on foot.
Organismo Parque Augusta	In-depth interview and social media observation	Reclaim and manage the Parque Augusta, a public park that is located on private land and has been targeted by real estate developers.
Colaboratório - Lab Bijari	In-depth interview	Different urban interventions to raise awareness of how urban space is being used; for example, highlighting where empty buildings are located.
A Batata Precisa de Você	Social media and field observation	Renewal of the Largo da Batata, a public square located in the Pinheiros neighbourhood.

inequalities. As mentioned by a member of Organismo Parque Augusta, when dealing with public spaces, you also have to deal with the problems of the city as a whole.

> "Because it is very different from squatting a house or an occupation aiming for housing. In a public park occupation, there is the idea of a place without ownership ... another relationship. It is a collective relationship between the people there in a common space. It was very interesting. [...] the area was kept open 24 hours a day for 47 days, and we faced the complex challenges of the city itself. [...] It was a rich experience, because you could see there the relationship between people from different social classes came out". (Member of Organismo Parque Augusta)

In this sense, the striking spatial fragmentation of the Brazilian urban environment creates a greater challenge to the integration of habitants into the space in which they live. There are not only physical barriers but also financial inequalities, which make it more difficult to connect residents and the built environment. To better understand the level of social integration between the participants in self-organised initiatives, the research used the framework developed by Sabatini and Salcedo (2007) as a reference, which defines three levels of integration: functional, symbolic and community. Functional integration is based on power and economic relations, and can be measured, for example, by the level of participation of the poor in the market, in the democratic process and in their access to services and urban facilities. Symbolic integration is related to the sense of belonging to the place where one lives. While community integration refers to:

> "[...] the formation of social ties that go beyond simple functional exchange. It is expressed in friendship, solidarity networks, and even familial relations. Community integration requires people to recognize and be recognized by the 'other' as an equal with whom it is possible to surmount the borders of privacy. Community means intimacy and complicity". (Sabatini & Salcedo, 2007 p.577)

Without disregarding the complexity of social relationships in the metropolitan areas of Brazil, based on the three levels of social integration presented, it becomes clear that the metropolises with a high degree of inequality and spatial fragmentation actually exhibit more functional integration. Residents from informal

settlements and residents from gated communities reveal functional integration, for example, when gated communities rely on the workforce of residents from informal settlements to do low-skill tasks. Villaça (2011) has already pointed out the negative impact of inequality on the metropolitan dynamic of São Paulo.

As argued above, due to the lack of capacity of the government to adequately respond to or manage the complex metropolitan environment (Maricato, 2011), Brazilian metropolises have become fertile ground for bottom-up initiatives, where civil society has taken on a major role, not only putting forward its demands but also implementing them. From the renewal of public spaces to the construction of urban infrastructure, self-organised initiatives have had an important role in the urban development of Brazilian cities. This is no different in São Paulo. Moreover, due to the massive scale of the city, many self-organised initiatives have emerged as a solution to different urban challenges. The initiatives analysed here were all, to some extent, working with the renewal of public spaces. Some of them undertook more ephemeral activities, such as social events in marginalised or abandoned spaces, while others focused on more long-term spatial interventions. While using different strategies, they all aimed for the improvement of public space and the wellbeing of the local habitants. As the aim here is to see how these active initiatives operated in a fragmented city and not how they emerged, all of the initiatives included in the research were already established and relatively successful, insofar as they have already produced concrete outcomes.

A common characteristic of these self-organised initiatives is the lack of clear leadership, which, as we suggested above, results in individual members being concerned that they will be seen as the voice of their respective initiative. During the interviews, it was common for the interviewees to make a disclaimer that they should not be interpreted as speaking on behalf of the initiative. Although this matter was not explicitly addressed in the interview, some interviewees stated several times that their account should only be understood as their personal perspective and not as an opinion shared by the whole group (it should be noted, however, that interviewees coming from the public sector did not express this particular concern). It was mentioned, for example, by an interviewee referring to how it was problematic not only to develop the initiative's common discourse, but also how to communicate it to the public authorities.

> "[…] I think that initiatives don't want to have a spokesperson […] I think we have more of a lexical challenge … how do you say something that the regional mayor, a life-time bureaucrat, will listen to, will understand you … but I had to do this work … try to understand what were the problematic questions in the initiative and try to translate them in a way that a public servant would understand …" (Member of the Terreyro Coreográfico)

One initiative that became well known for redeveloping a famous square in São Paulo, for example, was clearly initiated and led by one individual; however, due to what seems to be the result of this fear of being labelled the head of the initiative, it was not possible to interview this person. Instead, I was invited to participate in an open meeting with them, in which I could make some field observations.

In order for these groups to operate without a clear hierarchy, it is imperative to have an effective communication process. Evidently, these interactions do not occur in a vacuum; even without an institutionalised hierarchy, social aspects such as gender, race, wealth and education definitely play a role in the internal dynamics of initiatives, as they do in Brazilian society generally.

Nevertheless, the effective communication capacity of the initiatives was confirmed in the field observations and mentioned in the interviews. Most of the initiatives use Facebook groups to start a discussion, schedule meetings, define an agenda, create common documents and promote events. As one of the interviewees stated, the new social media technology made it possible to bring together people who had the desire to start an initiative:

> "[...] technology allowed this fit, they wouldn't be able to communicate and access each other so quickly if not for social media … now it seems that they know each other even better". (Public servant from the Municipality of São Paulo)

It is worth noting that sometimes even if someone already had a strong connection with the local context and knew about the initiative, it was only after contact on social media that they became involved in the initiative. The capacity of social media to attract an online user to become part of a physical movement proved to be an important aspect for recruiting members.

> "I saw the problem of the 'Parque Augusta', which was an area that I had known about since 2002 ... I knew that there was a local movement to protect that area ... I had even spoken to people to understand what the situation was … but I made contact after a call for help on Facebook from this local group, because companies were advancing in their attempt to get a development project approved ... at the same time, a lot of meetings started to take place in the park ... ". (Member of Organismo Parque Augusta)

All of the initiatives intensively used social media as a communication tool. However, even initiatives that relied heavily on digital interfaces also had physical meetings on a regular basis. Thus, when the initiative focused on projects that took place in public spaces, social media interaction on its own did not appear to be enough. The initiatives had a strong relationship with the physical space that they were working with. The

interest in improving a common public space created ties that brought the group together. This was the case for the Organismo Parque Augusta, which strongly relied on social media but also on physical access to the park's terrain. In this specific case, the initiative used to meet in the park, but when they were deprived access to it this had a strong impact on the initiative. This shows how much the physical space plays a fundamental role in these initiatives.

> "[...] we have met weekly since 2013 ... and we are still resisting. The park was illegally closed at the end of 2013. ... and since it has been closed there has been less enthusiasm, because the area itself provides encouragement for our meetings, the peoples' articulation ... it is the terrain itself that stimulates this. The meetings were always there, until 2013, but after this there was a weakening and some neglect, but we managed to reactivate start the meetings at the Roosevelt Square next to it. We had to organise ourselves in a nomadic way". (Member of Organismo Parque Augusta)

This strong tie to the territory was mentioned repeatedly. Additionally, it seems fundamental to have a social connection with residents in the area where the initiatives are located. One initiative that had been formed by artists who were attempting to tackle different urban problems using art as a solution explained how they chose an area to work.

> "I think that is ... we never go to a place like 'ah, let's take a look at the map and think: wow that place has a conflict and we need to work on it'. No, there is a network of affective attachments ... that is, we go to a place because there are people we know there". (Member of Bijari)

Nevertheless, the fragmented urban structure of São Paulo undermines the social connection between different groups, which have difficulties in overcoming the polarisation between the centre and the periphery. The social connections between initiatives in the city centre and the inhabitants of the periphery are at the level of functionality based on Sabatini's scale (2007). This issue was mentioned several times during the interviews. A member of a group based in the city centre working on the renewal of public stairways mentioned that despite their effort it was very difficult to start a project on the periphery, where they had only worked once:

> "It is easier to work where you already know the people, the collectives … Everything seems easier and simpler … so to get to a territory that you don't know, that has informal settlements, that has drug trafficking, that has many other forces at play that you don't know of … it is hard, it is very hard to work. Everyone from our organisation lives in the extended city centre … a bubble, right? No one is from the periphery". (Member of Cidade Ativa).

Since social connections are one of the pillars of self-organised initiatives, the fragmentation pattern of São Paulo undermines the social connections between the centre and the periphery and in turn the social network of self-organised initiatives. In this sense, the expansion of the area of action or attempts to undertake projects outside the extended city centre are much more difficult. In addition to the lack of social connection with residents on the periphery, as mentioned above by the Cidade Ativa member, mobility and security were commonly mentioned as the main obstacles to undertaking work outside the city centre. It is clear that the fragmentation in São Paulo, as described by Santos, is still directly influencing the range of areas in which these initiatives can work.

> "We have the wish to work on the periphery [...] we did some minor work there ... we had maybe two projects there [...] but to be honest, we work a lot in the city centre and in the west zone ... it is where many of these urban and cultural interventions happen […] Sometimes we try, we say 'Let's change our focus and go there', but the tendency … when we think about a project, we sit down and say 'Well, this project … where will we install it?' we always think about more central neighbourhoods. ... we go to Pinheiros, to the Largo da Batata ... I don't know, maybe we go the Ibirapuera Park, but it is still quite central. It is where we have more visibility, it is easier to access, it is also safer … there is that issue too. In the periphery you need to be better prepared. The periphery is a place we don't know well. We are from the middle class, there is a whole structure there ... we are in our little world ... you go to one of these neighbourhoods and you have to ... well, we want and like it, it is also part of our work, but to be honest, it is more complicated". (Member of Bela Rua)

Although this locational limitation of self-organised initiatives was repeatedly mentioned, a common positive point cited by all of the initiative members interviewed was the capacity of these initiatives to bring together a very diverse group of people. This is especially relevant in a country with striking inequality, and where there are many redevelopment projects underway to generate consumption and economic gain (Cortes, 2008). In this sense, the city of São Paulo has been more successful in generating places of consumption than places of diversity.

Some interventions by the municipal government have generated empty public spaces offering only functional integration between local habitants. This was the case for the Largo da Batata, a traditional square in São Paulo that was part of a major redevelopment project called 'Operação Faria Lima', occurring over the last 20 years. After the renovation of the square was completed, it was possible to observe that the project had focused much more on the transport aspect (a new tunnel, a metro stop and quicker access by car) than

on the human scale. Although the redevelopment of the square was completed, it was left as a simple open paved space. There was limited interaction between the people 'using' the space, since the square was mainly seen as a commuter hub.

It was only after a self-organised initiative called 'A batata precisa de você' (The Batata Square needs you) started to redevelop the square that it became a diverse and lively space. The case of 'a batata precisa de você' is emblematic, not only because it was triggered by the relative failure of the public administration to create a vibrant urban environment for the local residents, but also because it was very successful in promoting social connections between groups that rarely interact. Even though the initiative had its operational limitations, it revealed how a self-organised initiative could bring together people with different socioeconomic profiles. Despite their social differences, they shared the common interest of having a pleasant urban space at their disposal. This perspective was also shared by all initiatives. The cases of Terreyro Coreográfico, which organises dance classes under viaducts to redevelop the area, and Organismo Parque Augusta's role in the management of the park were extremely symbolic in this respect.

> "For example, last year we had a 'festa junina' [a Brazilian folk festival]. And there were people from the neighbourhood, workers and middle-class people ... there were real homeless people ... also a transgender person who lives under this viaduct ... there were some artists. It was crazy, everybody was dancing together ... I thought it was beautiful to have this integration between people from such different groups". (Member of Terreyro Coreográfico)

> "So … a lot of homeless people came and spent all these moments with us ... many heavy drugs users were there. So, you could see old ladies [referring to the high-income local residents] giving detox herbal tea to the crack addicts to help them. There were some very thought-provoking relationships of affection... very powerful for a city like São Paulo". (Member of Organismo Parque Augusta)

In this respect, based on Sabatini and Salcedo's integration framework, it was possible to observe the capacity of these self-organised initiatives to transform functional integration into symbolic and sometimes even community integration. Field observation of the 'Largo da Batata' confirmed the information collected from the interviews, which demonstrated that self-organised initiatives have the capacity to generate social connections even between extremely diverse groups.

Discussion and Conclusion

Based on the case of São Paulo, the influence of spatial fragmentation on the operations of self-organised initiatives revealed the following. Firstly, although initiatives rely on the virtual domain for communication, their activities are highly dependent on the physical context. The virtual environment, such as social media, proved to be an effective tool to spread the word about the initiatives' work and to get more participants involved. Nevertheless, the initiatives were highly dependent on the availability of physical space. When access to the location of the initiative or the place they met were denied, the initiatives faced greater challenges in organising themselves. However, it was also interesting to observe that in the case of the Organismo Parque Augusta initiative, the connection with the physical space alone was not sufficient to attract new members. Moreover, some participants who already knew about the initiative because they had seen activities in their local context only became regular members after interaction with the group on social media. In this respect, the physical and virtual realms are connected and both are important to the initiatives' work.

Secondly, we found that Santos' fragmentation perspective on the city of São Paulo, which includes a socioeconomic perspective on the entire city, is still relevant. The polarisation of the city centre and the periphery is still apparent in the urban dynamics today. Furthermore, the interviews revealed that this polarised system has a strong negative influence on how initiatives operate. Although the initiatives repeatedly affirmed that they would like to expand their work to the periphery, the interviewees exposed the difficulty of taking their initiatives beyond their own local context in the city centre.

The peripheral neighbourhoods of São Paulo have a lower urban well-being and could benefit more from the work of these initiatives than the city centre. Nevertheless, those working in the city centre rarely managed to take their actions to the periphery. The interviews conducted in São Paulo showed that the lack of social connection with residents from the periphery added to logistical challenges, such as difficult access and the threat of violence, which were the main factors cited as obstacles to taking the initiatives beyond the extended city centre. This lack of social connection with residents of peripheral neighbourhoods also had an effect on the snowball strategy used in this research, as all the initiatives contacted were based in the extended city centre of São Paulo. The research could be further broadened to understand the dynamics and limitations of initiatives in peripheral neighbourhoods and their connection with the city centre. Nevertheless, the negative effect of this polarised fragmentation is evident in the case of the self-organised initiatives studied here.

While constrained by the polarisation of the city of São Paulo, the self-organised initiatives demonstrated a great potential to promote encounters between people from diverse groups. The capacity to generate social

connection between very distinct groups could be extremely helpful in overcoming spatial fragmentation in an unequal society. Based on the framework of Sabatini and Salcedo, it was observed that the initiatives developed social ties that could be understood on the level of symbolic and community integration, while without them the only form of integration was merely at the functional level. The study showed that the intensification of the level of integration between the people participating in the initiatives can have a strong impact on the local social dynamics and particularly in the space where these initiatives occur. The impact of a stronger social relationship between members of these initiatives on the space in which they work should thus be further studied. Rather than examining how fragmentation influenced these initiatives, it would be interesting to consider how these initiatives influence fragmentation itself by creating stronger social ties. For example, to what extent do these strongly socially connected self-organised groups break down this fragmentation logic, at least at the local level?

Thirdly, the São Paulo case can serve as an example to other spatially fragmented cities of the Global South. Self-organised initiatives can have a positive impact; however, as the results have shown, it is important to understand the fragmentation pattern of the city where such initiatives take place. Fragmentation can have a negative impact on how self-organisation initiatives work and this can vary depending on the fragmentation pattern of each city. In the case of Rio de Janeiro, for example, fragmentation does not have the same polarised dynamic of São Paulo. The scattered pattern of informal settlements in Rio de Janeiro suggests that fragmentation might be related to the topography of the city. In the case of Rio, it is not a horizontal division between centre and periphery but perhaps a vertical fragmentation between the low lying and the high lying neighbourhoods. Two contexts popularly known in Rio de Janeiro as 'asfalto', the affluent formal neighbourhoods, and 'morro', the slums and informal areas on the hills of the city.

Finally, in the case of São Paulo, public policies could be created to promote successful self-organised initiatives that go beyond their local context and break down this polarisation. The municipality, for example, could offer incentives or better conditions for institutions to operate in the suburbs where they are needed more. This could be done, for example, by connecting initiatives with the sub-municipalities of peripheral neighbourhoods, or organising workshops or capacity training programmes. Despite the challenges, the positive impact of self-organised initiatives in the city centre could be strategically used in peripheral areas. In the case of São Paulo, this shift in the role of urban planners towards the facilitation of social-spatial initiatives (Nunbogu et al., 2017) could be fruitful, with planners mediating the process of extending self-organised initiatives from the city centre to the periphery and breaking down the polarised fragmentation dynamic.

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(E)valuating the production of social space:
A critical atlas of a residential subdivision in Zolder

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This article uses Lefebvre's three-dimensional model of the social production of space to assess the impact and potential of everyday socio-spatial practices in a post-war Flemish residential subdivision. Through analysis of the interplay between multiple uses, spaces, knowledge and meanings on individual as well as social level, we detect moments in which dialectics within Lefebvre's triadic model lead to actions of collective self-realization. Using a critical atlas with interactive maps and schemes of local data, policy documents, maps and individual stories of inhabitants, we give a detailed description of such processes of self-realization that tend to embrace difference. The findings of this research denote that to differentiate the residential subdivision we will need 'moments of sublation' in which local dialectics can be negotiated and brought to another level through actions and (new) social relations.

Introduction

The post-war residential subdivision is considered homogeneous in many aspects: in cultural and demographic way, concerning housing types, program and public space. In the light of changing demographics, economics, urban policy and ecological norms, the future of these post-war suburban housing is on the research, planning and political agenda. Incremental modification of well-located neighbourhoods through the introduction of more diverse housing types, program and public space is considered as one of the strategies. However, within its deeply rooted cultural and economic construct, focalized upon private initiative and homeownership, establishing meaningful relations between home and community appear difficult and easily trigger conflict (Ganz, 1967). According to Bervoets and Heynen (2013) a complex range of factors makes this housing model 'obdurate' to changes: materiality of the house, the meaning of home, the local home culture, real estate values, spatial policies, zoning plans and legislative framework. Although resistant towards diversity and change, the residential subdivision is not static. People constantly produce and reproduce their living environment through everyday practices. Everyone does more or less the same thing at the same moment on the same place, but mostly on their own. The place is in constant evolution, shaped by repetition of a multitude of movements and actions. We hypothesize that it is necessary to connect to these practices to create openings to introduce more diversity, addressing contemporary societal evolutions such as for example more smaller households or the need for flexible workspaces close to home.

This paper discusses the necessity to gain thorough understanding of these everyday practices of space-making in the context of a post-war residential subdivision in Flanders to excavate possibilities for the future. In order to do this analysis in careful way, we take Henri's Lefebvre dialectic model of the social production of space as a starting point, looking into the relation between material, institutional and ideological aspects to understand socio-spatial processes of space-making.

This paper is structured as followed: first, we build an analytic framework based upon Lefebvre's work on the production of social space. Second, we apply this framework to analyse in detail everyday practices of space-making in a residential neighbourhood in Zolder and describe briefly the action research approach by means of a critical atlas. Third, learning from this analysis, we discuss how these findings can steer projections for the future.

Analytical framework: understanding dialectics to trigger change

According to Lefebvre space cannot be understood without taking its production process into account: "It (space) is the outcome of a sequence and set of operations, and thus cannot be reduced to the rank of a simple object" (Lefebvre,1999). He continues "among these actions, some serve production, others consumption." He makes distinction between actions that require 'active production', creative work of self-realization or collective self-management and 'passive consumerism' of dominated sectors of serial production. 'Everyday life' is where these two mediate through dialogue or conflict and interfere on private as well as on public level. In his study *habitat pavillonnaire*, Lefebvre describes the bungalow as a serial product of overarching suburban lifestyle and real estate logics which lead to serial production of homogeneity through separation into isolated parcels (Kipfer, 2008). He points at the tension between the bungalow as the symbolic built form of the nuclear privatized family in harmony with nature and diverse forms of practical appropriation. These generalized logics tend to produce 'abstract spaces' alluding to the homogeneous character that overlook or suppress aspects of inhabitant's individual experiences. Lefebvre calls for the production of space that 'accentuate and enhances differences' in spatial form, symbolic values and spatial practices of everyday life (Milgrom, 2008). To achieve 'differential space', he assigns an important role to activities of collective self-realization that react against or interact with dominant logics. Differential theory starts from "affirming oppositional manifestations of difference to transform these manifestations on a dialectically humanist fashion" (Kipfer, 2008).

Lefebvre (1999) argues that each space that maybe seem coherent and homogeneous at the surface, carry contradictions and conflicts. Based upon differential theory he states that "in between the negation and conservation of these contradictions rise the possibility of realizing, acting, through an action." Lefebvre uses the concept of 'sublation' to define moments in which contradictions steer towards an act(ion), a creative activity averse to passive consumerism. The concept of sublation is based upon Hegels concept of *aufheben* which has a twofold meaning: equally negation and overcoming, preservation and placing on a higher level (Schmid, 2008).

So, to achieve maximum difference we first need to define these moments or breakpoints. Lefebvre offers a three-dimensional analysis of spatial production. These three dimensions are dialectically interconnected and only exist in conflict, interaction or in alliance with each other (Schmid, 2008):

- Lived Space is the space that is produced and experienced through meaning that people assign to it and refers to the symbolic dimension of space. It is closely connected to history and includes for example social and individual representations of home.

- Conceived Space is the space as it is examined and produced through knowledge and professional expertise of different sectors and refers to the scientific and theoretical dimension of space. More concrete it embraces spatial policy and regulation, planning documents, infrastructural works, as well as developers' logics.

- Perceived space is the space as it is produced by simultaneous uses and refers to the dimension of social activity including daily practices, routes and routines of work, residential and leisure activities.

If differential space rises out of contradictions, it will be through the production of 'social space'. Lefebvre assigns characteristics to this concept which we will use in order to evaluate production processes in the residential subdivision. First, social production puts human beings that set up new relationships with each other through social activity and practice central (Schmid, 2008). In other words, it implies intensive exchange of diverse knowledge, assuming interdisciplinary approaches or mediation between people with contradictory ideas. The second characteristic of social space can be found in its polyvalence, allowing for multiple purposes or juxtaposition of functions. Third, social practice can only be understood as a process of happenings over time. According to Lefebvre, space and time or integral aspects of social practice. Spatiality as a result of simultaneous or synchronic spatial practices, are always defined by temporal factors such as succession, concatenation and duration (Lefebvre, 1999). Fourth, Lefebvre's socially constructed space embodies at once an individual as a social process (Schmidt, 2008) that mediates between the private and public sphere, and thus takes an active political role. In this way, social space connects to Arendt's concept of the *agora* (Arendt, 2013) as a place where citizens discuss common issues together and decide how to act upon them. To evaluate the political role, we will discuss if and how relations between individual and collective interests are established.

This paper employs Lefebvre's dialectic approach in an empirical way to analyze everyday spatial practices in the example of a Flemish post-war residential subdivision. We make a distinction between practices that rather stem from hegemonic urbanism and practices that tend toward social and creative production. The latter, we evaluate on the basis of characteristics of social space. Do they imply diversity in actors as well as in knowledge? Does it allow for different uses? How is this facilitated by temporal factors? And do these characteristics link public and private interests? The aim of this analysis is three-folded: understanding how space is produced (1), detecting dialectics that may lead to claims for more diversity (2), detecting and learning from existing social spaces for the future (3).

Everyday Practices	Dialectics	Actions	Social space?
-actions of passive consumption (dominated order) -actions of creative production (selfrealisation)	- lived space - conceived space - perceived space		diversity in actors and knowledge polyvalence / diversity in use temporal configuration mediation between private and public value

Table 1: Analytic frame

Dialectics, actions and social spaces in Zolder

Case study and approach

I will now use the three-dimensional approach to analyze socio-spatial processes in a residential subdivision in Heusden-Zolder in the province of Limburg. The neighborhood, at walkable distance to the historical center of Zolder, is defined by communal through traffic roads, a zone for community facilities with a care center for people with disabilities and a cultural heritage park with country house, containing offices of an environmental organization. When we walk through this neighborhood we notice single family houses with gardens in different architectural styles with in-between vacant plots that are used for growing crops or stalling pony's. Since the early seventies, this neighborhood is composed by means of parcels being subdivided and developed over a time spam of decades. This mode of development we describe as a 'composite subdivision'. Study of topographic cartography maps shows that this is the most common typology of residential subdivision in central Limburg. This incremental mode of development, lead to complicated building regulations. The neighborhood under study, counts dozens of allotment regulations that overlap with two land use plans (*BPA's*). To overcome the mismatch between obsolete spatial regulation and desired core enhanced spatial policy as well as to solve issues of juridical uncertainty, the planning department started the procedure to rewrite spatial regulations by means of the development of a new spatial implementation plan (*RUP*) in 2017. These dialectics within administering space, makes it a very interesting

case to detect openings for more diversity. Another reason to select this case follows from demographic and cultural evolution. Data on neighborhood level, show increased diversity based on age and culture, especially since the last ten years. While the neighborhood was mainly developed and inhabited by young families from the immediate vicinity, the population is now simultaneously aging and rejuvenating with increased diversity in cultural backgrounds. These trends lead to increasing diversity in lifestyles, aspirations and needs which tend to evoke misunderstandings and tensions.

[fig.1] Aerial picture of the case study. Source: from google maps

To approach this case, we integrate mapping in a participatory action research process. This type of research has proven to be appropriate to build practical knowledge throughout engagement in real life spatial concerns throughout 'open democratic processes' in close collaboration with different types of local actors in order to combine theory and practice, action and reflection (Reason & Bradbury, 2001). Mapping plays the role of an 'active agent' within every stage of the research process based upon three main characteristics:

Firstly, as a process tool to 'find and found projects' (Corner,1999). Constantly remapping what exists to unveil dynamics and initiatives of different actors, and as such make the stage for new connections and collaborations.

Secondly, it takes a political role and questions existing power relations. This is in line with how Crampton and Krygier (2006) define critical mapping: maps actively construct knowledge and exercise power. Critical mapping challenges the relation between power and knowledge and therefore has the ability to be a powerful means of promoting social change or influence decision making.

Thirdly, as a participatory tool that provides a 'common language' to engage with professional actors as well as actors who don't have the experience or power to participate in decision-making processes. Lefebvre (1991) articulates the need of a common language to facilitate communication between all involved parties. In other words, there is need of a 'translator tool'. According to Latour (2004), this 'translation' is a complex and social process in itself which involves actors that walk through the process to establish a collective meaning and purpose.

With these three characteristics in mind we started producing mappings based upon observations, quantitative data, governance documents and historical cartography. These maps were compiled into an atlas that we employed to moderate and steer interviews with inhabitants, planning officials and local private and public actors. An atlas is historically employed in socio-spatial research. The structure of a collection of maps and visualizations brings clarity as well as complexity. Boeri's 'eclectic atlas' for the Venice Biennale in 1996 to document and read the Italian territory is a well-known example. With this atlas, Boeri is calling for a new paradigm in the conceptualization of the urban phenomenon through visualizations of multiple gazes upon the Italian territory.

We employ the atlas in yet another way, namely to facilitate collective reflection in an action research process. The atlas is not made by the researcher alone, but in collaboration with respondents who live or work in the studied area. In 2015, we interviewed seventeen households and seven local professional actors by means of this atlas. Different types of maps and schemes formed the framework of the conversation:

- a historical map relating today's spatial organization with landscape logics
- a timeline with post-war local and general events related to local social and spatial change
- visualizations describing implications of current building regulations
- housing history and relocation movements per street
- maps depicting different forms of social spaces in the neighborhood (1,5kmx1,5km) and in the close region (15x15km)
- individual housing history maps, routes and routines

The atlas made visible the link between similar and different practices, meanings, facts and actors and social spaces that are present in everyday life. This led to a multi directional production of knowledge (between researcher and respondent and between respondents) and stimulated a critical thinking about the relations between private and common interests. The resulted 'critical atlas' formed the basis of a series of participatory workshops to reflect upon future actions and how these could be integrated into the new development plan for the area.
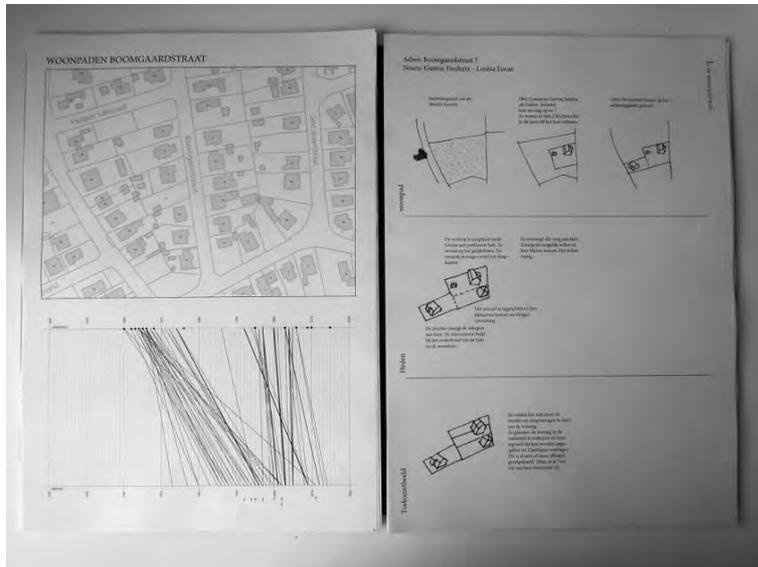
[fig.2] Critical atlas used during individual interviews. Source: elaborated by the author

In what follows, we describe some examples of 'everyday practices' (gardening, working and building) which came to the front during this action research through mapping. Thereupon, we will denote different categories and study how they differ and became. Then, we will go deeper into some particular examples in which people produce space in a different way. We present these particularities as production processes that explain how people acted upon certain dialectics to produce the space they need.
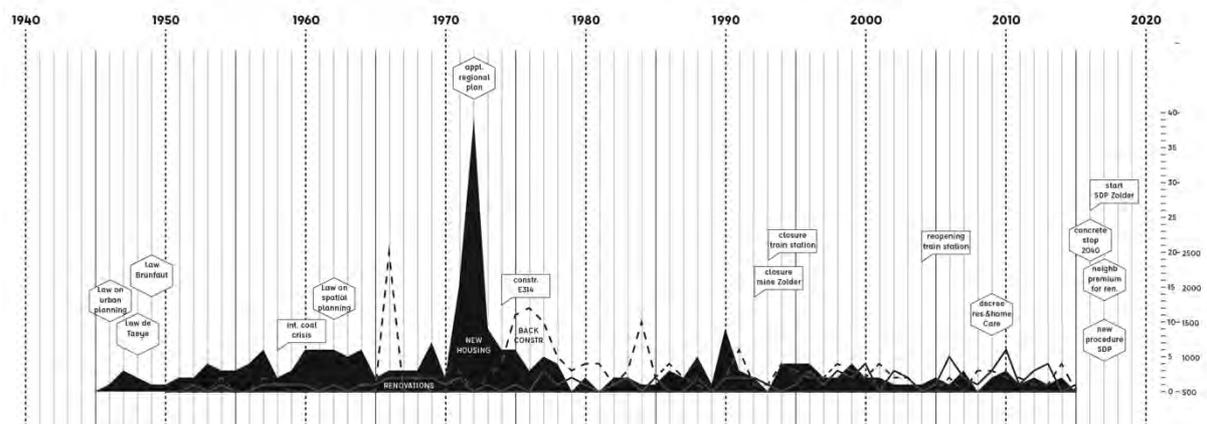
[fig.3] Building Permits in the case study and national and local spatial policy from 1940-2017. Source: elaborated by the author, source data building permits: Planning Department Heusden-Zolder.

Everybody is building
The director of the environmental organization *Limburg Landschap vzw*, located in the neighborhood, compared the minimal planned and constant transformation of the neighborhood to forestry: "They both change according to the applicable standards and values. Forests slowly grow older and become richer in species and structure. Trees grow older and parts die off, creating open spots in the forest. This process takes years to centuries without a fixed final result."
Historical maps and data of building permits of the area show incremental development of single family housing from the early sixties, through subdivisions of maximum seventeen plots. In this particular case, agricultural land is subdivided and roads are built on former field tracks and parcel boundaries. Demographic data indicate that most first home owners are from Zolder or from the close vicinity. We can distinguish three categories based upon

development mode and actors involved. They originated from slightly different dialectics and characterize the neighborhood each in their own way.

- Fast development: In Flanders, the socio-cultural construct that connects dwelling to homeownership, private property, individual initiative and family focus is supported by long-standing anti-urban spatial policy (De Decker, 2011). In Zolder, the municipality owned big parts of the land that they developed to attract young families. To stimulate fast development, plots of 6-8 are were sold bellow market price to young married couples only, under condition that the house would be built in short term and inhabited by its owners. Many buyers choose for turnkey building solutions because of solid guarantees and an easy consumer credit (De Meulder, 2006; Loeckx, 2006).

As a result, three streets developed simultaneously in 1973 and 1974, homogeneous in building style, age and social class. According to respondents, this homogeneity led to strong social ties in the first two decades. "In the past, we often had drinks with the neighbors. This is no longer so. However, in case of emergency we can still count on each other" (Inhabitant of 70). After more than forty years, this homogeneity is still present, even though several first home-owners moved out. For many inhabitants, the idea of home is formed by this development mode, equalizing a good living environment with sameness.

- Internal development: The second main development mode follows from inhabitants that stop agricultural activities and build themselves or family members on agricultural land. In a study on suburbanization in the Veneto region, Indovina (1990) determined this form as 'internal suburbanization', referring to the marginal influence of newcomers on suburbanization. Ryckewaert (2002) recognized similar movements in his study of the southern border of the Campine in Flanders, causing a gradual increase in density upon agrarian spatial structures. We note that, still today, this internal suburbanization plays a significant role in spatial development in our case. We analyze two examples of projects that are based upon family ties. The first is a plot of 25a family land developed over a period of 55 years. In 1961, the son of a farmer builds his house on the land of his parents. In 1982, one of his two daughters builds in the back facing the parallel street. In 2015, the grandson builds his house in the former side garden of his grandparents. During this development process, the family makes use of evolution in spatial regulation and policy. Whereas, only ground floor bungalows were allowed in the eighties, later, the grandson's two levels house was approved to obtain the same surface on a smaller plot. Today, the local planning department, approves semi-detached houses from a minimum plot width of 18m. The family projects to demolish the grandparents' house and subdivide the plot the moment the grandparents move out. Family ties in this example not only give private economic benefits (cheap land) but also social and practical ones: exchange of services such as babysitting, garden use and maintenance, laundry, groceries and others. In this example, aspects of cohousing and multi-generation dwelling are adopted within family circle, leaving privacy for the three nuclear families.

In a second example, we denote a short term and informal form of cohousing. A young couple illegally installed a second-hand chalet from a resort in their back garden to live in during construction works. Once the couple moved into the new house, his sister moves in the chalet for a couple of years. They share the garden and have weekly dinners together. Both examples show that family ties can lead to more collective forms of housing, with minor spatial or infrastructural implications (connections between gardens, a chalet).

[fig.4] Grandson's house built in side garden of grandparents Source: elaborated by the author based upon interviews.

[fig.5] Temporary house in the back garden.
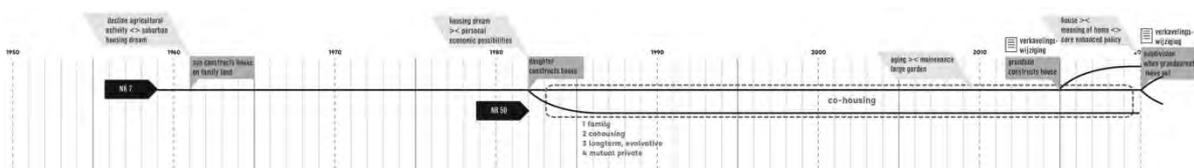
[fig.6] Production process internal development example 1: Multigenerational development.
Legend: dialectics in yellow, actions in grey, space in black lines, social space in dotted line. Source: elaborated by the author based upon interviews.

[fig.7] Production process internal development example 2: Temporary house in the back garden.
Legend: dialectics in yellow, actions in grey, space in black lines, social space in dotted line. Source: elaborated by the author based upon interviews.
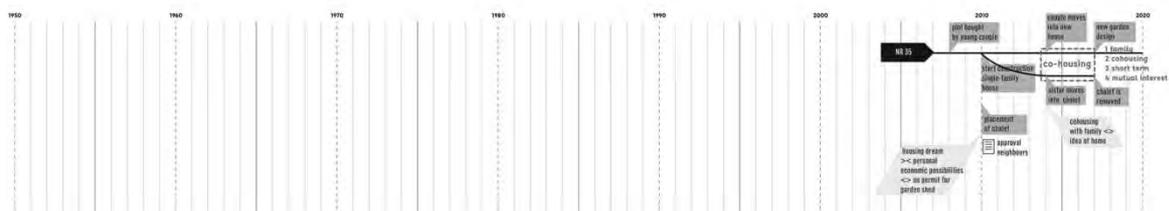

- Cyclic development: The largest part of the neighborhood is developed through the sale of individual plots between private individuals. Building permit data show that since the end of the nineties, several houses that were built before the sixties, are demolished and replaced. In most cases, the house was replaced by another single-family house. In two cases, the old houses made room for apartment buildings (at the street leading to the center). According to the local planning officer, people don't feel attached to these houses anymore. This is not the case yet for houses of the seventies. According to her, most people are not keen to the idea to demolish a house similar to the parental house because they are still too attached to it. This is in line with Dovey's (1985) understanding of home as the relationship that is created over time between household and house. These demolished houses don't match with current meaning of home anymore.

Everybody is gardening
Gardening is strongly connected to the suburban house dream, expressing the symbolic connection to earth and nature. And almost everybody is gardening in the neighborhood, on a total surface of almost one hectare dispersed over private parcels. We denote different categories which all have their own purpose, use and historical background.
-The self-provisional garden: Many houses built in the sixties and early seventies were combined with small-scale farming activities. Houses were built on wide parcels to leave room for garden activities on the side. On very deep plots, a large vegetable garden was foreseen in the back, often separated from the lawn with a hedge. The use and meaning of the garden as a place to produce food and work was also expressed in the organization of the house. Living spaces were rather orientated to the street. Kitchen and storage spaces, workhouses and garages were orientated to the garden. The garden was organized and used as a work space and the vegetable garden was a way to fulfill own needs and thus, of economic meaning, a means of self-provision. Over time, the micro-economic meaning declined and the garden evolved to a place to relax and leisure in privacy. The large amount of building permits for verandas from the eighties on, confirm this shift. For many respondents, the veranda is the favorite place in the house. "There we read the newspaper and are the grandchildren's toys. When weather is nice, we open the sliding window to the terrace." (woman, 65 year). Still today this type of garden is interpreted from economic viewpoint. A gardener with a fruit and vegetable garden, said his garden became less intensive since he retired. According to him it is cheaper to buy them on the market. However, he continues to garden and has oversupply each summer.
We now describe an example where a shared interest in gardening stimulated some neighbors to organize themselves and to act collectively. In the back of their gardens, the municipality preserved a large parcel to install a playground. In the meantime, it was rented to a local farmer. At the end of the seventies, when farm activity stopped, the municipality kept vague about their plans for the plot. This convinced an inhabitant to inform about the possibility to buy a part of it to create a vegetable garden in his backyard (and to secure privacy). The municipality was willing to sell only if bought in one piece. To achieve his plan, the inhabitant convinced two other neighbors to buy the land collectively and divide the land into three allotment garden. For two decades, they gardened together. In recent years, gardening became less and the hedges grew. Still two of them go daily to the back for a regular chat. If they had the opportunity today, they would resell. However, they would not allow for new housing development out of fear to lose privacy.
The procedure to obtain the land was a collective effort, however, the ultimate aim for the inhabitants was to enlarge the private back garden at expense of a communal playground. At the time, it didn't come to protest because a vacant (private) land was used for that purpose. When that land was developed to build a care center, inhabitants protested because in their opinion the playground was stolen from them. This happening from the eighties still plays in the mind of some residents and influences their view upon future extensions of the care center.
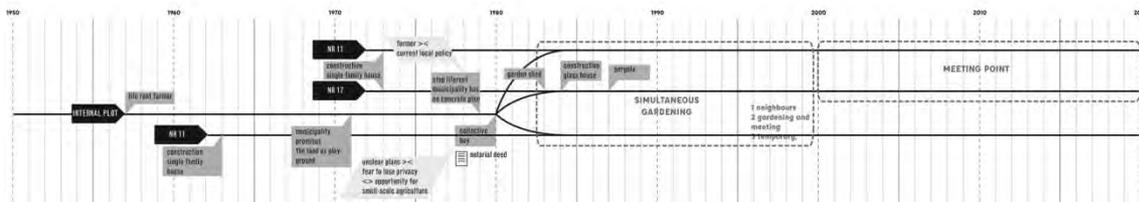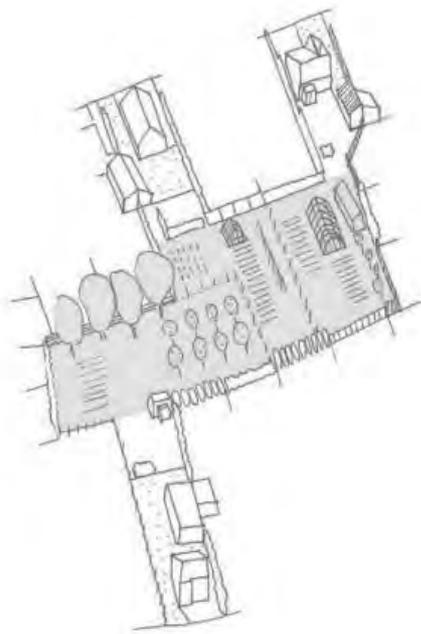
[fig.8] Production process and sketch self-provisional garden: Collective purchase
Legend: dialectics in yellow, actions in grey, space in black lines, social space in dotted line. Source: elaborated by the author based upon interviews.

- The garden room: Gardens of houses built in the nineties and years two thousand, are product of other, motivations. Living spaces are orientated to the garden. And big sliding windows in the back make interior flow into exterior space during summer. The garden is treated as an exterior living room, used to eat, to play or to sit outside. Vegetable gardens are organized as a compact zone within this room, offering kitchen herbs, tomato varieties and a compost bin. An equal idea of gardening made two neighbors decide to manage hedges and green waste together. An opening in the hedge between the two plots gives access to a collective green waste bin. Each on their turn, drive to the municipal container park. Even though, this kind of social practices don't imply diverse use or public impact, they do facilitate daily life.

Everybody is working
The development of an extensive train and motorway network, together with post-war increased prosperity of inhabitants and car ownership, facilitated longer work-home distances and influenced work-home relations. In Zolder, the train station opened in 1925 for mine workers to commute to the mines. The station closed at the same time as the mine in 1993 and reopened in 2004 with an hourly train between Hasselt and Antwerp. The completion of the E314 in 1974 coincided with the development peak in the neighborhood and enabled good connection to places of work. Not only infrastructural but also technological and economic development and globalization influenced and diversified home-work relations. In the light of these evolutions, we describe three categories of work that we encountered during fieldwork:
- Part-time home: International work networks build new relations to home as well as to the neighborhood. One respondent works and lives in the Netherlands during weekdays and only lives at home during the weekend and holydays. Another respondent changes work and living place every month between Thailand and Belgium. Although these work routines don't have spatial impact, they do represent more flexible ideas of work and living.
- Commercial activities: Spatial regulation in the residential subdivision, intend to safeguard the calm and homogeneous residential character. They only allow for small service space that occupy a minor part of the ground floor. In this case study, it resulted in a garage and basement converted to a beauty salon and a bicycle shop. A living room converted to a hair salon. They are produced individually and upon private property, however, Ruth Soenen (2006) assigns importance to these semi-public spaces for social life because they create opportunity for private, parochial and public life to interact.

- Warehouses: Despite spatial regulation that leaves little room for other program, some inhabitants and enterprises succeed to realize workspaces of a larger scale through a sequence of actions of self-realization. We take the example of a plumber warehouse which could only be realized in collaboration with his neighbor. The plumber bought the house with warehouse form the former home owner and window constructor that built the warehouse illegally in the back of a bungalow. After regulation was refused because the parking overlapped with a servitude road, he decided to sell the house and move the company to an industrial zone. The new owner made a written agreement to organize the parking on the plot of his neighbor, who uses the plumber's driveway in exchange. Each neighbor benefits from the arrangement: the plumber achieved permission for his work activity and his neighbor won extra garden where before was his driveway.

Other examples show that work activities are not only hindered by regulation, often they come into conflict with ideas of privacy and tranquility. Within the neighborhood, the realization of a joinery and a stable were obstructed by close neighbors who feared it would harm their private plot. The planning officer of the municipality observes duality of people's reasoning about private property: "As long as people live somewhere, they want to be left alone. Once, they sell their house, they aim for maximum benefit and densification or more diversity are no longer a problem." She alludes to the contradiction between the liberal idea of being free to do what you want on your private plot and the idea of tranquility and privacy on that same plot.
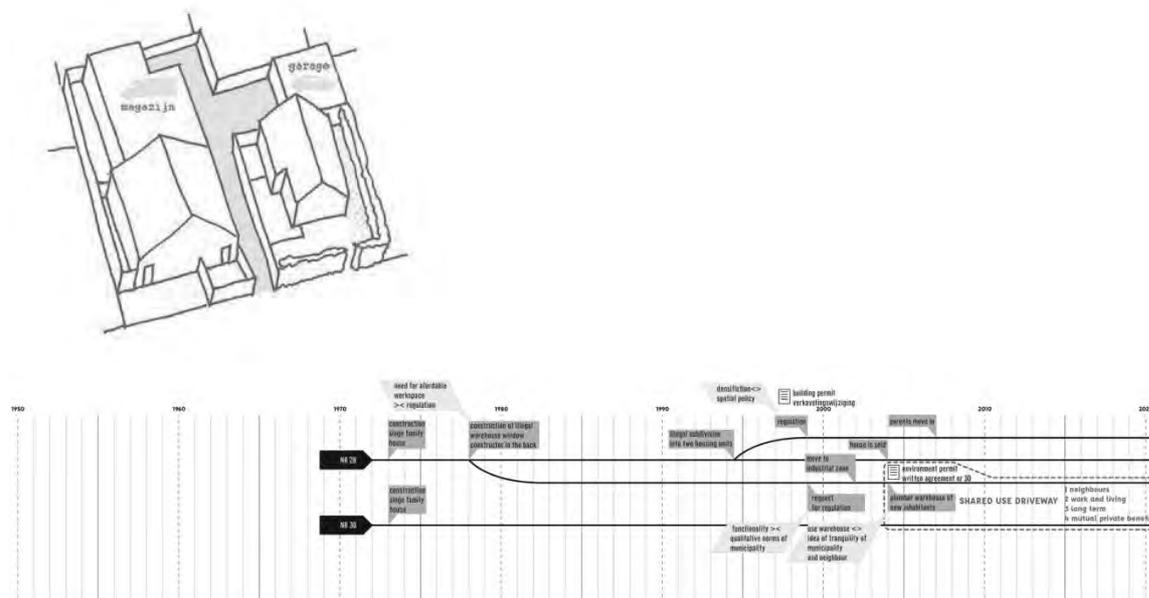
[fig.9] Production process and sketch warehouse: Shared driveway.
Legend: dialectics in yellow, actions in grey, space in black lines, social space in dotted line. Source: elaborated by the author based upon interviews.

Future: making moments of sublation

This research applied Lefebvre's three-dimensional dialectical approach to the production of social space as analytical framework to understand how space is (socially) produced in the context of a Flemish residential subdivision. This analysis gives a first impression on the large variety of spatial practices bellow the homogeneous surface of this residential subdivision. We denote some dialectics which could create opportunity to obtain some forms of diversification. For example, between the private plot as a space of individual freedom versus a space of tranquility and privacy, which could come in balance when mutual benefits are found; or between the varieties of gardens, which could bring about exchange of knowledge, space and goods.

The modest examples that we described in which actors realize or organize space collectively are product of rational as well as emotional motivations. But they are only set up between people with communalities (between close neighbours or family) and exist as long as both benefit from them.

The outcomes of this case analysis in the form of a critical atlas is not the end product but the basis for further action research that reflects upon the future of spatial practices with inhabitants, a neighborhood committee, the planning department and local organizations and entrepreneurs. Through participatory mapping workshops on location we aim to trigger 'moments of sublation' in which diversity of knowledge and visions are brought together to negotiate dialectics and discuss actions that could place them on a higher level, with more diversity in actors, knowledge and use.

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Urban(ism) Movements: Occupying Central São Paulo

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This contribution[1] explores the nexus of urban movements and movements of urbanism by looking into myriad and miscellaneous occupied spaces in central São Paulo, Brazil. The central hypothesis holds that a peculiar urbanism is germinating from the reclamation of numerous formerly vacant hotels, offices, factories, commercial buildings, infrastructural left-overs and other worn-out architectures the like, inquiring the distinct way in which urban movements take part in the re-inhabitation and re-making of the city, concurrently forging distinct material and social urban worlds by imagining and setting off to piece together a makeshift 'occupied' city in the decrepit debris of the old one. This article, which partly overlaps with the introductory dissertation chapter, considers therefore the intricate choreography between occupation practices and the architecture of the city, and their mutual transformability in particular. Whether and how do urban movements unsettle, move and manoeuvre the architecture of the city, and hence inevitably, the discourse and practice of urbanism in like manner?

Occupied São Paulo

Central São Paulo's architectural amalgam is percolated by myriad and miscellaneous occupation movements. Homeless movements, as one of the most vigorous examples, set out to occupy abandoned central buildings from around the turn of the century, and proved very visible in their radical pugnacity. They were especially studied in performing ambiguous relationships with 'state' powers that be, often building on Holston's (2008) notion of 'insurgent citizenship', designating such housing occupations as drivers of 'insurgent regeneration' (De Carli & Frediani, 2016), politicised strongholds where 'transgressive citizenship' is constructed (Earle, 2012, 2017), or where 'everyday politics' dictate everyday life (Stella, 2016). Lima and Pallamin (2010, p. 49), on their turn, discussed central building occupations as social movements' most 'dissent' act for '*forcing legal and political authorities to respond to their claim for better housing*,' while Neuhold (2016) and Levy (2005, 2010) diachronically charted the political impact of central squatter movements by unravelling their complex genealogies. Furthermore, Sanches (2015) scrutinized how many occupations directly or indirectly led to the funding and construction of permanent social housing projects in the central area. Most attention in scholarly debate concerning São Paulo's occupied buildings tackles more enduring outcomes of occupations, whether material, political or social, and occupations are rendered mostly as successful infrastructures that catalyse inclusion, citizenship and social mobility.

Somewhat different from the homeless *sem-teto* movements, but operating in their immediate vicinity, also numerous vacant buildings are occupied by less politicized squatters, and many of the area's downtown 'slum' settlements known as *cortiços* are in fact squatted building relics with at best questionable but often outright illicit ownership claims (Stevens, De Meulder, & Sanches, Forthcoming). More recently, occupation tactics were also increasingly replicated by narcotraffick cartel-fractions, occupying multiple highly visible edifices, amongst others but surely most tellingly, the centre's former federal police headquarter, a 22-floor skyscraper flanking the central Paisandu square. On top of that, the centre accounts for the city's highest concentration of homeless street dwellers, left to occupy residual spaces below its abundant infrastructural overpasses, on central pedestrianized boulevards, on merely all squares and parks, in tunnels and along water-retention walls, in building-porticos and metro-halls, on vacant plots as much as simply on the sidewalks of nearly every central street. Ironically and illustrative, the city's oldest and most symbolic square of *Sé* 'houses' a large community of homeless and drug-users, not to mention how the ruins of the centre's once most glorious and wealthy *Luz* district became widely rebabtized into '*crackolandia*', for accommodating the city's largest 'free zone', almost exclusively occupied by traffickers and addicts.

Along with occupations propelled by the city's appalling housing crisis, whether clandestine or for humanitarian purposes, also plentiful artistic collectives, groupings and individuals target central vacant spots of all kinds for unbridled artistic explorations. Caldeira (2012) shed light on the *pixação* movements, undeniably drastically altering the 'face' of the central city by leaving uncountable graffiti tags on blind walls and façades of abandoned central properties, as 'imprints' of countless 'invisible' peripheral youth-lives, engraved in the highly-exposed architecture of the central city. Also, plenty of abandoned buildings are squatted by anarchist-artistic gathering, such as the eccentric *Casa Amarelha*, a self-declared downtown 'Black Urban *Quilombo*[2]' residing in an old 19th-century villa, or the outlandish *Ouvidor* occupation, inhabited by a highly mixed and ever-changing international group of street- and

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[1] This article is part of a doctoral research project funded by VLIR-UOS and the Belgian Development Cooperation, which seeks to unravel the vicissitudes of urban occupations and practices and discourses of urbanism. It deliberately operates on the methodological intersection of urban anthropology and urbanism, combining participant observation with urban analysis. It is carried out in close collaboration with social movements, cultural collectives, human rights associations and governmental institutions in São Paulo.

[2] The term 'Quilombo' originally referred to Black runaway-slave encampments in the surroundings of the city. See for instance Stevens and De Meulder (2018) on the Quilombo do Saracura, which eventually urbanized into the central neighbourhood of Bixiga in São Paulo, Brazil.

other artists. Prime urban sites, such as the central Avenida São João and the Praça Republica, on their turn, are home to varied street-selling artists, offering self-made jewellery and paraphernalia to innumerable commuters and others passing by. In addition, while surely not really fitting under the 'squatting' umbrella, also more than a few central galleries, once the labyrinthine and sophisticated public habitat of the centre's best afforded *flaneurs,* amidst expensive luxuries, were recycled over the course of the last decades by popular enterprises, the foremost emblematic of which doubtlessly is the *Galeria do Rock*, a former splendid and exclusive paradise of richness, presently re-occupied by dozens of tattoo-artists and subculture stores. In like manner, many posh establishments made room for popular *lanchonetes*, exclusive storehouses for mundane bazaars, renowned cinemas for peepshows, and well-known hotels for promiscuous motels.

In the centre's repertoire of artistic occupations, also multiple theatre companies directly address and occupy vacant urban spaces, often explicitly preoccupied with the urbanistic future of the places they devote to. Most famously, the avant-garde Teatro Oficina, nested in the popular central neighbourhood of Bixiga, has been regularly occupying with populous collaborative and participatory theatrical rituals the giant vacant terrain surrounding their theatre building (designed by the illustrative Lina Bo Bardi), as a performative means to block urban development of the site in favour of more public development scenarios (Stevens, 2018). Simultaneously, Teatro Oficina initiated the last years iterative occupations of the large *Minhocão* viaduct in front of the theatre's building, while embarking repetitively on celebratory theatrical parades throughout the entire neighbourhood and central city. (Stevens, 2015) Also Teatro Satyros played a fundamental role in the redevelopment of the centre's formerly blighted Roosevelt square, while the haunting performances of the Teatro Vertigem roam and wander through the centre's most dilapidated streets and most unexpected decaying urban spaces such as rundown theatre halls, closed-off metro stations or enormous industrial hangars, all hidden within the cracks and fissures of the centre's eroding urban tissue.

Another of the centre's most paradigmatic 'occupied' spaces is the aforementioned giant *Minhocão*, a largely overscaled overpass implemented at the end of the 1970s, during the heydays of the military ruling (1964-1985). Already during the 1980s, multiple artistic activists occupied this misplaced 'urban aberration' that pierced the complete central area, for claiming its closure from traffic, eventually succeeding to make it a pedestrianized elevated linear square during weekends and nights; and triggering broad public debate and architectural competitions[3] to decide on the future of the large concrete structure. At present, the massive viaduct is still part and parcel of vigorous debate, while anyhow functioning for the time being as a remarkable public space unlike any other during evenings and weekends, serving as a hangout for strollers, roamers, wanderers, joggers, cyclists, dog-walkers, skaters, street-sellers, yoga-workshoppers, carnival parades, urban festivals, and even marriage-celebrations; in the heart of an otherwise overtly dens and restricted urban centre.

Radiating from the centre's historic and symbolic political importance, also rhythmic pulses of recurrent manifestations and demonstrations of different magnitudes continue to occupy central squares, boulevards and streets time and again, indicating in part also the centre's architectural embodiment of the city's democratic arena. It is here that claims are concentrated, canalised and ventilated, reaching far beyond the perimeter of the area itself, and in fact frequently beyond the metropolis as a whole. Despite gradual erosion and partial neglect, the centre endures as the political agora *par excellence,* the public forum and culprit for exposing discontent, as much as contentment or proudness, for instance for samba-*défilés*, the yearly gay-parade, or soccer-victories. If the city, country, or global community is sought to be addressed, the centre is the paramount urban spot, the exceptional fascicle of the city that somehow belongs to nobody in particular, and hence appertains to everybody, at least to a certain degree. When in the end of the 1880s the abolition of slavery was forced upon the city's aristocracy, it were the central streets of Bixiga that surfaced as the main stage for Black contention (Andrews, 1991). When in the tumultuous 1910s and 1920s the population of São Paulo was exploding, the enormous industrial growth went hand in hand with repetitive eruptions of street agitation, numerous street occupations '*born in the alleyways and courtyards of poor neighbourhoods'* in the centre aimed to paralyse and modify the prevailing order of the city, disseminating anarchist ideals that travelled to Brazil with the Italian and Spanish labourers (Rolnik, 1989, p. 89). Also in the 1980s, the massive *Direitas Já* manifestations took over the central squares and boulevards to eventually bring the military ruling down in 1985 (Saber, 2001), and country-wide protests in June 2013 were inflamed by São Paulo's *'passe livre'* free transport movement, inciting pervasive revolts to take over the centre for two weeks. Renown Paulistanian urban scholar Ermínia Maricato was not surprised: *'It is the urban question, stupid!'* (Maricato, 2013, p. 19). These are only a few instances of the perpetual urban theatre of mobalizations and manifestations meandering through the centre's foremost voids, from Paulista, Avenue, along Répública Square, to the Anhangabau Park, and so further, navigating along symbolic itineraries along well-chosen institutional buildings, emblematic statues and other landmarks or architectural icons imbued with historical meaning.

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[3] See on the 2006 architectural competition held to reimagine the future of the elevated highway: Artigas, Mello, and Castro (2008); and on the implementation of the structure: Zmitrowics and Borghetti (2009).

It is in the centre that the voice of the street is most effectively broadcasted, and it is by moving to, moving through and moving in the centre's urban architecture that the city's castaways claim *'shaping power over the process of urbanization'* (Harvey, 2013, p. 5). The centre, is therefore not a neutral background, but resonates Solnit's (2001, p. 218) *'ideal insurrectionary city'*, of which the *'stone and cement are soaked with meanings, with histories, with memories'* that make it an arena of urban contestation, in the centre of things. Capitalizing on the centre's double-coded urban realm, where urban authorities live side by side with urban pariahs, conflating movements of insurgency and dominion, spark occupation movements to turn spatial concerns into spatial claims. In his seminal work on 'carnivals, rogues and heroes', DaMatta (1979) famously illustrated how the centre serves as much as the stage for demonstrations of alleged state-powers, through rigorously orchestrated military parades and omnipresent policing, while simultaneously casting rebellious carnival *blocos*, popular-cultural parades, processions, and demonstrative performances of dissidence. Forty years after DaMatta's initial publication, this seems more accurate in central São Paulo as ever before, since under the renewed right-wing governance of both the municipality, the state and the country, repression and police violence is escallating again, to a large extent criminalizing and attacking the occupying outcast of homeless, street hawkers, *sem-tetos*, drug-users and activist-inclined artists, on their turn incited to increase popular resistance and insurgency, with frequent violent confrontations as a result, as for instance during repetitive police raids in *crackolandia* between April 2017 and the time of writing, with multiple 'casualties' resulting from military guards sweeping through the highly impoverished central district.

In addition to the occupation practices above, no urban district in São Paulo is occupied by as many street markets and informal street traders as the centre, while also numerous clandestine *'feiras de rolo'*, where confiscated cell phones and legion other black-market goods are sold and traded, accrue on many central squares and boulevards when the 'shady' city of the night substitutes the hustle and bustle of the day. In fact, also the countless commuters that overflow the centre on a daily basis merely temporary occupy the centre's urban space, without genuinely *residing* there. As most of the centre's urbanites, they merely pass by, move in, only to move out again later, they occupy sidewalks, transport hubs and office spaces episodically, but merely temporarily at all times. If anything, the centre stands out as a remarkable transit zone, belonging indeed to nobody in particular, and hence arguably to everybody, but consequently, in belonging somewhat to everybody, never belonging entirely to anybody in particular neither. Could it be, that the city's centre therefore surfaces as the most common fascicle of the urban conurbation? The one and only 'piece' that is –hypothetically- shared almost *de facto*?

Two distinct migratory movements, discussed below, played a structural role in forging the centre's spatial conditions that provoked this disparate concentration of occupied spaces: a paradoxical convergence of centrifugal fluxes of departure 'moving out', leaving behind a stockpile of vacancy, and centripetal flows of arrival 'moving in', recuperating what others left behind.

Vacant centre
The constellation of occupations that overgrows the urban architecture of central São Paulo is deeply rooted in the area's particular urbanization history. Homeless movements that are without doubt some of the centre's most articulated occupation movements, germinated in the late 1990s from an appalling paradox. To all appearances, downtown São Paulo accounted and still accounts for more buildings without people, than for people without a home. The city's oldest districts are hit by an abundance of vacancy, ripping up its urban physiognomy. Hotels, factories, offices, storehouses, shops, apartment blocks and infrastructural leftovers the like were left in decay, as festering fascicles of a corroding urban landscape. For what numbers are worth, the Fundaçao Pinheiros counted 571.491 vacant buildings spread over the entire metropolitan region, while estimating its housing deficit almost equally at 586.129 (Pinheiros, 2015). In the centre, an exodus of approximately 300.000 residents between 1980 and 2000 left behind 40.000 registered vacant dwellings. By 2000, vacancy rates rank above 30 per cent in the oldest of the centre's districts (IBGE, 2010). In addition, countless buildings are only slightly occupied, especially the more profitable ground floors, leaving numerous square meters unused or inhabited by merely an owner, a concierge, a few tenants or a team of security guards hired to protect the properties from squatters and other unwanted intruders. Again other building structures are misused, stuffed with parking spaces, more profitable than any other occupation (Silva, Biava, & Sígolo, 2009). Accurate vacancy figures unsurprisingly remain elusive, given the highly mobile nature of occupancy, exacerbated by incongruous criteria regarding widespread informal, unauthorized, unofficial and largely invisible usages of buildings and building parts.

A graffiti wall painting in the currently occupied Hotel Columbia Palace, known also as *'Ocupação São João 588'* eloquently summarizes the fundamental provocation that agitated homeless movements: *'Muito teto caindo, muita gente sem teto!', or: 'many roofs collapsing, many people without a roof!'*. In fact, the underlying logics are very simple. Many people need a decent place to live, while the city's best situated buildings sit empty.

The centre's concentration of vacancy was propagated by a complex convergence of legal, political, economic and architectural currents, broadly discussed by Silva et al. (2009). In legal terms, many vacant buildings ended caught up

in ownership disputes or inheritance controversies. The Marconi building, occupied by the MMPT (Movimento de Moradia para Todos) for instance, has its ownership rights divided among no less that 12 proprietors. Numerous structures lack regular papers necessary for legal sales. In the political spectrum, incremental 'IPTU' taxations that were effectuated by the 2001 City Statute proved too meagre, hardly monitored nor controlled, easily bypassed or plainly neglected for enforcing property owners to attribute a social function to their properties, as prescribed by the constitutional 'social function of property' in art. 182. Consequently, and perversely, innumerable buildings pile up tax debts, together with unpaid water and electricity bills, making owners unable or reluctant to vend or rent their architectural belongings. Economically speaking, it needs no saying that countless landowners simply sit on their investments, longing for more favourable markets to come, while on top of that, they frequently rent out solely the more lucrative basement floors, while leaving the rest idle to avoid complicated administration and costly maintenance. Furthermore, many hotels and businesses, such as the famed Hotel Cambridge, Hotel Lord and Hotel Columbia occupations, were forced to close down or migrate to more novel and fashionable centralities for remaining profitable. Concerning architectural grounds, many a few of the abandoned historical edifices severely suffered from decay and decrepitude, requiring excessively expensive refurbishments for allowing 'formal' reuses. Heritage listings broadly freeze the potential redevelopment of constructions, such as the case of the São João 288 occupation, a remarkable 19th century hotel by renowned architect Amos de Azevedo. Especially office-towers, built *en masse* between the prosperous 1940s and 1960s, do not comply any longer with contemporary market standards for lacking adequate parking space, flexible open office-floors or central air-conditioning. It is also frequently mentioned that Brazil has not a well-established building culture that valorises 'renovation' works, investing instead much more in ever-new city-extensions, if not complete replacements of existing structures. São Paulo is in that regard an exemplary epitome of the rapidly urbanized Latin-American megalopolis, where the rampant urbanization of the 20th century literally swarmed the territory at such a speed that 'renovation' and 'refurbishment' were even worth considering for absorbing the massive inflow of new urbanites, neither for tackling the parallel instant leap into industrialization and modernization.

For all that, also urbanistic mechanisms contributed to the overall evasion of the centre. Sanitary interventions and slum clearance prevailed as urbanistic paradigms around the closing of the 19th century (Bonduki, 2006). Bulldozer-'urban renewal'-interventions swept through the centre during the 1910s and 1920s (Ackel & Campos, 2002), while the half-baked execution of the ambitious Robert Moses-inspired Avenue Plan of the 1930s strangled the centre in a network of car-oriented boulevards (Campos & Somekh, 2002), setting the stage for unbridled verticalization in the 1940s and 1950s (Somekh, 2014). Prodigious and often destructive infrastructural investments during the military ruling (1964 and 1986) mutilated multiple central popular quarters (Zmitrowics & Borghetti, 2009), while the conjoined implementation of the metro network and the pedestrianization of ample central streets and reductive zoning plans facilitated the sheer annihilation of multiple central tenements. During the 1990s, a series of 'urban operations' such as the 'Nova Luz' project sought to recuperate the central '*crackolandia*' area, promoting the expropriation and demolition of hundreds of buildings under the guise of 'cultural revitalization' (José, 2007), without delivering ambitious promises of reinvestment. It appears that, by always being 'central' in the grand pathological planning schemes conceived to steer and direct the brisk growth of the metropolis, the centre was paradoxically piecemeal sculpted into an internal periphery (Nakano, Campos, & Rolnik, 2004).

The result, is a widespread landscape of idle building shells encapsulated and embedded within the rest of the centre's urban fabric. Caught up in a limbo between collapse and renewal, these naked structures are stripped from strict functional prescriptions and suspended of formerly determined use, and hence open for repurposing and recycling as much practically as semiotically. Be that as it may, they are simultaneously also still very much central, anchored and encapsulated in the most symbolic and emblematic 'core' of the city, sitting aside of the centre's principal avenues, squares and parks. Consequently, they are never completely given up or handed over to whatever informal process of erosion, demolition or reclaim. Most vacant structures in central São Paulo fit at least metaphorically under the broadly discussed notion of 'urban ruins', and its implicit appeal to unforeseen reappropriations, such as the occupied 'urban forms' in Monrovia richly documented by Hoffman (2017) or the 'dark buildings' in downtown Johannesbourg, on which Wilhelm-Solomon (2017) beautifully sheds light. In a scholarly debate that operates on the intersection of architectural theory and urban anthropology, the figure of the ruin, where eroding architecture destabilizes and opens up its former signifiers, in keeping with Buchli (2013, p. 158), *'undoing, either through divestment or gradual disembodiment, is integrally productive towards the forging of new social relations and forms of continuity'*. Indeed, *'decay, ruination, and destruction are similarly productive'*. In that respect, vacancy surfaces as a landscape of untapped spatial opportunities, with Detroit as perhaps the most obvious and most documented case in point (Herscher, 2012). In São Paulo, at least, it is precisely in the liminal hiatus that emerges from the quaint convergence of peripheralness and centrality, idleness and fullness, neglect and concern, that prototypical urbanities find a fertile soil to nest, as they supply emptied space in the midst of opportunity. The particular condition of the city's architecture is consequently not a passive receptor of such social and cultural occupation practices, but instead, the latent agency that invokes them, and the subject they are occupied with in the first place.

Occupations as instances of urbanism

The peculiar concomitance of vast vacancy in the thick of the centre's thriving vigour spawned a vast opportunity structure for those that continued to be forcibly displaced, time and again uprooted from former dwelling places after evictions or other disasters, if not simply in search of better life opportunities. It is precisely in the jumble of architectural rubble that testifies of the centre's partly faded glory that refugees, migrants, homeless and other urban outcasts found and continue to find refuge, left to occupy built leftovers of urbanization cycles bygone for self-create troglodyte shelters in the ruins of erstwhile prosperous projects. It is precisely in the liminal fissures and crevices wedged between collapse and renewal that occupation movements recognized a vast landscape of spatial chances up for grabs in the vivid epicentre of the metropolis. Echoing what Remy and Voyé (1981) recognized as spaces of 'weak legitimacy', the affluence of undefined and undetermined spatial structures surfaced as a rudimentary but robust spatial framework for exploring deviant and unexpected usages. In the suspension of strictly determined programs and semiotic codifications, vacant spaces emerged as invitations for taking in, a constellation of open signifiers provoking a verified register of aspirations and imaginations.

There is the by now famed Hotel Cambridge occupation, at 216, Avenida Nove de Julho, the avenue that covered the Anhangabaú River, the receptacle of São Paulo's primordial settlement, the centre of the old central city. Once a prestigious hotel, it was proudly inaugurated in the prosperous 1950s, but covertly renounced in the destitute years after the global financial crisis of the early 2000s. The erstwhile hotel is occupied since 2012 by the *Movimento Sem Teto do Centro (MSTC),* the Homeless Movement of the Centre, housing 170 of São Paulo's lowest income families. Once an epitome of splendour and extravagance, it is now a centre of popular culture, where amongst the piecemeal adapted dwellings a rich variety of urban enterprises germinated, including workspaces, beauty-salons, small shops, a bakery, capoeira workshops, a library, textile ateliers, office spaces, common meeting rooms, a rooftop garden, a health post, and a second-hand shop, amongst countless other temporary initiatives (Stevens, 2017). After the launch of *Era Hotel Cambridge* in 2015, a movie produced by Eliane Caffé staging numerous occupants, and especially refugee-inhabitants, the building made name as a bastion of pluralist popular culture. Era Hotel Cambridge is described by Caffé as 'real fiction': the Brazilian and international refugees that end up together in the Cambridge Ocupation are acting to their best abilities, but in fact, they merely play themselves, narrating their factual migratory itineraries from conflicted territories up to the occupation. MSTC's main *liderança,* herself a rural migrant from Bahia, also casts herself, declaring as much in front of the camera as during weekly movement meetings that in the occupations, *'all are refugees, whether Syrian, Congolese, Haitian or Brazilian, everyone is occupying because they were expulsed or without chances elsewhere.'*

A few blocks further upstream from Ocupação Cambridge, sitting alongside the same avenue, there is the Nove de Julho Ocupation, nesting in the former headquarter building of the National Institute of Social Security (INSS). When the art-deco building was inaugurated in 1947, it was one of the most emblematic skyscrapers that heralded São Paulo's leap into modernity. In 1997, about 500 homeless families joined the *Forum dos Cortiços,* the very first organized homeless' squatter movement targeting vacant buildings in the centre. In the aftermath of their eviction from nearby *cortiços,* the group of more than thousand homeless occupied the INSS building, which had been left in abandonment ever since the early 1980s. The occupants kept hold of the building for six years, and its 'success' as a home-made homeless refuge prompted an unforeseen series of organised occupations in central São Paulo. The plight of those 'without': *'without homes, without land, without work, without rights'* (Zibechi, 2012, p. 61) – literally – leaped to the centre with startling vigour. Most movement members fit very well in Wacquant's (2008) description of *'urban outcast',* working poor that could simply not maintain subsistence on the basis of their meagre incomes. In many cases they preferred and partly depended on the centre's concentration of social services and low-skilled job-opportunities that rely on its vibrant street life and intensive transit. Many occupants are street sweepers and hawkers, nanny's and dog walkers, security guards, taxi drivers or checkout girls, willing or not, depending on propinquity to the rich for making a living.

The occupied INSS building became, as so many insurgently claimed spaces, a laboratory of communal self-organization, co-housing and mutual help, reverberating the European 'autonomous' squats (Vasudevan, 2017) while dwelling very much on the well-established rural occupation tactics of Brazil's Landless Movment (MST) (Branford & Rocha, 2002), with whom the central movements held close contact. *Mutirão,* a particular Brazilian repertoire of communal practices (Arantes, 2002; Bonduki, 2006), dictated the building's patch-up works, its maintenance and internal organization. The *Forum dos Cortiços* grew from a rigorously organized constellation of housing movements that proliferated and consolidated in Brazil during the 1970s and 1980s. It was affiliated to Brazil's nationally organized Union of Housing Movements (UMM), and both were closely bound up with the Labour Party (PT). It was, after all, the contentious landing of vast rural migrants in an unhospatible and hostile metropolis that necessitated and incited massive self-organization, for jointly claiming the elementary urban facilities and urban rights they were not given, in the same way as that the widespread land-occupations accruing around the city were the architectural articulation of a severe housing crisis (Pasternack Tascher, 1995). São Paulo's ample belt of ever-growing self-built *favelas* was and continues to be the material sedimentation of massively arriving rural migrants, taking and claiming spaces in the absence of policies and initiatives to allocate more qualitative spaces of

arrival (Holston, 2008). It was nevertheless in the centre that these migrant populations most often found their first refuge, in dispersed *cortiços*, in numerous un-organized squats, below overscaled infrastructures or in temporary shelters. It were those marginalized arrivals that for so-long had been invisibly-present in the centre that took off to occupy abandoned building carcasses, shifting from a very ephemeral and hidden residence to a highly coordinated and exposed spatial claim to rights to reside downtown.

In the case of the Ocupação Nove de Julho, inhabiting the INSS building, the occupants enforced the municipal government to buy and refurbish the building, and after a project was drawn-up by the architectural cooperative Ambiente, the movement left the building optimistically in 2004, awaiting promised reconstruction works to start. Twelve years later, not a single stone had been turned, and instead, decay and dilapidation turned the building into a mere relic of a once proud and prosperous edifice, occasionally used now by narcotraffickers as a strategically located distribution centre. The Forum dos Cortiços meanwhile fragmented and ramified into multiple other movements, and the MSTC grew out of it as one of the most radical offspring-movements, re-occupying the building in 2016 to compel the promised recuperation of the building for housing homeless families. Some squatters that were wretched out of the building in the early 2000s, were now stuffing the derelict structure again with makeshift dwelling units as movement leaders. With some paint here and there, some plywood panels and dumped furniture, a communal kitchen and shared outdoor lavatories were assembled, and another dwelling environment came to be carved out in renounced urban debris, aspiring to stay, while remaining highly prone to be forced to move again sooner or later.

From the rooftop of the aforementioned Hotel Cambridge one can easily peek inside the equally fabulous Ocupação Ouvidor 63, nested along the same avenue's opposite side. The stepped 13-floor building, covered by an overload of psychedelic graffiti, accommodated for years the state's department of culture, before becoming part of São Paulo's vacated vacuum in the early 1980s. Ouvidor 63 came to embody a dynamic occupation-biography. After two decades of abandoned neglect, the building was seized by some hundred homeless families of the *Movimento de Moradia do Centro* (MMC), another central offspring movement of the Forum dos Cortiços. The MMC inhabited the building for eight years, piecing together 83 plywood barracks in the building's deserted open office spaces (Teixeira dos Santos et al., 2002). When the occupants were thrown back in the streets in 2005, most were compensated by the municipal social housing company with social housing units in São Paulo's Eastern periphery. More than a few eventually sold off there 'conquered' dwellings, heading back to one of the centre's *cortiços* or embarking on another occupation venture. The building remained vacant for another nine years, to be squatted again in 2014 by a diverse motley crew of artists, who turned the building into an artistic and cosmopolitan living-complex, amalgamating extraordinary communal dwelling cultures with uncensored artistic creativity and sparks of urban activism. Over the following years, inhabitants moved in and out continuously, and each floor accommodated one transitory community after another. Many temporary inhabitants were Latin American street artists, 'crashing' at the Ouvidor occupation for a few months before continuing an everlasting journey across the continent. Ouvidor, as in fact most occupations, turned into a distinct 'living complex' (Maak, 2015), provoking contemplations on the urban living together in São Paulo and far beyond.

As spatial and social experiments, they convey instances of a city that is perpetually in the making, nesting here and there for a certain amount of time, before moving again elsewhere and otherwise. It are these prototypical and mobile constellations that in their entirety perform a constellation of prototypical 'in sity' tests of possible urbanisms, parasitizing on the spatial hiatuses of decline and redevelopment.

Urban movements as movements of urbanism?
Ocupação Cambridge, Ocupação 9 de Julho, Ocupação Ouvidor, they are momentary disparate spaces, remarkably exceptional, but exemplary for the plethora of miscellaneous occupations that were grafted in the centre's architecture by numerous organized and unorganized, social and artistic movements, all in one way or another closely bound up with migratory itineraries. Albeit they perpetually remain temporary occupations, they are unlike any other space in the city. They are acupunctural and volatile, but structural and pervasive at the same time. Nowhere for ever, but yet, everywhere. Paradoxically, they often stem from a longing to be able to settle, an aspiration to stay, while remaining a mobile city 'on the move'. As they cluster along the centre's major boulevards and foremost squares, movements, collectives and mere individuals found a splintered but vast territory of untapped opportunities for living, working, making, and doing what could mostly not find a place elsewhere in the more restricted and functionally more determined urban architecture. In the odd convergence of departure and arrival, an occupied city germinated, inventing and testing other ways of inhabiting, remaking and rethinking the city of São Paulo and beyond.

Some hundreds of occupied vacancies make up a structural urban realm in downtown São Paulo, *en route* manoeuvring and piecemeal readjusting the left-behind wastescape of idle structures and armatures, while injecting it with urbanity. Their extensive proliferation gave birth to a unique agency, taking part in the making and remaking of the conjoined material and social culture of the city, concurrently imagining and setting off to piece together a

makeshift 'mobile' city in the decrepit wreckage of the old one. In the wake of pervasive and relentless movements, an archipelago of stop-over settlements emerges, transient by nature, and hence highly mobile in its own material terms, but therefore not less remarkable as episodic spaces were inclusion is literally built, as a series of fragile prototypes of potential alternative urban futures.

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Another Geography of the Belgian Dispersed Settlements
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2021
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Urbanisation and human settlements occur through division and appropriation of land, soil, ground. The thesis is interested on this process and how it challenges the question of limits, particularly outside the compact city, in dispersed territory, where other logics of construction are building what might be defined as a city-territory, an urban region where elements of the compact city are implanted through rationalities which requires specific description and representation to be understood. Within this perspective, this article aims at providing some understanding on dwellings in Belgian city-territory, the way they were built in relation with land acquisition and driven by model and imaginaries in search for implicit qualities of natural environment but are constructing, on the contrary, a non-sustainable territory. The first chapter will introduce the question of division of the ground as a territorialised appropriation by human and society. Then we try to understand the value of those patterns, private or common, and what type of ecology they support. Pointing out the historical construction of the territory in the case of Belgium and its theoretical fundaments in urbanism, we finally try to sum up alternative appropriation of territory based on current and past discourses or experiments. The paper is an attempt to endorses some statements about question of land and its reedition deepening the idea of another geography based on ground's existing lines to support alternative appropriations.

The P*arcellaire* as a Theme
In close relation to the concept of palimpsest (Corboz: 1983), the *parcellaire* is a determining element in territories' evolutions, both fragile and stable, both static and dynamic, subject to changes, being the lineal substrate of land and soils, welcoming further artefactual constructions, urban materials, agricultural elements, drawing landscapes, organizing social and power relations, ecologies, collective practices and private property. Nevertheless, the soils division can neither only be understood as an a priori, a pre-requisite for some other act of dwellings on the territory, neither can it be the result or the mere consequence of those. It is a much more complex process of permanence and changes, demolition and disappearance, adjustments or hierarchizing which constantly set up the spatial conditions of our environment.

The important reflexion around typo-morphology has shown processes of transformation of these traces which build cities and territories. Through the school of French geographers (Demangeon, Bloch, Febvre) and Italian, Swiss and French architects (Muratori, Rossi, Gregotti, Bernoulli, Panerai, Rouleau) questions of territory's forms have been reclaimed in the debate in the contemporary city's project and continue to be today by archaeologist, architects, geographers, landscapers and other disciplinary fields. Emerging from this tradition, we inherited several concepts such as permanence, persistence and disappearance, developing the complexity of the concept of palimpsest and used to describe ground and soils' evolution as a collective production of space and searching in its forms and rationalities the anchorage for its transformation.

The subdivision of the ground is supposedly infinite and can be heard as the result of different uses, behaviours and appropriations of individuals or community, which by moving, working and living on specific part of the territory, are establishing territorialities. In this sense, the *parcellaire* is a tool of the urbanisation process. Secchi (2000) reminds us that "the idea of the ground divisibility has inspired, for instance, the bourgeois claim of land ownership and its market. The continuous, isotropic, infinitely divisible and permeable character of the bourgeois city has been much emphasized, but what one has less highlighted is that it was opposing the indivisible character, would it only be symbolical, of the landlord's property right, of the civics and commons uses of the medieval collectivity. Leaving the medieval land law and entering the bourgeois modern law was meaning to accept the continuous divisibility of lands and the unlimited mobility of persons and goods within the physical, economical and physical space". This is a key concept for conceptualizing the parcel as part of what constitute the figure of continuity. The ground can be thought as infinitely divisible, offering an endless possibility of human establishment. Repetition of parcels becomes a parcellaire. A texture.

On the opposite, if we think to every parcel or group of parcels, as single object, as new element, they can be described by the figure of the fragment, violently superimposing itself on a previous existing configuration of the land, reorganizing any topological relations that was there before by process of division, erasure, cutting or segmentation, appearing in itself as a new world, based on the principle of exclusion, clarifying the differences with the rest by a clear shape and perimeter. Most elements in the contemporary city are built as fragments, as distinct elements containing certain functions, just like thematised parks, pieces disconnected from the direct environment, either by physical hedges and limits or by the distribution system organized from the inside.

[fig.1] Representation of the cadastral matrix for Belgium (AGDP, 2009).

A short look to the cadastral matrix (fig.1) can bring some knowledge about the territory. Some phenomenons of the territory's construction can already be read at this scale. Rivers can be seen, almost as if the hydrographical network was represented. Whither and blacker spots are speaking of area where the land is more or less fragmented. Some bigger figures appear, some texture, some points and exceptions. In other word, reading the *parcellaire* matrix, even at that smaller scale, is able to construct knowledge on logics of the territory, that are, for some, partially known with other key of reading, and for some completely new and intrinsically related to the division of ground and its sense. Representation of the parcellaire make visible its own rationalities and structure.

The ground is capable to carry several realities or meanings and a plot of land support several uses, practises, names and interpretations or definition. Let's take any random plot of land. It is all at the same time a private estate, site for the implantation of a house, the place of a garden that support both ecological qualities and inhabitants' games and practices. It is a part of a national territory as well, a part of a department, of a commune, a piece of *terroir* which can be recognize in its form or in the type of plants and materials which constitutes it or which are defining its limits, its border. It produces spatial reference to organize complex relations inside society. In this sense, a form of appropriation such as the commons, charged with a long history, were known to support various uses and roles on a more regular and institutionalised basis in the past. The theme of commons might be a first exploration to open the field of multiple alternatives possible of the ground appropriation.

Common Ground
Van Bavel and Thoen (2013) analyse the property regime and their transformation, in relation with social factors and demonstrate how they are related to environmental question. From a historical and social perspective, they trace the question of ecology in a broad sense by "investigating the interaction of property rights to land and environmental development". In the past, we can identify in the rural dwelling some structure of collectivity. Some lands were held in common, sometimes belonging to a group of people, sometimes belonging to a single owner, and over which a community or group of people had some right of uses. In this collective publication, De Moor retraces the evolution of commons since the middle age in Belgium based on the survey of *"les terres incultes"* and the wooden land. For economic or political reasons, a series of laws have limited the use of commons and diminished the amount of land dedicated to them. Under the name of movement of enclosure,

they were progressively privatised from the early XIIth century then more drastically during the XVIth and XVIIth centuries. From their productive aspect, they have today mostly disappeared to the point that Eurostat does not list any agricultural common in Belgium.

Emile Vandervelde in *La propriété foncière* (1900) points out as well the disappearing of the commons by various means in the XIXth century. Operating at three scales, the country, the province and the commune, Vandervelde investigates the land ownership, identifying origins of properties (clerical, domanial, collective, …), the processes of appropriation, transfers or modifications, and linking the whole analyse with larger trends such as demographic growth, new infrastructure or political structure of the nation. About the commons (communal property and patrimonial property), Emile Vandervelde reports a still important landed heritage at the hand of the communities and communes but threatened by important private resales. He clearly note in this regard, the role of public authorities in the alienation of communal property by the private sector.

Benjamin Seebohm Rowntree is an English industrialist who has conducted various sociological research, particularly on the issue of poverty in the beginning of the XXth century. Rowntree's investigations lead him to visit Belgium and to learn from the organization of work and its territory, collected and synthesized in the book "Land and Labour. Lessons from Belgium" published in 1910. In turn, he notes the fragmentation of the property which he, as an Anglo-Saxon, rejects the causality especially on succession laws.

In relation with regime of property we can thus differentiate different types or forms of society. These questions of land rights, land use and land property have much to do with the organisation on the territory of collectivity, ecology and spatial justice or the lack thereof.

Arcadia /Suburbia Belgica: Spatial and Social Condition of Life.

Beyond city and countryside, Belgium has developed a strongly ambivalent relation with the urban. Through multifarious episode of urbanization, the *parcellarisation* of the land has built an urban region, a city-territory covering a major part of Belgium but escaping centrality, density and intensity in favour of isotropy, dispersion and private property. From middle-age to the begin of industrialisation, urbanisation has occurred through processes which led to patterns of dispersed urbanisation. Looking at Belgian territory, urbanisation's structure of dispersed settlements has an idiosyncratic form which construction has been researched through numerous urban studies (Demeulder 2009, Grosjean 2010).

Along the XXth century, the Garden City model has served as a guide for the social housing projects by urbanists and developers (Verwilghen, Van der Swaelmen, Bourgeois) in which we acknowledge the figure of decentralisation. (Demeulder in Van Herck & Avermaete: 2006; Smets: 1986). In the direct after-war, under the climax of the welfare state, Belgium has been able to reconstruct a strong and efficient network of infrastructure able both to rebuild the economic support of the country (Ryckewaert: 2013) and to distribute the new housing settlements in almost every part of the country. Sustained by an importantly infrastructured territory at national scale, the liberal autonomy of middle-class population was made possible. The dream of the single-family house and the social accomplishment it represents has driven and still does a large part of the population to buy its own plot of land to build a house, often in self-construction, forming in the facts, but also in the imaginaries, an "ownership society" (Dehaene:2013).

In this search for a Belgian Arcadia, the land was slowly filled up plot after plot, letting appearing a Suburbia Belgica. Bruno Demeulder in the article "Patching up the Belgian landscape" (Demeulder et al.:1999) describes very precisely the political and socio-economical context in which these transformations have been going on supported by a series of housing policies. Demeulder describes this disparate landscape, based on suburban villas or *fermettes* as "[...] a land of laissez-faire, where the cacophonic juxtaposition of designs delivers surprise after surprise, where an intense poetry lurks side by side with a nauseating banality behind the common place of everyday habitation". He explains later in the text, that "traversing this fabric produces a heterogeneous image of built-up and open landscape compartments (the preeminent paradoxical Belgian landscape form). The fragmentary rurality gives this environment a certain idyllic quality which is its main attraction for many inhabitants ».

[fig.2]. Transformation of the *parcellaire*. A graphic exploration of the typo-morphological structures in the village of Genappe, both rural (agrarian) and urban, and their evolutions, on a square of 2x2km. Popp map from around 1850 and cadastral map from 2009 (in black, the permanence, in red the new division of land and in dotted line the disappearance). (AGDP, 2009). The drawing on the right shows the expansion of land consumption around the historical village.

Looking at Belgium today, the condition of so-called garden city seems to be everywhere. Small houses, gardens, low density. Nevertheless, nothing has been thought as a city. Nothing has been planned. At most, it has only been permitted. Private property and division of the parcellaire ad nauseam. Many searchers have worked on a historical and spatial description and qualification of this long-term and complex construction of a whole territory, by means, inter alia but principally, of its most elementary built artefact, the house. Among those, the allegory of the *Banlieue Radieuse* (Smets: 1986) is the most striking and intends to represent this city's cultural construction translating social aspiration of welfare into spatial conditions but criticises also the deterministic approach of modernism. Marcel Smets points out how the evolution of the garden-cities, even if guided by social and collective concerns, has always tended to resemble to the modern bourgeois city, copying certain patterns, dwellings, forms and landed processes. From industrialisation to today's allotments, the evolutions of residential dwellings in Belgium could be retraced and reinterpreted as the endless reinterpretation of the garden-city models, would this reinterpretation only be active in the imaginaries or in the architectural style.
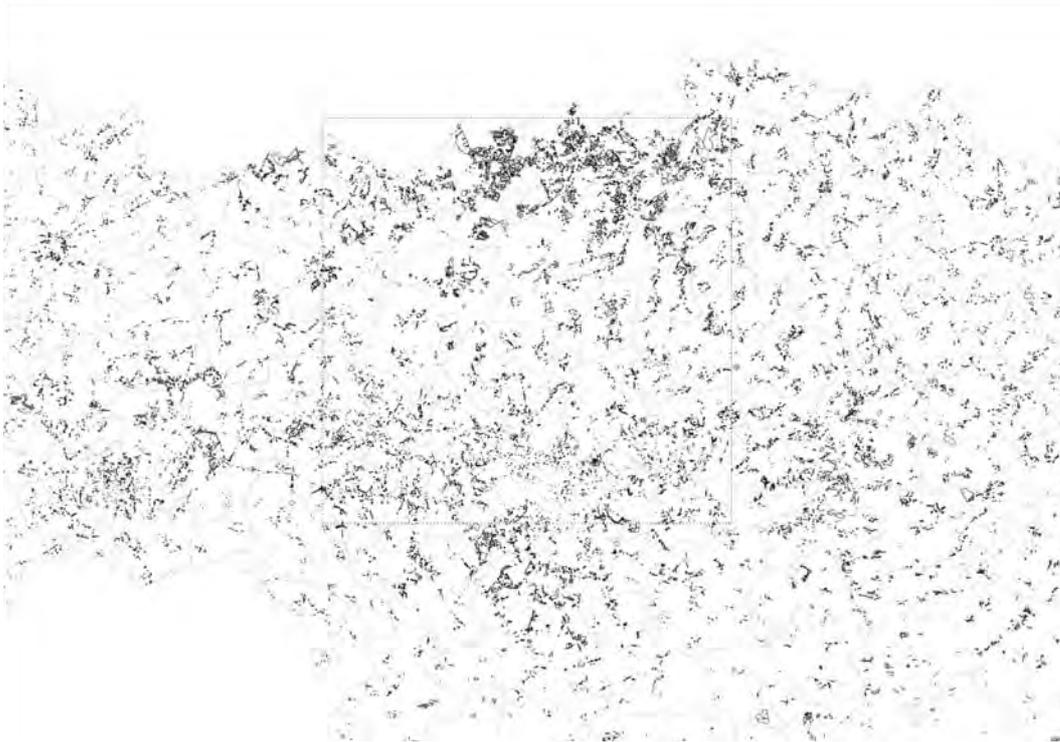
[fig.3] Representation of the division permit or urbanisation permit: geographic dispersion of the urbanisation permit from 1950 until today on northern part of Wallonia (AGDP, 2009).

According to Riegl (1903) the monument, intentional or unintentional, carries different type of values: age-value, historical value and contemporary value. The definition of the *parcellaire*, taken as a palimpsest, could meet, in some points, the one of the monument. It represents, for the collectivity, a memory of past uses, past constructions, materially inserted on the ground or defined in juridical documents. Inside the line of the *parcellaire* lies the traces of relations between humans and their territory. It is the living record of their ecology. As a monument, it conveys certain value and represent what the community that build it keeps as a memory. The parcel, in this context, the residential parcel, is therefore the representation of social accomplishment. It becomes a spatial figure which represents a social being and supports social relations. In an individualistic and discretized manner, by means of parcels with single family-house standing on its garden lawn, the *parcellaire* has been erected as a monument of the social representation. Hence, these urbanizations processes have been shaping new territorialities of richness and inducted inevitably spatial injustice. The *Banlieue Radieuse* can be critically seen as the result but also the agent of those recent transformation, building a geography of living seen as consumptive and non-sustainable, depending on high individual mobility capacity, introducing inequalities and reproducing social patterns outside the consolidated city.

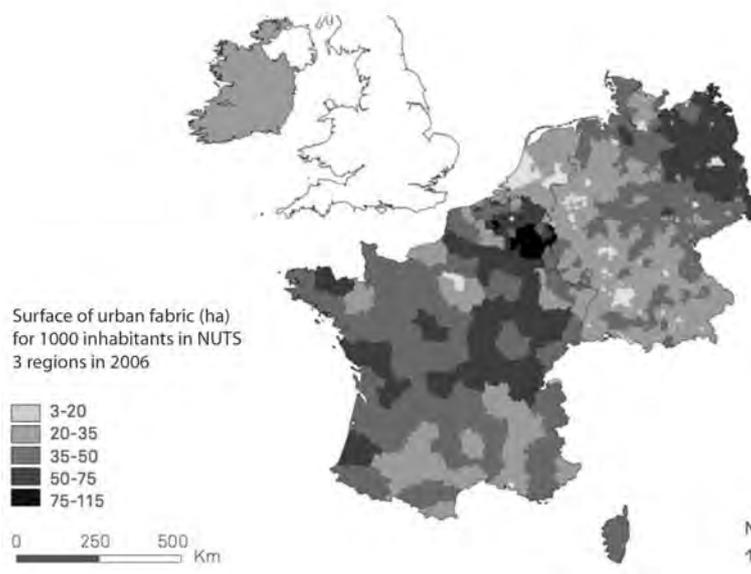**Reproduction of the Land in the City-territory and Alternatives**
This part intends to question land production and to open new tracks about how appropriation of land occurs. By browsing literature and references and by highlighting some current or past experiment, we intend to open up a first set of alternatives. Deepening the idea of another geography based on the existing lines and highlighting their ability to support alternative, we search for alternative model of land production, or alternative model for operative land management's tools, allowing ecological and social matters to be embedded within the palimpsestial internal lines. Our research intends to understand to what extend a reedition (Dehaene: 2013) of the dispersed settlement in the Belgian city-territory based on its inner lines and constituents would benefit to more sustainable, collectives and urban habitat to live together.

Belgium's urbanisation structure in the middle-age shows an equidistant distribution of specialized cities, a dispersion of hamlet and towns linked through commercial roads to exchange goods and peoples. At the industrial age, a fine network of rail based mobility, almost isotropic, enable the mobility of workers and dispersed urbanization patterns, the apparition of different typologies of houses (urban houses) in the traditional villages, meanwhile, heavy industries and their apparatus were organised on selected area in the country. Today, the reinforcement of highways network and the progressive resetting of the railway network toward more hierarchy and less isotropy, evolutions of work market with the growing importance of Brussels

as a centrality, the extension of residential area under demographic pressure, the continuous deindustrialisation of the country are reconfiguring new territorialities of dispersion based on high car mobility dependence.

The condition of this dispersed urbanisation, rooted in an urban structure whose rationalities are inherited from the past, have dramatically changed today. Therefore, the configuration of what constitute this dispersed urbanisation, what constitute the living environment for its inhabitants has changed as well. Activities, economies have been displaced, restructured. Tertiary sector has strongly developed. Located on the outskirts of middle-size cities, along road infrastructure, commercial centres have emptied the core of the villages. All in all, the contemporary appropriation of the ground has established the construction of other geographies. Their slow fragmentation or consolidation, the permanence and persistence of their traces, and the social relations related to those structures have completely reshaped the territory. After a large movement of description of those conditions in the 1990s by architects and urbanist, there is a need for a new reading of the territory. Starting from the *parcellaire* as main actor would lead us to reconstruct or reimagine the potential future transformations of the urban region.

According to the Walloon institute of evaluation, prospective and statistics (IWEPS)[1], the new ground surface dedicated to residential purpose has raised up from 10,9% between 2004 and 2014, adding 10'331ha to the 94'813ha existing. This figure shows the continuous and major consumption of the ground for housing, most of it being suburban villas. (The figure for the Walloon region are 70% owners, 20% private tenant, 10% public tenant (social housing). If you consider rural area, the percentage of owner reach 80 or 90%, while in compact cities such as Charleroi, Liège or Namur, it lowers to 50%). In addition, if one knows that Wallonia shows one of the highest ratio of surface of urban tissue per inhabitant in western Europe (see fig.4), which can give an indication on the average dimension of the houses, one can easily get the picture of the ongoing scenario of rapid and massive consumption of available land in the last years. In this context, open spaces, rural or agricultural spaces are easy prey for urbanization process, as place of accumulation while agriculture is precisely encountering heavy transformation in those landscapes.

Surface of urban fabric (ha)
for 1000 inhabitants in NUTS
3 regions in 2006

3-20
20-35
35-50
50-75
75-115

0   250   500
Km

N
↑

[fig.4] Surface of urban fabric by number of inhabitants in NUTS 3 regions in 2006 (VANDERMEER in HALLEUX:2013).

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[1] IWEPS "Les terrains résidentiels correspondent aux parcelles accueillant des maisons, appartements, jardins, potagers, garages, cours, presbytères, châteaux… Entre 2004 et 2014, soit sur une période de 10 ans, 10 331 ha supplémentaires aux 94 813 ha existants ont été consommés par la fonction résidentielle, soit une augmentation de 10,9%. La cartographie ci-dessus met en évidence les communes dans lesquelles la croissance des superficies résidentielles a été forte par rapport aux superficies résidentielles existantes l'année de référence." [accessed on december 2017] https://www.iweps.be/indicateur-statistique/urbanisation-residentielle/

But, knowing this long and layered construction of dispersion and its sort of implicit model "à la belge" based on self-construction and individual ownership, and aware of the radical social and ecological changes to challenge, the question of land appropriation is one fundamental element to reconfigure the city-territory. Horizontal condition of dwellings offer possibilities that the compact city doesn't offer or allow whereas the way this urbanisation occurs today is not sustainable and should be re-founded. A reedition of dispersed settlement toward a horizontal urban condition, is the point on which we would like to start reflecting, in other words to reclaim an ecological structure. Future transformation of this territory based on the configuration of today's territory considering its existence as a parameter to work with is an alternative way to imagine what will the future society landscape be. What relation to the environment does this city proposes? Paradoxes between this image of "nature" driving imaginaries of Belgian "*banlieue radieuse*" and actual consumption of the ground are numerous and touch various question from ecology to spatial justice. Can we see in the reproduction of land division process, the reproduction of social and spatial patterns? Is the "countryside" and its way of life affordable for everyone? Is there some possibility to couple the ambition to live in high contact with open spaces with the one to inhabit an urban and democratic space? What kind of *vivre ensemble* does the *banlieue radieuse* proposes now and in the future? Some first hypothesis can be made hereafter as rough exploration starting from the discourses, either predominant or marginal.

Densification

Political consensus in urban planning nowadays in Wallonia and elsewhere can be synthetized under the name of "*la ville sur la ville*" and under the shape of a polycentric approach. Reacting to the current and announced overconsumption of land, policies are now orientated toward denser strategies for housing, located nearby core of villages, limiting or forbidding new constructions, using protective concepts and measures on certain open and natural spaces. As an illustration, the CoDT (*Code de développement territorial*), the main tool for land use management recently updated in Wallonia list as first objective, the "fight against urban sprawl". The newly adopted LAT, the Swiss *Loi de l'aménagement du territoire* supports strongly the idea of holding back the urbanization as well, leaving open spaces and agricultural fields untouched. The RSV (*Ruimtelijk Structuurplan Vlaanderen*) presents a similar strategy in Flanders and a short fieldwork in some core villages can testify of the already ongoing process of re-densification of existing centralities. New typologies are proposed by promoters not without leaving unsolved other topic such as mobility, parking, articulation with existing tissues.

At closer scale, these politics are already visible through new type of constructions, located in some vacant plots of land inside the urban tissues of villages. These residential buildings, even if not new, are growing and the range of housing unit they propose encounters the variety of the market demands and not only single family house. Often culminating up to three or more floors, their volume and dimension come in contrast with the rest of the tissues, and they are often developed as group of buildings, or allotments. Compared to the existing tissues, they vary on different aspects, typology, volumes, implantation principles. The new credo for the compact city is also the one at work behind the model of BIMBY strategies. "Build in my backyard" is a kind of land consolidation or recycling strategy addressing low density neighbourhood in order to allow densification by means of further individual private housing on the existing and already built plots of land. It relies on the convergence of interest of a group of neighbours, a collectivity or the commune, which decide, through mediation and participation, to reorganize, divide and sell piece of their property to create some new plot of land.

[fig.5] Densification. New typologies (picture of the author).

Separating Real Estate, Landed Property and Practices
Operating by analogy, the medieval landed commons can be reconceptualised in contemporary dispersed city. Space, and therefore land, is expected to be a shared resource, used and managed by group of users under conditions. Separating the property of the ground and the property of the built and controlling the value of land, avoiding speculation, Community Land Trust model promote a sustainable accessibility to housing. Based on a emphyteutic system, the regulation of the ground by the community is close to the description of Howard in Garden Cities of Tomorrow (1898). Furthermore, first Community Land Trust where strongly related to small collective agricultural production. So were the first criteria for access to housing by the SNPPT in the 1930's in Belgium (Mouguenot:1988). By the fundamental separation of real and landed estate, Community Land Trust system is conceived as a common.

Easements are one of those remains of differences between right of use and right of property, allowing specific uses by others than the owner on its plot of land. In our contemporary situation, it is often reduced to basic conditions, such as authorization to go through a plot of land to reach another one, right of views or joint ownership. In the case of easements, the right is given form one plot to another and stays even if the owner of the plot changes. In the past, some group of people were being enable to practices certain uses more extensively on property they didn't owned and this was most often related to productive activities. Today, easements remain mostly a juridical fact in link with the land and with limited impacts, but it might be a topic on which to reflect.

Way of life and the configuration in which human inhabit, as a nucleus, as a family or in a different association of people conduct to new forms of habitats. Bottom-up projects of co-housing or *habitats groupés* are not a new trend, but are gaining ground and visibility on the public debates through inhabitants organised around exchange platform or local networks. Under this name, we cover a great amount of small initiatives which aims to consider societal challenges from their community core. These types of housing will often be more dedicated to a specific challenge or around a specific project: aging population in the case of multigenerational project, student housing, ecological construction, low price housing or the search for a collective way of living for single persons. Based on shared value about housing and dwelling, the alternative aspect of the dynamics is more often to be find in these collective practices than on spatial configuration in the housing itself. The spatial transformation at work behind that model of co-housing should be investigate at the level of the architectural composition and of the parcels. At this scale, the collective room, shared logistic areas, common garden, common hall or kitchen are testifying of other way of living. In regard with the densification process, a mapping of their geographical position in the territory should help to understand if they participate to the same dynamics of densification or if they are looking for more open area in search of natural environment.

From the agricultural world, practices are also rising based on the separation of property right and right of uses. On the opposite of built land in Wallonia, the agricultural land is mostly rented by owners, exploited as a *faire-valoir indirect* (in opposition to direct which is when the owners cultivate its own land) to agro-industrial society or farmers (*fermage*) through a *bail à ferme*. Civic movement of farmer, peasants and owners keen to encounter a more ecological way to cultivate, are reflecting on an alternative land right system. The way open spaces are modelled, managed, used and cultivated presents lot of opportunities to rethink the production and appropriation of land in the city-territory. Its productive aspects in the following of critics toward industrialized agriculture could engage both an inversion in the way we cultivate and organize these open spaces: not as pure scenery for everyday life but as local producer of space, products and relations, part of the ecology humans live in.

Landscape as Territorial Structure
Describing the plan for Geneva agglomeration by Braillard, Elena Cogato Lanza (2005) reminds us the *inversion du paysage* at work behind the other urban question raised by this work. By drawing fields, open spaces and parks inside a coherent system of space organising not only themselves but the whole city, the plan was conceiving a strong relation with nature and city, beyond the model of garden city which was present at that time, but according to Cogato Lanza, as a city in a park. This quotation allows us to review our reflexion from the point of view of the landscape.

Demeulder concluded his analyse of Belgian inhabited landscape with the question of landscape. Condemning the land parcelling, he writes: "analyses have made it clear that a collective dimension is lacking in the Flemish urban fabric. Urbanism cannot be built up from the logic of land parcelling. Plot-by-plot productions can draw no legitimacy from a higher scale. The logic of land parcelling neither gains meaning from nor imparts meaning to the public domain. Here opportunities lie waiting to be taken. The reinvigoration of the landscape could, for example, take place by the introduction or reinforcement of coherence at an intermediate level. […] The landscape can simultaneously be a stimulus to a 'collective' spatial structure and function as a carrier of identity

and recognisability, and consequently of coherence ». Here, the possibilities to "reinvigorate" the landscape" in search for "coherence" seems to rest in the intermediate scale, in between the individual and private *bricolage* of the urban fabric and larger collective spatial structure.

In the article "Grid, Casco, Clearing and Montage", Marcel Smets (2002) recalls and conceptualize some project strategies and key of reading for contemporary approach of landscape. When he is speaking of the "casco" (the hull), he explains that "it reflects the constitutive form of the landscape and is based on local geological and hydrological conditions. As such, it can be considered the ideal natural frame that adapts to site conditions. The power of its distinctive pattern allows it to be filled in various ways without losing its fundamental character or identity. Shifting programmatic objectives can therefore be absorbed within the rules laid down by the frame. If the basic patterns – of land distribution, plot division, natural vegetation suited to the soil conditions – are maintained, they will also prevail in whatever might be constructed in the "casco's" gaps. In essence, the device aims to establish order on a larger scale for "higher" nature as fundamental to landscape formation so as to allow flexibility for "lower" nature on a smaller scale." *Casco* would be a spatial structure, derived from geological and geographical condition, supposed to offer an order, in which a smaller scale of "lower" nature might fit in without much restriction. In this case, the urban fabric scale seems not to be the challenge and may fill the 'distinctive pattern' of the casco, no matter what happens in the fabric, allowing the *bricolage*.

All these interventions might be related, near or far, to the general attention brought to the landscape today. In *Pour la protection de la nature*, the Belgian botanist Jean Massart carefully described and represented some valuable landscapes of Belgium to be preserved, showing the specificity of the sites threaten by human settlements. It was opening the question of nature preservation in Belgium at that time. When looking on these landscape's sites today, it is not very easy to recognize all the characteristics which prevailed in the description of 1912. In this contemporary urbanisation, who can still recognize the landscape in the everyday spatial experience? What remains as territorial figures in the juxtaposition of heterogeneous fragments? This hypothesis would lead to reformulate operative tools of appropriation, parcelling and affectation based on landscape but questioning the scale at which this theme should be brought. One common element of these dispersed landscape is the parcellaire, everywhere present and complexly interweaving rural and agrarian patterns of cultivated fields with elements of the contemporary city. The recent landscape –i.e. the landscape of the contemporary city - should equally be confronted, already able to recycle its recent tissues, such as the one of low quality housing and consumptive parcelling. Production of urbanization should find its way to encounter this larger frame. Construction of the smallness as to do with what it borders up and that is bigger than it. To recognize landscape and ecological figure as common reference in this scattered territory, the scale at which discourses, project or governance might be the discriminant element.

Another Garden City
History and theory of ideas in urbanism in Belgium has a deep relation with the model of the garden cities that is covering the scene of urbanism in the first half of the XXth century, coping with urbanization issue and spatial justice. The study of the land structure before the industrial revolution by Vandervelde revealed an inventory of common ownership or private property but of collective uses. The works of historians or geographers explain the structures of common spaces and the related rights of use, complex and multiple, and how these rights have gradually faded to several moments in history, starting with the one of the enclosures, to arrive to a much more mono-functional conceptualisation of property rights today. These models of Commons serve now as paradigms in situations and experiments that seek to redefine collaborative models as an alternative to the capitalist system. An attempt to focus on the land rather than on the built relates to the will to understand construction of an ecology more than the construction of the landscape itself. Ecology in this case would be defined as link between social practices, appropriation and representation of space and environment. The urgency to rethink the urban model of development in Belgium in its ecological and sustainable aspects leads certain authors (Roland, Dehaene) to warn of the too strong dissociation of the urbanization of its territorial base. The need to put the issue on the diffuse city agenda does not directly imply adherence to the omnipresent compact or poly-nuclear model.

Today, the diffuse condition is no longer simply stigmatized and the return to the city is no longer the only antidote to a pandemic pathology. However, this acceptance of the situation does not validate the situation as it is but should push to imagine the transformations of the diffuse city based on its existing rationalities and as "spatial and natural capital". Thinking together urbanisation, landscape and the search for spatial welfare, not as Garden Cities but as a Garden Territory for tomorrow might be the path to follow for a global switch toward an ecological structure in the horizontal metropolis. The effective possibility to recycle and restructure the city has a strong relation to landscape but also to what is actually in between these greater landscape spatial figures. The internal *bricolage*, this juxtaposition of individual houses, is essential in this process, because it is also where

the *vivre ensemble* is challenged. Reclaiming ecological systemic value at scale of the territory will not be enough to produce a more sustainable space. The complexity and the challenges lie in the interaction that the human settlements and the landscape can build up, in their reciprocal limits, and how they can share or not common uses, value or services. Crossing the scales is intended here to measure how much the territorial structure allows us to look at the question of conflicts that will be brought by densification strategies and dwelling processes.

Through the internal limits of the parcellaire, the reflexion attempted to reflect on the dispersion as if it would be a fundamental territory's spatial quality, capable to put in relation, within its structure, its in-between spaces, humans and their built and unbuilt environment, heterogeneous, rich and open. It aims at confronting a series of discourses and strategies on the production of space – more specifically land and soils – in the dispersed territory. We have highlighted some of these tracks and shown that challenges about the production of common spaces reside in the interactions of the scales at which the points of views and strategies are acting. In the perspective of transformation and representation, specific to architectural and urbanistic fields, those limits become proper spaces, supporting imaginaries and collective values, building new ecology intended as system of relation between human and context, as a *vivre ensemble.*

[fig.5] Landscape in the city-territory (picture of the author).

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Neighbourhood as a Socio-Spatial Common.
A Neo-Nolli Map of Wrangelkiez, Berlin-Kreuzberg

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The neighbourhood is back. In the backdrop of enforced ongoing processes of gentrification, the notion of neighbourhood is reentering the urban agenda. Having often been dismissed as a conservative project, neighbourhood as a socio-spatial phenomenon becomes relevant again. The layered and complex structure of a longterm grown neighbourhood offers not only space for coexistence and difference but also sells well in times of scarcity of buildable land within the urban fabric. At the same time it is the growing economic pressure onto the neighbours that leads to solidarity and self-organization, while governmental instruments are failing to prevent displacement of residents and local businesses. Here, we are testing the thesis, that neighbourhood as a physical surrounding and a social relational network, is being reproduced on a daily basis by the consciously or unconsciously coordinated actions of its inhabitants, visitors and users – the neighbours – and therefore can be regarded as a type of commons. Overlayering the phenomenon of neighbourhood with the concept of the commons, might reveal a cooperative system that is creating shared values within a non-commodifying economic cycle operated by a distinctive community based on daily reproductive non-waged acts of 'labour'.

0 / Introduction:
THE NEIGHBOURHOOD IS BACK

The neighbourhood is back. In the backdrop of enforced ongoing processes of gentrification, the notion of neighbourhood is reentering the urban agenda. Having often been dismissed as a conservative project, neighbourhood as a socio-spatial phenomenon becomes relevant again. The layered and complex structure of a longterm grown neighbourhood offers not only space for coexistence and difference but also sells well in times of scarcity of buildable land within the urban fabric. At the same time it is the growing economic pressure onto the neighbours that leads to solidarity and self-organization, while governmental instruments are failing to prevent displacement of residents and local businesses.

Wrangelkiez, a Gründerzeit-neighbourhood that was planned and erected from 1860 on based on plans by James Hobrecht on open fields along the northeastern city border of Berlin - is today located in the midst of Berlins gentrification wave, rushing in a spiral shape for the second time over the district of Friedrichshain-Kreuzberg since the fall of the wall (Holm 2010). Having been situated in the most eastern part of former Westberlin for almost 40 years, the area around the Wrangelstrasse was in a rather desolate status when the re-unified Berlin entered the stage of neoliberal urban development in the early nineties. It took around 10 years until web agencies, architecture offices, galleries and finally the tech industry moved into the slowly modernized warehouses along the river spree and real estate agents discovered the premium housing location along Görlitzer Park for private ownership apartments.

The same Görlitzer Park was a wasteland around the abandoned Görlitzer railway station and track field until the late 1980ies, when it was claimed and collectively designed by the neighbourhoods around it. By then already the inhabitants formed an utmost resistant and well organized citizenship, a third of them of south european origin, mainly turkish guest worker families, and another third being artists or students who could not afford living in central Kreuzberg or even Schöneberg.

Like many areas in Eastern Kreuzberg the Wrangelkiez was one of the very typical environments where a broad squatter scene in the 1970ies initiated a counter-movement towards the radical modernization plans based on extensive demolishment of Berlins housingblock structure and its replacement by large scale modernist housing estates. The concept of the socalled Behutsame Stadterneuerung or 'cautious urban renewal' was an outcome of the rigorous protest of many neighbourhoods against the planned 'Kahlschlagsanierung' and was finally applied on large scale all over Westberlin in the frame of the International Building Exhibition (IBA) in 1984 and 87, with plans and projects also in Wrangelkiez.

This is the political and historic context in which todays activities and occurrences have to be seen: the inhabitants of Kreuzberg and especially Wrangelkiez are looking back onto a history of social fights for their houses, streets and open spaces. Belonging to the least wealthy parts of Berlins population, the inhabitants of Wrangelkiez are facing today extremely fast rising rents, displacement, closing down or privatization of public infrastructures like schools and kindergardens as well as transformations in real estate ownership from individuals with rather low interest towards investment firms, developers and fonds with very large and speculative interests. But the neighbourhood is organizing resistance against its finacialization. The Wrangelkiez became worldwide known through the residents initiative *Bizim Kiez* (*bizim*: Turkish for 'our', *kiez*: German for 'hood'), which fought successfully in 2015 against the displacement of the grocery *Bizim*

Bakkal. Weekly protests on the streets with up to 1000 participants in front of the shop initiated an informal neighbourhood organization which fights until today against the speculation driven sale of houses, rising rents for local businesses or social facilities and the displacement of the local population.

A kind of blueprint for preparing a research and mapping seminar in Wrangekiez in 2016 and 2017 was given by the unsettling event of the overnight and self-initiated overpainting of a world famous mural of the graffiti artist Blu on a fire separation wall in the midst of Wrangelkiez[1]. Triggered by the event we formulated a set of questions that we wanted to investigate within the frame of the seminar:

How can we describe on a spatial level the concrete values generated within a neighbourhood?

How can we find out,who is participating in this collective process?

And who profits from those values and according to which rules or conventions are they being shared?

Which arguments can we elaborate with our spatial, planning or design expertise to describe the collectively produced and reproduced values in the neighbourhood?

In the first summer in Wrangelkiez we, my colleague Anna Heilgemeir and me, focussed on the questions of neighbourly production by investigating and mapping different typical situations in the neighbourhood, from a public courtyard system to the central street junction or an open space passage around the local family and neighbourhood centre (FNZ). We wanted to find out more about the conditions, components and constituents of such an attractive, simultaneously neglected and at the same moment highly contested urban environment. Therefore we focused in our research not only on the concrete built environment as a resource but also on the daily actions and movements of its users in order to combine both analytical layers into one narrative depiction of the inhabited urban tissue as a neighbourhood.

Additionally to the methodological approach, our mappings should also serve as a visual and discursive tool for the neighbourhood. They should deliver argumentation lines to the inhabitants to empower them towards the borough's planning and political authorities as well as towards the real estate agents, investment firms and developers. After our one week working session on site, we installed the eight maps we drew along the facade of the FNZ as a temporary exhibition, made contact with the local organization Bizim Kiez and got in closer exchange with the community workers in Wrangelkiez. With them we planned the second seminar in summer 2017 based on a deeper questioning of the ongoing displacement processes in the neighbourhood by focussing on the ground floor level around the streets and squares and the local businesses within this zone.

How could we make visible the spatial system in which all the local shops, bars, businesses and services participate and which is so valuable for the population of that area?

How could we try to prove the very obvious: That it is the neighbours - the people using, maintaining and memorizing the neighbourhood - who produce its spaces, its atmospheres, social networks and relations, power of resistance, resourcefulness, its spatial arrangements as well as memories captured and symbolized within the built and unbuilt urban structure (Löw 2013)?

1 / Thesis:
NEIGHBOURHOOD AS A SOCIO-SPATIAL COMMONS

We based our search for a better understanding as well as for arguments to support the neighbourhoods quest on following thesis: If the phenomenon of neighbourhood can be described as a physical surrounding as well as a social relational network and if both are being reproduced on a daily basis by the consciously or unconsciously coordinated actions of its inhabitants, visitors and users – the neighbours – within that physical surrounding, then the phenomenon of neighbourhood can be considered as a type of commons, generated by a group of commoners through everyday and maybe even institutionalized acts of commoning as long as the values, rules and yields that are extracted out of that collective process and finally also constitute the neighbourhood as a commons, are being shared.

We refer here clearly to a commons definition that is derived from historical research on traditional commons. They were previously collected in a first publication on spatial commons (Urban Open Spaces as a resource) on the basis of material connected to the commons discourse of the last decades: "Some key features of this original form of the commons are: an open-access resource space and a self-organized commoner community that acquires from a portion of this space the raw materials necessary for survival. Often what emerges from this is a clearly delineated but unparceled community space that is designated as a commons. The final, indispensable component to the definition of a commons is the shared use of the yield generated by cultivating this collective space. However, the owner doesn't necessarily need to have given permission to use the resource."[2]

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[1]   https://www.theguardian.com/commentisfree/2014/dec/19/why-we-painted-over-berlin-graffiti-kreuzberg-murals

[2]   Definition of the spatial category 'neighbourly spatial commons' based on the analysis of urban open spaces in Berlin-Kreuzberg: "In transition zones of residential areas or the areas peripheral to infrastructure, small groups make temporary claims. Appropriating these ambiguous spaces with a more clear objective in mind than the users of nomadic commons, they establish a relationship between the site and their own place of residence nearby. These self-organized or municipally initiated groups operate small

By overlayering the phenomenon of neighbourhood with the notion of the 'traditional' commons, two concepts are being confronted which are both based on spatial as well as social components. The phenomenon of neighbourhood as well as the notion of the commons combines the idea of a territory that is used, maintained and therefore constantly reproduced as such by a group of people that relate in their actions to that territory, be it because they live there, work there or fulfil other kinds of needs there.

The quality of both concepts lies in their structure as a cooperative system, that is creating shared values within a non-commodifying economic cycle, operated by a distinctive community and based on daily reproductive non-waged acts of 'labour' (Federici 2004). Both concepts are carrying a potential that can only be activated by self-declared neighbourly groups or commoners, no representative authority, power or institution can impose the status of a commons onto a group of people and the territory their actions relate to.

This characteristic describes the neighbourhood as a commons as a fragile and rather inconsistent phenomenon. What is important to strengthen once again is the focus on a definition of neighbourhood that corresponds with the simultaneity of a spatial structure constituted by consciously or unconsciously coordinated actions of a group of people. Many notions of neighbourhood operate with an exclusively territorial definition or determine neighbourhood as a rather closed group of people that share same interests. Both exclusive definitions are considered as too narrow and specific when regarding the neighbourhood phenomenon in all its dimensions.

For the following chapters on discourse, method, the Wrangelkiez atlas and spatial reproduction, a major point in the commons definition should be focussed on in advance. Lieven De Cauter distinguished in his thesis on the commons the universal commons from the particular commons: "5. The universal commons are generic, 'commons without community' (nature and culture as such); the particular commons are practices of commoning by a specific community." So is the neighbourhood, we argue, following our thesis of the seminar. There is a notion of neighbourhood that lies beyond the local, referring to a binding force based on codes and conventions such as solidarity or empathy, a universal idea of neighbourhood without a specific community, being located beyond the public or private sphere. Based on this definition, the specific neighbourhood as well opens up a space beyond public and private, but on a very local scale: it can be best describable with the spatial condition of the street. Here the different socio-spatial arrangements are happening in a kind of transition zone not between but beyond public and private and "Like any true commons, the street itself was (and to certain extends still is – note by the author) the result of people living there and making that space liveable."(Illich 1983).

If we look at the actuality of the - meanwhile so called second - commons debate as well as the revival of the neighbourhood concept, both concepts appear as crisis related or seem to emerge out of the search of an exit strategy and resistance movement against the late capitalist economic system and the losses within urban space production that come with it. What is the potential behind this emergence and where does it lead the design and planning discipline?

Could the commons based neighbourhood, thought further as an institutionalized model, bring new modes of (self-)organization into the realm of the planning and design disciplines and in further elaboration and ongoing practice maybe also new types of spaces and spatial arrangements that are able to secure the collective yields and surpluses of local space production on a longer time perspective?

For both perspectives involved in the socio-spatial definitions of neighbourhood and commons – the spatial planners or architects view as well as the sociological one – the central question lies in the production conditions for both concepts. How are the resources made available in the commons or in the neighbourhood and where is the yield being stored, extracted or re-invested, how is it being shared among the neighbours or commoners? Deeply connected to this economical question is the model of distribution that lies behind the processes constituting a neighbourhood or commons. Because for elaborating argumentations, as assumed before, it is the ways of production we need to make visible, the production of space as well as the production of values and the ways in which its (re-)producers can participate in the products.

2 / Discursive Cross-overs:
SURPLUS AND DIS-COMMONING IN THE STREETS OF THE NEIGHBOURHOOD

When operating with the concepts of commons and neighbourhood, a critical approach is needed towards these overused, often vaguely described and with multiple connotations loaded principles. The terms neighbourhood as well as commons are often (mis-)interpreted to define rather closed systems that refer to

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community projects that are commons-like in nature, consciously pursuing material or immaterial gains and undertaking activities collectively that serve purposes like gardening, cultural exchange, or the exchange of knowledge. This spatial category could be characterized as neighborly spatial commons and is usually connected to a location-bound commons (in our case the street, note of the author), is more regulated and traditional, and can be expanded more easily to private spatial reserves. Some examples of this are the gardens found on the outer sections of the circle at Mehringplatz and on its public ground-floor areas, or the flower beds planted and maintained by neighborhood residents on a public median west of Urbanhafen." (Dagmar Pelger: Spatial Commons. Open Urban Spaces as a Resource. TU Verlag 2016)

traditional, territorial and exclusive community systems, to rural and rather romantic ideas of community or to place making strategies aiming for atmospheres of liveliness and consumable urbanity.

But what is the true origin and meaning of the concepts and how do they relate to our case of Wrangelkiez in Berlin-Kreuzberg? Before looking at the concrete mapping results there needs to be made a clarification of the terms neighbourhood and commons by looking at their history, theory and actuality.

When tracing back the use of the term neighbourhood to its historical origins, it is sociological theorists such as Ferdinand Tönnies in Germany or Clarence Perry in Great Britain, who both, Perry also as a planner, defined neighbourhood as a spatial phenomenon, meaning an identifiable spatial area, related to a social condition, the community connected to that area. Furtermore, for Tönnies, neighbourhood is based on a rural 'emergency association' of people who live next to each other and therefore show solidarity in times of danger or crisis (Tönnies 1887). Perry derives out of a similar understanding the concept for an urban planning instrument (Perry 1900) which should help designing new city extensions in the aftermath of the great industrialization wave based on the idea of local supply of education, food and culture (Hüllemann et al 2015).

The historical origins of the Commons, however also originating in the rural, is related to a system of collective pasture cultivation of pre-capitalist times (Linebaugh 2008) and developed, following Silvia Federicis analysis, into an anti-capitalist struggle against enclosure of common land as well as social status by the twofold expropriated female parts of the peasantry at the end of the middle ages – and is – just as the neighbourhood - still alive as a socio-spatial and economic phenomenon (Federici).

Both historical origins are based in pre-capitalist rural livelihoods and refer to social systems of strong collective bonds. The one relating to the inner structure of the village, the other to the outer structure surrounding the village, being agricultural non parcelled lands. It seems, that the needs for solidarity against the threads of untamed nature or landlords on the one hand and the immobility over long periods of time together with the bonds of familiarity that come with it, are the two poles in which both cultural practices evolved.

But the neighbourhood had no common territorial property in contrast to the commons. The commoners defined their common land not only as the right to use this land, be it the alp pasture, the pasture along some river or the village green in the middle of the settlement. They also collectively owned and shared the values or yields that were produced and maintained on that plot: wood, grass for the cows, a baking house or simply the social network of solidarity that was established by collectively organizing the commons. Such 'collective ownership' is not known or identified by theory for the neighbourhood. There is no 'spatial type' that could be called the neighbourhoods specific space in the village. In the contrary, the borders of a neighbourhood were and still defined as vague or fluent – overlapping with the borders of other socially related groups even – and for sure not spatially defined as they are for the traditional commons. This might be one of the reasons why it is so difficult today to argue an 'enclosure' of the neighbourhoods and their values by capital as it is shown and argues for the commons. In the well known narrative of the so called primitive accumulation with which the capitalist era was established, common land was dis-appropriated not only for economic reasons, but also for political reasons, to dis-organize the commoners and make them available for labour, as we know from Marxist theory.

If a neighbourhood is being dis-appropriated today, it is private property, not common property which is being enclosed – so far the juridical reality. But a closer look at the enclosure of the commons reveals, that it was not the act of privatizing a collectively owned piece of land but the exclusion of its users by terminating their rights of use and therefore terminating their entitlement to reproduce the commons as a socio-spacial arrangement. The same must count for the neighbourhood, according to the thesis stated above.

Today, the neighbourhood is back again, as are the commons. As a theoretical concept around which a discourse unfolds as well as a cultural practise of resistance, the two concepts are re-appearing in the urban realm. And again, in the actuality of the urban commons and neighbourhood organizations, the emergency association is regarded as one major cause of (re-)appearance. While the commons are still largely withstanding the appropriation of their concept by neo-liberal urban development strategies, neighbourhood was since Perry and still is a term used to qualify a certain idea of urbanity, be it an existing area, a planned one or a transformed one (Madden 2017).

In summary we can say, that the neighbourhood as a contested area and a solidarized community in times of growing pressure through neoliberal urban developments overlaps with the concept of urban commons as a counter movement of a socio-economical and political crisis on the level of community building as well as on the level of spatiality in large parts. Although their traditional origin lies in two different spatial conditions - the residential street in the case of the neighbourhood and the agricultural pasture in the case of the commons – they have a large range of common aspects in the urbanized realm: cultural practice, high level of organization, time-deepness, collectively produced values, reproductive economic circles, social networks, local and collective knowledge and memories and several more which we will investigate by looking at the concrete urban environment of Wrangelkiez later on.

Both perspectives, the historical one and the actuality of the two concepts can be based on a collection of theoretical definitions, out of each discourse. When asking the question how we can regard the much more broadly defined and used concept of the neighbourhood with the – still vague but still a bit more – framed debate on the commons in order to deepen the argument of urban space as something which is locally produced and reproduced and therefore cannot be made available for acts of private appropriation, a third line of theoretical definitions might help.

In search of the distinction between private space and public space the first definition to find is the greek distinction between the private sphere of the household and the public sphere of politics. Both spheres overlap and become blurred in a third category, the market, where private people sell their products in a publicly controlled environment (Arendt 1958). Another kind of third sphere, in between or beyond the public and the private is described by Foucault as a heterotopic sphere or the sphere of the culture (Dehaene, De Cauter 2008). Both philosophical narratives define a third space beyond or in between the economical sphere - in which people sustain their daily natural needs around all fields of reproduction: the house - and the political sphere - in which people organize themselves in order to sustain security and freedom: the street – that on the one hand overlaps in a third economic-political sphere – in which people sell and trade: the shop – or a third cultural sphere - in which people constitutes a surplus, inspired by sheer pleasure, deviation, longing, play, leisure, also spirituality, rituals of grieve or good-bye, as well as education or study, in sum: the shop as a cultural realm or heterotopian space (Dehaene, De Cauter). The latter interpretation referring to Foulcaults concepts on heterotopian spaces, might help us to find a link between the reproductive quality of the neighbourhood and the commons potential to generate collective values that might result in a surplus for the whole of the participating (re-)producers involved.

3 / An investigative Method
THE NEO-NOLLI-MAPPING OF WRANGELKIEZ
Before looking at the mapping of the case in Berlin-Kreuzberg, a short excursion should be made into the methodological approach of the seminar. Choosing critical mapping and cartographical tools as a major instrument for investigation of potential spatial and social environments for commoning processes is rooted in the capacity of those tools to make simultaneously visible the spatial arrangement of an environment as well as the actions or traces of actions and use happening in that environment. The map does not only serve as a tool for collecting, inventorying, locating and spatializing morphological or built structures, objects, actions or movements, but it most of all allows the person drawing as well as any other reader of the drawing to synthesize all these different layers of information into one complex image of interrelations.

As a kind of background for the collection of the informations mentioned above we were using and adapting the logic of the so called Nolli Plan. When Giambattista Nolli drew the map of Rome (1736-1748) on twelve panels, he drew all the accessible interior spaces within the built structure – like church interioirs, public representative spaces or courtyards – in the same way as the open spaces representing the streets and squares of the city: he left those surfaces white. By doing so, he did not follow the distinction of inside and outside space nor did he differentiate public from private but he mainly focussed on accessibility. What he did not include yet into his radical representation of the spatial structure of rome was temporality, based on use and actions of the inhabitants or users of the structure.

But doors are daily or on certain days being closed and opened, the white space of the street shrinks and widens during the day, the rhythm of the week or during the changes of season. This dilemma of the map as a Momentaufnahme we tried to overcome in our cartographic acquisition: short-term and long-term acts of appropriation were captured in the transition zones between the public exterior of the street and private interior of the building, and thus temporality was added. On the map, the borders between public and private are getting less sharp, sometimes vague, when traces of action are showing, that spatial boundaries are being constantly re-defined and re-negotiated by users, inhabitants, authorities, or other powers. Within this temporal process of space regulation and negotiation, the neighbourhood community as the local user and producer of the neighbourhood space is applying as well as adapting all the time conventions, codes and regulations which define the borderline by the border between black and white on the map and transforms therefore that borderline into a zone of greyscales where white and black informations overly each other and create an unsharp zone.

We invite all viewers of the map to read this grey zone as a third spatial category, beyond public and private, as a potential commons. This perspective might deliver a concept of neighbourhood space which enables and empowers the local potential commoners as '(re-)producers' of the values generated within the socio-spatial structure of their urban surrounding. Returning those spaces and networks from a 'resource status' for profit making - as briefly mentioned in the introduction - back to a 'commons status' for subsistence (Illich) might deliver an argument for political decision making, that integrates the reproductive qualities and abilities of the neighbourhood into planning and design strategies.

A closer look at the results of the cartographic investigation which we call here a Neo-Nolli map should reveal an idea of the central neighbourhood space – the street and its adjacent facilities – as a vital thread with socio-spatial expansions and bulges along both sides. In order to deepen our understanding of the interrelation between physical and action-based parameters of commoning, we are now zooming in a bit.

4 / Types of socio-spatial commons
THE ATLAS OF NEIGHBOURHOOD PLACES AND ACTIONS
When looking at the Neo-Nolli map of Wrangelkiez, and comparing it with the cadastral plan next to it, in which all the local businesses, facilities and services on ground floor level are recorded, one realizes, that in the Neo-Nolli map a harsh selection was made, a subjective selection. The difference towards the classical Nolli plan lies not only in the implementation of prototypical actions, action patterns or objects on which these actions are being executed, but also in the rejection of giving an 'objective' overview on all the different ground floor programms along the street. We only included those expansions of street space into the interior of the block, which could convince us during our one week stay on site - filled with interviews, talks, observations and many many drawing sessions – that they are functioning as neighbourly spatial commons according to the argued definition (ii): As spaces, which carry the potential of becoming – at least temporarily – a third sphere beyond public and private. As spaces with a specific value for the neighbours as well as other participants, that can only be maintained by acts of commoning, meaning the production and daily re-production of the socio-spatial condition out of which its (re-)producers collectively substract a common neighbourly good and distribute it among each other without partitioning the spacial entity they are generating and maintaining.
However this selection of spaces is not an evaluation of the different locations in the sense of their 'contribution' or 'qualification' for the neighbourhood but rather a collection of the place making attributes which attract capital while being actually the social and cultural capital of the neighbourhood itself. The whole range of spaces we did not show in the map are either so calm and non expressive in their commoning potentials that we oversaw them or they are places which we did not include on purpose because we considered them as rather expropriate towards the ongoing commoning processes.
The 'Campus' Bakery shall serve as an example. Situated at the corner of Wrangelstraße and Falckensteinstraß, the space of the bakery and simple café is a neighbourly spatial commons as long as a (temporary) community of users - local (or not local) residents, people working nearby (or far away) or any other visitors, passers-by, or regular clients - is collectively negotiating – consciously or unconsciously - certain practices that constitute the group of users as a net of relations referring to that space. This constitution exceeds the function of the bakery as a private business selling bread for sustaining the income or earnings of the sales(wo)man or holder of the shop. It rather opens a third spatial category beyond the private business and beyond the public street, to which the space is so generously transparent that one might – almost – forget that it still is a private space. What happens beyond the private-economical code of exchanging bread for money and beyond the public-political convention of traffic and street regulations can be an informal chat about the latest gossip, asking for borrowing a chair while not consuming, arguing with the tourists who complain about the drug dealers sitting in the open window, simply being a known place for a special sort of bread based on a regional recipe from theTurkish black sea cost or offering a meeting point for the coming Bizim Kiez gathering.
This third sphere – so our thesis on the neighbourhood as a commons – can be described as a 'cultural sphere' (Dehaene, De Cauter). It seems to be a large stretch from ancient Greece and its temples – the third sphere between oikos and agora – to local bike repairs, bars, kinderladens, 24/7 spätis or pharmacies. But what is compelling about this comparison is the conclusion to name the locally produced and allocated socio-spatial values, reproduced and maintained over long periods of time, sometimes with changing neighbours, newcomers, or over and over by the same people and families, resulting in atmospheres being often described as 'authentic' or 'original', the result of an ongoing collective cultural practice, that sometimes leaves spacial or memorized traces even after the process of commoning stopped.
However were the different places we indicated on the map not selected because they are popular in the neighbourhood for their 'high cultural value'. The central criteria for describing them as neighbourly spatial commons in our map, where they are drawn like opening up and widening the street space into the interior of the block and simultaneously expanding their interior onto the street, was their potential of collectively producing a surplus that they share with the participating (re-)producers.

Our attempt of finding a systematic order within the collection of mapped spaces is based on the distinction of different modes of reproductiveness. Beyond the market economy of the shops, repair stores or kinderladens (selling food, repairing bikes or educating children as a service) there is a cultural productiveness being constituted: teaching children the local language style, empowering a bike rider to repair a bike on their

own or having a debate while selling a coffee to go. As a surplus on each act of bartering there is also an act of cultural (re-)production involved.

As a kind of synthesis, five different situations can be found in the search for 'reproductive neighbourly spatial commons'.

The first is the spatial condition where the private interior opens up to the street and becomes a temporary commons through acts of expanding commoning, meaning that the condition of the street is being expanded into the building.

A second situation works in the opposite direction; the spatial condition of the inside unfolds onto the street and constitutes a spatial commons by acts of appropriative commoning, while the means of that appropriation can be objects to furnish the street space or simply the displays of the assortments which move out onto the street or trottoir.

The third category of spatial commons is happening through acts of protective commoning which always refer to a less transparent border between black and white, private and public space and are only perceivable as a spatial expression by the limited group of users that are allowed into that commons. In contrast to the first two spaces, this type of situation turns toward the neighbourhoods sensible institutions where fragile members of the collective are finding their place: children, elderly, religious gatherings or spaces for exclusively young woman for example.

Also the fourth type of neighbourly common space constituted bay acts of rembering commoning . The common space stays within the black part of the map, the private realm, since it also stays rather invisible from the outside space of the street but can still be considered as a commons by being activated through reminiscence. This means that the current spatial situation is very relevant for the act of 'mental' commoning since it happens as a kind of collective remembrance of a spatial situation or a well known practice at a certain location.

The last kind of spatial type is probably the most ephemeral one since it necessitates the least space. Acts of communicative commoning are generating an emergence of spatial commons along or around thin borders between private and public spaces, being shop windows that interlink inside with outside space and activities, or surfaces carrying graphic or other written, drawn or installed information like taggings, murals, paintings, posters, inscriptions, signs and signatures or advertisement to a certain degree.

What differs in the five categories is the location where acts of commonings emerge: inside but exposed to the street, outside but related to the house, inside and mostly invisible, neither inside nor outside but in our minds and along the sheer surface of the inside. If we consider acts of commoning as a cultural practise that produces a surplus value for the commoners being not only the spatial commons condition generatet in the moment of commoning but also products, that are being reproduced as long as the act of commoning is going on, then the exact location of that act is rather important.

What consequences can it have for the administration, the organization, the planning or designing of or for a neighbourhood if potential locations for spatial commons are inside the private building(block), outside on the street or trottoir (or even Fußgängerzone as envisioned for the wrangelkeiz), what role does it play for invisible spaces or the surfaces of the blocks or buildings?

Can we derive new rules, codes or conventions from the observed spatial situations of socio-cultural reproduction that help us to understand better how the neighbourhood as a commons can be protected on the one hand and be built further on the other? What tools can we derive against acts of dis-commoning in the neighbourhood and for commoning in order to overcome the critical situation of a withdrawing public hand and an overwhelming power of real estate investors and developers?

Theoretical reflections on commons prove, that there is no difference between a private plot or a public park being appropriated by a group of commoners, the result will be the same: a third spatial condition establishes for the time of commoning. But in the case of neighbourly commons the status of the location does make a big difference, since we look at the commons as the subjects of an investigation that tries to find out what values exactly are being capitalized when trading with real estate, who's value is ultimately connected to the neighbourhood and its 'qualities' – meaning socio-cultural value. In the case of an area under the thread of gentrification, we have to distinguish between a private space or a public space being temporarily transferred in to a third sphere of common socio-cultural reproduction, because the consequences for commoners as well as administration, planning or designing differ.

5 / Design Principles:
NEIGHBOURLY SPATIAL COMMONS FOR A SELF-RE-PRODUCTIVE URBANISM
In the Wrangelkiez Atlas we compiled in addition to and a reflection of the map thirteen potential spatial commons in the neighbourhood. A rough collection of neighbourly products is listed per place: 'the eyes of the street' at Kubis Bike Shop, 'multiple use' at Kohlmans cantine and Ahl Alam convenience store, 'local knowledge' reservoir at the Spree shore between startup offices and boat rental, 'atmospheres of busyness' along the restaurants The Pit Schlesi and Chung Asia, 'local networks' at Inci's café, 'acceptance &

difference' at the family- and neighbourhood center, 'owner-run tradition' in Weber und Ebert bookshop, 'time deepness' in the alternative bars and clubs Wendel, Lux and Banja Luca, 'continuity' at the textile cleaner Textilpflege, 'special interest' at the book shop Motto, 'hanging out' at the hardware store Bantelmann, 'the original' at the hardware store without a name and 'living with the street' in inhabited former store spaces at Taborstraße.

All the thirteen – exemplary – neighbourly 'products' and 'space productions' we identified come as a surplus on top of the actual business happening as an intermediate economy between customers arriving from the street and sales or service person based in the building. Referring this surplus – the socio-spatial production of atmosphere, convention, commitment, conflict ability, familiarity, knowledge, etc. – to the five types of locations where five types of acts of commoning are happening, gives the opportunity to connect action, place and space into five spatial systems which could be called expansion, appropriation, protection, remembrance and communication.

Those five concepts might be considered as the actualizations of the pre-capitalist agricultural (=commons related) and residential (=neighbourhood related) definition of subsistence, meaning the fulfilment of those daily needs which reach beyond the supply of vital goods as food, medicine, clothes, machines and the services connected to it. Since the products of former agricultural and residential subsistence economy are being provided today by the local and global market economy, the current emergences of urban commons can relate to these goods only in terms of conceptual transfer or abstraction or: in terms of cultural practice. The actual goods that today's processes of commoning (re-)produce collectively in the late capitalist neoliberal system are not the material goods cultivated in the classical commons or the traditional neighbourhood. But the goods are rather of immaterial nature, goods for the supply of daily needs in an urbanized society that constitutes itself through socio-cultural interrelations.

As our urbanized environment entered the age of information, the commons and the neighbourhood did, which we can see in the debate around digital commons, knowledge commons or social media neighbourship. And since planning and design disciplines are confronted with the informationalization and digitalization of the urban environment, ongoing processes of commoning and dis-commoning are. The consequences for our search for tools, instruments or spatial principles within this paper therefore needs to be directed toward the description of those socio-cultural processes that are interlinking the material space production as well as the immaterial space production. In the words of Martina Löw, space is an arrangement in which physical objects as well as people embedded in power relations are participating (Löw). When discussing the commons and in particular the commons within the neighbourhood, we are focussing here on those spatial arrangements in which a certain group of users is participating while following a set of collectively negotiated rules and within that frame collectively (re-)produces the spatial arrangement and all surplus values that might come with it. From the moment on that one or more of the users or better (re-)producers are extracting more of that collective good then they need for subsistence – meaning: commodifying a part of the collectively produced yield – the commons collapses.

This simple conclusion leads to some simple implications for maintaining, organizing, planning or even designing the five neighbourly spatial commons types. The space of expansion, that is in private ownership, is adding value not only to the users who generate it, but also to the street, the neighbourhood, Berlin as a whole. The space of appropriation that is in public ownership, is doing the same as long as the rules of expansion are also valid. At the moment the expansion stops, the appropriation changes from collectivization to privatization. The space of protection that is in private ownership, is not necessarily adding noticeable value to the street but to the neighbourhood and the whole of Berlin. At the moment of commodification its loosing its protective qualities and turns into a ordinary market service and then rises the question of expansability and appropriability – as long as it is not a part of a public service. The space of remembrance is following the same rules as the one before but needs much more additional care and attention since it depends on immaterial modes of collective (re-)production. And the space of communication that is on most cases applied on the private building but visible from the public side of the borderline between public and private ownership, is following again the same rules of the first category: as long as its stays expansive and allows appropriation without commodification it stays a common good.

All these definitions count as long as space is a scarce resource, more specifically as long as there is rivalry for space (Ostrom 1990). According to Ostroms definition of four types of goods, space that is accessible becomes public and leaves the sphere of the commons at the same moment as there is enough of it available or more specifically, when the rivalry stops.

Is the neighbourhood as a spatial commons necessarily an association of emergence? Or an 'unavoidable' cultural project that emerges wherever people come together and participate in the (re-)production of a surplus, out of lust, joy, desire, curiosity, boredom, inspiration or instinct. The spatial conditions for this cultural project must be in any case secured by a legitimized authority and executed by a self-organized community in order to maintain as a whole society the universal common goods that belong to everybody and nobody at the same time, such as water, language, air or the urban.

[fig.1] **MAP SC 5.01** Wrangelkiez, Berlin-Kreuzberg: von Spreeufer bis Görlitzer Park und Landwehrkanal bis **Hochbahnlinie U1** "elaborated by the author"

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The Garden Cities of the 21th century

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This paper is part of a research on societal collective housing production in Brussels. The research questions the role of commons in the integration of the housing function within the territory and its articulation with others urban functions.

Over the past twenty years, housing production in Brussels has become a central issue. A search for alternative that ensure housing quality is set forth. Some current initiatives try to meet this increasing housing demand and to find solutions for the integration of socially disadvantaged people in their area by developing commons both in terms of spaces and governance models.

This project opens on a broader issue which is a vision for the 21th century garden city. This issue is being addressed in a historical and mapping study of the cooperatives in Brussels. The aim is to understand the philosophy of this model and its relations with the territory throughout history. The various scenarios proposed by the project SAULE for the future of the garden city *'Le Logis'* are studied considering this investigation.

Introduction

This paper is part of a research focuses on the conditions of production of a qualitative societal habitat through urban development figures optimizing the ecological balance of the city between dense city and open city. The hypothesis posed, regarding history, is that the cooperative figure can contribute to this balance.

To support this hypothesis, this paper proposes a historical analysis of the place of commons in collective housing and the development of the cooperative figure in Brussels.

Three dimensions are discussed: the organizational dimension, the spatial dimension and the social dimension. The organizational dimension is defined by the modes of production, the legal framework in which they operate and the modes of governance. The spatial dimension corresponds to the criteria of establishment in the territory, the urban forms produced, the collective spaces and the urban mixity. Finally, the social dimension is the analysis of the relations of the inhabitants with each other, with the neighbourhood, the city and the large territory.

The paper explores these different dimensions through an ethnographic study of the cooperative *'Le Logis'* in Watermael-Boitsfort.

Finally, this history will be compared with the current situation in Brussels and alternatives for managing urban space and housing.

Commons in Brussels collective housing history

The first mass collective housing emerged in 19th century, following migration of workers from countryside to town. The typical dwelling of this time was the *'coron'* (also called enclosure or impasse). Attracted by expanding labour supply, workers had left countryside to settle near industries that established in Senne valley. Limited means of transport had forced manufacturers to create housing for their workers closer to their place of work. The creation of *'coron'* is a natural consequence of the lack of building land available near the factories and the resolutely speculative approach of the urban space. Before the law of 1844, impasses were in private domain and escaped to communal control which had the consequence of leaving free the fields to numerous infringements. At that time, workers' housing was thus dependent on private initiative and was beyond the control of the public authorities. Most of impasses were located inside the second Brussels wall. The typology of dwellings was typical 19th century workers' houses and was implanted either in a linearly or around a courtyard. They usually included two spans on one or two levels. Access to impasses was through a narrow covered or open corridor. Overpopulation made living conditions deplorable, especially since the inhabitants shared most of the time a single latrine (Gaiardo 2000).

However, some enlightened industrialists will reflect on conditions for workers and propose models intended to be expression of equality in urban environment. As evidenced by edge of the Brussels Canal, the *'Familistère'* of Godin inspired by theories of Fourier is conceived as a form of cooperative society. The Laeken *'Familistère',* a miniature derivative of that of Guise, is a building composed of a central courtyard intended for collective activities on which all the apartments located on the ground floor and on the three floors. He will be the only example of this kind in Brussels.

In addition to the few industrialists concerned with the workers' cause, Ducpétiaux will also establish theories about the commons. He brought the concept of association, inspired by English examples, according to which working families would put in common all a series of means and places of life. However, these theoretical conceptions will very rarely be put into practice in the liberal society of that time.

The numerous epidemics and surveys about the conditions of workers' housing will lead to major sanitation works in Brussels undertaken from the second half of the 19th century. In the face of public revolts, the 1889 Act will seek to stimulate, through a series of fiscal measures, the construction of cheap housing and access to property. These measures mainly contributed to the dispersion of housing and reduced the spirit of mutual

aid, solidarity and social cohesion that prevailed in impasses despite difficult living conditions. In urban agglomerations, because of the high price of land, most of multi-family dwellings were built on basis of typical Brussels house. *'La cité de l'Olivier'*, *'La cité de l'Helmet'* and *'La cité Hellemans'* are examples of this type of realization. Traffic distributed in several stairwells, facades facing each other and internal regulations were so many measures intended to ensure the calm and order of its inhabitants. Finally, in both cases, speculative logic has prevailed over community ideals (Smets 1977).

However, at the same time in England, some theoreticians will think about a project of harmonious society and a balance between city and countryside. Several movements will thus develop in reaction to chaotic urban environment by a return to nature, feelings and the ordered community of yesteryear. Impressionism, the Arts and Crafts movement, O. Spengler and W. Thoreau, are, along with many others, witnesses to this anti-urban attitude.

This is the case of Ebenezer Howard who, in his theory of garden cities, will bring a project of collective life to the production of social housing. Influenced by Kropotkin, Howard saw, beyond the realization of the garden city a civilization based on the service of the community. He considered that nothing could be expected from the development of the great cities. Most of inhabitants were unable of enjoy the advantages of these great organs of culture. To the sprawling devoid of meaning and purpose of large cities, Howard opposed the organic form of a city of dimensions and population voluntarily limited, but equipped to continue the primary activities of the city at the industrial, commercial, administrative and educative; Also provided with public parks and private gardens in sufficient number so that the environment retains its qualities of amenity and hygiene. To allow the balance between city and countryside, Howard surrounded his new city with a wide belt of cultivable land, which made a 'wall of space' to strengthen the feeling of internal unity. Like Patrick Geddes, he introduced into the concept of the city the most essential biological criterion: the notion of a dynamic and organic balance between city and countryside, integrated in the same ecological system, and balance between the various functions of the city. Unlike other authors, Howard in no way underestimated economic benefits of an urban setting (Mumford 1966).

It is under these influences that in Belgium, the cooperative movement will develop in the aftermath of the First World War. He contributed significantly to the reconstruction effort. Let us remember that at the end of the Great War, lack of housing was estimated between 200,000 and 300,000 units, a figure which testifies not only to the particularly acute nature of the question of housing as it was posed at that time, but also the parallel that can be made with the situation today, a century later.

In 1918, under the pressure of the nascent socialist movement, the government took the initiative to create the National Housing Company at a low price - SNHBM (law of October 11, 1919). Its goal was to lend low-rate (2.75%) long-term (66 years) money to local construction companies, thus facilitating the emergence of associations working to fill the housing gap. Many of these local societies were cooperatives, a form of association which appeared in London in 1888. In the daily newspaper 'Le Soir' of April 29, 1922, it is stated: "These societies are founded thanks to the cooperative action of their effective members who, while proposing to occupy the dwellings built by them, participate, moreover, in the formation of their social capital. In other words, the tenants, members of these companies, are at the same time co-owners of the buildings built by them. (...) Tenant cooperative societies are usually formed among groups of people with certain professional, corporate or other affinities." The fixing of the minimum social share at a very low rate favoured access of low-income cooperative applicants, while public authorities took part in the capital of the enterprise at the rate of 20% for the State and 20% for the Province, as payment for war damage.

In April 1920, the Union of Cities organized a National Low-price Housing Conference, in which most architects and planners of the modernist movement participated. This conference will define the theoretical framework for the national housing policy. Faced with problems of hygiene and promiscuity that generates collective housing, the National Society favours the model of garden cities recommended by modernists.

It was for Brussels and for the whole country the great adventure of garden cities. The construction of twenty-one garden cities or districts is undertaken at the green edge of the dense city. Even more than Howard's theories, it was ideas propagated by Unwin that influenced the post-war movement of garden cities in Belgium. He had a community-centred concept of space that was to express cooperation and participation as much as possible. It was not just about housing the poor; it was necessary, more fundamentally, to insert them into a social life, by providing neighbourhoods with a system of collective spaces and common facilities included in the construction program from the very beginning of the project: a network planted paths and collective spaces in the interior of a block, a civic centre, a multi-purpose room, a school, a library, a sports infrastructure, or a centre for physical and moral education (Bernard, De Pauw, Géronnez 2010).

This cooperative spirit was killed by politics. From 1923, government no longer allows approval of new societies which, according to authorities of that time, socialist and liberal confused, promote the emergence of revolutionary ideas. In 1925, the fear of a red belt around Brussels and the cessation of payment of war damages stopped the creation of new garden cities. Subsequently, the garden cities were blamed for urban sprawl and lack of investment in the city centre. Van der Swaelmen says, speaking of *'Le Logis'* and *'Floreal'*: "here, and besides nowhere in Belgium, we do not create a garden-city proper, but we make the extension of methodical city, organic urbanization, in the form of quarter gardens". The ideas of the modernists will evolve gradually, abandoning the figure of the garden city and the collective construction of an ecological

balance between city and country, towards the construction in height and the theory of the minimum vital. Housing, which has become collective, should only be used for vital occupations because the new ways of life and the techniques developed should allow families to leave their homes as much as possible to spend time outdoors and in the nature. This type of provision, however, deprived the inhabitants of the direct contact of the street level and the same stroke of life in common.

At the legal level, the overhaul of the social rental system, leading to no longer allow resumption of a lease by the heirs, has also changed in depth the life project to which cooperatives could previously give access. To this has been added an evolution of company law which sees cooperatives as commercial companies and a market function, and which only very indirectly conveys the idea of cooperation in law. This has led not only to the proliferation of cooperative societies whose functioning is in no way related to cooperative entrepreneurship, but, more importantly, has resulted in many experiences of grouped or supportive housing based on principles and values of cooperation, have not adopted the legal status considered too unfavourable.

'Le Logis', a housing cooperative

'Le Logis' and *'Floréal'* in Watermael-Boitsfort are the largest group of low-cost housing units built between the two wars. The cooperative *'Le Logis'* was founded on October 3, 1921. The initiative is that of modest employees occupied in the banking sector mostly from the *'Caisse d'Epargne'* and has 225 cooperators in its design. *'Floréal'* is founded by typographic workers of the newspaper *'Le Peuple'*. The two cooperatives made the decision to realize the two cities as a big whole. The landscaping plan is designed by landscape architect Louis Van der Swaelem and the architecture is made by architect Jean-Jules Eggericx.

The study of the cooperative *'Le Logis'* proposed in this paper, is carried out through the ethnography of a resident. His story, linked to theoretical and cartographic work, allows us to approach the three dimensions of research.

Sylvette was born in Watermael-Boitsfort in 1946. At the time, the cooperative societies themselves took steps to find new cooperators and her family was awarded housing at the garden city *'Le Logis'* in 1952 (1). Her mother was a housewife and her father worked as a bookkeeper in Anderlecht. Their house was in the triangle of the *'Avenue des Sylphes'*. When a set of houses was constructed the future inhabitants could choose in which house of this set they would live. Homes were reserved for families with children to create a fulfilling environment for families. Arriving at *'Le Logis'*, Sylvette's family consisted of two children and will grow one year later at the birth of his sister. To become a cooperator, one had to buy 150 shares of 100 *'francs belges'* regardless of number of house surface. With the changeover to the Euro, the statutes were simply converted which corresponds to 150 shares of 2 Euro 48. The rent is calculated according to income. Standard rent is defined as reference rent from which a percentage can be deducted or added depending on the family's financial situation.

At that time, most families were native from Brussels. For the inhabitants of Watermael-Boitsfort, to go to the centre of Brussels was to go "downtown".

The first school of Sylvette is the nursery school *'Les Aigrettes'*, a school of the cooperative. The profits of the cooperative made it possible to create places of education, culture and sports activities in the neighbourhood. All the children of the cooperators met to play in the street, in alleys and green spaces in the garden centres. The central place for the inhabitants is the symbolic building *'Le Fer à Cheval'* which dominates the neighbourhood in the square of *'Les Trois Tilleuls'*. They met there every Tuesday evening to see the film broadcasted at *'Studio Logis'*. This room also served as party spaces, shows and various performances. *'Les Trois Tilleuls'* was the place with the shops of the city: grocery store, bakery, bookstore, butcher, drugstore. These spaces belonged to the cooperative and were rented to traders. In her childhood, Sylvette knew the shop of the cooperative where the inhabitants could stock up with notebooks of stamp. There was also street vendors, such as the economic union who was passing in a horse-drawn carriage. Sylvette remembers: "When the horse passed, everyone went out to pick up these droppings and put them in the roses".

At eighteen, Sylvette left *'Le Logis'* to study in the centre of Brussels. At the end of her studies, they registered with her husband and daughter to obtain housing in *'Le Logis'* cooperative. At that time, children of cooperators still had the privilege of having priority access to housing provided that their incomes were below a certain ceiling. Their apartment was in the building on Avenue Van der Swaelmen built in 1969 (2). In 1971, when their second child was born, they got a house on Rue des Courlis (3). Today, Sylvette lives in an apartment of *'Le Fer à Cheval'* (4). When these children left, she found herself alone and made the decision to return live in an apartment because the load of a house was too heavy and she did not see the utility of occupying an empty house. His youngest daughter had gotten an apartment and had just had a baby. They could simply exchange their homes. Today, *'Le Logis'* is subject to the rules of allocation of social housing and therefore no longer has the freedom to perform this kind of procedure. In mentioning this, Sylvette observe: "I could never have lived in Watermael-Boitsfort if I was not at *'Le Logis'*. I have wonderful childhood memories in this neighbourhood. I raised my children in *'Le Logis'* I thought it was great to have a house, a small garden and all the infrastructure of Watermael Boitsfort. Subsequently, I did not find it logical to occupy houses with 3 rooms that were used more for an old person while families were waiting".

Over the years, local commerce of the city has gradually disappeared as well as most of activities organized by the cooperative. While younger, the place of meeting and collective activities for the whole district was the

square of *'les Trois Tilleuls'*, it is today *'La Ferme du Chant de Cailles'* which became for Sylvette and other inhabitants of the district the community space. *'La Ferme du Chant des Cailles'* is a sustainable food and urban ecological and participatory farming project, born in 2012 in the heart of the garden-cities of *'Le Logis'*. Since the beginning it has been conducted jointly by residents and professional farmers whose various activities are grouped together under the non-profit association *'La Ferme du Chant des Cailles'*. It is now in the field that Sylvette gets supplies and spends most of her time.

Sylvette's narrative crossed with theoretical research brings elements of answers to the three dimensions of research.

The first dimension is the organizational dimension. *'Le Logis'* production system corresponds to that of tenant cooperatives in Brussels. They were formed in the 1920s by members of a community to subscribe to cooperatives and thus become a stakeholder in a housing construction company. This mechanism offers the possibility to outsiders such as a series of private investors or public operators to participate in the development of the project. Legally, cooperatives are thus akin to traditional societies in which shareholders can participate more actively in the management of the company. All cooperators have the right to vote at general meeting and appoint the directors who are mainly tenants. Since the regionalization and implementation of the housing code, cooperatives, under the supervision of the Regions are subject to the same rules of allocation of social housing. This has undoubtedly influenced the decrease in tenants' commitment to the spirit and cooperative values Sylvette testifies in her story.

The second dimension is the spatial dimension. Like others garden-cities in Brussels, *'Le Logis'* respects the star-shaped plan advocated by Verwilghen and sets up on the outskirts of the city until urban development catches up with them. They are connected to the city by rail, tram or bus. Van der Swaelmen's development plan exploits the resources of the highly irregular terrain and fragments it into a series of differentiated units whose landscaping is based on an extremely complex hierarchy of public and private spaces. The private gardens are arranged around a common area where sometimes sandboxes or lots of games are installed. The central space of the city where all the collective activities and the retail spaces were organized is the building *'Le Fer à Cheval'* overlooking the city in the square of *'Les Trois Tilleuls'*. This is where the locals went to do their race, met for the festivities, it was the meeting point of the neighbourhood. Today, most businesses have disappeared, but they still have some functions, including the neighbourhood house of the garden cities and the Social Cohesion Project. The cooperative also has several kindergartens available to the municipality. For some inhabitants of the district like Sylvette, it is the field of *'La Ferme du Chant des Cailles'* which has today become the space of collectively.

Finally, the last dimension is the social dimension. For Sylvette, the relationship to the city during her childhood was infrequent. Later, she worked in different municipalities of Brussels and made daily trips by tram or bike. According to her, with the urban extension, the relations have intensified and the inhabitants are going to do more shopping in the city. This urban extension is partly responsible for the partial loss of community spirit that reigned in the city during her childhood. An interesting element to raise is the possibility that Sylvette had throughout her life in the cooperative to obtain housing adapted to these different family situations. This observation suggests that the current conditions to which cooperatives are subject for the allocation of housing are being questioned. Another social benefit of the cooperative is the opportunity to have its own workers. Several gardeners, painters, plumbers and other craftsmen work in the service of the cooperative for the daily work.

Sylvette finds today the cooperative spirit in the project of *'La Ferme du Chant des Cailles'* that she has integrated since its conception. However, the future of *'La Ferme du Chant des Cailles'* is jeopardized by the future densification of the city. This situation meets the concerns of research on the place of commons in the city. It raises the question of the management of these commons, of this balance between city and countryside and alternatives to the current dynamics of the market.

1 3 4 2

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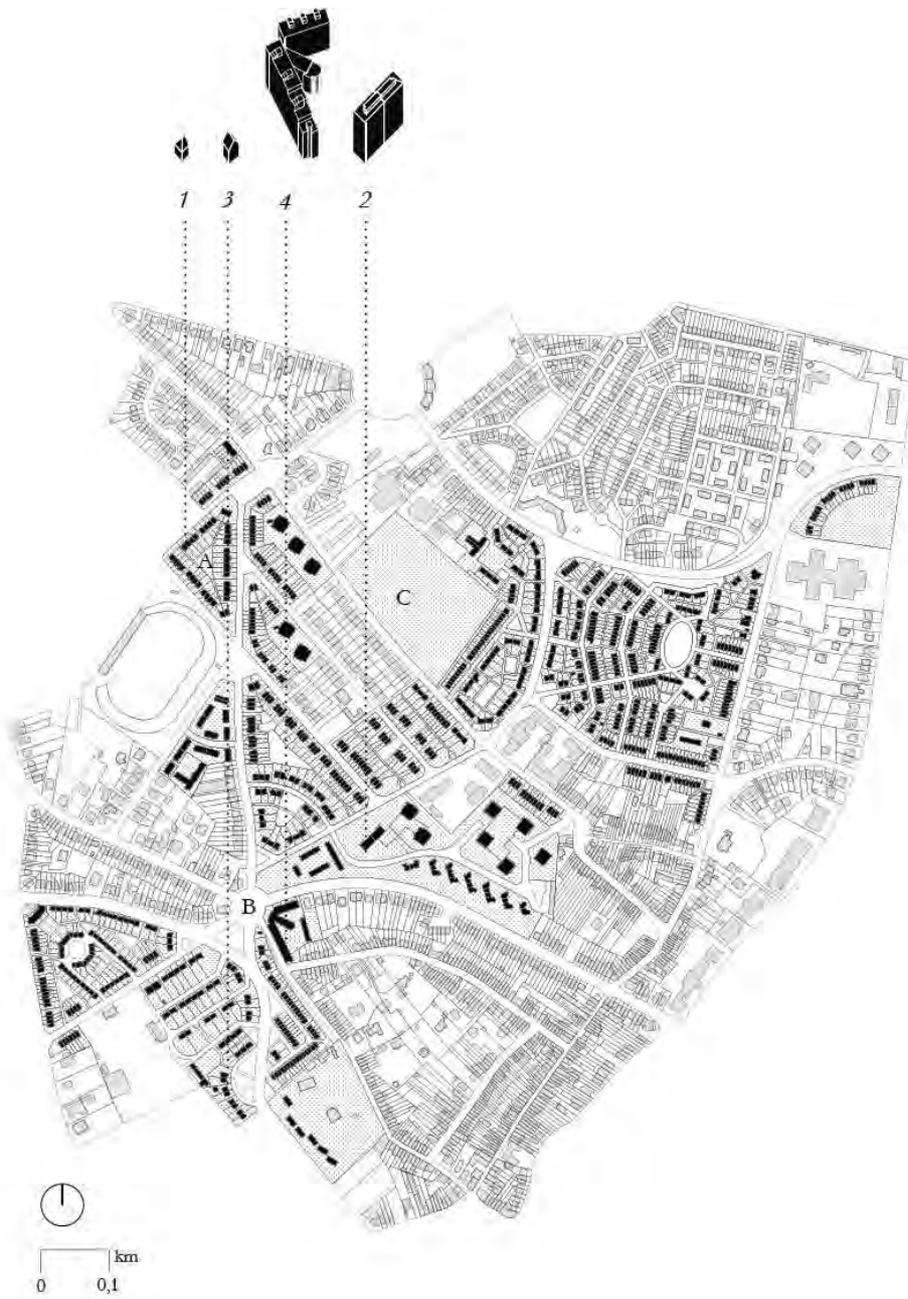
A. Common spaces in garden centres   B. The square of «Les Trois Tilleuls»   C. La Ferme du Chant des Cailles
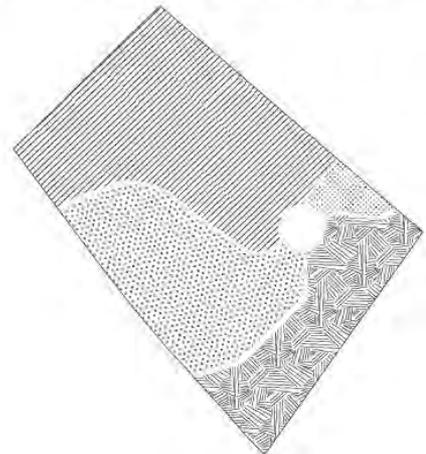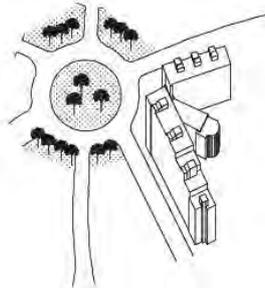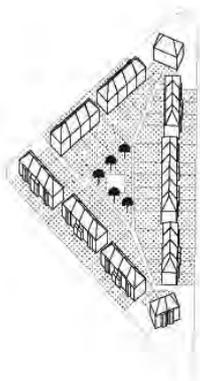
[fig.1] *'Le Logis'*, Sylvette's life. "elaborated by the author".

The Project SAULE : *'Symbiose-Agriculture Urbaine-Logement-Ecosystème'*

The SAULE project was conceived in 2014 following the announcement of the construction project threatening the urban agriculture site of *'La Ferme du Chant des Cailles'* in Watermael-Boitsfort. It brings together several partners around a common research: *'La Ferme du Chant des* Cailles' (FCC), *'Le Logis'*, *'Le bureau d'Etudes et Recherches Urbaines'* (ERU), *'L'Université Catholique de Louvain'* (research, participation, urbanism) and *'L'Agence Alter'* (information, communication). The main objective of this project is to explore the cohabitation between urban agriculture and housing, as well as the conditions for its development in Brussels.

Since 1927, this field of a surface of 2.4 ha was occupied by a farmer. Following his departure, the CPAS of the city of Brussels gave the field to *'Le Logis'* cooperative with the obligation to build housing. The field was left fallow and so began the initiative of *'La Ferme du Chant des* Cailles' in 2012.

The land is included in the housing plan of the municipality of Watermael-Boitsfort. To leave part of the field to agriculture, it plans to leave 2/3 of land for agriculture and 1/3 for housing. The owner of the housing project on the spot is the Housing Corporation of the Brussels-Capital Region (SLRB).

The association believes that for the sustainability of these activities, including market gardeners who work full time on the field, it is not possible to reduce the production area. Furthermore, the association believes that the field is now a central place of the neighbourhood vector of social cohesion and citizen initiative. According to her, priority should be given to renovating empty buildings in the municipality.

Through this problematic, this project crosses the questions of management of urban space and alternatives of production of housing put in the research. In addition to the challenge of maintaining urban agriculture, there is also social cohesion and involvement of the inhabitants in their living environment. *'La Ferme du Chant des Cailles'*, through SAULE project, sees the opportunity to open to the new populations and the more precarious populations present in the city. Including both field actors and external professionals, has the ambition to reflect in concert with the inhabitants to alternatives, a balance between dense city and open city. The project does not exclude the possibility of building housing but studies different scenarios of symbiosis of agriculture and housing. Three different scenarios are under study.

The first scenario is the zero-construction scenario. The study consists of evaluating the possibility of producing housing in other parts of the city, particularly in the many buildings currently vacant. The objective in this scenario would be to strengthen the role of the field as a social cohesion area for the neighbourhood.

The second scenario consists in imagining *'La Ferme du Chant des Cailles'* as a place of attractiveness on a regional scale. In this scenario, the field would be built with equipment related to agriculture and training.

The third scenario is the housing scenario. The construction objectives of the housing plan would be respected but by imagining alternatives to traditional housing. The cooperative spirit and the spaces of collectively would be put forward here.

What Future for Housing Cooperatives?

Today, as it was the case in the past, Brussels faces a significant demographic pressure that extends throughout the metropolitan area. How to maintain and improve, despite the densification that proves necessary, the quality of environment for all? This implies, at the metropolitan scale, to produce an urban development able to include social and cultural diversity of the population and allowing it a right of use and mobility giving access to both dense city and open city. At the scale of the place where everyone lives, this also implies defining the density differently, by experimenting within the collective housing projects, new formulas of common spaces able to break the classic definition square metres individualized / unit of surface. The production of collective housing in Brussels is the initiative of two main public bodies.

The first is the Housing Corporation of the Brussels-Capital Region (SLRB). It is a regional institution in charge of social housing. It recognizes and controls the different public service real estate companies (SISP). SISPs are public limited companies or cooperatives whose capital is majority owned by the public authorities. Their mission is to provide people who meet the conditions of admission to social housing for their main residence and the daily management of these homes (purchase, transformation, renovation). They manage over 39,000 social housing units in the Brussels-Capital Region. Before the sixth state reform, the Region had thirty-three different SISPs including the eleven cooperatives described in this paper. Today, they have merged into eighteen companies.

The second is the Development Corporation for the Brussels-Capital Region, Citydev. Its mission is to produce new housing for middle-income residents in neighbourhoods characterized by a deficit in residential construction and this with the aim of maintaining or bringing back residents in the Region. These different housing projects are realized through a partnership between the public and the private sector.

In addition to these two main organizations, the housing offer also includes the housing services of each municipality, *'Le Fonds du Logement'* and Social Housing Agencies (AIS). The Housing Fund of the Brussels-Capital Region is a cooperative society created in 1989 by the family movement, namely *'La Ligue des Familles'* and the *'Gezinsbond'* and following the regionalization of housing policy. The Fund pursues missions of public utility and thus offers households with medium or modest incomes mortgages, construction / renovation-sale

operations, rental aid, or regional instalment loans to provide a rental guarantee. AIS are intermediaries between an owner and a tenant. It is aimed at households in a precarious or low-income state.

However, these different organizations are not enough to answer quantitatively and qualitatively the demand for housing

That is why, for several years, to cope with the housing crisis or as an alternative to the individualistic society, many initiatives are developing by promoting a form of cooperation, community or even community.

On the one hand, group housing exists in different forms that can be illustrated by three examples in Brussels. The first example is "123", a building occupied by some sixty people thanks to a precarious occupation agreement. This system makes it possible to enter into an agreement with the ownership of an empty building to occupy it for an indefinite period. This system allows the homeowner to avoid paying the vacancy taxes.

The *'123'* has been occupied for more than ten years, the inhabitants share different spaces and open some to the public. They organize weekly activities open to the neighbourhood.

The second example is *'La Poudrière'*, a self-managed community of life formed in 1958. It is spread over three places of life, one in Brussels, the other two in the countryside. Almost everything is shared. Work is collective, wages are pooled and meals are mostly taken together.

The third example is *'Brutopia'*, a collective housing unit inaugurated in 2013 by eighty-four inhabitants who have pooled their means to access the property. Each family has its own apartment, but some areas such as the garden or the laundry room are common.

On the other hand, The Community Land Trust of Belgium (CLTB) is a home ownership model for low-income households founded in the United States in the 1960s. The Community Land Trust model sees land as a common good that must be preserved, including speculation, and must be managed by the community for the well-being of the community. In Brussels, the CLTB is currently fully subsidized by the Region. Because they are fully subsidized by the Region, the flexibility of CLTB is severely restricted.

The map shows the eleven Brussels cooperatives born at two specific moments in history; the first part after the first world war between September 1921 and August 1922, the second part after the second world war, between April 1949 and September 1950. They are located on the outskirts of the Brussels Region.

The rounds represent a survey of different typologies of grouped habitats and the squares, the CLTB planned or realized. It is interesting to note that both located in the Urban Revitalization Zone. Most of these projects were made possible by grants from the Region. Indeed, within this area, Brussels supports municipalities that acquire real estate and make them suitable for housing, promotes green spaces, grants a premium for the beautification of facades, etc. This map questions the possibility of developing a potential larger cooperative project in other parts of the Region.

Faced with these different initiatives, the cooperative model and its inscription in history seems to be an interesting figure in its capacity to produce new structures of collective life.

Yet, the restrictions and legal framework surrounding this habitat figure today make it no longer chosen as an innovative alternative. In Switzerland, there has been a renewed interest in the last twenty years, and today 20% of the population lives in a cooperative. The model is also widely developed in Canada or Italy. These housing co-operatives are built on the same model but they are nonetheless diverse and have experienced a growing eclecticism over time. In Brussels, we meet them today either in the form of tenant cooperatives or building / renovation cooperatives, but in both cases, they are investor cooperatives and not users (Bernard, De Pauw, Géronnez 2010).

[fig.2] *Past and Present Housing Alternative in Brussels* "elaborated by the author".

Autonomy as a condition of an alternative

The cooperative figure is seen here as a third way of housing production, between the private market and the public market, the acquisitive and the rental, the production and the use likely to answer partly quantitatively and qualitatively to the needs of the metropolitan territory of Brussels. The research supports the possibility of a renewal of this figure. Through the historical and ethnographic analysis carried out in this paper, several elements relating to the three dimensions of research can be raised.

The first elements concern the organizational dimension. The research hypothesis is that cooperatives allow the accessibility and regulation of the real estate market. Cooperatives have the capacity, as the third way between the public market and the private market, to overcome current market laws. The cooperative's benefits for common needs can be reinjected into spaces other than housing. The difficulty of the current tenants' co-operatives in Brussels is that they are constrained by the rules of the Housing Code in terms of social housing. The future inhabitants do not make the choice to become a cooperator which can impact their future investment. Another element that seems to play a role in the investment of cooperators is the fact that there is no longer any advantage for their heirs. Finally, in the current system, the tenant of a cooperative no longer has a status so different from that of a typical tenant. This difference is mainly at the level of governance: the system of one man one voice, allows all the inhabitants to invest in the decision-making and the election of the administrators. Here too, the current finding is the lack of investment of the cooperators. The question that arises is therefore the possibility of allowing cooperatives more flexibility even if they are partially subsidized by the Region.

The second elements concern the spatial dimension. The research hypothesis is that cooperatives require a redefinition of the spaces of the city through common spaces and community. These spaces can be dedicated to the activities but also the spaces of the street, of the district. The relationship of the inhabitants to the neighbourhood, the city and the territory is modified. The current problematic is to find spaces that could accommodate new cooperatives considering the land pressure affecting the Brussels territory. Especially, that this figure becomes interesting from the moment when the number of inhabitant is sufficiently important. Provision of subsidies from the Region outside the ZRU should perhaps be considered in this case.

Finally, the third element concern the social dimension. Research supports the hypothesis that cooperation allows for better inclusion of different social public. First, the members are shareholders, which awakens a sense of involvement and responsibility strengthened in relation to the environment. Then, in comparison with the acquisitive system, cooperatives offer the possibility of making a shift in the distribution of housing as families evolve. This inclusion is also done through the mix of functions they offer. Finally, the cooperative through its common management allows to create different jobs related to the needs of the community. The difficulty, which seems to affect the Brussels cooperatives, is the maintenance of the cooperative spirit after several generations of cooperators. It seems that only the inhabitants of the first generations or their parents did so.

Finally, this analysis highlights three main elements of research. The first relates to the autonomy and the flexibility in terms of management that cooperatives can obtain in the Brussels context. The second relates to the land space available to accommodate projects of this magnitude. The third concerns the maintenance of the cooperative spirit over time.

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Slow Builders in Accelerating Urbanity. The Underwhelming Radicality of La Poudrière, Brussels.

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This article will focus on the community of La Poudrière, founded in 1958 in Brussels by two Oblate Fathers. Over the course of the first few decades, their simple project of "being there for the neighbourhood" has grown into a radically inclusive community project of hospitality and collective labour on a model of social economy. The community project has also taken on a very material form, hard to witness at first sight. Combining textual and graphical description tools, the analysis will show space at work simultaneously as an empowering tool for community practices of inclusion; and as demanding a sufficient communal capacity to use it. This ambiguity will be used to physically illustrate the difficult meeting between the referentials of a sufficiency-driven economy of abundance (Hoeschele, 2010) and an efficiency-driven economy of structural scarcity; and to further explore the possible reproducibility of this experience or its components.

Introduction

This article is a shortened version of the chapter content of an ongoing PhD investigating the role of space and architecture in the shaping of commoning practices in collective housing. Beyond definitions of what commoning is or should be, this PhD wishes to investigate concrete cases of collective housing practices that can be assimilated as predecessors to the current surge in discourse on the commons and commoning practices, and still exist today in one form or another. The four cases used in this research all have very different interpretations of the nuances between individuality and collectivity, between (self-induced) institution and practice, between alternative and opposition.

We will focus in this case on the oldest case, La Poudrière, which can be traced back to 1958. While a lot can be said about the community from a social or economic perspective, this essay written from an architectural and urban perspective will deliberately focus on the characteristics and potentials of La Poudrière's spatiality, and its impact on the social and economic aspects of the community.

We will start by situating the reader, describing the project of La Poudrière, its origins and economic model. We will then proceed to study more precisely its relationship to space and buildings, in the three aspects of acquisition, configuration and intimacy. This particular model of spatial development will be discussed in the light of growing real estate pressure and threats of gentrification, to reveal its potential as a mitigating force. Moving on we will show its own current shortfalls to meet this potential. Finally, we will discuss current ongoing reflexions within the community and explore how space can be a tool to attempt to overcome these shortfalls.

La Poudrière, an uncommon Christian-inspired neighbourhood action

The origins of the community of La Poudrière are at the same time rooted in a long lineage of militant church practices, and very serendipitous.

On the one hand its actions are illustrative of a tradition of "social Catholicism and Christian humanism" (le Maire 2009), along with the actions of the French worker-priests engaging in factory labour, or Father Lebret's organisation "Economie et Humanisme." Its origins can be traced to Pope Leo XII's 1891 encyclical Rerum Novarum, criticizing the conditions of the working class following industrialisation and the excesses of both socialism and liberalism, while defending the values of labour and worker's associations.

Aside from this theoretical background however, the community La Poudrière sprouted spontaneously from the concrete local action of the Oblates of Mary Immaculate, wishing to help the poor by spreading Christian faith. From a local perspective, La Poudrière emerges in a historical context in which religious legitimations lost credibility, which radically modified the working conditions for priests, becoming "missionaries of the interior" to retrieve the "dechristianized masses" (Voisin, 1977). It is in this prospect that the Oblates had purchased a house in 1952 and made it into a convent, in the so-called "Coin du diable" ["Devil's corner"], a Brussels district consisting mainly of old industrial urban fabric and small worker homes, with both high poverty and crime rates.

The initial success of the Oblates is modest at best. It is only when the Fathers Aimé and Léon arrive in early 1958 that genuine attempts are made at gaining the trust of the inhabitants, a hard task in this predominantly socialist neighbourhood. The first ones who will be seduced by the approach are therefore not inhabitants of the neighbourhood. A couple from the outskirts Brussels, René and Laurette Vanderstraeten, have a chance encounter with Father Léon and, moved by his charisma and approach, become frequent visitors until they are invited inside the living spaces of the Oblate Fathers, thereby breaching the enclosure of the Father's

living quarters imposed by the religious order. From then on, the building is quickly put to use, offering shelter and meals to the homeless.

In the following years, the enthusiasts and the needy, Christian or otherwise, will keep meeting in the basement of the building at 62 rue de la Poudrière. Gradually, a provisory form of community housing takes shape in the rooms and dorms on the upper floors. The local experience is tolerated by the order of the Oblate Fathers, however little to no means are given to the project. The yet-to-be-named community therefore develops economic activities starting with help in moving for people in the neighbourhood, a recurrent need due to the imminent construction of new high-rise housing blocks nearby. This local support in exchange of which no fixed price is demanded, very distinct from usual ecclesial practices, is greatly valued by the surrounding inhabitants and will further establish the legitimacy and reputation of the future community.

This slow growth results in the official establishment of the non-profit La Poudrière in 1964. With an interest-free loan from one of the local artisans, the first buildings for the community are purchased the next year: a parcel consisting of two run-down houses and old stalls inside the urban block, situated right next to the building of the Oblate Fathers which is kept in use[1]. From then on, the community will gradually professionalize its activities and expand its building stock according to the needs of a growing community population.

The story of the community is not limited to Brussels. Very early on, La Poudrière has developed secondary sites big and small in the rest of Belgium. However important to the community, these will not be expanded upon in this study, asides from mentioning the peak in population around 1984, a year in which around 100 people total live in five community sites (Brussels, Rummen, Drogenbos, Péruwelz, Vilvoorde).

The death of Father Léon, spiritual instigator and recognised leading figure, in 1996 signifies a major shift in the community, both in its purpose–increasingly focused on the housing of people in precarious situations– and its management–which becomes increasingly dispatched among elected members. Since its inception, the community has given shelter to over 5000 people.

Economics of commonality and utopian annuity

The goal of impacting society excludes any form of autarkic longing: exchange with the outside world, through human contact, work and commercial activity, is seen as a fundamental component of the project. Concomitantly, La Poudrière receives no public subsidies, and does not call upon charity, considering the community should be able to function without relying on the Welfare State. La Poudrière achieves this by maximizing commonality in both expenses and income; by leading a disciplined, simple life; and by relying whenever possible on the endogenous collective capacity instead of commoditised services.

In the first years, La Poudrière sustained itself by pooling the income of the working members, before gradually shifting to collective model of social economy[2]. The community work initially consisted of house moving services, gradually outweighed by the retrieving, recycling, repairing and reselling of goods in the two shops on the Brussels site and one in Péruwelz. An important step in this shift is the assimilation within La Poudrière of a dwindling Emmaus community from the outskirts of Brussels in 1976. On this occasion, La Poudrière joins the Emmaus network, while retaining a relative autonomy from Abbé Pierre's Emmaus communities.

The approach to work is, again, one of social justice and equality: all members are expected to do manual labour, considered to be therapeutic, and housework is an integral part of labour. The workload is collectively distributed in order to diversify each person's activities over time and take their abilities into account. It is still allowed to exercise one's own profession and put the salary in common, however this practice has been practically non-existent for the last thirty years. The condition is always the pooling of one's earnings, individual salaries are non-existent[3], with the exception of a limited[4] weekly allowance (30 EUR as of today) for personal expenses. This allowance is kept low by request of the members, in order to maintain distance from consumer society. It does however bring limitations in terms of leisure and renders personal savings impossible.

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[1] Despite their pluralism and experimentalism, Fathers Léon and Aimé's community has not engendered any serious conflict with the Church. Upon visiting the community in 1964, Cardinal Suenens is reported to have concluded that "if it works, all the better, if it doesn't, the institution is not compromised." He adds a recommendation however to "not go too far as liturgy goes" (Delespesse 1998).

[2] The community has been instrumental in the development of social economy in French-speaking Belgium. It was involved in setting up the federation for social economy SAW-B (Solidarité des alternatives wallonnes et bruxelloises) in the 1980s, and more recently one of the main instigators of Res-sources, a network of non-profits involved in recycling and recovery, now covering over 150 stores in Wallonia and Brussels.

[3] For the sake of clarity, we need to specify this pooling does not apply to personal belongings owned previously to joining the community; nor does it concern inheritance or properties. Their benefits (rent, interests) however are shared in the community. As such, members are free to leave the community at any point without sacrificing their personal belongings.

[4] Discussions about raising this allowance have always ended with refusal, in order to maintain distance from consumer society.

The strict lifestyle in La Poudrière can be seen as a multifaceted solidarity investment. The sum of past and present efforts in commonality generate what has been called the "utopian annuity" (Voisin 1976) from which any present and future member can benefit. The utopian annuity consists of a social added value which can take multiple forms, further illustrating the community's refusal to distinguish between economic activity and other types of work and value creation (Illich 1980). It can take monetary form, for example when an ad hoc financial support is offered by the community whenever someone wishes to leave the community, to allow them to reintegrate in market-based society with means proportional to their needs and their contribution to the community. It can be more indirect financial benefit, such as offering a sabbatical year to all children in the community before attending university, and then providing the study fees. But the core of the utopian annuity is difficult to quantify: the support for people with physical, moral or psychological issues; the gaining of abilities for work and self-discipline; more generally the safety net provided by the diffused care of all members for one another. This radical commonality in La Poudrière has allowed the community to meet the shared expenses and acquire a significant amount of buildings, which make out its most visible capital and an integral part of the utopian annuity.

Making and Managing Space in La Poudrière
The economic activity and increased participation raised early on the question of ownership of buildings, and how to articulate it with the community project. The solution was found with the creation of the non-profit organisation, as it could become a vessel for collective ownership without any possible individual claim to property, gain or subdivision. One does not become a member of the non-profit when joining the community. It is a purely administrative entity managed by a restricted amount of members who volunteer to do so. The non-profit may own or rent real estate as necessary to realise its goal of "encouraging and supporting the formation of communities". Should the non-profit be dissolved, its properties are to be given to a project with similar goals.

The refusal to rely unconditionally on commoditised transactions can also be felt in the relationship of the community to its buildings, in two ways.

First, the refusal of mere commodification translates in the reliance on the collective workforce to provide the means for both purchase and maintenance. The earnings of labour provide the necessary financial means for the community to expand, not relying on mortgages[5]. Until recently, building have been purchased solely to meet growing demands of space as they presented themselves, never speculating on further growth.

A significant amount of the buildings the community acquired were also dilapidated and required profound renovations. For as long as there was sufficient capable workforce within the community, this was taken care of as an integral part of communal labour. Salvaged materials are used whenever possible, the construction methods are straightforward and traditional: not only do they build upon the existing materiality, they constitute a way of making construction accessible to most.

Second, when transactions are necessary, they are infused with benevolence when possible. As the community has always functioned by providing services and support cheaply, even freely for the needy, it has established a network of positive relations with the neighbourhood and gained recognition well beyond. This in turn has translated in a non-calculating approach to real estate, especially when the community soared: on the one hand buildings are sold to the community for relatively low prices or even given, and money has been borrowed by neighbours interest-free to allow purchase; on the other hand, the community attempts to find deals beyond financial retribution when it occasionally rents out spaces (such as renting for a low price in exchange if the tenant works on its renovation), and it has already purchased buildings without the explicit need to do so, as "a gesture towards the neighbourhood". This also applies for example when architects and contractors are called upon, as they tend to be former members or to have a relation to the community: "It was comfortable to work with people […] who have had a certain sensitivity to community life, who have an ear to the demands of the group"[6].

We can hereby identify an ambiguous relationship towards buildings and ownership, between a potential threat of materialism and a structural component of the communal objective. On the one hand buildings are, like work, means to an end but no end in themselves. This justifies waiting for a concrete need for space and a concrete opportunity to manifest themselves before acquiring additional buildings, "like answering to a call from Above" as a fervently Christian member once put (Delespesse 1998). On the other hand, however, the often-dilapidated buildings have been a focal point of the communal project themselves, as "building or renovating with bricks and wood became a symbol of building the community" (Delespesse 1998), creating opportunities to establish a strong sense of belonging when each contributes materially to the creation of community infrastructure. The strong investment in money, labour, time and concertation do not translate aesthetically but generate a certain attachment to the built fabric.

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[5] With the notable exception of the very first purchase.
[6] When no source is mentioned for the citations appearing in this paper, they are excerpts from interviews conducted with community members.
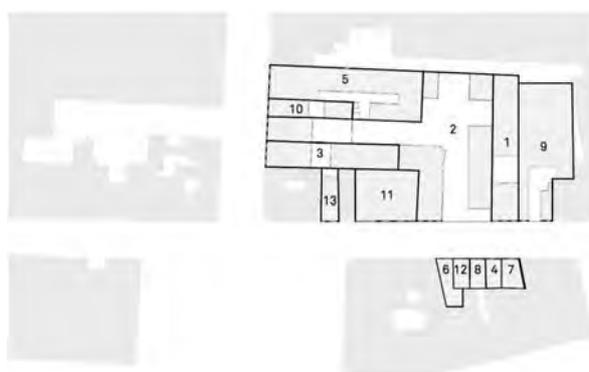
[fig.1] Situation of the purchased buildings. The numbers further reference to the detailed information in Table 1. Source: elaborated by the author.

N°	Date of purchase	Relationship to seller	State when acquired
1	1958	Owned by the Oblate Fathers, free to use for the community, priority of purchase to the community should the Oblates wish to sell.	Good
2	1965	None, information of sale through hearsay.	Ruin
3	1972	No relationship, response to a growing need of housing.	In need of upgraded facilities
4	1973	Had a very close relationship to the community and the children thereof. Obtained from public purchase upon her passing.	In need of upgraded facilities
5	1979	Good neighbourly relations, local artisans ceasing activities.	Bad state, gradually restored
6	1979	Very good relationship, mutual trust. Purchased with life annuity contract.	In need of upgraded facilities
7	1979	Very close relationship with Father Léon, to whom the owner leaves the house upon passing. Father Léon in his turn leaves it to the community upon passing.	In need of upgraded facilities.
8	1983	Had a close relationship to the community. Purchased from heir.	In need of upgraded facilities
9	1985	Close relation between Father Léon and the family owning the building. Previously partly rented by the community since 1966.	Good overall state
10	1991	Close to the community, owner of a grocery on the ground floor frequently attended by the community. Purchased from heirs	Dilapidated, entirely restored by the community
11	2006	Did not inhabit the building. The purchase was beneficial for both the community (retail space, proximity to the courtyard), and the neighbourhood in general (prevented the purchase by a cultural centre under state suspicion of propagating radical ideologies).	Shop on ground floor dilapidated, apartment in good overall state
12	2009	Very good, long-term relationship. Purchased from heir.	In need of upgraded facilities
13	2010	Building purchased as gesture of goodwill for the seller, a long-term friend of the community. Additional arguments: the potential to connect with the remaining buildings of the community, and the possibility to meet needs of the neighbourhood.	Run down

Table 1: Origin of the buildings and relationship to the buyer

Connecting and reconfiguring
Through this pragmatic and patient approach, La Poudrière has acquired and renovated a large compound of buildings in the immediate surroundings of its first home base over the course of fifty years. The spaces of La Poudrière are based on a very strong predefined context: practically all spaces are pre-existent to the community, within small-scale industrial buildings, apartments and homes, mostly left untouched aside from maintenance and upgrades in facilities. However, the relationship of La Poudrière with the built fabric is much more complex than this would entail. The few modifications applied have had profound implications

on the configuration of the entire compound: a diffuse set of punctual interventions have pierced through property limits or bridged gaps between buildings to create new connections.

The placing of these connexions clearly indicates the intention was not to create an isotropic space. The newfound relations have led to a profound reconfiguration of the built fabric's hierarchy in favour, again, of the collective: from a juxtaposition of individual houses, the buildings now converge towards the centre of the urban block, the central courtyard and dining hall of the community branching off towards more private spaces. Hence the private sphere of the members is no longer distributed by the public space of the street as much as by the central space of the dining hall. Thus, the front façades become a "rear entrance", used solely as a shortcut by the inhabitants of a particular part of the communal complex.

[fig.2] Situation of the openings in property limits. Source: elaborated by the author.
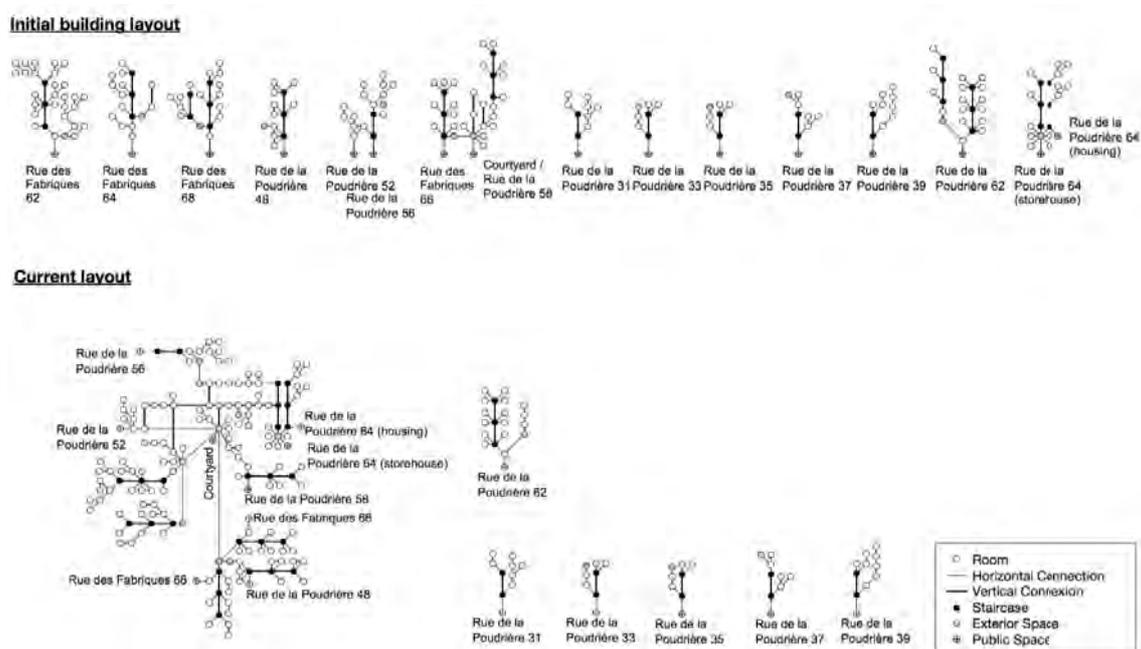
[fig.3] Connectivity of spaces before and after interventions by the community. Source: elaborated by the author.

Openness and Intimacy

When further analysing the configuration of La Poudrière, one can see the opposition between public and private blurred into a gradation of spaces with varying levels of publicness. These can be grouped into public, common and private spaces, each with their own subdivisions and with open spaces acting as a buffer between them.

Public space takes part in this system in several ways. First, the community develops on both sides of the Rue de la Poudrière. Hence, even if one will only feel himself entering the community when passing the gate to the courtyard, they are already technically surrounded by inhabitants of La Poudrière when on the street. Furthermore, the two shops run by the community in which salvaged objects are resold, are an integral part of street life, despite the restricted opening hours (two afternoons a week). The shops are also one of the few elements revealing the presence of the otherwise rather discreet community in the streetscape[7]. The shops, along with the chapel in the back of the Oblate building, can be considered "quasi-public" spaces of the community, aimed at interaction[8].

Common spaces, as opposed to public spaces, are meant for community use, while retaining a certain degree of openness. Public and common spaces are articulated by the courtyard acting as an in-between, threshold space. The paving of the street extends into the passage leading to it, alongside a house façade with plants, given an overall feel of a dead-end street rather than a privatised space. As such, it has for a long time functioned as practically public space. However, several occurrences of thefts or nightly disturbances have required the community to install a gate, sacrificing openness for the sake of security much to their regret. To diminish the impact of this necessity, work has been made to make this tailor-made gate as unforbidding as possible and maintain a feeling of invitation. As such, the gate is kept open at all times possible, closed only at night and in the weekends. This is further made explicit by the installation of a guiding arrow on the gate, pointing visitors towards the dining hall, and oriented thusly that its directions only make sense when the gate is open. The courtyard itself is open to the public and intensely used by the community as distributive space during working hours. It is therefore very likely for visitors to come across members at work, who will take a

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[7] A large wall painting has been realized next to the entrance to celebrate the fifty years of the community. However, this painting does not hold any information pertaining to the community itself.

[8] In 1977, an attempt was also made at opening a kindergarten for the children within and outside of the community. The experiment lasted only two years, among others due to the conflicting role given to an inhabitant, simultaneously educator and member of the community.

moment to inquire into their visit. If not, they will be seen from the corner building hosting the textile and laundry spaces, with wide French windows upon the courtyard.

[fig.4] The open entrance gate with guiding arrow. Source: Author.

In most cases, visitors will then be directed towards the dining hall, central common space of La Poudrière, located above the ground floor and accessed through an external staircase. Only then will one really have entered the common spaces, and can one be formally welcomed. It is a space loaded with symbolism and meaning. Two long custom-built tables dominate the space and define the circulation. Resulting from a collective decision-making on how to shape the large community in a dining situation, they were preferred to smaller tables which could have encouraged the formation of smaller "clans". Upon one of the tables, there is always coffee and fruit juice ready to engage with visitors. On the back wall, five stained-glass windows represent the five constitutive values, or "pillars"[9], defined by the community. Near the entrance are the individual compartments for mail or other objects, and a board for general information. It is extended on either side by a living room and by a large semi-industrial kitchen, both of which allow the hall to hold community celebrations for over 300 people. Within the community, this space is straightforwardly referred to as *la salle* ["the hall"], stressing its central and multiple roles as dining hall, living room, event hall for celebrations, reception space for newcomers, meeting point for the inhabitants and identity space. Other common spaces are mainly the workspaces, articulated around the courtyard and above the bigger retail space; the meeting room above the hall and the flat roof.

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[9] The five "pillars" being:
- "Presence": the need to interact meaningfully with society instead of retreating from it;
- "Friendship": a necessity for reciprocity between givers and takers of help;
- "Justice": La Poudrière relies on the famous principle "from each according to his ability, to each according to his need", in search of an equilibrium between the needs of oneself and the others;
- "Utopia" (or "Hope"): social action must retain the goal of a better world;
- "Asceticism": societal change starts with introspection, surpassing oneself beyond materialism.

[fig.5] Central hall. Source: Author.

Just as the courtyard operates the transition between public and common space, the gardens behind the houses acquired by the community and connected to the common spaces, become a threshold space between these common spaces and the more private spaces within the houses, shared only by a limited amount of people. Passage is possible, but done with care so as not to disturb inhabitants of a particular house. The transition is felt through the smaller proportions of exterior spaces and their proximity to the house facades, pre-existing conditions which are given new meaning. The difference in role between the courtyard and gardens is made explicitly clear by a wall separating them from one another, in which only a glazed door has been placed to allow passage without making them overly continuous.

From these spaces – or from the street in the case of the homes on the other side of rue de la Poudrière – one gains access to the private spaces. These can be single rooms, dormitories for passing visitors, of family housing. The former two share sanitary facilities, the latter have their own, as well as a small kitchen. This allows families to hold family meals in the weekends, maintaining an equilibrium between community life and family life. After staying a few years in the community, inhabitants in single rooms can also obtain a second space as living space. Despite these exceptions, the contrast between the relative modesty of living spaces and the large common spaces is maintained as overall principle.

+2

+1

Courtyard

Small objects store | Laundry | Chapel | Furniture store

+0

[fig.6] Scales of intimacy in the buildings of La Poudrière, ranging from public in light grey to private in dark grey. Source: elaborated by the author.

La Poudrière in the contemporary city

We have seen the very slow process with which La Poudrière has through the years accumulated, reconfigured and installed spatial hierarchy in a wide, collectivised space financed by collective labour defined by ethical and ecological standards. When defined in such terms, an organisation like La Poudrière can be seen as a potential counter-agents to phenomena of gentrification and predatory development in central neighbourhoods.

As in other contexts, the approach to gentrification in Brussels encounters difficulties in articulating an ideal of "social cohesion" with a "return to the city of the middle class" (Van Crieckingen 2013) in its central districts among which the "Coin du diable" where La Poudrière is situated. Moreover, the immediate surroundings of the community are undergoing profound changes, between the extension of a district hosting many art and design galleries to the North, the further pedestrianizing of the historical centre to the West and the large-scale redesign of a crossing to the East, which will be transformed into a large-scale public park and about 100 new housing units, both public and private. As such real estate pressure on this part of the city can be expected to rise, which is corroborated by the amount of solicitations La Poudrière has received from real estate developers.

By taking its buildings out of the market system in favour of shared use and development on ethical bases, it prevents the increased commodification of space both for housing and consumer activities, and the extraction and transformation of social and spatial value –a good quality of life, meaningful interactions between inhabitants, a quality environment– into economic value by the law of supply and demand. Instead of playing into this struggle for space as a scarce resource, La Poudrière generates a microcosm of what can be defined as an economy of abundance (Hoeschele 2010) based on collective pooling and individual sufficiency: each adapt their lifestyle to define and focus on their truly essential material needs, then satisfies those through the collective reserve and benefit, in concordance with the other members of the community.

In doing so it can be said to complement the role of public authorities in countering speculative practice through social and low-income housing and surpasses the simplified opposition between private and public sector. The buildings owned by the community remain available to newcomers and especially a disadvantaged population independently of financial means, allowing to dissociate the discourse on creating a "social mix", from its (alleged or verified) consequence of social exclusion of the poor and appropriation of a neighbourhood by a more affluent population.

However, this principle becomes less self-explanatory when the collective capacity to use the resource is limited, as has become the case in La Poudrière. Since the passing of Father Léon in 1996, the number of members in the community has steadily declined. The Brussels buildings now hosts around 20 people, a population which leaves surplus spaces that are mainly used to host the 30 visitors from the two other sites of Péruwelz and Rummen for the monthly trans-local community assembly, and for the frequent visitors. The under-used spaces, if they do not constitute a shortfall for the community, can also be seen as a form of injustice, being withheld from circulating towards other potential users outside of the community–i.e. in the commodity sphere.

La Poudrière has had to deal explicitly with this ambiguity through its ownership of the former Atlas Brewery in Anderlecht (another municipality of Brussels), a complex relatively renowned in Brussels for its iconicity in the urban fabric, inscribed on the safeguarding list for patrimony. For some years after its purchase in 1989, it could function as a fourth instance of the community. Yet the lowering population led to a relocation of its inhabitants to the three other sites, leaving the brewery's ground floor to be used as a storage space for materials, and not having the means nor need to renovate and use the rest of the complex. "We realised ten years ago that this was too big for us. It was very interesting from a geographical point of view, it was beautiful, but we were not able to use all the space in a coherent way, especially the brewing tower. So we started gathering people from the non-profit sector among others to explore the possibility of sharing the space. We worked for one or two years with meetings, architects, […], but we ended up realising it was unfeasible both technically and economically". Additionally, public authorities had started to threaten the community with a vacancy tax should the building and its heritage value not be valorised, and several developers had shown strong interest. Finally, "it is both the evolution of the community and the real estate pressure from both public and private sector, that brought us to the decision to sell the buildings […] in order to realise something instead that was more proportionate with the community." (ibid.) With no public operator reacting in timely manner, the community sold the site to a developer, and used the funds for the construction of a logistics building.

Clearly identifying the reasons for this decline in population and concomitantly in use capacity, is not our main subject and would require further study. Our research can however point to a partial explanation in the distinctive way in which La Poudrière articulates collective and individual identity and translates this in time and space.

This approach is inherent to its focus on the widest possible inclusiveness: many members will arrive in the community in a state of vulnerability or with dark individual stories they do not wish to share. Rather than

confronting individualities and differences therefore, making community happens through a pacified collective identity which one can immerse in and rely upon. This supportive and immersive being-in-common is in itself one of the most valuable resources La Poudrière offers to its members, as such it has to be kept safe from conflicts.

This translates first of all in the way the community self-organises. While there are no explicit rules or charter, La Poudrière has acquired a dense layering of decisions: the many outcomes of collective moments, discussions, meetings and assemblies over the years act as a form of customary law new members gradually learn of by partaking in the collective moments. The distribution of these moments in time allow us to perceive collective life as very strictly regulated, and the moments in which one is expected to be in the collective spaces and to take part in community life as clearly predominant. A typical day follows a precise scheme, starting with collective breakfast and ending after dinner, including simultaneous coffee breaks. These shared meals and breaks are a crucial element of the community experience: the rituality brings cohesion, and the washing of the dishes are moments of informal discussion during which information is exchanged, complementing the formal structure of organisational meetings. This structure is just as precisely and densely organised. It ranges from daily meetings to organise and distribute work, to monthly meetings where important decisions are taken by a core group then validated or invalidated by the entire community, to annual meetings during which the general orientations for the following year are defined, to meetings held upon request in case of certain discordances.

The vision of La Poudrière on how to constitute a community also has profound implications on the way spaces are used, appropriated and expressed. Spaces are of an extremely neutral quality, made of simple but sturdy elements, with little to sometimes no finishing. This is not only due to a straightforward process of building restoration. Architects have occasionally been called upon, once for a complete reconstruction of a building. Yet the intention of the community had been for the building "in the style of what was there, so it would not stand out". The architect's contribution is valued not so much from a conceptual or aesthetic point of view, as from a practical and sometimes technical one. While this deprived aesthetic can partly be attributed to the ideal of austerity discussed above, it resonates just as strongly with its view on community identity. The community leaves members free to appropriate the space they have been entrusted with, using the salvaged materials and objects it has in store. Yet the physicality of common spaces remains deprived of symbols and signs, the walls bare, with the two notable exception of the courtyard with its large wall painting, and of the central hall in which community values are expressed through the stained-glass windows[10], the large collective tables, and a ceramic sculpture given to the community which was attached to a wall of the living room, bearing the scripture "they put everything in common". Additionally, to the strictly collective identity expressed by all these elements, it is worthwhile to observe their temporality as all are strongly anchored to or within the buildings. Hence individuality and spontaneous expression are diminished in commons spaces, their personal appropriation virtually non-existent, in order to respect every member and allow him of her to feel comfortable in a stable and durable communal environment[11].

This approach problematizes individual expression within the collective, as it is channelled exclusively through formal meetings and thus not always well experienced. Artistic and creative people have notably expressed difficulties living in the community, finding insufficient time and interest for their personal practices.

Such a critical view on La Poudrière suggests that the growing individualism, not only in consumer culture but also in modes of societal engagement, has made its communal life project at odds with younger people sharing similar values. A form of division has formed within the community between older, long-term inhabitants acting as "hosts" and short-term residents that are "hosted" by the community, often taking part for a limited time and leaving once they have overcome a personal struggle; rarely taking part in the management of the community and staying to become "hosts" themselves. The change of paradigm in which "the prospect is rather to frequent different places according to one's phase in life, one's personal context, in order to live better" (Servais 2006) favours less constraining ways to involve oneself actively in society, with greater consideration to each individual and his search for meaning, through forms of collectivity maybe, but without being reducible to it. The relations with the neighbourhood have decreased in similar fashion. "The chapel and the priest have long been a point of reference. Now of course there are no more practicing Christians, the interest is much lower. The weakening of relations is also due to the change in population.

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[10] The choice to represent these five "pillars" in stained glass was the topic of heavy discussion, partly due to the strong Christian background it evoked aesthetically. To this day, one can feel some uncertainty as to the pertinence this decision. On a later occasion, when designing a new laundry building, the architect had proposed to realize an Oeil-de-boeuf window in stained glass as well. This time the lack of symbolic value for the community led to a refusal of this proposal by large majority.

[11] This has not always been the case, in its early years of the community was marked by counter-cultural spirit of the 1960s, and many members or outsiders would hang posters of forthcoming cultural events–some quite daring or experimental– in the common spaces. But other, more traditional members felt oppressed by this overwhelming expressivity, which led to conflictual situations. Since then common spaces have been kept neutral, and community-wide communication centralized.

[…] It has become harder to establish contact with the outside world, especially since we are not overtly militant."

The community has undertaken explorative reflections and actions to confront the issue of its future in an evolving urban and cultural context. On the one hand, the years of privileged contact, services and social work have established La Poudrière as a reliable actor in its immediate surroundings. The feeling of local responsibility appears strong, so much so that the community's latest purchase (rue de la Poudrière 48) was not made out of necessity as the community already had a surplus of space, but as a gesture towards the neighbourhood and to withhold the possibility to connect the building with the rest of the complex. Other homeowners in the surroundings have hinted at wanting to eventually sell their house to the community: "when a house is freed up and we acquire it, people know where things stand." On the other hand, it has become clear that the community alone cannot use these acquired spaces to their full potential, and the current context of housing crisis cannot justify leaving housing units unoccupied.

This explains the relatively recent development more liberal approaches for some of its buildings, leaving more space–both physically and metaphorically–for less radical forms of engagement with its social project. "Next to the community as we know it–the big tables etc.–there would be a network taking shape of people who do not live together but share common actions and make sense of what they do through this network and the five objectives of the community project." An example of this are the "children of the community", born within it and having meanwhile become adults: despite sympathies for the project and its values, all but one have left, considering community life too heavily constrained. Some are now finding ways of articulating their sympathy with the wish for independence. One of them has gathered befriended artists to rent the aforementioned building on 48 rue de la Poudrière. The occasional presence of these relative outsiders has been experienced as very beneficial by the community: they have initiated a collective garden with a local school on the roof of La Poudrière, and share meals with the community occasionally. In a similar fashion, the five houses facing the entrance gate on the other side of the rue de la Poudrière now host among others a former member, two autonomous "children of the community", and a family of refugees. The apartments in the building on 64 rue de la Poudrière have also been rented out.

In this context, the building complex has shifted from a pragmatic necessity into potential leverage for a reinvention of the project of La Poudrière. Another threshold of the community is taking form, in which the interaction between the common sphere and the market sphere opens a new field of possibilities. This threshold concerns the spaces that are owned by the community, while remaining peripheral to or disconnected from the common spaces. This position is no coincidence: "it is important for these people to have their autonomy, their living space, and a physical separation from the rest of the community. They come when they want, they are at home with us, but they lead their own lives."

At the moment, all tenants in these threshold spaces are either close to the community or people the community took under its wing, paying a low rent in exchange of providing basic maintenance of the buildings. "It has to be a win-win situation. The community is not here to tend to their needs. We help, yes, but there has to be an exchange. Just as is the case with the members of the community: they give time and labour, they get back the benefits of the community."

This ongoing evolution recently took form in an attempt at redeveloping the five houses opposite to the gate into a collective housing building on a Community Land Trust model. At the writing of this article, this idea has been momentarily set aside for diverse reasons, one being the fear of losing too much relation to the community itself. It is however a testimony of the search La Poudrière has initiated in order to tune its project to contemporary emergent practices, and of its careful openness to possible innovation.

Conclusion

We have described the spatiality of La Poudrière as showcasing how local long-term rootedness and a small amount of strategic interventions can have profound implications in the way spaces can be related to one another to meet ambitions of stronger collective ties within a community.

While the initial reflex would be to put agency for these modifications in the hands of the community members and their ability to translate their project in space, a case can be made for the active role played by pre-existing spatial configurations.

On the one hand the neutrality and relative flexibility of the traditional housing typologies making out the bulk of La Poudrière's buildings have greatly benefited the possibility for adaptation with limited means. Changes of scale were possible by simple conversion of rooms from living spaces to private rooms, leaving functionality and use to dictate the hierarchy of spaces. We can therefore argue it would be an exaggeration to talk of a hijacking of an existing spatial order, preferring to see the actions of La Poudrière as seeping in a community project into a field of rooms with the capacity to contain it.

On the other, the specificity of the imbrication between parcels has played a crucial role in the development of the compound as we know it. In the light of the future resulting configurations, one can actually see the shape and placing of the first parcel bought by the community as already foreshadowing all future

connections, a backbone ready to expand, in contact with most buildings which will be purchased afterwards. Arguing for the purchase of an unneeded building because of its potential to connect with the central buildings in similar fashion, is a further indicator of the agency of such pre-existing configuration.

Further developments of this research could question the role this example implies for space on the one hand and the architect on the other. A case can be made of how the community uses the archetypal artefacts of simultaneous separation and connection, the door and the bridge, in their acts of reconfiguring the aforementioned field of rooms and creating a hierarchy of fluid boundaries that functions both internally and externally as a form of threshold space, "reclaim[ing] the power that thresholds possess to mediate actions that open spatially (as well as socially) fixed identities and encourage chance encounters" (Stavrides 2016), thus defining a space of heterotopia essential to the development of the city as a commons. Paradoxically however, on the opposite side of the political spectrum we can see realised in this case study of a strongly ideological use of space, a quite liberal view of architectural space production in which the designer would be expected "not to design homes, but rooms and different ways in which rooms could be connected to one another. The architect has to see how the power of architecture to make an 'inside' can be a statement in the world. Without deciding what has to happen in these rooms and buildings." (Verschaffel 2005) We hope to be able to develop this question in further discussions of the case elsewhere.

In a second part, we have then looked at the approach of La Poudrière in its potential to act against the forces of ongoing commodification in housing and urbanity in general, by generating housing as a collective resource aimed at welcoming the needy. We have nuanced this by discussing how its way of doing so demands a sufficient pool of participants willing to accept the conditions of collective living, if not to lead to forms of under-usage of the potentialities of the space made available. In the light of a decoupling of the community project with common contemporary social practice, this has become a potential issue for La Poudrière. Finally, we have shown how a moderate return to economic interaction forms an attempt at opening the community's social project to less radical forms of social and spatial cohesion. As such, its substantial property holdings, the values they are infused with and their position in the hyper-centre of Brussels constitute a significant potential for increased exchange with the surroundings, through hybrid forms of exchange articulating social values and economic transactions on a practically neighbourhood-wide scale.

Whether this attempt at generating a new threshold space between the community and society will be successful is yet to be determined. It is very possible the further evolution in the use of these property holding could further diminish or even exhaust the community as it exists today.

We could just as well speculate however, that the growing need for spaces of disconnection and deceleration (Rosa 2010) might renew the relevance of more spiritual forms of development and of the experience of community, be it still in a less durable commitment than currently demander by La Poudrière. From its creation on, the community has made sure these spaces would be safe-kept from pure commodification through the rulings of its non-profit association, even in case it would cease to exist. No matter the answer to the question above, the core of its project can therefore be expected to outlive the community itself through the 60 years of collective energy crystallised in its brick walls and wooden floors: "In a way, these buildings do not belong to us. They are here to serve togetherness."

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Thermae as commons.
Guide lines for the project of thermal landscapes.

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"What is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly on his own, hardly at all of the common interest" (Aristotle 2012). Over the last 40 years, the passing of the alternatives between public and private, as well as the openness to the concept of commons, has become a central theme in many disciplines; the topic of commons has risen in attention as of the so-called "tragedy of the commons" (Hardin 1968), a theory which argues there will be an inevitable depletion of resources due to the fact that every user becomes the only owner of the private benefits obtained from the resource, but he shares with the whole community the collective costs of the depletion. The debate arising from the Hardin statements found an interesting position as seen by the political scientist Elinor Ostrom, by which, instead, many communities are likely able to avoid the loss and degradation of the common property without the need for intervention from either the public or private side. In her book "Governing the Commons", Ostrom has indeed shown how often both public and private management are unsuccessful, opening a new way of looking at things.

Starting from this theoretical excursus this paper proposes, in the context of Sardinia (one of the main islands of the Mediterranean), a reinterpretation of thermal resources, considering them as a common good capable of establishing strong connections with the territory and the local community. The thermal system of Sardinia is characterized by the different contexts in which the water resources are managed, and enjoyed through its different forms; however, not in all of these sites is the water treated as a common good to be taken care of, but rather as a commodity to be exploited in structures and in ways that are often unsuitable for forging relationships with the places and the communities. The paper illustrates, within the thermal system of Sardinia, three cases characterized by quite different contexts, where the thermal waters can be considered a common good, while also investigating the relationship between spatial structures and the resource management process: Fordongianus and its historical town of ancient origin, Dorgali and its surroundings of environmental interest, Benetutti and its agricultural village. In these contexts, the *thermae* are commons able to set in motion relational exchanges and to generate in the population a psychological attachment to the places, values and practices of a community. This activates, within the territory, new mechanisms, new relationships between its components, balanced relations between what is public and what is private, what is natural and what is built; but above all, it makes the population belong to the community and to the places of life. Local dimension; global dimension (universal accessibility); the coexistence of nature and culture, sharing the resource and its use in common by the community; social organization based on community and interpersonal solidarity; indifference to public or private property are all distinctive elements of the commons that can easily be seen in the analysed study cases.

A theoretical definition of commons

"What is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly on his own, hardly at all of the common interest" (Aristotle 2012). The debate on the commons already aroused the interest of Aristotle, and over the last 40 years, the passing of the alternatives between public and private, as well as the openness to the concept of what is common, has become a central theme in many disciplines; from those linked to the economic and political sciences and psychological dynamics, to those who deal with the territory. The concept of common areas, therefore, has distant origins, those where the ancient Romans considered earth, water, air, sky, flora, fauna and the navigable waterways as common things or res communes. More recently, in a special issue of 'The Ecologist' in 1992, the commons were defined as "a system of social relations based on cooperation and reciprocal dependency that provide sustenance, security and independence, yet typically do not produce commodities" (Ricoveri 2013). Thus, a first characteristic of commons is that they are goods, resources, but are not commodities and not subject to market rules. The commons are, in fact, flexible, and capable of changing to adapt to different challenges related both to the environment and technologies, are an expression of undeniable human rights and of the need for cooperation and social relations. This diversity and flexibility allows a more conscious use of the natural resources upon which the commons themselves depend, by avoiding their over-exploitation, degradation and destruction, which are, instead, inevitable consequences of the capitalist system. Therefore, another feature of commons is the 'local systems' dimension, which means it can be managed effectively by those who have a precise and detailed knowledge of the place, its history, language, culture and physical components; however, belonging to a 'local' reality does not mean that commons are elements that are isolated either in time nor space, as their social organization is not static. They are open local systems, receptive and adaptable to local 'whims' such as climate, the different attributes of the localities in terms of natural resources, the knowledge of the inhabitants and their professionalism (Ricoveri 2013). Western capitalist development was based, instead, on the pillaging of common areas. One of the most complex problems faced by contemporary society is, in fact, to give priority to the dimension of being, rather than having. The attention and the full understanding of the common areas allows people to see a different reality, the possibility of different social relations based on the satisfaction of

needs related to being, and not only to having. "We do not have a common (an ecosystem, water) but in a sense, we are (part of) a common (we are water, we are part of an urban or rural ecosystem)" (Mattei 2011). The commons, therefore, require a holistic perception that can fully capture the essential links with the local community and with other nearby communities. Unlike the logic of the market, the dynamics which govern the commons (both in their physical and cultural nature) are not produced by exclusion, but inclusion: goods are accessible to all. The common good is not based on a "rival consumption"; on the contrary, it is characterized by a "relational consumption" that enhances its value through a qualitatively responsible use (Mattei 2011). Another aspect to look for in a common good, then, is the universal principle of accessibility. The commons belong to us all; but, at the same time, do not belong to anyone, in the sense that no one can prevent access to common areas. In the commons, management creates, thus, reciprocal bonds, collective solidarity constraints, rules that create community, cohesion and identity. In other words, we could say that the struggle for commons is the action necessary to bring out the true desires of each person, set free from market constraints and manipulation, as well as from State addresses; and is re-oriented toward categories of commons as non-exclusive and relational. This means that the commons, regardless of their public or private membership, express utility that is functional to the exercise of fundamental rights and the free development of the people; therefore, their collective enjoyment needs to be ensured, directly and by all, even for future generations. The topic of common areas has risen in attention as of the so-called "tragedy of the commons" (Hardin 1968), a theory which argues there will be an inevitable depletion of resources due to the fact that every user becomes the only owner of the private benefits obtained from the resource, but he shares with the whole community the collective costs of the depletion. The debate arising from the Hardin statements found an interesting position as seen by the political scientist Elinor Ostrom, by which, instead, many communities are likely able to avoid the loss and degradation of the common property without the need for intervention from either the public or private side (Ostrom 1990). Ostrom has indeed shown how often both public and private management are unsuccessful, responding, more precisely, to three models: the "tragedy of the commons" (Hardin 1968), the "prisoner's dilemma game" (Dawes 1973) and the "logic of collective action" (Olson 1965). According to all of these theories, there will be (and there are already) tragic consequences (up to the real disappearance of the resource) caused by the common use of an asset without the intervention of a public or a private institution. The aim of the Elinor Ostrom study was therefore to demolish the belief of many that the only way to solve the problems of common resources is to impose an external authority, both by centralization and privatization (Ostrom 1990). The Ostrom theories open a new way of looking at things and allow us to overcome the dichotomy between public and private where we started. Most of the cases studied by Ostrom are, in fact, articulated combinations of public and private instruments.

Water: from material resource to common good
One of the most important commons, the one in which all the others are contained is certainly the landscape, as defined by the The European Landscape Convention of the Council of Europe, "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors".
The landscape is intended not as a mere aggregation of different elements, but as a system in which are intrinsically intertwined both nature and history, heritage to be preserved and social needs to be met; as a system that can be understood, defended and transformed only if it is considered as the whole of its aspects and components (Salzano 2010). It is then fundamental to investigate the meaning that is attributed to the places in order to then find the forms, the best ways to preserve and protect these meanings and therefore the places themselves, which constitute the landscape. The common goods are these places, not just things, objects and services, but what the community considers indispensable and irreplaceable in order to live well.
The thermal landscape, where a community lives thanks to the common use of thermal water from existing resources founded on it, falls within the definition of commons. Generally water is a basic element of a territory: it is a natural resource and the access to water is an essential human right, not just a need. This right is cancelled when the water is treated as a commodity to be privatized, rather than as for the common good (Ricoveri 2013). Water is considered a common not only as 'material' resource and basis for human existence, but also as a source of metaphysical symbolism, aesthetic pleasures and therapeutic values (Wylson 1986). It would be difficult to separate, regarding water, the physical traits from the social ones, the natural aspects from the cultural ones. The notion of commons, in the past limited to sustenance and necessities, is expanding to be resources not strictly related to immediate subsistence. The evolution of the bath concept, closely linked to the relationship between water and man, should be understood in its two main forms: one as devoted exclusively to cleaning (easy ablution, 'basic necessity') and the other intending the bath as regeneration. Deeply connected with the type of bath is its social significance: the bath with the only purpose as cleaning is a private and individual matter; the types intended as regeneration favors, historically, social relationships and represents a focus for the associated and communal life (Giedion 1948). Thermal baths belong to this second type of bath, because they translate, through different forms, local traditions and identities. It is in this light that we can see the baths as commons that are able, on the one hand, to set in motion relational exchanges, to follow the desires and motivations of the people and meet its needs; while on the other hand, to generate in the population a

psychological attachment to the places, values and practices of a community (Inghilleri 2014). This activates, within the territory, new mechanisms, new relationships between its components, balanced relations between what is public and what is private, what is natural and what is built; but above all, it really makes the population belong to the community and to the places of life, in order to make it responsible and aware of the importance of water as a resource that is not to be wasted. The hot springs in many parts of the world are already characterized by a type of use and management in common, the so-called 'free thermal baths'. Sites like natural ponds, swimming pools and marine bays, are always frequented for their beneficial properties that are recognized in a more or less scientific way, and that are able to establish deep-rooted links with the territory. This is an atypical offer, since it lacks a real thermal structure, consisting of hot springs with free access or with a reduced entrance fee (just enough to be able to pay the costs of cleaning and maintenance services, usually performed by small local cooperatives) and which exploit the water not yet, or not at all picked up from the real spas. These types of thermal opportunities, often overlooked, are of interest for establishing ties with the place, with the local communities and for the high landscape value context where the flow of the springs or free thermal baths can be found in the woods, by the sea, in the hills. They are 'spaces' of natural water. "The baths without establishment in restricted economic times, are a heritage for Italy: in addition to the savings, they lead to the luxury of freedom" (Rolle 2014).

The thermal system of Sardinia
Before dealing with the topic of how the thermal places in Sardinia respond or could respond to the logic of the common areas, it is essential to discover the island's thermal system, to investigate both the environmental and territorial structure, as well as the cultural-historical one; observe its relationship with the surrounding territory and in relation to other landscape variables; and understand in what form the waters are born and how they are then exploited by man. The thermal springs distributed around the territory of Sardinia reveal their ancient origins with very different characteristics: the more established and still functioning sites, archaeological remains, and point elements scattered throughout the landscape represent the memory of structures that over the centuries have created important opportunities to generate community spaces. There are numerous traces of this ancient history: from the springs of 'Santa Maria de is Aquas' near Sardara, where are located the sacred *nuraghe* and well, dating back to 1600BC, which were later denominated Aquae Neapolitanae by the Romans; to the Fordongianus site, whose name derives from the ancient Roman town of Forum Traiani and which replaced the older one of Aquae Hypsitanae, the mineral springs located at the river Tirso, of which today we can admire the remains of *thermae* dating from the imperial period (Mastino 2009). The geological history of Sardinia is a complex matter too: Sardinia is a region of Italy that presents great geodiversity, and it is one of the most promising for the exploitation of geothermal resources and for the presence of numerous geothermal springs. It is second only to Tuscany. The origin of the warm waters of Sardinia is to be found in a geothermal gradient, which leads to a deep infiltration of rainwater and to its subsequent upwelling through the faults. Upwelling, which takes place in a so fast manner, does not allow water to rebalance its temperature. It is for this reason that the waters come out still hot. In Sardinia, there are mainly two kinds of completely different waters: those that flow from granites (thus are warmer) and those that flow from the vulcanites (colder). This difference in temperature and water quality generates variations in the type of thermal landscape. Where the water pours out from faults surrounding the basins and the ample plains, the thermal landscapes are 'flat' landscapes (e.g. Benetutti, Sardara); in the case of faults in the vicinity of horst (therefore waters that flow from vulcanites), we find thermal landscapes such as Casteldoria, characterized by a more complex topography (Cuccuru, Oggiano, Funedda 2015). Today, however, the historical and cultural as well as the landscape value of the traces, so stratified over the centuries, does not match the effective exploitation and enhancement of thermal resources. Many elements connected to the resource appear as mere abandoned archaeological remains and the main thermal structures, although still active, are not actually giving connotation to the area, being unable to establish strong relationships with the context in which they are located, to constitute fundamental components of an overall integrated and structured system, as well as to stimulate in their local communities a sense of place attachment. It is within this framework that it is fundamental to recall the concept of territory as a system made up of interwoven elements; it appears there is currently the need to create a 'network' able to characterize the territory itself. The thermal baths should not be treated as isolated elements, but as opportunities for enhancement of the whole context. A first initiative in this direction is represented by the desire of some municipalities of Sardinia to form a 'Sardinian Thermal System', aimed toward the promotion and incentives for development of the thermal baths and geothermal energy in the region, and involved in the proposition of a new law to revise the outdated laws currently in force. At this stage of the legislative impasse, the initiative by only public institutions does not seem sufficient to create a system that is really able to bring new development to the territory; and consequently, to the communities that live in these territories and at the same time to preserve the water resource. It is necessary to promote a deeper involvement process of the population inhabiting the territories, to make them aware of the resources that they have in place, both in terms of 'immediate' or direct use, for healing/regenerative purposes and in terms of 'mediated' tourism use.
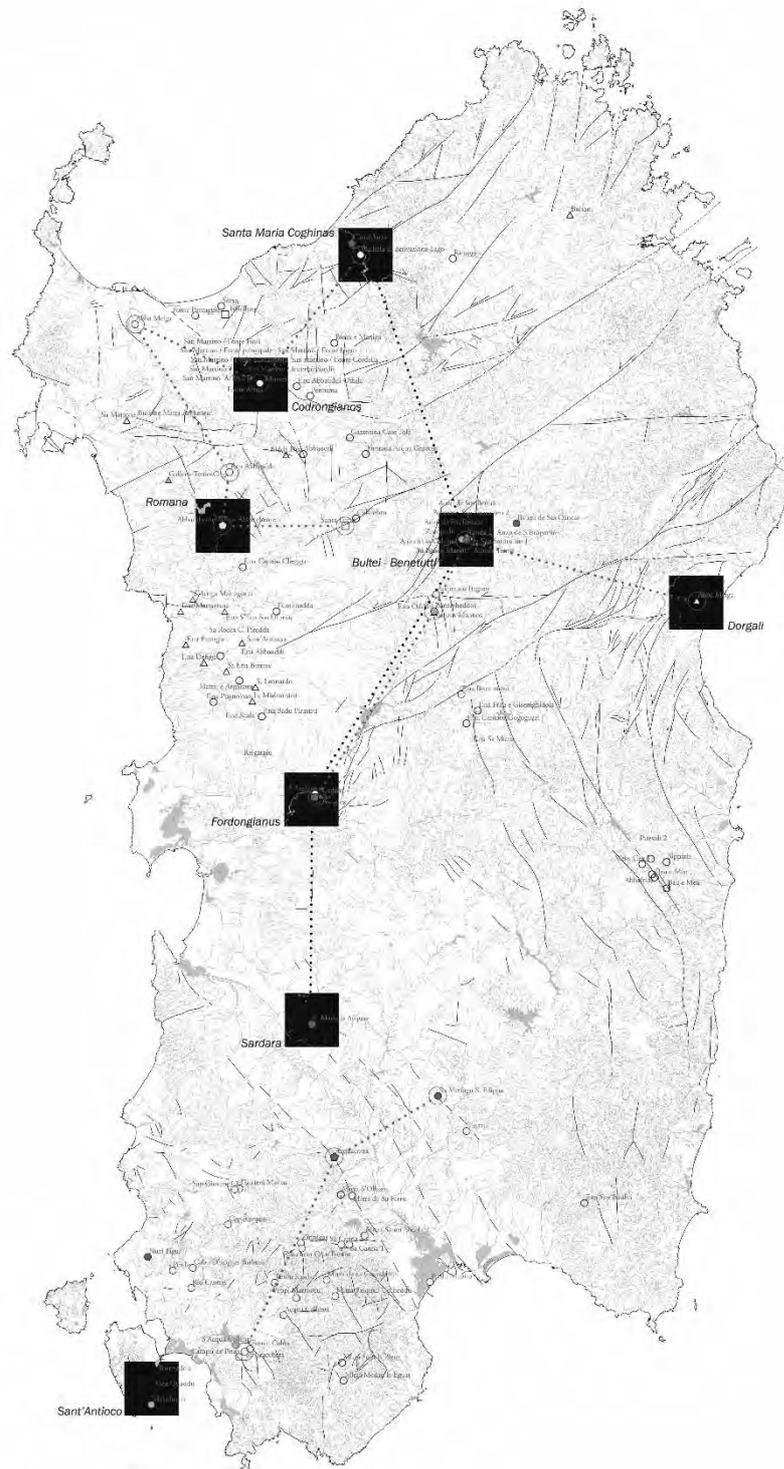
[fig.1] Map of the 'Thermal System' of Sardinia. Black squares are selected study cases; red to white dots are springs' temperature indicators, from hyper-thermal to cold. Elaborated by Pisano C., and the author.

3 case studies: Fordongianus, Dorgali, Benetutti

The thermal system of Sardinia is characterized by the different contexts in which the water resources are used, managed, and enjoyed through its different forms; however, not in all of these sites is the water treated as a common good to be taken care of, but rather as a commodity to be exploited in structures and in ways that are often unsuitable for forging relationships with the places and the communities. I chose to analyze three sites, characterized by quite different contexts, but which share a 'sensitive' management that ensures the respect of the thermal water: Fordongianus and its historical town of ancient origin, Dorgali and its surroundings of great environmental interest, and Benetutti and its widespread agricultural landscape.

In Fordongianus, the site more consolidated from the historical and urban point of view, the evidence of the Roman presence dates back to the late republican times and concerns both the exploitation of hot waters for therapeutic purposes and the strategic layout of the *castrum* (in order to contain the raids of inland populations). The Romans changed the original name of the town called Aquae Hypsitane into Forum Traiani; improved the road network; and built aqueducts, thermal baths, an amphitheater, and the bridge over the river Tirso. The urban fabric, nowadays, follows the track of the roman *castrum* based on *cardo* and *decumanus*, which we can find in the main roads of the town (Zucca 1986). Concerning the thermal resources there are two springs, one called 'del fegato' (the liver) and the other 'del bagno' (the bath): the Caddas spring, located on the left bank of the river Tirso, and Banzos, a smaller spring. Part of the water flows near the archaeological ruins of the Roman thermal complex of the imperial age. This first historical cultural meeting mode with a thermal resource is a valuable element, and it makes Fordongianus a unique site in the landscape of the island. A second thermal environment regards the thermal establishment complexed with an annexed hotel, where the thermal water is exclusively exploited for purposes related to health and well-being. But in a system so complex, the most interesting perspective is the presence of the free thermal baths of Is Bangius. In this case, the water originates from a real thermal canal, which where it meets with the river Tirso permits obtaining access to three comfortable, small pools: these are filled with warm water in a completely natural environment. These three small pools are housed in a structure built in 1800 on the left bank of the river and recently restored. To dive in these tanks it is possible to pay a few Euros to the Forum Traiani Cooperative that manages and takes care of them, looking after access, cleaning and maintenance.

In the Dorgali site is where the thermal spring of San Giovanni Su Anzu, known since Roman times, finds its first written record in the Vittorio Angius dictionary (Angius 1985) where is described a well and "a loggia with two small rooms." Witness-confirmed by a 1954 map in which it is still clearly visible, there was a small rectangular building constructed to support the thermal spring (Angius 1985). The main thermal building's evolution takes place, in fact, in the fifties of the twentieth century, when the population of the small town of Dorgali rediscovered this place that was for some time forgotten. With the economic and practical support of the inhabitants of Dorgali, it has been built onto with a new volume that expands the covered space of the two rooms available. The structure houses the tanks and the annexed dressing room. In the following years the structure was again abandoned until, in the early nineties, a man called Agostino, a willing shepherd born and raised in Dorgali, becomes the guardian of the *Lapia* (the tub), which then re-earns its function and becomes a symbol for the entire area, used by both local community and tourists, for both rehabilitative exercises and for simple moments of relaxation when returning from work or from the nearby beaches and main tourist destinations. This small thermal building is set in a unique landscape system, characterized both by natural elements, such as the Rio de Su Anzu (Su Anzu small river) that runs through the site and to the nearby cave of San Giovanni, embedded within the mountain system of Monte S'Osplile; and by anthropic factors, such as the Church of Giovanni (seventeenth century) and some country houses with typical local architecture. Certainly, the most significant environmental characteristic of the local environment is recognized in the karst system Su Anzu-Ispinigoli, which is connected to the water system.

Finally, in Benetutti, the landscape is dominated by the plain of San Saturnino (from the name of the church, which was inhabited and exploited since ancient times for the presence of thermal waters). The vast and fertile plain in which flowed the Riu Mannu and Tirso rivers has been, since ancient times, an ideal place to build a village, or perhaps a town, that took the name of Lesa. Currently the relative population, while occupying the plain, well understands the importance and value of the waters, which originally took the name from the acquae Lesitanae. The city must have assumed an important role in the Roman period, as Ptolemy in his writing remembers the effectiveness of its waters and enhanced therapeutic value (Fenu 2010). Today, the thermal area lies between the small towns of Benetutti and Bultei, and has some features that make it a unique place: in addition to traditional spa structures that exploit the healing properties of the water, the area is scattered with various outdoor natural tanks where it is possible to dive freely. The small pools, even if located in some cases within private grounds, are absolutely accessible and usable by everyone. The use of the tanks by the local community is managed accurately, although there are no written rules: in the tanks it is possible to soak no more than 15 minutes, and when they are already occupied (a fact easily recognizable by the use of hanging clothes in the bushes around the tanks) it is necessary to wait for your own turn at a safe distance, so as to not disturb the privacy and relaxation of the others. The tanks are characterized by varying states of preservation,

but in any case, they create from time to time unique 'environments' where one can have a thermal bath experience in close contact with the landscape: from the Roman *calidarium* evidence of an ancient past, to the stone tank immersed in the countryside, where tourists and locals give themselves a few minutes in close communion with nature, to the small tub inside a ruin where they bathe looking for free benefits.

[fig.2] A view of the thermal baths along the Tirso river in Fordongianus. Elaborated by the author.

[fig.3] A view of the small building for thermal baths in Dorgali. Elaborated by the author.

[fig.4] A view of one of the outdoor natural tubs in Benetutti. Elaborated by the author.

Thermal water as a common good

In each of these places, therefore, water is considered a common resource and is managed according to three different modes that reflect the physical-environmental characteristics of the reference landscape and the distribution of the thermal springs within this landscape. The three cases are characterized and presented according to the growing degree of freedom in which it is possible to use the water resource. In the case of Fordongianus, the two springs are located in the vicinity of an urban-historical context and affected by the larger tourist flows; the thermal resource, while respecting the concept of being common, has the need for a structured and organized management as in the case of a cooperative.

The Dorgali spring flows, instead, in a more 'cosy' and domestic landscape and interacts with the system of caves and the agricultural landscape. It is, therefore, a small system experienced by a cohesive community, and where the thermal resource can also be handled by one person, a representative of the values and wishes of the community. In Benetutti, the territory has a diffuse structure of which the many hot springs are substantial components. The thermal landscape is so complex and varied that its management is left free to be accomplished spontaneously, through practices originated from the experience: real social conventions not being imposed from above, 'from the outside'. These places are just a few examples of the varied and extensive landscape that characterizes the thermal landscape of the region; starting from the study of these contexts, it looks possible to think of an implementation of a Sardinian thermal system, based just on considering thermal water as a common good. Local dimension (specific place and time); global dimension (universal accessibility); the coexistence of nature and culture (tangible and intangible aspects), sharing the resource and its use in common by the community; social organization based on community and interpersonal solidarity; indifference to public or private property (a direct relationship between good and the entire community) are all distinctive elements of the commons that can easily be seen in the analysed study cases. In light of these considerations, it is clear that the thermal resource should not be treated as a simple object, a mere property, a commodity from which to profit until exhaustion, but as a common good recognising these features that already inherently are owned and proposing diversified and coherent systems of management that are able to include and foster the local practices which this paper has tried to highlight.

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Re-designing the incremental city in times of climate change
Design investigations into the consolidated riverbank settlements of Guayaquil, Ecuador
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In Guayaquil – Ecuador's main seaport – rapid urbanization occurred in ecologically fragile zones. The city is exemplary for witnessing how processes of grassroots mobilization and incremental consolidation are inextricably linked to the modification of natural systems in an estuarine landscape, today acknowledged as extremely vulnerable to climate change. Guayaquil is also demonstrative of how, in the setting of current urban (re)-development processes, the thinking of genuine community-based practices outside the ecological restructuring of the city, can lead to severe social and environmental side effects. This paper describes how urban riverbank communities living along the Estero Salado interact with the everyday cycles of local ecosystems. Rather than treating social and ecological dynamics in separate systems, a constructive interplay of local settlement dynamics and ecological systems is required to achieve long-term resilience for present and future generations living in Guayaquil's consolidated riverbank settlements.
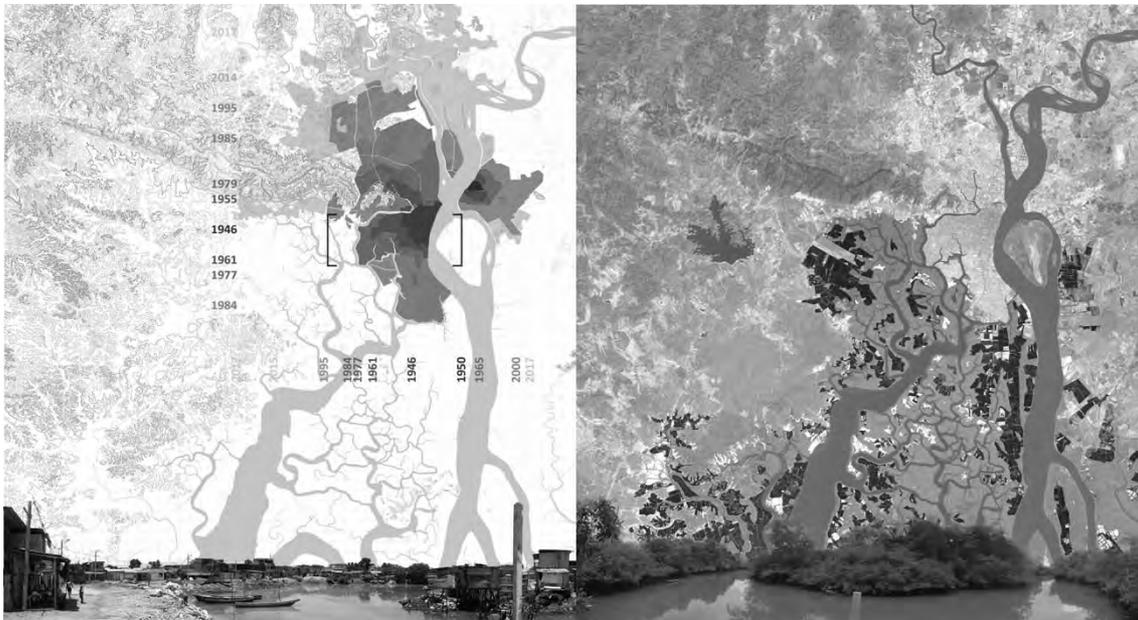
[**Fig. 1**] Rapid urbanization in a fragile territory. Left: Gulf of Guayaquil. A productive estuarine landscape of mangrove, large-scale aquaculture and fishing villages. Right: Urbanization in Guayaquil 1946-2017. Waves of urbanization in flood prone areas. Source: by author.

Introduction

With a large part of the world population residing in low elevation coastal zones, rising sea levels and a more frequent occurrence of disasters and other extreme climatic events are currently the most critical concern for sustainable urban development worldwide (McGranahan, 2007; UN-Habitat, 2016). This is particularly preoccupying for the Latin American region, where 66 of the 70 most densely populated cities are located in coastal areas (UN Habitat, 2012: 122).

This paper addresses the interrelated challenges of urbanization and climate-change adaptation in the estuarine city Guayaquil, Ecuador's largest city counting a population of 3.2 million in the metropolitan region (INEC, 2017). The city was founded at the confluence of the freshwater basins of the Daule and Babahoyo Rivers, and the maritime environment of the Estero Salado and the Guayas River Estuary. The river estuary is the most complex and productive ecosystem of the country, and the most biodiverse of the entire South Pacific (Twilley *et al.*, 2001). It covers more than 80 percent of the Ecuadorian mangroves, yet also experienced the adverse impacts of large-scale aquaculture (mainly shrimp farming) that have caused extensive reductions of protective mangrove forest and salt flats (Carvajal & Avala, 2007). Climate change has put the extreme fragile estuarine environment under even more pressure. Minor changes in temperature and salinity levels of the brackish waters have major effects on the protective mangrove system and the ecosystem

services on which Guayaquil's urban riverbank settlements and fishing villages in the Guayas River Estuary depend for their daily existence (CIIFEN, 2011; Hamilton *et al.*,2017).

Amidst the fragile estuarine environment, rapid urban growth led to the massive occupation of a number of flood prone areas: first through early extensions and densification of the colonial city burying natural estuaries, creeks and streams (1946-1954); followed by low-income families settling on swampy land in the city's first suburbs (1954-1984); and more recently by numerous mass-housing developments in the new remote periphery built on valley floors and alluvial plains of the northern basin (2010-ongoing). These various waves of urban development severely compromised natural floodplains, exposing a range of communities to a number of water-related problems such as flooding, water logging, saline intrusion and pollution, made worse by climate change. The city recurrently experienced the immediate consequences of a shifting climate (Espinoza, 2016)[1] and is considered one of the world's coastal cities at highest risk of damaging floods in relation to climate change (Hallegate *et al.*, 2013).

Despite a growing recognition of the urgency of climate response within national policy frameworks (SENPLADES, 2009; CIIFEN, 2010; MAE 2012; CAF, 2017), there are still large divides in dealing with the complexities of unpredictable climatic conditions and urban development. In Guayaquil, climate change is impacting on the entire territory: threatening urban tissues and putting the larger estuarine ecosystem under severe pressure. The urban estuarine landscape – however, is seldom treated in terms of its intertwined social and ecological realities.

Conventional practices in the port city have aimed to respond to the water-related issues by concentrating on hard engineering-based interventions such as the building of dikes, drainage infrastructure and the dredging of rivers. Such technocratic solutions generally focus on the instant and tangible outcomes and tend to overlook long-term resilience as well the social and ecological dimensions of a site. The difficulty to integrate natural and social processes into the design of water-based projects has become evident in recent urban projects for coastal redevelopment. After earlier waves of waterfront beautification through commercial promenades (Allán, 2011), most recent interventions have privileged the 'green-washing' of the urban riverbanks of the Estero Salado [Fig. 2]. The mega-project *Guayaquil Ecológico* (2010-ongoing) involves forced eviction and relocation of vulnerable communities living in consolidated riverbank settlements in the city's first *suburbios*. Not only does the development neglect existing socio-cultural practices and economic activities, it also disregards flood protection. As a consequence, a large distance remains between technical knowledge and the knowledge that communities have gathered and accumulated in the various decades of building their environment.

This paper aims to gain a better understanding of the genuine community-based practices of low-income urban riverbank settlements in relation to the broader condition of the urban landscape. It does so by inquiring into the incremental grassroots development (that acknowledge community-led initiatives and inhabitants' struggles for environmental improvement) against a backdrop of the larger social-ecological systems of the city. Grounded in extensive fieldwork and action-research carried out in Guayaquil between 2014 and 2017 and further supported by research-by-design[2], the study will touch upon the historical transformations, contemporary conditions and future challenges of the Estero Salado's living space. The study argues that for the development of site-sensitive and pro-active adaptation strategies to climate change, 'expert' knowledge on social-ecological systems should be intertwined with genuinely grounded experiential knowledge of local communities.

[**Fig. 2**] The implementation of the linear parks of *Guayaquil Ecológico* in *Suburbio*. *Suburbio* is a large urban area of low-income and largely self-built settlements that in three to five decades of community-led incremental development grew out as one of Guayaquil's main residential and most densely populated districts. Image source: by author.

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[1] In particular the phenomenon of *El Niño* impacted the country severely in particular in the years of 1982-1983, 1997-1998.
[2] The VLIR-UOS funded international summer school Designing Inclusion: co-producing ecological urbanism for inclusive urban transformation was held in Guayaquil in 2015, For more details see: www.designinginclusion.wordpress.com

A 360 perspective on climate change adaptation
Guayaquil's urban landscape is not merely constructed through its seasonal tides and natural flows of sediments, fresh and brackish waters: it is also experiential, constructed from its human settlements, lived experiences and cycles of daily practices that interact with the rhythms of the river estuary.
Estuarine living spaces now can only be understood within the full spectrum of their social and ecological cycles, as they are mutually inclusive processes (Mathur & da Cunha, 2009).
In order to give a more complete perspective on how to move towards action-oriented adaptation strategies for climate change in the complex incremental estuarine city of Guayaquil, the discourses that contributed to important developments for community-based and ecosystem-based understandings of the city are reviewed. It is argued that the 'social' in social-ecological approaches is generally depreciated and that climate-change can benefit from genuine community-based perspectives, which – in turn – need to be placed within the spatial constructs of the urban landscape.

A community-based approach: the city as built from its incremental grassroots
In the Latin American region, the majority of cities have been produced through self-building and community-led incremental development as the principal mode of urban development (Gilbert, 1996). The Latin American experience has been of significant importance in the evolution of the thinking of the city as generated from its users, in which an array of housing transformations contribute to the gradual improvement of the urban realm, generating a wider urban and ecological transition (García-Huidobro *et al.,* 2008; Saez-Giraldez *et al.*, 2010). This idea stems from pioneer urban studies on self-organization in 'squatter' settlements that aimed to respond to the pressing social and environmental concerns connected with urbanization at that time (Mangin, 1967; Matos Mar, 1977; Peattie, 1968; Turner, 1965). There has been a crucial shift towards user-based strategies and a more inclusive city making, turning from the eradication of 'squatter' settlements (as they were called back then), to the adoption of global strategies of *in-situ* settlements upgrading that are still widely applied today (Wakely & Riley, 2011).

However, community-driven process of urbanization has been twofold. Various decades of self-organized densification and incremental upgrading have turned 'squatter' settlements into amazingly consolidated neighbourhoods (Turner & Wakely, 2015). On the other hand, low-income communities have often settled in fragile landscapes (Dovey & Rahajo, 2010), where they domesticized nature out of a bare necessity and pushed the ecological urban frontiers outward (Swyngedouw, 1997). As a consequence, urban encroachment and invasion of the natural territory has also eroded ecosystems and the services it can provide for the city.

The discourse on community-based development has mainly privileged the housing unit and its residents' agency. In the face of climate change, here it is argued that a more profound understanding of the (inter) actions of communities with natural systems is inevitable in order to come up with inclusive adaptation strategies that can guarantee an ongoing use value of the now consolidated living environments. The ones who have invested and have been primarily in charge of the development, improvement and maintenance of the environment have mostly been the inhabitants themselves. Hence, the understanding of the city from the knowledge communities have of their environment – based upon their everyday life experiences and practices they develop – is crucial since such community-based knowledge *"complements the technical knowledge of any trained external professional"* (Hordijk, 1999, p.13).

An ecosystem-based approach: the city as social-ecological system
The global consequences of man-made interventions on the planet are becoming more visible with the effects felt more frequently (Foley *et al.,* 2005; Moser & Satterthwaite, 2008). Relatedly, the built and the natural environment have become enormously intertwined notions in which environmental concerns are increasingly understood in relation to the issues of urbanization (Meadows *et al.,* 1972; Brundtland *et al.,* 1987; Hardoy *et al.,* 1992; Allen & You, 2002). Social-ecological thinking and ecosystem-based approaches gained traction during the 1990s. Terms as *'ecological footprints'* and *'urban ecosystem services'* were coined showing how the land we actually occupy stretches far beyond city limits (Rees, 1992), and how urban dwellers highly depend on ecosystems within and beyond city borders (Bolund & Hunhammer, 1999). Cities are now seen as human-dominated ecosystems, that for their resilience depend on the complex adaptive systems formed through the interplay of 'social' and 'ecological' processes.

Most recently, important advancements have been in the field of urbanism, in which the notion of 'landscape architecture' and 'nature in the city' (McHarg, 1969) has developed towards renewed concepts of 'landscape (ecological) urbanism' (Waldheim, 2006; Mostafavi & Doherty, 2010; Steiner, 2011) and 'social-ecological urbanism' (Barthel *et al.,* 2013). These notions have significantly contributed to the ecosystem-based understanding of cities accomplishing a better adaptation of the built environment to natural processes (Spirn, 2014). They have a common tendency to move from 'hard' engineering solutions to 'soft' infrastructures (Shannon, 2013; Stokman & Jorg, 2013). Infrastructure often has a contested connotation

because of the uneven social-ecological relations they imply (Swyngedouw, 2004), but equally holds a 'mediating role' between nature and city that can work towards a landscape of more 'inclusive socio-ecological systems' (De Block, 2016; Miranda *et al.* 2016).

The 'social' in social-ecological systems
The thinking of the city based on social-ecological systems has typically foregrounded 'ecological' processes. It often remains unclear how urban ecosystem services are shaped through inhabitants' struggles (Miranda & Hordijk, 1998; Hordijk, 1999) and how they are distributed in the urban territory (Cook & Swyngedouw, 2012). This creates confusion about who the 'beneficiaries', 'local communities' and 'local resource users' truly are (Miranda *et al.*, 2016). In the light of climate change, the downplaying of the 'social' in social-ecological urban systems is further exacerbated. The challenges in realizing long-term adaptation are rarely discussed from the experiences, skills and practices of local communities (Hardoy & Pandiella, 2009), and adaptation measures allowing little or no input from people in low-income neighbourhoods (Moser *et al.* 2010; Moser & Satterthwaite, 2008). This can become very problematic: environmental sustainability often goes hand in hand with social unsustainable practices (Gould & Lewis, 2017; Strauch *et al.*, 2016).

A spatial view for re-calibrating the social-ecological
In the field of urbanism, the power of space – emphasizing the linkages and intertwined realities between the 'local' and broader questions of sustainability – is increasingly acknowledged (De Meulder *et al.* 2004). Climate change-related issues are strongly connected to the physical reality of a place. Yet, space and urban form are often neglected in studying the matters of both settlement upgrading (Mukhija, 2011) as much as in resilience and climate change adaptation studies (McGranahan, 2007). Both community-based and eco-system based adaptation have hardly made any connection to the designerly disciplines (Dhar & Khirfan, 2016).

Hence, a more complete picture of the incremental estuarine landscape is urgently needed to achieve a deeper understanding of the environment and the ecosystem not merely in its organizational structures but particularly in terms of its spatial qualities and physical realities that work across spatial scales and managerial boundaries. This requires not only a fundamental shift in our thinking; it would also require a rigorous update of the forms in which we represent the spatial conditions and relations of the territory ranging from daily practices of low-income communities to larger territorial transformations.

Mapping the incremental estuarine city
The need for multiple representations to establish an anti-reductionist view that can truly work through multiple scales and across disciplines is urgently required (Desimini & Waldheim, 2016). This study revisits pioneering methods that have documented urban transformations through 'grounded' methods based on fieldwork and looks into various ways to read, visualize and communicate the genuine processes of community-led transformations in relation to the larger social-ecological systems of the incremental estuarine city of Guayaquil.

To adequately tackle multi-dimensional issues of climate change, a reassessment is required for consolidated low-income riverbank settlements in relation to different social and spatial scales. This includes an understanding of the dwelling evolution itself and a reflection on neighborhood dynamics (Ward, Jiménez & Di Virgilio, 2015; Caminos, Turner & Steffian, 1969), as well as a concern for the broader ecological setting and territorial transformation processes (Shannon *et al*, 2008). Furthermore, such 'wicked' research problems embedded in highly complex and rapidly changing urban environments can only be understood through direct real-life experiences, which makes intensive fieldwork and research-by-design essential components of this project. The study develops a grounded critical approach rooted in both social sciences and designerly-based methodologies. It innovatively combines: (1) **urban tissue samples** relating to the environmental level with particular focus on morphology and typology in order to develop a thick description of incremental transformation processes of the natural and built environment; (2) a zoom-in of the tissue sample through **intensive case studies** relating to the household dynamics and home transformation processes; (3) a zoom-out of the tissue sample through a **sectional reading** and **research-by-design** in which urban design scenarios were used as a tool to interact with inhabitants about their aspirations and to envision alternative urban futures in the light of climatic and environmental issues.

A multi-dimensional reading of urban dwelling environments
When community-based dynamics starting to be increasingly acknowledged in urban design (Koch, 1970), scholars (both local and international) also started to search for new ways of reading and representing social and material relations in the built environment[3]. Various tailored techniques were developed that were

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[3] MIT's research group 'Urban Settlements in Developing Countries' has become widely known for the spatial documentation of early established settlement. Among the scholars from the region who developed groundbreaking studies on settlement transformation were anthropologist José Matos Mar, sociologist and urban planner Gustavo Riofrío, architect Juan Tokeshi and DESCO.

grounded in a number of socio-morphological enquiries with input from various disciplines. In *Urban Dwelling Environments*, the MIT research group 'Urban Settlements in Developing Countries' developed an innovative framework for reading and comparing urban territories across the globe (Caminos, Turner & Steffian, 1969). The analysis emphasized multiple levels in its analysis – working between 'localities', 'locality segments' (shown in 400m by 400m samples), blocks and dwelling groups – and was based on studies that included fieldwork carried out in five cities in four different countries (almost all located in the Latin American region)[4]. While the pioneering study was groundbreaking at its time in the sense that it merged social and material measures, the 'social' remained limited to observational and statistical data. The rigid framework might have benefitted from additional layers in order to grasp the more fluid constructs of the dynamic and rapidly changing environment.

More recently, the Latin American Housing Network (LAHN)[5] proposed the *Intensive Case Study Methodology* deploying various techniques from multiple disciplines for scrutiny into household dynamics and housing transformation processes in consolidated low-income settlements (Ward, Jiménez & Di Virgilio, 2015). Making mention of similar techniques used in *Urban Dwelling Environments*, the LAHN method involves a detailed documentation of socio-spatial transformation processes of individual dwellings and includes reflections on the macro (community) level that adds specificity to larger urbanization trends. The method yet does not critically analyze the morphological configuration of the environmental level in terms of a spatial continuation.

Looking at MIT's framework of analysis with the knowledge of today, it can be questioned to what extent the systematic and rigid format of documentation is still valid for dealing with increased complexities in times of climate change. The strong spatial representation – nevertheless, still holds potential for exposing emerging forms of urbanism, and allows for uncovering additional layers of complex composition and processes read from the ground level up. They can give insight in larger processes that otherwise would not have been grasped (Shannon, 2008).

The key impact of the seminal *Urban Dwelling Environments* is shown by the influence it had in the decades after publication: it strongly encouraged supporters of socio-spatial approaches elsewhere (Driant & Riofrío, 1987; Loeckx & Vermeulen, 1986; Rybczynski et al, 1984) and has ongoing mention in both the field of housing and urbanism studies (Shannon, 2008; Shannon & Gosseye, 2009; Ward *et al.*, 2015). Their innovative combination holds the potential for a multi-dimensional reading of territories of increased complexities: materializing and embedding the voices of inhabitants to landscape constructs.
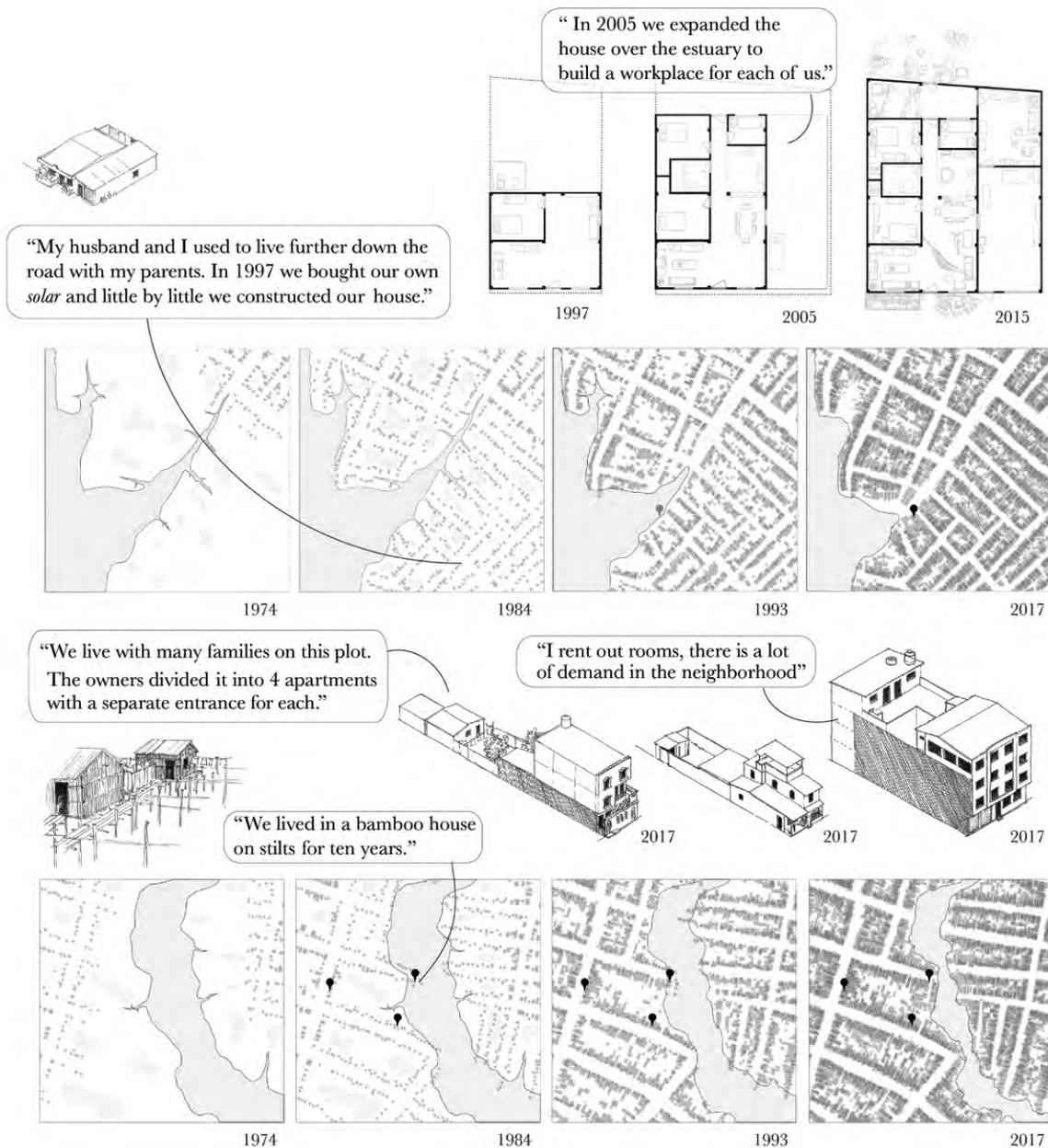

[**Fig. 3**] Suburbio. Image source: by author.

[4] The studied sites in Urban Dwelling Environments are: Boston - USA, Lima – Peru, Arequipa - Peru, Ciudad Guayana - Venezuela, Medellín – Colombia.
[5] https://www.lahn.utexas.org/publications.html

Suburbio: incremental city amidst estuary and river

An exploration into the past, present and future of Estero Salado's consolidated riverbank neighbourhoods

In order to deal with emerging social and ecological challenges, it is crucial to understand the historical layers of the incremental estuarine city, engage in its present and en-visioning alternative urban futures. As a 70 percent self-built city, extensive parts of Guayaquil are shaped through self-organized construction. Between 1954 and 1980, the tidal marshy areas between the Guayas River, the colonial core and the Estero Salado were soon filled in after the first *suburbios* expanded the urban frontier into the estuary. After living many years on stilts, bamboo homes were gradually replaced and consolidated settlements flourished in a process of room-by-room additions followed by gradual land infill, piecemeal regularizations and waves of upgrading by local authorities and governments (Moser, 1982; Moser, 2009). As an inverted practice of urbanism, the built fabric and public spaces emerged incrementally over various decades, crafted by various generations and through a multitude of design decisions. Three to five decades of self-organized densification and service provision turned incipient 'squatter' living spaces into amazingly consolidated neighborhoods.


[Fig. 3] Intensive case studies and tissue samples of *Puntilla del Salado* and *Batallón del Suburbio*. Source: by author.

Historical transformation

In the more than four decades of community-led incremental development, Guayaquil's first established self-built settlements forming the district of Suburbio, experienced radical transformation in terms of both their spatial and social environment. The now consolidated low-income neighbourhoods articulate an array of dwelling typologies and spatial arrangements by means of home subdivisions and extensions to accommodate younger generations. Pioneer urban dwellers continue to live in their self-built homes and pioneer homes have an ongoing use value for second and third generation users, who frequently share living spaces with their parents or in-laws. In addition, Suburbio's incremental tissue absorbed different neighborhood facilities and features a variety of lot dimensions, block typologies and open spaces. Densification processes have also put the incremental tissue to the test as overcrowding might overshadow inclusive arrangements for multi-family households and the urbanization of estuaries and disappearance of protective mangroves have reduced natural capacities for flood protection.

Riverbank encroachment materialized in various ways. Along the wider estuaries and creeks of *Batallón del Suburbio*, many 2nd generations were still able to buy an 'empty' lot quite late in the urbanization process, coinciding with the extension of the main street and infill of the estuary. While Rosita (41), who was born in *Suburbio*, could still obtain a 'home of one's own' during the late 1990s, for the future this will become increasingly challenging. *"When my husband and I were newly weds, there was still the opportunity to buy a lot. For my daughters this will be difficult. In the suburbs there are no empty lots and authorities no longer allow invasions into the estuaries."* Along the narrow estuaries of *Puntilla del Salado* space soon ran out and home subdivisions and rented spaces are more frequently common in this area. The communities see the Estero Salado estuary as an important asset (for recreation, climatic comfort, natural experiences, transportation and food production), and have started to realize that ongoing encroachment on the water is no longer an option.

Contemporary challenges
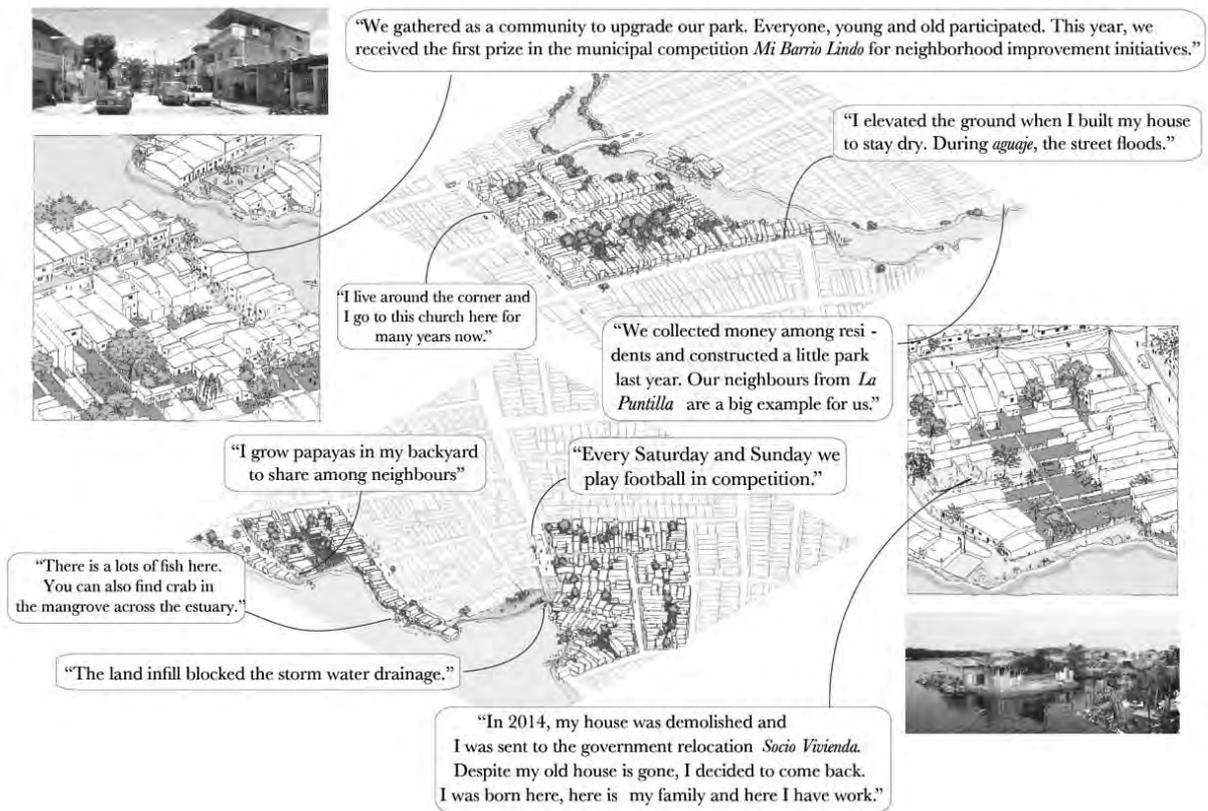
[Fig. 4] Tissue samples of *Puntilla del Salado* and *Batallón del Suburbio*. Source: by author.

While these 'first suburbs' today accommodate a major part of the total metropolitan population,[6] they also separated the estuary from the river: blocking and clogging its natural overflow. Open and green spaces gradually dissolved through the pressure for new residential spaces and infrastructures dilapidate and need urgent retrofitting for the increased population density. Moreover, the burying of natural creeks and estuaries, the gradual transformation of green spaces and permeable surfaces into concrete and asphalt, caused that water is now reclaiming its space in a threatening way, which is only made worse by climate change.

The impacts of a shifting climate are increasingly felt and differ from site to site along the studied riverbank communities of the Estero Salado. In the neighborhood of *Puntilla del Salado*, where encroachment has led to the *estrangulamiento* of the estuary, water during comes in and delays in finding its way back to the larger estuary during *aguaje* (spring tide). People have often built their homes on elevated terrains, which they filled with rubble and rocks. Yet, during the rainy season when *aguaje* coincides with extreme rainfall, problems of flooding and waterlogging are particularly felt at this point. Along the wider estuary, the problems of *aguajes* are less intense. However, waterlogging occurs due to the blocking of storm water drainage.

Many fishermen residing in Suburbio's riverbank settlements trade their goods within their community or at fish markets nearby. They depend on the estuary for their daily subsistence. The water is an important resource and inhabitants have become increasingly aware of the urgency of taking care of it. Strongly organized communities have been actively engaged in actions for ongoing improvement for their neighborhood and its natural environment. People have gathered to keep the estuary clean and prevent the further cutting of mangroves through *mingas*. The community of *Puntilla del Salado* in particular even received a distinction from the municipality for their self-managed upgrading initiatives [Fig. 4].

Future imaginaries
The Summer School *Designing Inclusion* was held in Guayaquil in July 2015, stepping into a momentum where the implementation of the ministry-led 40-km long linear park caused friction among inhabitants of consolidated riverbank settlements, who were threatened with eviction and relocations under prejudicial conditions. The design workshops looked into the challenges of how the proclaimed 'ecological' restructuring of the city could be advanced according to socially acceptable standard voicing communities' aspirations while taking measures to counter climate change effects.

Through the development of design scenarios various questions were raised – How could the incremental tissue be rehabilitated in order to take up emerging social and ecological challenge, guaranteeing an ongoing use value of these older and well-located settlements?   How can ongoing waterfront transformation be re-imagined to create accessible public spaces, harness pollution, serve as flood protection while taking into account existing socio-cultural practices and assets of the natural landscape? A combination of tactics and strategies were proposed working across the levels of the incremental tissue, waterfront and urban landscape. They included ideas for re-habilitating dwelling structures, facilitating incremental growth, strengthening community networks, creating vibrant public spaces, re-mangroving shores and harnessing pollution, cleaning water and creating spongy landscapes and open parks [Fig. 5].

After the intensive two-week workshop, community-based organizations as well as local governments took up knowledge and outputs co-produced among various stakeholders during the workshop. Residents of Suburbio and community leaders eloquently mentioned the need for ongoing improvement of their living spaces and the importance of presenting feasible alternatives to the large-scale capital-intensive waterfront makeover, recognizing design as an effective tool through which they could eventually get their needs and demands met. They pro-actively used the workshop materials and outcomes in negotiating alternatives with local authorities claiming a more inclusive and transparent project development and implementation process, in which they stood by the premise that their main demand was to be able to 'stay at their homes'.

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[6] The contemporary metropolitan region of Guayaquil accounts for approximately 3,2 million inhabitants. The urban districts or 'first suburbs' *Suburbio* and *Guasmo* – formed between 1954- and 1984 respectively – together accommodate close to 1.2 million inhabitants that accounts for 38% of the total urban population (INEC, 2017). These districts, being largely self-built during the first waves of city expansion, can be characterized as 'innerburbs' (Ward, 2015).

[Fig. 5] A vision for the Estero Salado living spaces. Source: image by Jasmien Paridaens, © Designing Inclusion, 2015

Conclusion

Man-made interventions in the larger estuarine landscape of the Estero Salado and the Guayas River Estuary (e.g. massive deforestation and large-scale aquaculture) as well as climate-change induced ecological shifts result in an array of different impacts on the neighborhood and household level in Estero Salado's consolidated riverbank settlements. Actions by riverbank communities on the other hand (e.g. community-led re-mangroving of riverbanks versus urban encroachment on water) have an impact on larger ecological cycles in the Guayas River Estuary.

Along the Estero Salado estuary, the longstanding practices of incremental city-making provide insight into the social and ecological dynamics of consolidated low-income settlements threatened by climate change. Low-income riverbank settlements have both carefully interacted with the landscape and the estuary benefitting from its services (e.g. for local food production, artisanal fisheries and riverfront markets) and been at odds with natural cycles, building over floodplains, and burying creeks clogging the natural water system and cutting off connections between the estuary and the river. Community-driven developments, therefore, should be understood as interconnected with larger territorial transformations. Community-based practices recognized as the vital basis for achieving long-term resilience, but they will need to be expanded for addressing the measure of risk that is yet to come (Moser *et al.* 2010). Actions for climate change adaptation should look beyond the particular site where impacts are felt. Large-scale interventions on the other hand, should never disregard community-based initiatives. Research-by-design and action research has provided important insights into the complex issues of incremental consolidation of estuarine living spaces through the lens of a majority of city-makers involved in crafting the urban environment linking academic research findings with community-based knowledge in order to respond to the environmental vulnerable urban condition. Now, they will have to be extended in order to investigate how the incremental grassroots development can interplay with the long-term amplitudes of ecological systems.

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Historicizing Ecological Urbanism: Paul Duvigneaud, the Brussels Agglomeration and the influence of ecology on urbanism (1970-2016)

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Today, design proposals like 'Metropolitan Landscapes' and 'Metabolism of the Brussels Region' aim at fusing natural and social sciences to restore the equilibrium between social and natural systems, and in extenso the urban and natural environment. However, this socio-ecological approach, typical of ecological urbanism, is often stripped down to a biological perspective. Metabolic schemes of city systems demonstrate the current course taken by the design field, by stressing that the city is a natural organism, constructed through biological flows rather than existing spaces and people. In this paper, I will invoke a historical reading of a biological approach towards the city by retracing the linkages between ecologists and planners in Brussels. Using the case of Paul Duvigneaud and the Brussels Agglomeration (1970-1980), I claim that ecology is used to both overcome political opposition and incorporate a specific (political) agenda. By performing a close reading of archival material, this historical analysis raises attention for (contested) socio-political motives and forces, thus leading to a reconsideration of the way in which ecology and design is related to political and social contexts.

Introduction

In 2015 and 2016 *Bruxelles Environnement* - the governmental institution responsible for environment and energy in the Brussels region - commissioned two mayor research and design studies that should guide the future planning methods of the regional government of Brussels: first, a metabolism study of the material flows inside of the city's boundaries, and second, a design study on the metropolitan landscapes at the fringes of the city.

The first study was published as *Metabolism of the Brussels Region: identification of flows, actors and economic activities in the territory and avenues for reflection on the optimization of resources* (Bruxelles Environnement, 2015), authored by a consortium of ECORES, ICEDD and BATir. In this systemic and quantitative research, material and energy flows in the city were calculated as a way of potentially using this information in a switch from a 'linear' to a 'circular' economy, one of the objectives of the recently elected regional government. In the schemes developed by the authors of the study, the problematic of large in- and outflows is addressed, critiquing that resources aren't re-used or remain in the capital for a long time. The authors argue that a switch to a more circular use of resources would make the "society capable of (re)generating the material and energy resources it needs to prosper by ensuring an acceptable and equitable standard of living for all" (p. 15). This study could be a point of departure for the "co-construction of the operationalization of an ambitious and pragmatic politics of circular economy" (p. 15), while it objectifies "the circularization of the fluxes in the region of Brussels". The research incorporates three major parts: one to analyse the metabolic 'balance', and one part where twelve flows of energy and material are evaluated on their "potential" for "adaptation" (p. 150). In a third part, five flows are chosen and further investigated.

One year later, the study *Metropolitan Landscapes. Open space as a base for development* (Mabilde *et al.*, 2016) was presented to the public. Different from the metabolism study, this publication has a spatial agenda backed up by qualitative design research. Commissioned by a consortium of the Flemish and Brussels Chief Architects, Bruxelles Environnement and other 'urban' and 'open space' planning administrations, four design teams formulated proposals exploring the potential of a landscape lens within the context of the 'horizontal metropolis' of Brussels, defined by a common urbanity while being territorially and administratively splintered (De Block *et al.*, 2018). Meant to jumpstart a conversation about a shared spatial vision for Brussels, the publication encompasses research by design exploring 'the capacity of open space to take up an active and structuring role in the qualitative development of the urban space' of Brussels and its environment (Mabilde *et al.*, 2016, p. 11). Focusing on open landscape as a new paradigm for urbanization, Metropolitan Landscapes aims at evading competing claims and real-estate pressures associated with high-density urban projects, thus unlocking the terrain for experiment and dialogue within the tense context of Brussels. The open space entry surfs the wave of a renewed interest in an ecosystem approach as antidote for the disruptive excesses of the industrial, capitalist society and political appropriation strategies (Corijn, Loeckx and Persyn, 2016, p. 172). What constitutes a "metropolitan landscape" is defined by three criteria, of which systemic value is one. 'Systemic value' is defined as the importance of an area in the functioning of "systems" on the metropolitan scale, by which the writers allude mostly to an area's importance within metropolitan environmental systems – ecological networks, ecosystem services, etc. Being an extension of earlier work of Bureau Bas Smets in the exhibition and publication *Brussels 2040* (Dejemeppe and Périlleux, 2012), where the future development of Brussels was grounded on the ecological, topographical and hydrographical lay-out of the city, Metropolitan Landscapes again uses these structures as the fundamental anchor of the urban project (De Block *et al.*, 2018).

These two projects are exemplary of the new directions urban politics and governance in the planning field are taking today. Environmental concerns form the basis of new urban questions that become the centerpiece of planning literature and

government action. Urban growth is being articulated with "discourses on environment, nature and sustainability" (Keil and Graham, 1998), but the articulation of these new urban questions "herald a troubling reduction of the urban agenda within a functionalist framework" (Call U&U 2018). This functionalist framework stems from a wish to integrate both social and natural sciences to create an equilibrium between human and natural environments (Gandy, 2008, 2015), which is then "stripped down to a biological perspective, assuming that a just and sustainable social structure will emerge from the enhancement of natural formation processes" (De Block, 2016, p. 377). Elaborating on the influence of ecological ideas on landscape architecture, Hausladen (2014) similarly said that ecology "can serve as the basis of the production of instrumental knowledge", but it can never be sufficient (p. 127). These issues have been addressed in current research on Ecological Urbanism (Adams, 2014a), Landscape Urbanism (Thompson, 2012), Green Infrastructure (De Block, 2015, 2016), Resilient Urbanism (Adams, 2014b, 2015), but also Landscape Ecology (Kirchhoff, Trepl and Vicenzotti, 2013). What remains a constant in these studies, is that science is part of the sort of new urban *dispositif*, and it is urbanism as a way of governing and thinking the city that is influenced by sciences like ecology and biology (Braun, 2014). Koolhaas raised attention to this problem of scientific "sophistication", which "hides major symptoms of cowardice centered on the simple question of taking positions", for him "most basic action in making the city" (Koolhaas, 1995).

Recent research in anthropology, Science and Technology Studies (STS), (landscape) architectural history and Urban Political Ecology (UPE) has further investigated this interplay between science, government, politics and urbanism. Notable examples are the work of Paul Rabinow, who brilliantly captured the rise of urbanism and its connections with biology, sociology, architecture, and the broader socio-political context in France (Rabinow, 1989). Peder Anker, more recently, went into more detail as what was the influence of ecological science on the Bauhaus school, thus opening the way for a broader research agenda on how ecology and design where mutually interlinked (Anker, 2010). However, it was Matthew Gandy who wrote an explorative paper "from urban ecology to ecological urbanism", where he gave a concise overview of ecological science and the "deployment of ecological metaphors in urban design and related fields" (Gandy, 2015). Particularly, the work of Jens Lachmund on postwar Berlin shows how ecological scientist like Herbert Sukopp influenced urban politics in the cold war city, effectively creating a 'biotope-protection regime' as a specific nature regime (Escobar, 1999), that still has its offshoots in today's policy (Lachmund, 2013). It was also Lachmund who published a bookchapter in the field of STS on Brussel-based Paul Duvigneaud and his interest in the city ecosystem (Lachmund, 2017). On the other end of the spectrum, in landscape architectural history, David Haney showed an alternative German modernity by using landscape architect Leberecht Migge as an example of a designer who incorporated biology and ecology into his practice (Haney, 2010).

My research aims at extending this historiography and the resulting critique by invoking a historical reading of ecological urbanism as a hybrid practice of urbanism that engaged with ecological issues, or used ecology as a framework and basis for urban design, focusing on Brussels in the twentieth century. The goal is to give a reflection on today's design sciences and planning practices (like those in Brussels) through a Foucauldian 'history of the present' (Garland, 2014). This paper therefore offers a glimpse of the broader PhD-research that tries to interlink the sciences of biology, ecology and engineering to urbanism and landscape architecture, as a way of retracing the history of urbanism and landscape architecture by mapping the influences from other scientific fields. These links are studied through a case study research spanning the twentieth century in Brussels, which focuses on (1) Jean Massart and Louis Van der Swaelmen (1900-1929), (2) René Pechère and the Green Plan (1935-1960), and (3) Paul Duvigneaud and the Brussels Agglomeration (1970-1990). As we have seen, ecological urban practices are strong in contemporary Brussels, and this does not come out of the blue. A strong 'ecological' school at the *Université Libre de Bruxelles* (ULB), from biologist Jean Massart (1865 - 1925) to ecologist Paul Duvigneaud (1913 - 1991) influenced the practice of landscape architects like Louis Van der Swaelmen (1883 - 1929), as well the planning practice in the Brussels Agglomeration (1970s) (Notteboom and Danneels, 2016). Also, a person like landscape architect René Pechère (1908 - 2002), who was very influential in Brussels Agglomeration and Belgian planning politics in the mid-twentieth century, is a central figure. As a landscape architect involved in the 'greening' of the Belgian highway, he was open to the influence of engineering sciences. By mixing his expertise as a horticulturalist and garden architect with the utilitarian discourses of the engineers of the ministry of Public Works, he envisioned a Belgian 'Garden territory' that fused infrastructure and landscape development in one scheme (Danneels, Notteboom and De Block, 2018). In all three cases, Brussels became a sort of testing ground of the planning ideas that came about by the interaction of the sciences and urbanism/landscape architecture.

In this paper I will only dig deeper in the case of ecologist Paul Duvigneaud and his influence on the planning policies of the Brussels Agglomeration. I argue that the functionalist urban agenda is partly a consequence of the use of ecological models in planning practices from the seventies onwards. Still, this apparent lack of ideological rhetoric doesn't imply that political ideas are absent from the ecological practices. By looking closely at the work of Duvigneaud, I firstly show that his scientific reasoning was a way of influencing the government to adopt policies that were also ideologically inspired. In that sense, ecological science is used to rhetorically de-politicize the urban agenda (Swyngedouw, 2010), while actually incorporating a specific agenda into the planning policy. Secondly, I want to demonstrate that ecology is used to *overcome*

political opposition. By structuring the city-territory as an ecological system, existing political boundaries are circumvented to make way for a new urban agenda that rethinks the existing, pathological state of the city.

From Forest to City: the ecosystem approach

Paul Duvigneaud was formed at the ULB as a botanist and chemist, and finished his PhD in botanical sciences in 1940, just before the start of the Second World War (Pierart and Duvigneaud, 1992). Until 1949, Duvigneaud would be involved in research in the Belgian Congo, and specialize in plant sociology and lichenology. Although his work on the Congo continued into the 1950s, he shifted his attention to European ecology in the fifties. He became a professor at the ULB in 1952. From 1959 onwards, Duvigneaud started to focus on 'fundamental ecology', or systems ecology as a framework for his studies. He founded the *Centre national d'écologie Générale* (CNEG), and established in 1963 an experimental station of Virelles-Blaimont, and later another one on the site of Mirwart, in the Belgian Ardennes (Pierart and Duvigneaud, 1992). The research was conducted in the light of the International Biological Program (1964-1974), where Duvigneaud was the director of the Belgian section (Duvigneaud and Kestemont, 1977). The research center measured all incoming and outcoming biomass and energy flows on site, on which Duvigneaud and his colleagues published widely (Duvigneaud, 1971). In his studies on the site of the Walloon community of Mirwart, however, he did not only consider the 'natural' landscape. He also analyzed the 'rural ecosystem', thinking the Ardennes estate as an *agroécosysteme ferme* (Duvigneaud *et al.*, 1977). Incorporating human activity and buildings in the analyses, he described how heating the farm, for example, made it necessary to import energy from nearby forest systems. Additionally, some flows where 'exported', in the form of meat or milk, while others where 'rejected', like dung or urine (Duvigneaud *et al.*, 1977, p. 482). Rhetorically, Duvigneaud remained an ecologist, and even when he incorporated human activity, his language effectively systemized the presence of these cultural activities. Duvigneaud became particularly well known for his visual depictions of the ecosystem [fig. 1 & 2]. By a method of the cross-section, he showed how flows of energy traveled through the system, effectively constructing a new way of mapping territorial relationships. Throughout his career, these drawings gained in both complexity and graphical quality, making them an excellent reference for teaching and vulgarizing ecological knowledge.[1]
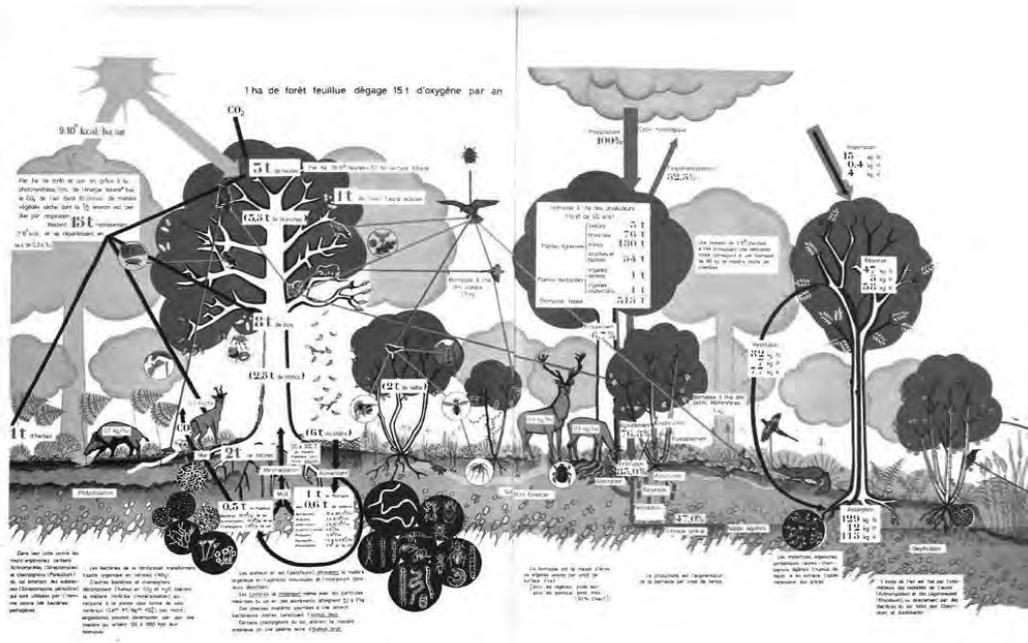

[fig. 1] Schematic representation of the forest ecosystem in Upper Belgium, from Duvigneaud, P. (1980) *La Synthèse Ecologiqique*, planche 11.

Duvigneaud got interested in ecosystem theory by reading the book *Fundamentals of Ecology* by E.P. Odum (1953) (Meerts and Duvigneaud, 2013, p. 29). What is particular of the way Eugene Odum looked at ecosystems, is that he saw them as

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[1] In a lecture of Pierre Meerts, one of Duvigneaud's successors, Meerts lamented the fact that these kinds of drawings are not made anymore. Making them both complex and accessible, Meerts said that both experts and non-experts could learn from them. Indeed, the constant reproduction of the scheme of the Brussels metabolism shows how strong these images remain fixed in non-ecologist's minds to understand how an urban ecosystem works.

organisms (Hausladen, 2014, p. 114). This has some implications. First, the relation between the ecosystem and its components is similar to the relation between organism and organs. Second, ecosystems self-maintain and self-reproduce. Thirdly, ecosystems grow like organisms, so they have both a juvenile and a mature state, which shows that Odum had a teleological view on the development of the ecosystem. Duvigneaud adhered to this theory, as he for example stated that man, strangely enough, always tried to keep ecosystems at a "juvenile state" by for example single-crop agriculture (Duvigneaud, 1980, p. 104). An in-between state of the ecosystem, where the ecosystem is more developed but not 'mature', (an "*ecosystème de compromise*") would be more interesting for obvious ecological reasons. These Odumian ideas are long outdated, but they remain relevant, as other fields than ecology itself often adopt them in a "metaphysical idealization of scientific knowledge", in the "aspiration to explain not only natural phenomena but the whole world through science", which leads to a "scientistic naturalism" which is "highly problematic and even dangerous from a philosophical point of view" (Hausladen, 2014, p.114). The fact that Duvigneaud shared this teleological view of the Odumian theory is therefore relevant, as he tended towards this holistic experiment of understanding the whole world through ecological knowledge.

From the 1970s onwards, Duvigneaud turned his attention, almost unsurprisingly, towards the city (Duvigneaud, 1974). Probably his incorporation of human activity in the Ardennes studies of the forest ecosystems made him realize that his hometown, Brussels, was a worthy place for studying the functioning of the ecosystem. He called this the *ecosystème 'urbs'*, opposed to the *ecosystème 'silva'* (forest ecosystem). It is important to realize that Duvigneaud thought of the city *as* an ecosystem, as opposed of *being like* an ecosystem (Golubiewski, 2012). The comparison is not metaphorical, but literal. These studies had an explicit goal: influencing urbanization processes. In a time of "increasing regionalisation"[2] the ecological laboratory of the ULB "could not be disinterested in the urban ecosystem of Brussels". Therefore, a "study centre for the urban environment" was created (Duvigneaud, 1974, p. 7). Only if ecologists had something to say about the planning policy could there be the possibility of creating a "serious" regional plan. Duvigneaud clearly searched for a place at the table of planning services, engaging ecologist in the governmental apparatus of the Brussels Agglomeration that was recently formed.
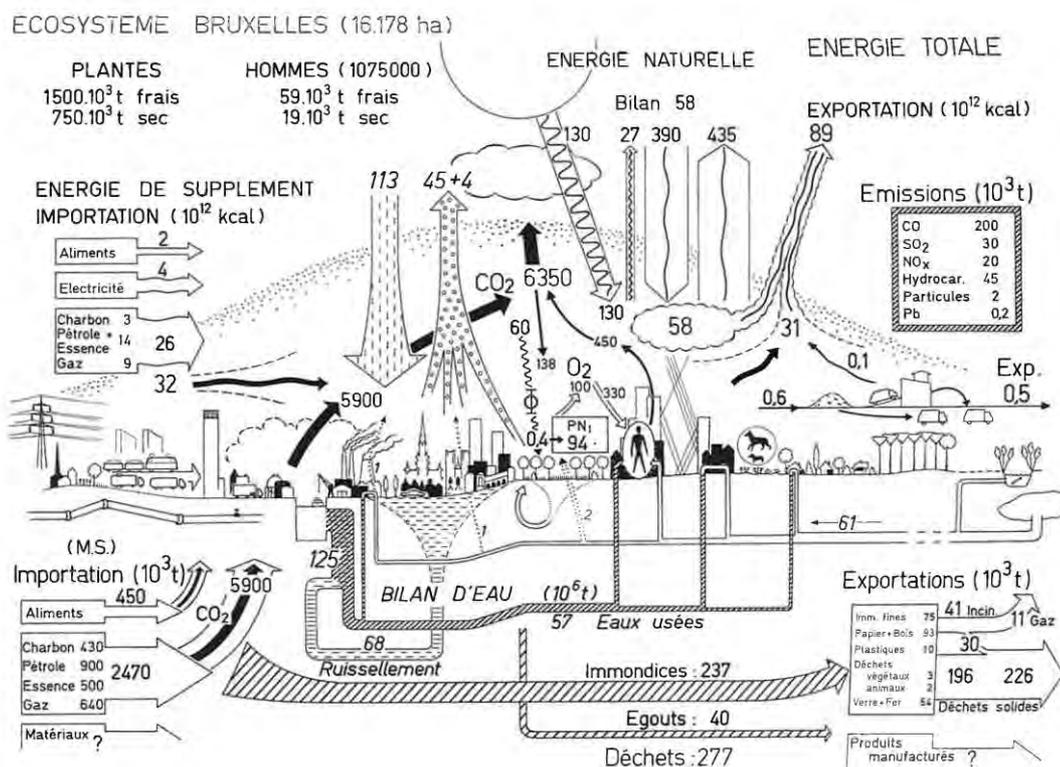

[fig. 2] Metabolism of the Brussels Ecosystem, from Duvigneaud, P. and Denaeyer-De Smet, S. (1977) 'L'Ecosystème urbs : l'écosystème urbain Bruxellois', p. 589.

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[2] Belgian political and governmental history is characterized by a continues struggle of regional entities to become more independent from the national scale. Both Flemish (Dutch-speaking) and Walloon (French-speaking) parts of the country gained territorial and cultural independency throughout the postwar period. However, Brussels, as a bilingual city, long remained without an independent status. The Brussels Agglomeration (1971-1989) was an independent regional government (responsible for environment and spatial planning, among others), but the national government still had a Ministry for Brussels Issues, and the region remained weak until the birth of the Brussels Capital Region in 1989 (see Vaesen, 2008).

Systemizing Brussels and forming the agglomeration

Duvigneaud and his colleagues published widely on the *ecosystème 'urbs'*. What made this ecosystem different is the predominance of human activity, or *anthropocénose*. Additionaly, there are the *biocénoses reliques*, or the original biological communities, and the *biocénoses urbanophiles*, biological communities for which the urban environment is beneficial and necessary (p. 13). The 'weight', or 'biomass' of these different communities was weighed in tons, and displayed on a cross-section like that of the forest ecosystem [fig. 2]. Additionaly, the *bilan d'énergie* or energy balance was calculated in both natural energy (like sunlight) and subsidiary energy (like carbon). Because of the great amount of subsidiary energy imported into the city, the amount of flows out of the city where high as well. To understand these flows, Duvigneaud stated that it was important to study the subs-systems of the city, outlining a future research agenda. In an early image, Duvigneaud exemplified these differently functioning sub-systems by making a sort of Geddessian Valley Section with matching energy in- and outputs [fig. 3] (Duvigneaud, 1974, p. 20). The subsystems where inhabited by different *groupes socioécologiques*, socio-ecological groups of people, parallel to socioecological groups of plants and animals. These ideas where first investigated by geographer Bernard Jouret, declaring that the link between the population with its habitat was in 'analogy with botany, where a vegetal group corresponded with a particular soil. A socioecological group was thus defined by its habitat and position, its ethnical composition and its profession (Jouret, 1972, p. 85). Here, Duvigneaud goes very far in its ecological take on the city: not only does the city performs its functions like an ecosystem, also its inhabitants are ecological: people are effectively bound to soil, ethnics and profession.
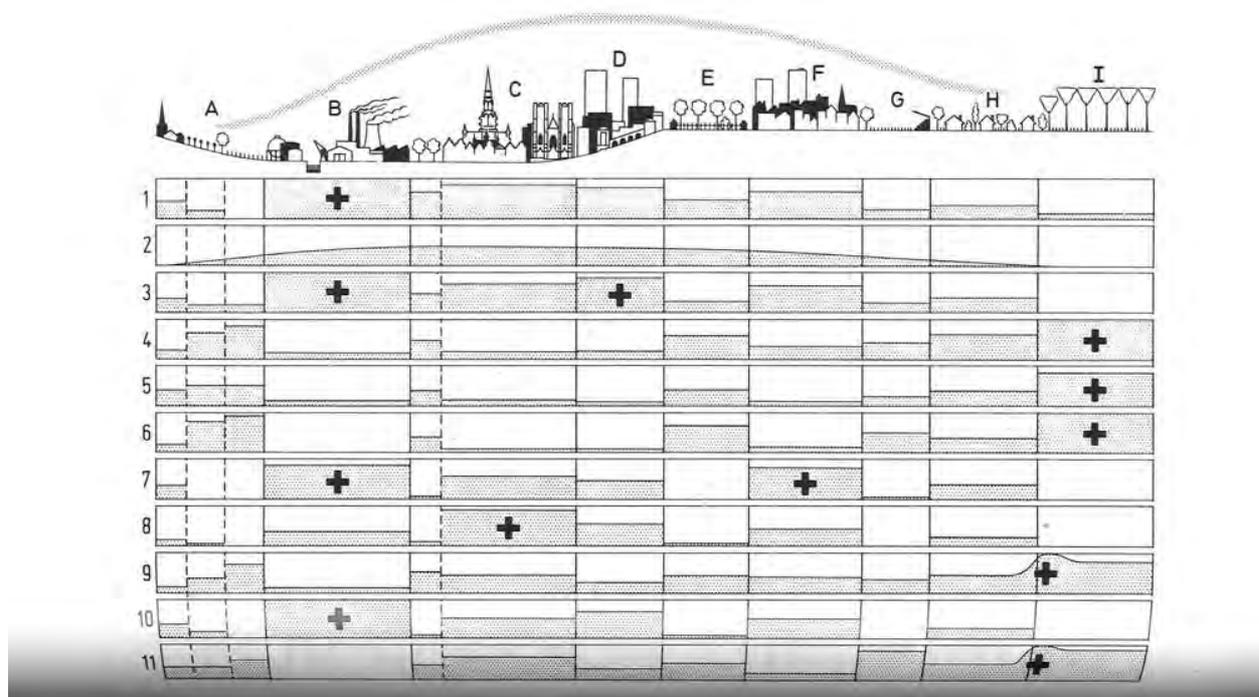
[fig. 3] Early drawing of the Brussels ecosystem, with its structure and subsystems. A – I are different subsystems, and 1-11 are different ecological factors. The *groupes socioécologiques* are linked to the different subsystems. From Duvigneaud, P., Denaeyer-De Smet, S. and Tanghe, M., 'Importance de l'écosystème urbain et des sous-systèmes (l'exemple de l'agglomeration bruxelloise)', p. 13.

In the conclusion of his first study on the *ecosystème urbs*, Duvigneaud addressed the problem of the degrading conditions of urban life due to 'the maladjustment of the structures', resulting in the fact that social life and both physical and psychological wellbeing was compromised. The planning (*aménagement*) of the urban milieu could remedy this situation. Using the work of *Le Corbusier*, the conditions of nature (healthy air, sun, green space) should be promoted in the urban environment (p. 31).[3] However, bad application of "urban ecological ideas" could "spread the city out into the green spaces". They created a risk of extending the city into the rural and natural landscape, creating an *oecumenopolis*, or an immense city. Scientific expertise of the *ecosystème 'urbs'* would therefore be necessary to plan the city correctly. He advocated

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3 In his later work, Duvigneaud became more convinced that ideas of Constantinos Doxiadis, called *ekistics* - a "science that studied the phenomenon that conditioned the human settlement"- was the most elaborate theory on "ecology and man" (Duvigneaud, 1980, p. 290).

the extension of green spaces in and around the city, but also countered the 'excessive banality' of the urban fabric, exemplified by apartment buildings and parking lots. The city should promote public transport against individual transport, making maximum use of the underground, reserving the open space for greening purposes. Also, planning had to multiply human contact by creating streets that are reserved for walking and public parks. To achieve all this, urban planning should be inspired by biological and ecological considerations. Extensive, quantitative information could create a mathematical model of the city, which simulates the impact of future planning practices (p. 33). Despite of this rhetoric, it remains unclear how all these social planning goals could be achieved by his quantitative approach. As Gandy remarked, the "metabolic metaphors treat the city as a discrete physical entity. The 'body of the city' is considered in isolation from wider determinants of urban form, and the social production of space is downplayed in relation to the technical mastery of cities" (Gandy, 2008, p. 8).

Duvigneaud actively sought to induce this biological and ecological considerations in the planning apparatus by making a survey study: a map showing the occupation of the soil and its subsequent greenness, or the *Carte écologique de l'occupation du sol et des degrés de verdurisation de l'agglomération Bruxelloise* [fig. 6]. This map was ordered by the government of the Brussels agglomeration, as a tool to be used in future planning tasks. The alderman Pierre Havelange stated that the map would help the agglomeration in reaching its goals for more green space, effectively making an overview of the problems of the city on a regional level (Duvigneaud, 1977, preface). It was made by using existing areal photographical material, official structure plans and on pictures taken from a zeppelin normally used for advertisement flights over Brussels [fig. 4 & 5] (Duvigneaud, 1977). These pictures where essential, because they showed the biological productivity of the green spaces in term of volume.[4] The final map showed the amount of greenness of certain areas, incorporating Duvigneaud his theory of biological productivity onto a spatial framework.

[fig. 4] Aerial view taken from the zeppelin "good year" of the "very green subsystems", in Watermael-Boitsfort. In the top-left, Duvigneaud writes that we see the subsystem "isolated houses in the green", which is transforming itself into the subsystem "*grands ensembles* in the green". From Duvigneaud, P., Denaeyer-De Smet, S. and Tanghe, M., 'Importance de l'écosystème urbain et des sous-systèmes (l'exemple de l'agglomeration bruxelloise)', p. 56.

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4 My thanks to Serge Kempeneers for his observation on this matter.

[fig. 5] Aerial view taken from the zeppelin "good year" of a subsystem "*grand ensemble* without green", in the Manhattan quarter in Brussels. From Duvigneaud, P., Denaeyer-De Smet, S. and Tanghe, M., 'Importance de l'écosystème urbain et des sous-systèmes (l'exemple de l'agglomeration bruxelloise)', p. 58.

Interestingly, the *Carte écologique* also showed the exact borders of the Brussels urban ecosystem. These are the same borders as the then still young Brussels agglomeration, comprising of 19 different communities. The request for an ecological mapping of the whole Brussels region is significant, as it shows a wish to build a spatial planning framework that comprises the whole Brussels territory, without having to incorporate the borders of the different communities. Integrating the whole region as an ecological system positions the agglomeration as a strong and even 'natural' governmental actor, because the ecological flows are positioned freely inside the ecosystem. As I said earlier, the (ecological) researcher 'determines what the ecosystem is', and ecosystems are no 'ontological units'. (Hausladen, 2014, p. 116). However, Odumian ecosystem theory does think that an ecosystem *is* like an organism, and to speak of the Brussel Ecosystem thus shows a belief that the Brussels is in its entirety a natural system, which the researcher 'discovers'. This is clearly a false assumption. To determine the material and energy flows inside of the ecosystem, is no matter of science, but rather one of technology because the purpose of the flows is determined by us, as we envision the ecosystem as a technological system (Hausladen, 2014, p. 119). Although this thinking-exercise might seem far-fetched, the Duvigneaud case shows the potential for this ecological-territorial framing: on a congress for the political party of the FDF (*Front démocratique des francophones*) - a Francophone party of which Duvigneaud was a member – he "affirmed the union of Brussels and French-speaking Wallonia in an environmental policy in service of the French-speaking community of Belgium". The FDF was a political party active in Brussels (among others, the aldermen for the environment was Pierre Havelange, who ordered the ecological map of Duvigneaud), protecting and enlarging the rights of the French majority in the Brussels region. Particularly in Brussels, a region that would be the scene of an institutional fight between Flemish and Walloon parts of the country, the FDF had major political influence. With this background, Duvigneaud notes that "the Brussels environment, in a greater sense, has its extension in the entire Walloon region". By exchange of people (tourists, workers) and natural flows (water, food), Brussels and Wallonia where intrinsically and naturally bound together, making political action essential in both regions. Indeed, Duvigneaud is enlarging its understanding of the Brussels ecosystem as a system that also comprises the whole of Wallonia, which is incorrect, as it also links to Flanders. As a part of the political agenda of the FDF, Duvigneaud is thus using his ecological understanding of the city to underwrite this apparent link between between Brussels and Wallonia. Almost unnoticed, he leaves out the Flemish region, which is surrounding the Brussels region, out of the equation.

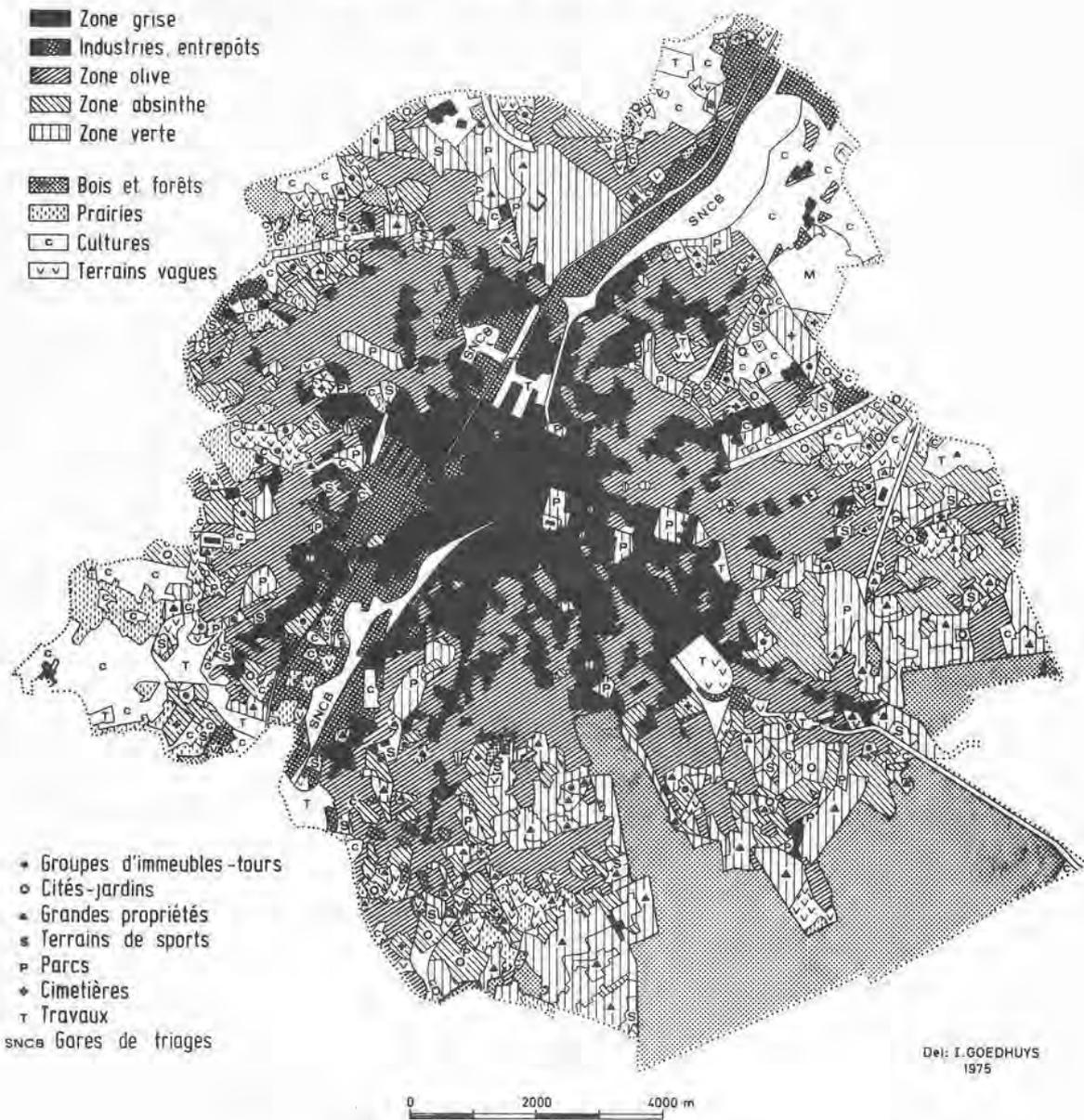AGGLOMERATION BRUXELLOISE
Degrés croissants de verdurisation

Zone grise
Industries, entrepôts
Zone olive
Zone absinthe
Zone verte

Bois et forêts
Prairies
Cultures
Terrains vagues

* Groupes d'immeubles-tours
o Cités-jardins
▲ Grandes propriétés
s Terrains de sports
P Parcs
✦ Cimetières
T Travaux
SNCB Gares de triages

0   2000   4000 m

Del: I.GOEDHUYS
1975

Fig. 3. Carte écologique des principes sous-systèmes de l'écosystème Bruxelles, établie d'après le degré croissant de verdurisation.

[fig. 6] Ecological map with the principal subsystems of Brussels, based on increasing degree of greenness. From: Duvigneaud, P., Denaeyer-De Smet, S. and Tanghe, M., 'Importance de l'écosystème urbain et des sous-systèmes (l'exemple de l'agglomeration bruxelloise)', p. 16.

An invitation to the table: planning the Woluwe valley with ecologists and planners at the Brussels Agglomeration

The first time Duvigneaud and his team could 'test' their ecological knowledge and actively mobilize it in the planning process, was at the making of the sector plan (*plan directeur*) of the Woluwe valley.[5] Duvigneaud was already involved in a special advice committee for 'green spaces' in the agglomeration, a membership that was not only due to his scientific capacity, but also his affiliation with the alderman for environmental issues, Pierre Havelange. Havelange was a member of the FDF party, just as Duvigneaud, and therefore Duvigneaud was a representative of the agglomeration in the green space committee. In these meetings, Duvigneaud highlighted the fact that the Woluwe valley still had a large amount of 'nature', and it was important to keep that nature intact. He had two reasons for this: first, to guarantee the continuation of his ecological study and second, for the peoples of Brussels to have nearby, green space. In these meetings, he remarked that until this date (1974), the urbanisation programs and planning policy of the communities showed no common vision on the valley, which was problematic for the existence of a common landscape through the region. René Pechère, a well-known landscape architect and member of the committee agreed with Duvigneaud, stating that the protection of certain zones was necessary for the "balance of the whole'. Pechère thought that the involvement of the ecologist as an expert was necessary to achieve this goal. This ecological view, however, would not be uncontested. The mayor of the community of Woluwe St. Lambert was reforming the region into a 'cultural valley', and would be opposed to the protection of open space in his community. Also, Duvigneaud warned that the construction of a sport complex that was sold as a 'green space' would have great implications for the ecological value of the region. The alderman, Havelange, then proposed to create a working group for a development plan for the Woluwe valley. Duvigneaud wanted to compose this working group with people from different parts of the agglomeration, the ones responsible for urbanisation and green spaces, but also with people from the different communities, the intergovernmental organisations, and the federal ministry of Public Works. This became one of the first '*table rondes*' or round tables that were created in the wake of contested public works. The agglomeration had experience in managing these participative, consultative bodies to guide public works and governmental plans, as it already gathered such a *table ronde* in the planning of the Maalbeek valley or in the Marollen. However, the involvement of the population was less important in the meetings for the Woluwe valley, and it was created more in the search for expert knowledge and opinions. Again, this working group was split in two, with a group responsible for '*urbanism*' and one for '*ecologie*'. The first group would study the previous plans that where already issued in the region, and the second group was charged with the *planification ecologique*, which constituted for example a map that would show the biological and ecological value of the present ecosystems. This far-reaching involvement of the ecologist into the planning apparatus was new, and Duvigneaud understood the importance of the moment. In the first meeting of the group for the planning of the Woluwe valley, he stated that this was the first time in Brussels where ecologists and urbanists are working together on a *plan d'aménagement*, and that in the past most plans were not done in an ecologically sound manner.

The group '*ecologie*' did not, however, only discuss the plan for the valley. Duvigneaud also proposed to protect certain areas in the valley by classifying it as a 'protected site' by the Royal Commission of Monuments and Sites, which worked for the federal government. This is typical of early protection schemes in Belgium and Brussels, as people turned towards the old protection programs that were mainly used for buildings and architectural assemblages (Notteboom, 2009, p. 139-239). Lachmund already remarked that this way of protecting was problematic, because it did not fully service the ecologists needs, because they both wanted to protect areas from new constructions, and further develop them ecologically (Lachmund, 2013). Clearly, Duvigneaud thought that the protection inscribed in the sector plans of the agglomeration would not guarantee as much protection as the imposed protection of the national government through classification, although this would hinder ecological measures that could optimize the bio productive condition of the protected area.

The end-product of the round table constituted of ecological survey maps and a *plan directeur*. The ecological maps where published in a scientific paper called the *Etude phyto-écologique de la vallée de la Woluwe dans la région bruxelloise, comme base de son aménagement*. Here, Duvigneaud and Tanghe explained that they mapped the valley by using topographical maps and aerial photos. These two sources of information where completed with local observation on the terrain. They stressed that this was necessary, because their cartographic conception asked for precisions on the composition of the vegetation (Duvigneaud and Tanghe, 1978, p. 6). Duvigneaud and Tanghe drew inspiration out of the work of Herbert Sukopp, the Berlin ecologist that also drew an ecological map of West-Berlin to serve as a government tool (see Lachmund, 2013). Sukopp proposed a mapping system with degrees of *hémérobiose*, the degree of "human modifications to the natural system". In this system, the territory did not possess any "true natural areas" anymore, everything was in some sense influenced. This influence manifests itself clearly in the vegetation of all areas, but also in the *substrat*, or soil (Duvigneaud and Tange, 1978, p. 7). However, the maps of Tanghe and Duvigneaud was less detailed than the one of Sukopp, and was mainly based on the character of the flora, with a focus on the voluntarily introduced species and indigenous and involuntarily introduced species. As such, the delineations run from semi-natural vegetation to artificial and semi-artificial vegetation (p. 8).

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[5] This part of the paper is based on the minutes of the committee for 'green spaces' under the Brussels Agglomeration to plan the Woluwe valley, which are held in the Duvigneaud archive, in the *Centre International de la Ville et de l'Architecture* in Brussels. (CIVA, Fonds Duvigneaud, nr. 0920-0926)

VALLEE DE LA WOLUWE

(B)   Carte d'évaluation biologique du milieu
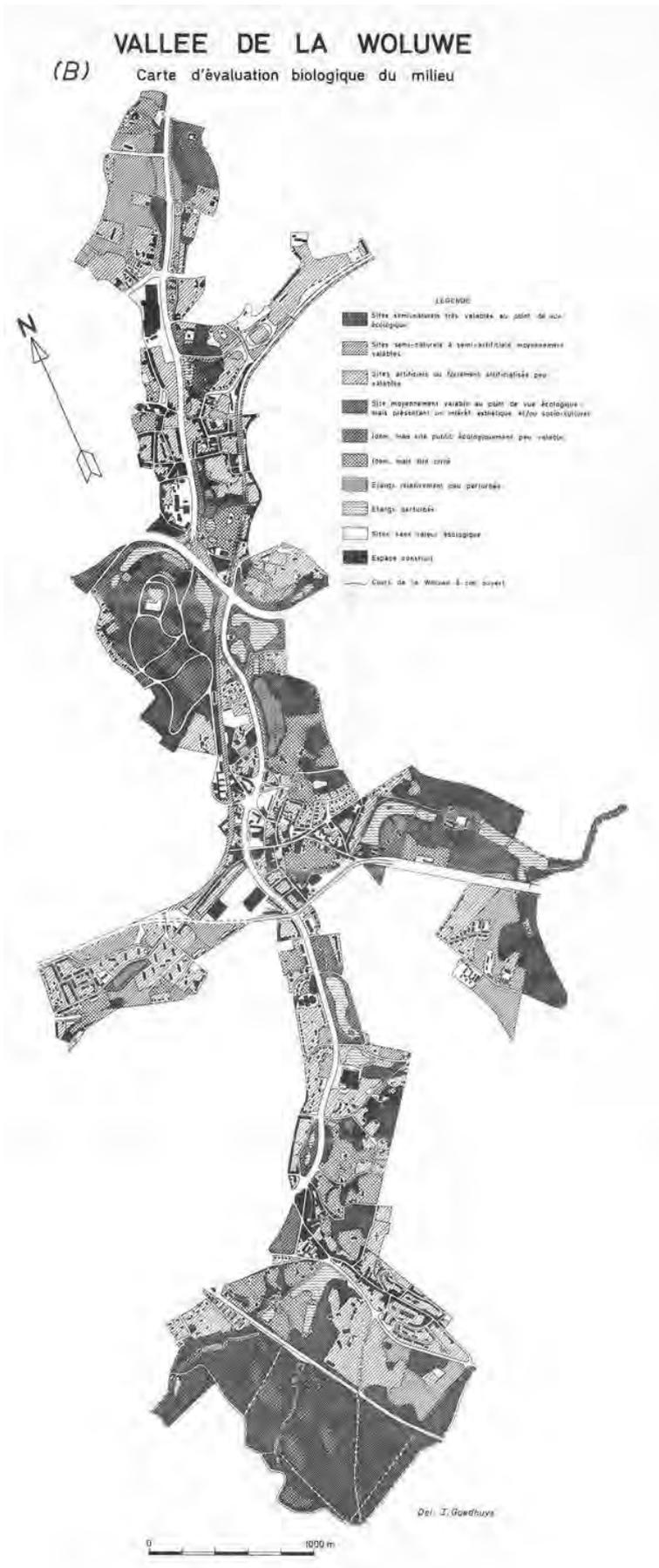
[fig. 7] The biological evaluation map of the Woluwe Valley. There are "semi-natural" sites that are very/intermediate/not valuable from an ecological point of view, and sites which are ecologically less valuable but are culturally or esthetically valuable. In the city, nothing is really "natural", only "semi-natural". The zoning of the *plan directeur* is based on these evaluations. From Tanghe, M. and Duvigneaud, P. (1978) 'Etude phyto-écologique de la vallée de la Woluwe dans la région bruxelloise, comme base de son aménagement', s.p.

The lab of Duvigneaud made two survey mappings. First, they drew a map with the ecological "occupation" of the soil, with delineations of for example forest and apartment buildings. Secondly, they drew a map with the biological value of the *milieu*, the area [fig. 7]. Here, they indicated which areas where of high ecological value, and which of lesser ecological value. Apart from these purely ecological delineations, some areas where designated as "of little ecological value, but of great esthetical and socio-cultural value", thus pulling in a social and cultural evaluation. Although these maps where clearly made by ecologists, it is sure that there mapping practices where guided by the desired product: a zoning plan. Duvigneaud's metabolic perspective does not result into a rejection of the conventional zoning plan. In the conclusion of their study, Tanghe and Duvigneaud stressed that the proposed maps should orient the options urban planners in terms of affecting space, considering biological-ecological value and socio-cultural value. The maps established a distinction between spaces that could be assigned to building without affecting natural and social values in the valley. Planning should be deferred, or be the object of certain precautions in zones that are designated as "wild" or as buffer zone. Particularly, semi-natural areas had to be protected completely of urbanisation, because of their great value, be it in vegetation, soil or wildlife. Still, the preservation of these areas in their actual state was necessary, for scientific and educational reasons. They should be specifically managed, and be protected from the public. Artificial green spaces, like the riverbanks of the small lakes or the Woluwe, should be upgraded in an ecological and biological way (Duvigneaud and Tanghe, 1978, p. 29). Works on public paths in the different parks must be kept at a minimum (p. 30).

Apart from its significance for ecological planning, the *plan directeur* that followed out of the ecological mapping clearly shows the capacity of the ecological viewpoint to overcome existing power relations in the area. The competing interests of both the communities and the Agglomeration becomes obsolete in light of the functioning of the river-ecosystem of the Woluwe. By highlighting the shared natural capacity of the river and its valley, Duvigneaud and the Agglomeration could stress the need for an overall plan, and thwart the political goals of certain local mayors.

[fig. 8] the *plan directeur* of the Woluwe valley, which is subdivided into housing, industrial and office zones, and (protected) natural zones. From Agglomération bruxelloise, *Brochure Plan directeur de la Vallée de la Woluwe/Richtplan van het Woluwedal*, CIVA. Fonds Duvigneaud.

Conclusion: the resurfacing of the ecological project

Although the interference of the ecologist in the planning apparatus did not stop at the Woluwe valley, it did never gain a firm hold in Brussels policy. Because of the rise of protest movements in the sixties, seventies and the eighties against the brutal demolition of the city by private interests, an opposite planning culture arose where participation of local inhabitants would become paramount. It was the weakness of politicians during the seventies and the eighties vis-à-vis these aggressive manifestations of private and public promotion as the very reason for the strong reaction of the sidelined inhabitants (Demey, 1992a, p. 281). By the end of the 1960s the proliferation of citizen committees around the city initiated a veritable counterculture (Demey, 1992b; Doucet, 2015, p. 40). From 1979 onwards, as an outcome of this counterculture, citizen consultation became an official part of the planning process with the creation of the *Plan Secteur*, or regional plan, which legalized reactions to urban projects (Doucet, 2015, p. 141). This counterculture gained a truly active voice in the new planning apparatus after the creation of the Brussels Region in 1989, with an instatement of a planning instrument called the neighborhood contract, or *contrat de quartier* (see chapter 5 of Doucet, 2015), which was designed and funded by the region yet applied on a municipal level. Although Duvigneaud seemingly shared the ideas of the counterculture in Brussels,

he did not align himself with their struggle until the very end of his life.[6] His legacy continued, however, in the creation of *Bruxelles Environnement* under the Brussels Capital Region, which was established in 1989. There, the department for green spaces is led by one of his doctoral students. Nowadays, the landscape and ecological imaginary is resurfacing through the publication and use of metabolic and landscape design studies that I brought to the stage in the introduction of this paper. The landscape reading of Brussels today is intended to invent a new, collective urban project that goes beyond the small-scale neighborhood contracts. This landscape reading started with the publication of *Brussels 2040*, where Bureau Bas Smets forwarded a topological and hydrographical reading of the city as a new, cultural way of envisioning the future of Brussels, where the valley structure serves as a coherent development structure, on which mobility and new housing could be connected [fig. 9] (Dejemeppe & Périlleux, 2012, p. 58). Inserting landscape into planning processes is a way of sidestepping the previous oppositions that existed in the city's history. As with Duvigneaud, the ecological structure is used to regain a firm hold on the regional scale, putting aside the political realities of the powerful communities. But today's struggle is a very different one. Duvigneaud reacted with his studies on the capitalist development of his city, denouncing the metabolic 'overheating' of the ecosystem, while he did not to incorporate the city dweller's voice. Today, the topographical and ecological reading by *Brussels 2040*, *Metropolitan Landscapes*, and *Metabolism of the Brussels Region* is productive because it can create a common project for the Brussels region. However, the strength of the neighborhood contract lies in its democratic validity, incorporating the social and political voice into the planning equation. A landscape reading of the territory should incorporate this strength, and go beyond science and technology by questioning both the precarious socio-economical context as well as the difficult political reality of the Brussels region.

[fig. 9] The hydrographical and topographical reading of Brussels by Bureau Bas Smets for Brussel 2040. The study restructures the city by connecting all the tributary rivers of the Zenne, which has disappeared because it has been buried. From Dejemeppe, P. and Périlleux, B. (2012). *Brussels 2040*, p. 59.

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[6] In his last book, Duvigneaud takes up the case of protecting the *Kauwberg*, a hill in the southwestern area of Brussels, giving a scientific grounding to the popular struggle to safeguard this natural area (Duvigneaud 1990).

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The place given to and the place taken by Tionghoa in the postcolonial Indonesia. A case study on Semarang.

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"Tionghoa people (descendants of Chinese migrants) are one of the ethnic groups in Indonesia. Stereotyping of this community endures till today due to uneasy integration processes and the long lasting impact of policies developed during the colonial era and after independence. Since the colonial era, Tionghoa settle in the district of commerce. Nowadays, the Tionghoa are still dominant in their old settlements and in the district of commerce in the downtown area, as well as in the suburbs gated community. Some of them remain living inside *kampung*. Spatial segregation in the city is related to the access to housing market, which is based on financial, cultural, political and social resources. This paper examines how the Tionghoa continuously, through consecutive phases of crises and flowering, adapt their settlement, are assigned a place while making their own place in the city and by that contribute fundamentally to the Post-Colonial urban development in Indonesia. This paper will demonstrate and problematize complex and specific form of spatial integration of the Tionghoa community, the way settlements are adapted, integrated and relate to the city as a whole."

Introduction

The place of the first historical occurrence of what today we call 'multi-cultural' cities might not lie in the West. (King, 2004) [1] Major characteristic of colonial cities in Asia was its spatial organization as a mosaic of ethnic quarters—the tightly packed shop house areas of the Chinese, Arabs, Indian, the spacious low density "compounds" of the Europeans, and the indigenous settlements ('*kampung*' in South East Asia) scattered around the city. Colonialism also incorporated pre-capitalist, pre-industrial and non – European societies into the world economy and has formed ways of dealing with ethnically, racially and culturally different societies.(King, 1976) [2]

In the Indonesian case, in Colonial period there were 3 social classes, the first was European (with Japanese in early 20th century), then the foreign eastern group or *vreemde oosterlingen,* which is consist of Chinese, Arabs and Indian migrants, and in the bottom was indigenous Indonesian. Foreign eastern ethnic group actually came to Indonesia long before the European came. As a new nation, Indonesia should deal with the plural society along with the disparity between the ethnic groups. The modern nation state requires the construction of an imagined community. (Anderson, 1991) [3] Nationalism, define the national identity was part of the search of nationhood. In Post-Colonial situation, this process intersects with forces of globalization and modernization.

This research is talking about the descendant of Chinese migrants in Indonesia, who has Indonesian citizenship, and some of them also have indigenous blood, due to the assimilation process for centuries. We have a word to call Chinese Indonesian. Now, we have been using '*Tionghoa*' rather than '*Cina*'. The word '*Cina*', which is has derogatory meaning, only used during the new order regime (1966 – 1998). '*Tionghoa*' comes from the word '*Zhonghua*' in *Hokkienese* dialect. *Tionghoa* peoples, nowadays are 5% of the Indonesian population. They came to Indonesia in several waves, and lives in many main islands of the Indonesian archipelago. For many centuries, they lived and assimilated with locals, though they still maintain their identity. *Tionghoa* people, mostly live in the urban areas. Their population, even reaches out up to 10 % or more in some big cities, like Semarang. For a long time, Semarang famous as one of the *Tionghoa* concentration in Indonesia. In the beginning, Semarang was a small port at north Java. But then, around 1724, VOC choose Semarang to replace Jepara (another port east of Semarang). At that moment, The *Tionghoa* of Jepara began to move to Semarang. (Liem, 2004) [4]

After the abolition of *wijkenstelsel* law in the early 20th century, the *Tionghoa* began to expand their settlements. Besides indigenous *kampung* and Chinese *kampung* (*Pecinan*), Semarang has several ethnic *kampung*, such as *Kampung Melayu* (Malay's *kampung*), Pekojan (Indian's *kampung*), Bustaman (Arab – Malay's *kampung*). However, in the recent years, only less than 30% of the inhabitant still belongs to that specific ethnic groups,

[1] King, A D, 2004, *Spaces of Global Culture : Architecture, Urbanism, Identity*, p 74, Routledge , New York
[2] King, A D,1974, *Colonial Urban Development : Culture, Social Power and Environment*, (London, Henley and Boston, MA : Routledge & Keagan Paul) , New York
[3] Anderson, B , 1991, *Imagined Communities : Reflection on the origin and Spread of Nationalism*, Verso, London and New York
[4] Liem, T.J. 2004, *Riwayat Semarang.* Hasta Wahana, Jogjakarta

the majority of the inhabitants are Javanese. In contrast, The *Tionghoa* still becomes the majority in *Pecinan* and the surrounding area. (Zahnd, 2008) [5]

In the past, the *Tionghoa*, as well as Arabs and Indian served as intermediary traders between the European and the indigenous Indonesian. They also had right to buy and rent land from the colonial government. (Toer, 2005) [6] After independence, the role of *Tionghoa* in economic activity remains dominant. Although in Semarang, there are Arabs and Indian traders, but their role was not as strong as the Tionghoa. While, disparity still become a big problem in Indonesian society. A 'myth' about *Tionghoa* domination in economic activity remains strong, especially due to New Order Regime policy. The *Tionghoa* focus on economic fields, spatially segregated and seems they live behind the wall (inside their own community). There is also a question about the loyalty of this ethnic group toward Indonesia as a new nation. The stereotypes became worse with the history of Republic Indonesia, there were 2 rebellion of the communist group on 1948 and 1965. At that moment, the communist party has a strong relation with China. This rebellion led to the exclusion of *Tionghoa* in politics and also many restrictions in cultural and public life.

Talking about spatial segregation, we need to have a basic understanding about social integrity, the concept of multiculturalism, as well as an understanding of the correlation between community resources and the access to the housing market. Similar with the daily life, culture and life cycle, community resources is a strong determinant factor in the community settlements preference. This paper tries to talk about the dispersion of *Tionghoa* settlements nowadays and seeking a correlation between this dispersion with the community resources, daily life and culture and how this dispersion affected the integration process among the *Tionghoa* and other ethnic groups. Due to the diversity among *Tionghoa* itself, this paper will only talk about the *Tionghoa* who lives in north central Java province.

Social Integration and Multiculturalism

There are three main dimensions of integration, economic integration, identity integration and social integration. Social integration refers to the dynamic and structured process of minority to be incorporated into the social structure of host societies. This process doesn't mean forcing assimilation. (Alba, Nee, 1997) [7] Cultural integration is also a form of cultural exchange in which one group regards the beliefs and norms of another group without sacrificing the characteristics of its own culture. In the case of *Tionghoa* peoples, who lives for several centuries in Indonesia, they already formed a 'hybrid culture'. Hybridity means engaging in a process in which we see ourselves in the other and acknowledge this as part of our identifications. These identification themselves rise through a politics of skin and cannot be divorced from this. Hybridity theorizing cannot then claim to occupy a post racial space in which race is anachronistic. This hybrid culture is a result of a process of complex negotiation and identification that intersects with forces of globalization, modernization, resinicization, primodialism and localization.(Chang, 2011) [8] Ethnic neighbourhood as such, implies a dual nationalism, or a dual identity, in which ethnicity denoted by nation of origin clashes, and mixes with nationality bestowed by nation of settlement. This hybridised identity problematises the neat categorisation of national identities, which seeks to provide a community of people with a homogeneous identity. (Tan, 2013) [9]

Social integration is focused on the need to move toward a safe, stable and just society by mending conditions of social disintegration and social exclusion, social fragmentation, exclusion and polarization and by expanding and strengthening conditions of social integration towards peaceful social relations of coexistence, collaboration and cohesion. (UN News Center, 2015) [10] Social integration focuses more on the degree to which immigrants adapt local customs, social relations, and daily practices. There are several theories related to integration. One of them is multiculturalism theory. According to this theory, immigrants could maintain their ethnic identities through the integration process to shape the host society with a diversified cultural heritage. (Glazer, Moynihan, 1964) [11]

In multiculturalism, there is a demand for recognition of minority rights, culture and identity within a nation - state. But, often multiculturalism doesn't empower the minority, because the concept of classification, diversity, and boundary still determined by the majority. Sometimes, multiculturalism is acclaimed as a success

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[5] Zahnd, M, 2008, *Model Baru Perancangan Kota Yang Kontekstual : Kajian tentang Kawasan Tradisional di Kota Semarang dan Yogyakarta, Suatu Potensi Perancangan Kota Yang Efektif*", Penerbit Kanisius, Yogyakarta

[6] Toer, P.A, 2005, *Jalan Raya Pos, Jalan Daendels*, Lentera Dipantara, Jakarta

[7] Alba, Richard; Nee, Victor , 1997, "*Rethinking Assimilation Theory for a New Era of Immigration*". International Migration Review. 31, 4: 826–874.

[8] Chang. Yau Hoon, 2011,"*Chinese Identity in Post Suharto Indonesia, Culture, Politics and Media*", Sussex Academic Press, Eastborne.

[9] Tan. Serene K, 2013, "*Landscape, Home and Nation : Chinatown Identities in Urban South East Asia*", A Dissertation : Graduate Program of Geography, York University, Toronto.

[10] "PeaceDialogue." UN News Center. UN, n.d. Web. 02 Jan. 2015.

[11] Glazer, Nathan; Moynihan, D P, 1964, "*Beyond the Melting Pot: The Negroes, Puerto Ricans, Jews, Italians, and Irish of New York City*". Cambridge, MA: MIT Press.

by simply representing superficial and decorative aspect of certain cultural form. Just becomes decorative of the mainstream's tolerance and generosity. Multiculturalism sometimes classify and categorize people into different homogenized and unified cultural group even though individuals might not want to be identified as such.(Chang, 2011) [12] In the Indonesian case, the *Tionghoa* peoples experienced repression from the government for 32 years. The government forced assimilation. It is mandatory for the *Tionghoa* people to have Indonesian sound's name, replacing Chinese sure name, and the government didn't allow Chinese to speak Mandarin, celebrate Chinese festivals in public, or shows Chinese alphabets in their shops. After 1998, the new government abolished all laws that repress the Chinese culture. The new government also promoted 'multiculturalism' by allowing the *Tionghoa* celebrates their culture, event Chinatown or '*pecinan*' in local language, promoted as a new tourism destination.

Ethnic Segregation in the Cities

Till today, there is a stereotype that *Tionghoa* people are spatially segregated in Indonesian urban areas. Actually, we could find spatial segregation and concentration of population groups as old as human civilization. Spatial segregation can be seen as the residential separation of groups within wider population, when some areas show an overrepresentation and other areas an underrepresentation of the groups. This phenomenon might be exists between cities and surrounding areas, between neighbourhoods, or even between housing estates within neighbourhood. (Van Kempen, Ozuekren, 1998)[13] In reality, this concentration has advantages and disadvantages. Indonesian cities and Semarang in particular, trying to exploit this concentration for tourism purpose in these recent years. However, with economic disparity and sentiments against *Tionghoa* peoples, this phenomenon is also dangerous.

Many researchers developed an approach to describe concentration and spatial segregation. One of them is behavioural approach. This approach introduces the preference, perceptions and decision making of the individual in housing and residential mobility. (Van Kempen, Ozuekren, 1998) [14] In accordance with this approach, the research regarding the behavior of Indonesian customer in property market noted that individual preference becomes the main determinant factor. Other factors are as follows: land value, infrastructure, buyer preference, supply and demand, the physical aspect of the property, location (the strongest factor), and law / regulation. Location factor determined by accessibility, connection to the CBD, public transport access, infrastructure and utility, real estate management, ownership status.(Prakoso, 2005) [15]

Different with Van Kempen, Randolph in 1991 introduced the notion of using household as a basic unit in such analyses. He argued that households are constituted by various combinations of individual labour market member and potential members.(Randolph, 1991) [16] Many factors affect the household's decision in choosing a house, they are: location, price, property features, amenities, school, transportation, quality of the neighbourhoods, etc. Housing decision are not 'one – off' affair, but rather closely related to household life cycle. (Rossi 1980; Clark and Onaka 1983; Kendig 1984; Forrest 1987) [17]

The behavioural approach also includes the ethnic cultural approach. Housing condition and residential patterns differ between groups, and these differences can be attributed to cultural differences among different ethnic groups. This statement is strengthening the factor of 'choice' in the housing decision. (Clark,1992) also notes that whites and Asians have stronger preferences for living in the neighbourhood that is dominated by their own groups. To be able to access the housing as they desired, both Marxist and the neo Weberian approach emphasized the importance of the resources people have. Financial, cognitive, political and social resources are the resources that could affect the decision. The 'stregth' of the households determined by these resources.(Van Kempen, Ozuekren, 1998) [18]

The Concept of Home and Inheritance System in Tionghoa Culture

In the early Colonial era, the Chinese not only working as a trader, but also became a farmer or fisherman. As the traders, mostly they settled in the coastal area, like in the islands of Sumatera and Java. Some of them were Chinese Moslem, who spread Islam in Java. They assimilated well with the indigenous people. Many of them, married local women and fostered hybrid communities. The customs of this community sometimes are a mixture between Chinese culture and indigenous (in this case, Javanese) culture.

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[12] Chang. Yau Hoon, 2011,"*Chinese Identity in Post Suharto Indonesia, Culture, Politics and Media*", Sussex Academic Press, Eastborne.
[13] Van Kempen, R; Ozuekren, A S, 1998, "*Ethnic Segregation in Cities: New Form and Explanations in a Dynamic World*", Urban Studies, Vol 35, No. 10, 1631 -1656
[14] Van Kempen, R; Ozuekren, A S, 1998, "*Ethnic Segregation in Cities: New Form and Explanations in a Dynamic World*", Urban Studies, Vol 35, No. 10, 1631 -1656
[15] Prakoso, Y.S, 2005, " *Pengaruh Faktor Lahan terhadap Nilai Properti Perumahan di Kawasan Batam Center Kota Batam*", Universitas Diponegoro, Semarang
[16] Randolph, W. 1991' Housing Market, Labour Markets, Discontinuity theory", in J. Allen and C. Hamnett (eds) *"Housing and Labour Market: Building the Connections"*, London: Unwin Hyman, 16 - 47
[17] Jarvis. H, Pratt. AC, Wu. PC, 2001 "*The Secret Life of Cities: The Social Reproduction of Everyday Life*", Pearson Education Limited, Dorset
[18] Van Kempen, R; Ozuekren, A S, 1998, "*Ethnic Segregation in Cities: New Form and Explanations in a Dynamic World*", Urban Studies, Vol 35, No. 10, 1631 -1656

In Chinese culture, clan or family name passed from generations to generations through the male line. Having a son to continue the family name becomes a must. When the daughter gets married, she will follow her spouse family. Normally, the parent will distribute their property (land, house) to their sons only. In common, the *Tionghoa* community follows this tradition as well. The parents will distribute the house and the lands among their sons and gives their daughters jewellery. The main house along with the ancestor altar given to the oldest son. He should maintain it. Some families also followed local custom. In the colonial era, the *Tionghoa* belongs to the subject of the Dutch colonialist, so some *Tionghoa* follows Dutch law as well, which is given their daughter's rights to inherit their parent property. However, this tradition also depends on the family, in common, they prefer to follow Chinese system of inheritance. (Andriesma, 2007) [19] Till today, some of the community member feels ashamed if the wife or daughter in law should work outside the house. The common option is asking the wife or daughter in law to help their husband business or take cares the household only.

When in the family there are several sons, to inherit the whole house is also common that one of the sons gives his brothers money to buy their rights to the house. This is a bit different from Javanese culture when their inheritance system followed the Islamic system. In Javanese culture, the son has 2 times rights than the daughter. But the daughter could inherit some of their parent property. Among the *Tionghoa* at Java there is another custom, they believe that selling their main / first house is forbidden. It is not clear whether this belief comes from Chinese culture or Javanese influence. Like other Asian culture, living in the extended family is common among *Tionghoa* and Javanese people. They still have a close relation with the parents after they got married. They visit each other for dinner, some couples will visit the parents every day or especially in the Chinese festival, like New Year. Of course they will use their primary house as a place for gathering. If possible, the parents will also buy a house for their children when they got married (mostly for their son). But nowadays, the parents from small town buy a house in the big cities when their children continue their study. Despite of the mass conversion to Christianity among the *Tionghoa* in Java, cultural belief like Geomancy still applied by the *Tionghoa*, especially for the elderly people. The location and housing typology still represent this belief. For those who still believe, they will be really careful when they buy a property or planning a house. For instance, they will avoid buying 'a T- junction house'. Living in the wrong place could cause sickness, or even death, or misfortune. Due to this phenomenon some of the real estate developers consider this belief. They will replace the number of '4' when they give number to the housing unit.

Method

Through interpretatively demographic data of Semarang, this research tries to map the dispersion of Tionghoa settlements in the recent year. In the study of Italians, Irish, and Germans in the New York region operationalized an ethnic neighborhood as 'a set of contiguous tracts, which must contain at least one tract where a group is represented as 40% or more of the residents and whose other tracts each have a level of ethnic concentration among residents of at least 35%." It is widely understood that the group does not necessarily have to be a majority of its identified ethnic neighborhood (a corollary is that some zones may contain 'ethnic neighborhoods' of more than one group). If we define neighborhoods in terms of their effects on residents' experience of crime, racial/ethnic composition is more significant at the scale of the census tract than the block.(Hipp, 2007) [20]

Since the demographic data in Indonesia are not based on ethnicity, the map of *Tionghoa* settlements using an interpretation of religion data. The area (sub district level) with significant Buddhist and Christian / Catholic inhabitant considered as the concentration of *Tionghoa*. Particularly in Java, the majority of *Tionghoa* followed Christianity (Catholic and Protestant). There are several reasons for the conversion. Firstly, due to the western education. Many Christian institutions run private and good quality of the school. The second reason was the communist rebellion in 1965. To avoid 'communist label', many *Tionghoa* converted to Christianity, they send their kids to Christian school as well. The generation who was born on 50s onward mostly go to the church rather than go to the Chinese temple.

The demographic map and interview results will be analysed with the presence of specific facility in the city of Semarang, to see the correlations. In the neighbourhood level maps, will be showing the change and adaptation of the *Tionghoa* settlements and how this phenomenon affects the relation between *Tionghoa* people and other ethnic groups.

The Dispersion of Tionghoa Settlements at Semarang

Semarang is the capital and main port of Central Java province, which is located in the north coastal region of Java. In the colonial period, Semarang was an important port to send goods from the fertile mainland area of

[19] Andrisma. W Y, 2007 "*Pembagian Harta Waris Dalam Adat Tionghoa di Kecamatan Ilir Timur 1 Kota Palembang Provinsi Sumatera Selatan*", Master Thesis Program Studi Magister Kenotariatan, Universitas Diponegoro, Semarang

[20] Hipp, 2007, "*Income Inequality, Race and Place : Does The Distribution of Race and Class within Neighbourhood Affects Crimes Rates?*", Department of Criminology, Law and Society and Department of Sociology, University of California Irvine

southern central Java. The main roads connected all of the main cities in the coastal area from west to east also pass this city.

After the war between the VOC and *Tionghoa* community at 18th century, the *Tionghoa* inhabited an area in the Semarang river bank as assigned by the colonial government. Apart from European residence, this area emerged as trade district. From the beginning, there is a symbiotic relationship between the *Tionghoa* traders and indigenous, who lives in surrounding *kampung*. Nowadays, this *Tionghoa kampung* belongs to *Kecamatan* Semarang Tengah (Central Semarang district). As mentioned before, the *Tionghoa* still becomes the majority in that area. However, they become majority in some surrounding areas as well.

After independence almost everything centralized in Jakarta. From 1945 – 1975, it was the period of consolidation. The population increase, and as the result, the settlements became more and more dense, especially in the city center. The city size was about 99,4 square kilometre. In 1976, the government began to expand Semarang to the surrounding regency. The new city size is 364,81 square kilometre. In accordance with the national priority, promoting Semarang as a new industrial and education center was the purpose of this plan.(Nugroho, 2016) [21]

Almost all the area within the old administrative border of Semarang city has been declared as the mixed area of service, settlements, trading and education by the most recent planning policy. This policy also declared the main corridor to the south become an area for service and trading purpose. Of course, this policy followed by increasing land taxation. In the other hand, there is mass conversion of agricultural land to be new settlements or new city cores in southwest Semarang.(Nugroho, 2016) [22]
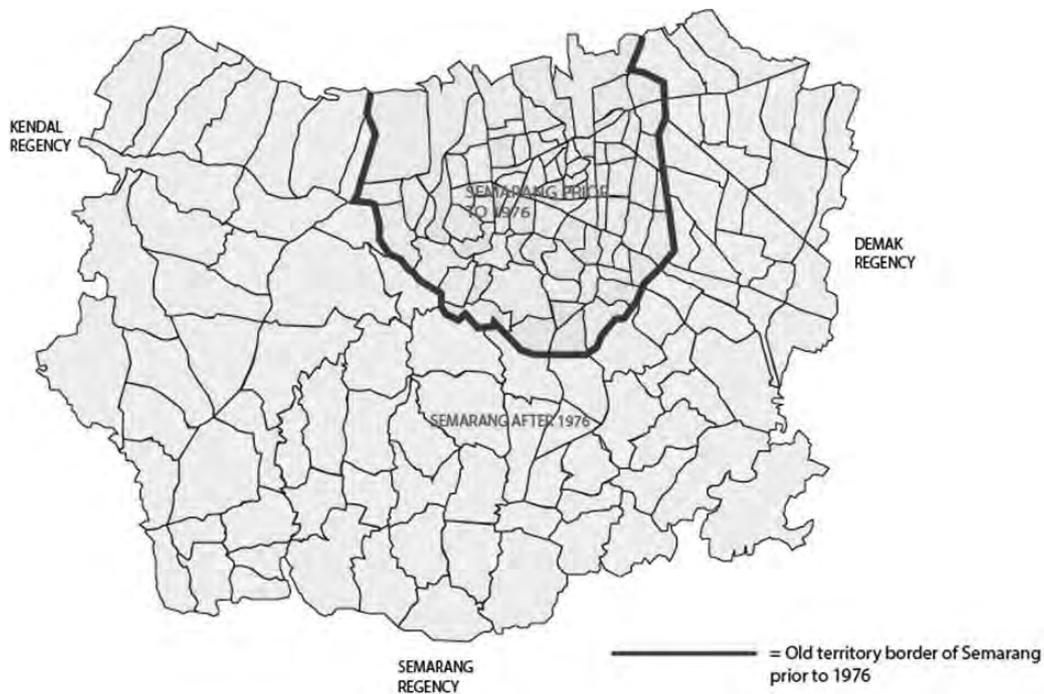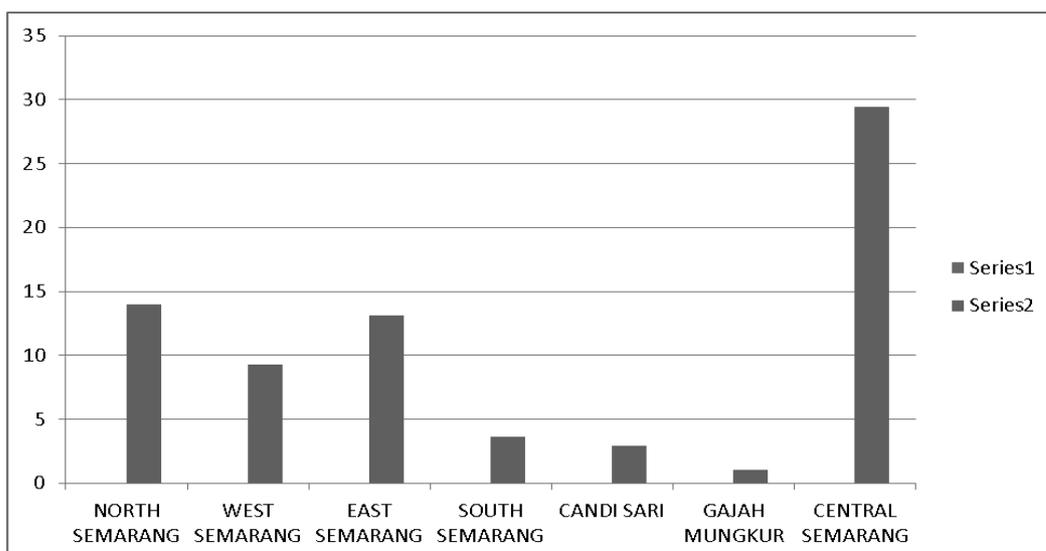

[fig. 1] Map of Semarang's Sub District
Source : "elaborated by the author"

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[21] Nugroho, M. Luthfi, 2016, "*Pergeseran Kebijakan Penataan Ruang Kota Semarang : Data RIK 1975 – 2000, sampai RTRW 2011 – 2031*", Universitas Diponegoro, Semarang
[22] Nugroho, M. Luthfi, 2016, "*Pergeseran Kebijakan Penataan Ruang Kota Semarang : Data RIK 1975 – 2000, sampai RTRW 2011 – 2031*", Universitas Diponegoro, Semarang
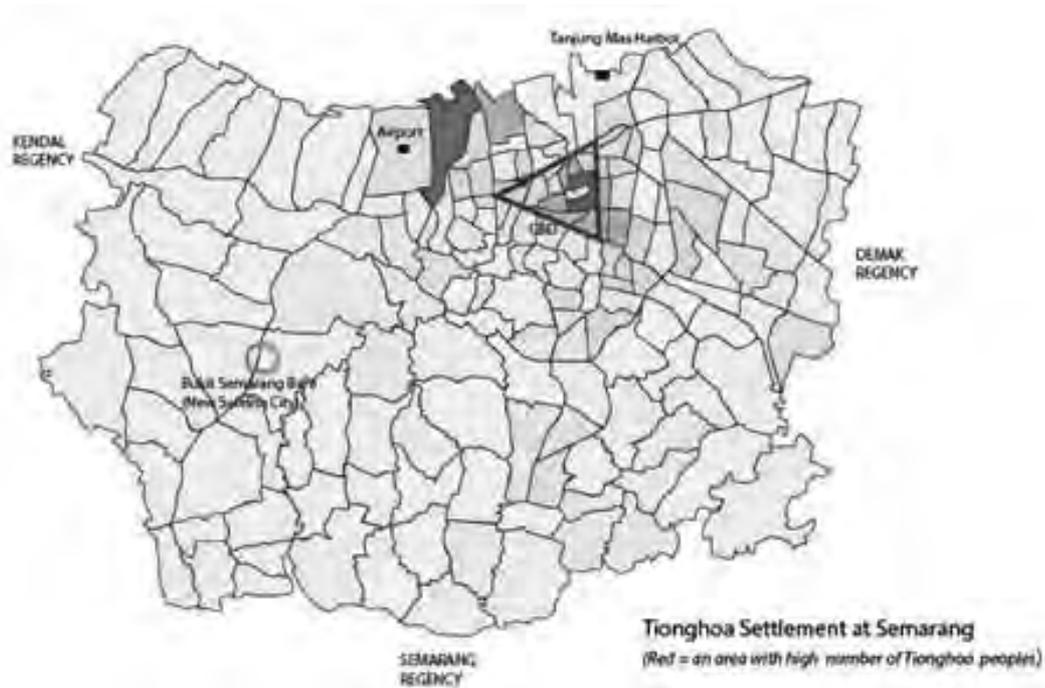
[fig. 2] "Map of The Sub-districts dominated by Tionghoa People"
Source : "elaborated by the author based on demographic data"

According to the demographic data from statistics bureau, the *Tionghoa* concentration are in the sub districts in the city center, along with one subdistrict at West Semarang. The map shows that the *Tionghoa*, mostly inhabited the sub district with dominant economic activity. The area with "center of city service / infrastructure" classification, according to city planning agency.(Nugroho, 2016) [23] They also occupied the land plots in the protocol road, which is having highest property price in the city.

In relation to the growth of Semarang, after 1976 the city of Semarang expanded to the surrounding regency. Based on religion data, it was found that for about 76% of Buddhist believer (*Tionghoa*) settled inside the border prior to 1976. Central Semarang district, hosted almost 30% of them.

[fig.3] "Districts of Semarang with High Number of Tionghoa People"
Source : "elaborated by the author from demographic data"

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[23] Nugroho, M. Luthfi, 2016, "*Pergeseran Kebijakan Penataan Ruang Kota Semarang : Data RIK 1975 – 2000, sampai RTRW 2011 – 2031*", Universitas Diponegoro, Semarang
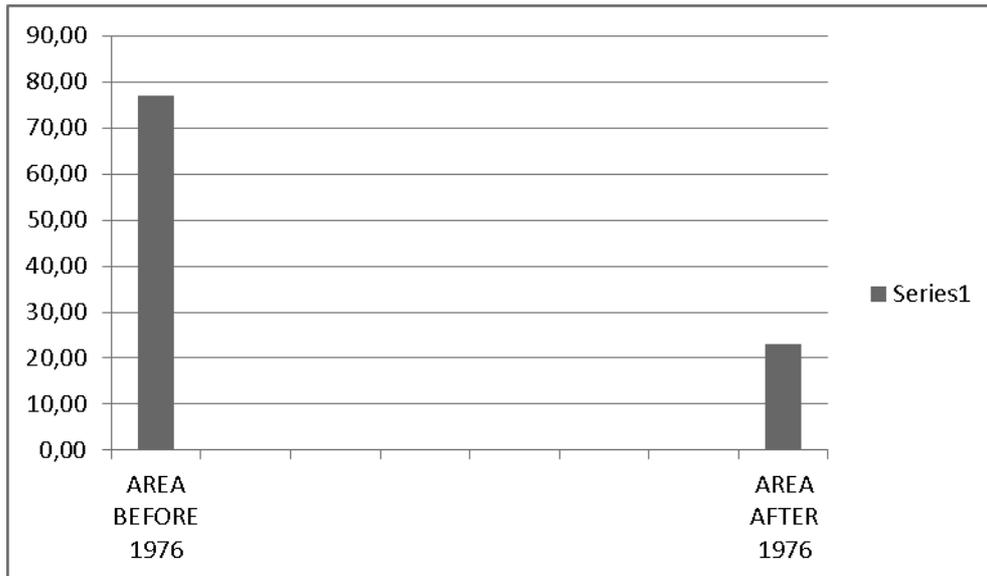
[fig.4] "Comparison of Tionghoa Concentration between Old and New Territory of Semarang"
Source : "elaborated by the author from demographic data"

With an exception of the eastern part of Semarang, the new territory is a previously rural area with agriculture as the main activity. Some of the new territory grows very rapidly in the presence of the state university (Diponegoro university and Universitas Negeri Semarang). However, not much *Tionghoa* registered as the inhabitant there. The demographic data based on the ID card, normally ID card issued by sub-district of domicile.

Almost similar demographic mapping conducted at Jakarta last year. We can't compare Jakarta and Semarang due to the difference of size. However, there are some similar patterns with Semarang. The *Tionghoa* mostly concentrated in the North (coastal area) and West Jakarta, except the port area. South Jakarta was famous as the place for natives (Betawi tribes) become the stronghold of the Muslim community. The *Tionghoa* expands their settlements, but their concentration is not far away from their previous traditional settlements (Chinatown – Glodok). They dominated the luxury gated community of north and west Jakarta. This area also has two private universities, which is famous among *Tionghoa* community in Indonesia.

The area dominated by *Tionghoa* in Central Semarang consist of inner city kampung, which is also inhabited by Javanese and Arabs or Indian descents. According to Ford, inner city kampung has characteristic as follows : Located between colonial structure and new centres, high density (100.000/Km2), abysmal environtmental condition, attract people to live here due to the easy access of employment.(Ford, 1993) [24]

In common, inner city kampung formed a simple grid pattern. For economic activity the housing unit which located in the major kampung street has abundant potential to help dweller's economic function. The Tionghoa mostly inhabited the housing unit next to the main street. Some has shop house unit, but not always. Here is the example on kampung Pekojan, which previously dominated by Koja people.
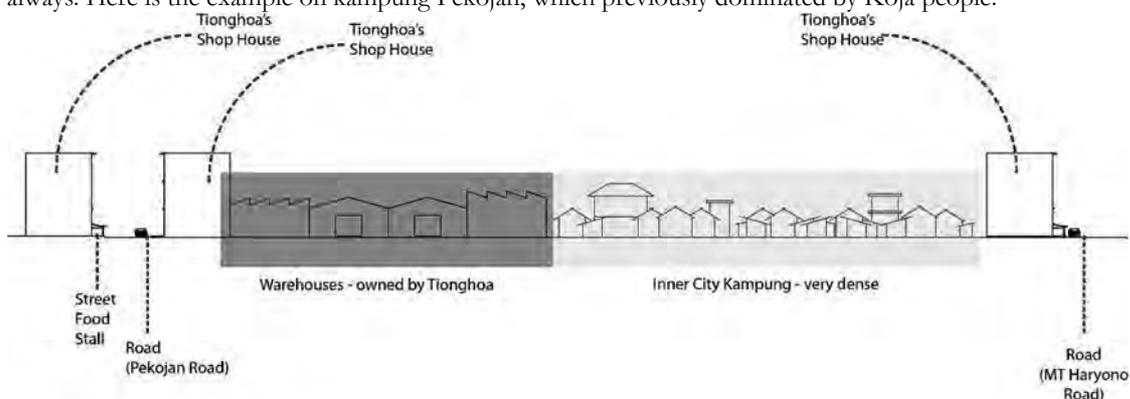

[fig.5] "Section of Pekojan Kampung"
Source : "elaborated by author"

[24] Ford,1993, "*A Model of The Indonesian City Structure*"

Although that pattern is a common pattern in the Central Semarang district, but there is some exception. *Kampung* Kapuran, just next to *Pecinan* is known as *Kampung Tionghoa* from the beginning. It was settlements for new Chinese migrants who worked for Chinese landlords in the 19th century. Today, the *Tionghoa* who lives here in majority comes from low economic status. They live separate from their Javanese neighbour, who resides in a dense neighbouring *kampung*. However the housing typology and spatial pattern are almost similar as inner city *kampung*.
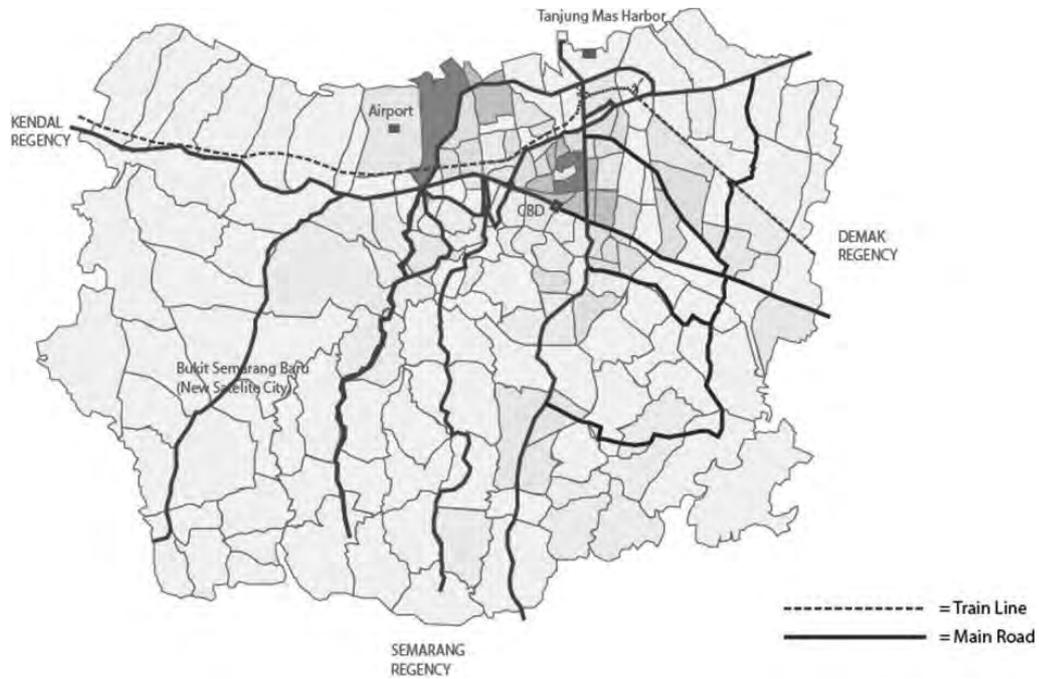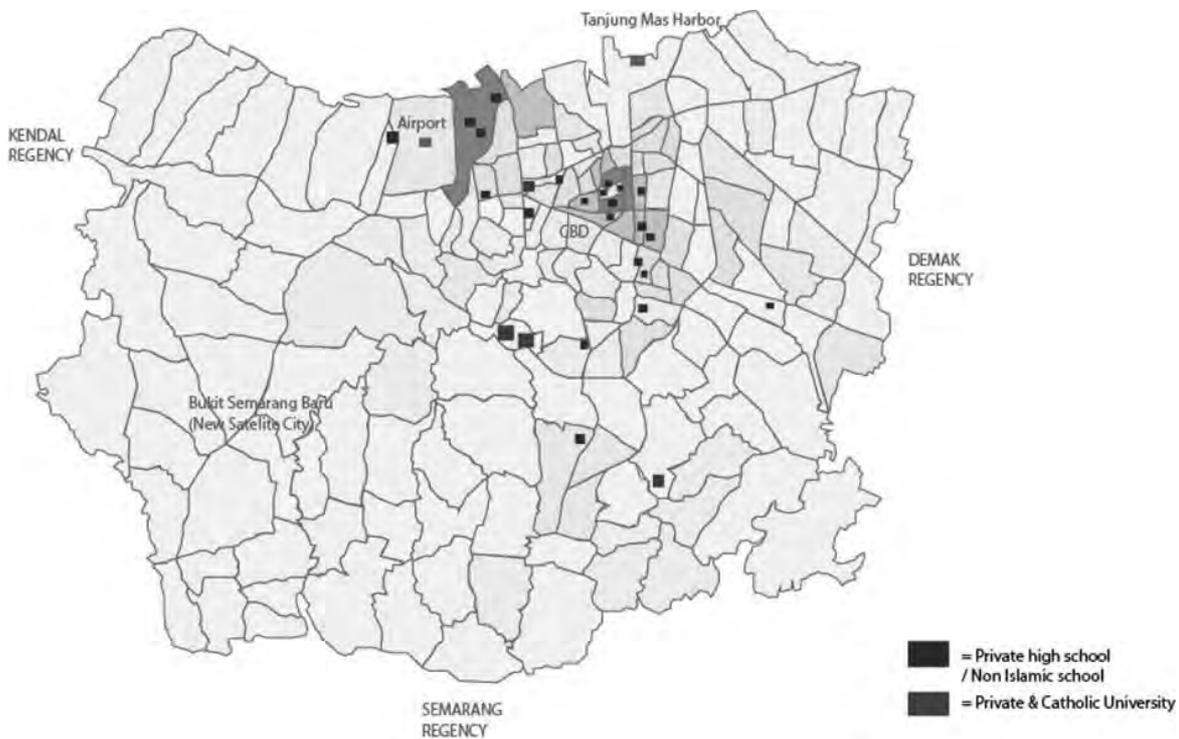

[fig.6] "Tionghoa Settlements and Main Road Network"
Source : "elaborated by author"
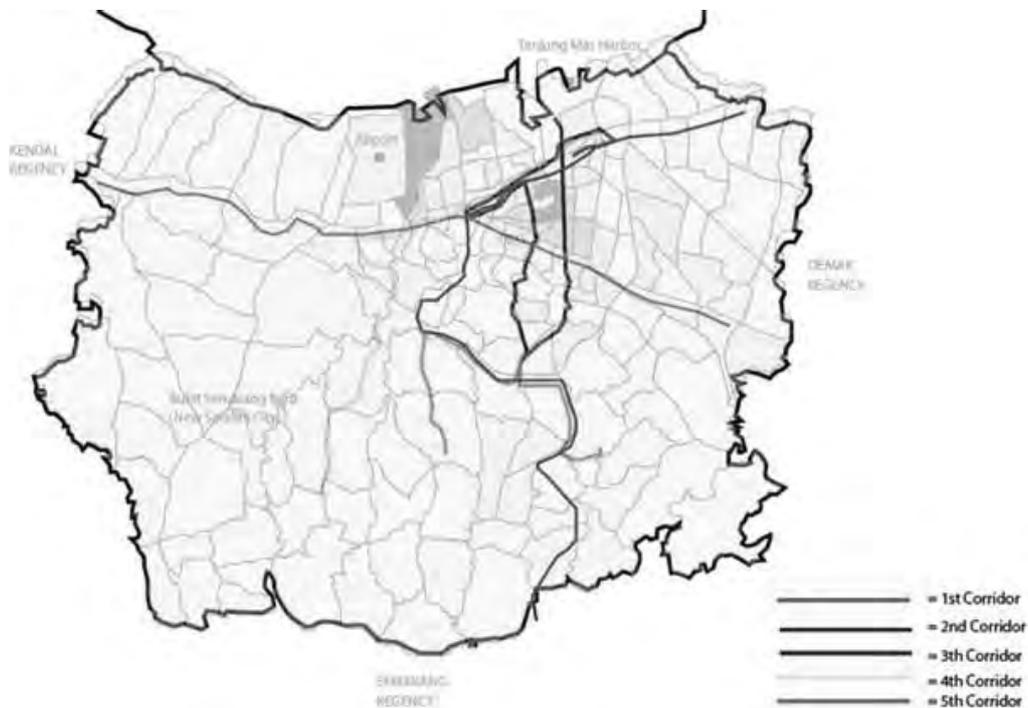
[fig.7] "Tionghoa Settlements and Public Transport Network"
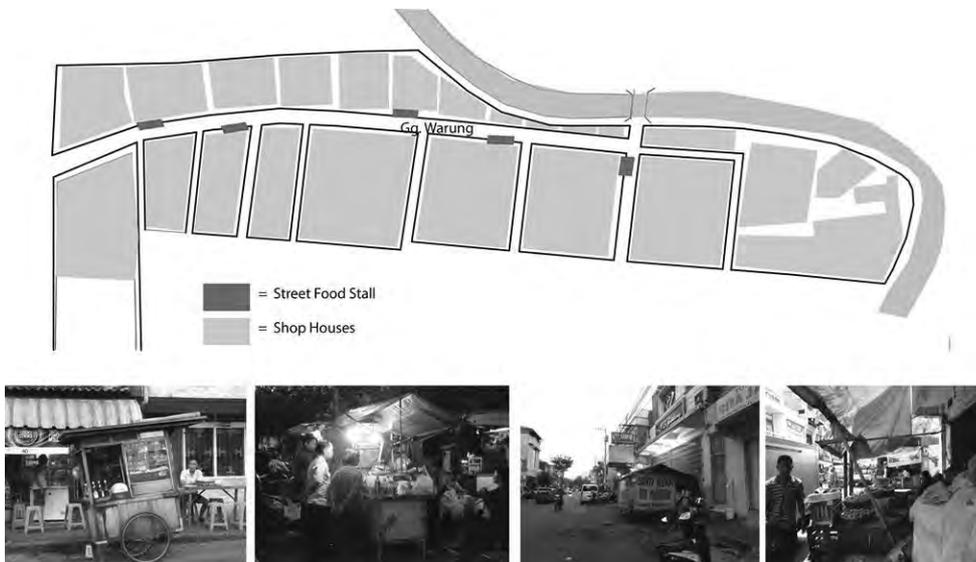Source : "elaborated by author

364
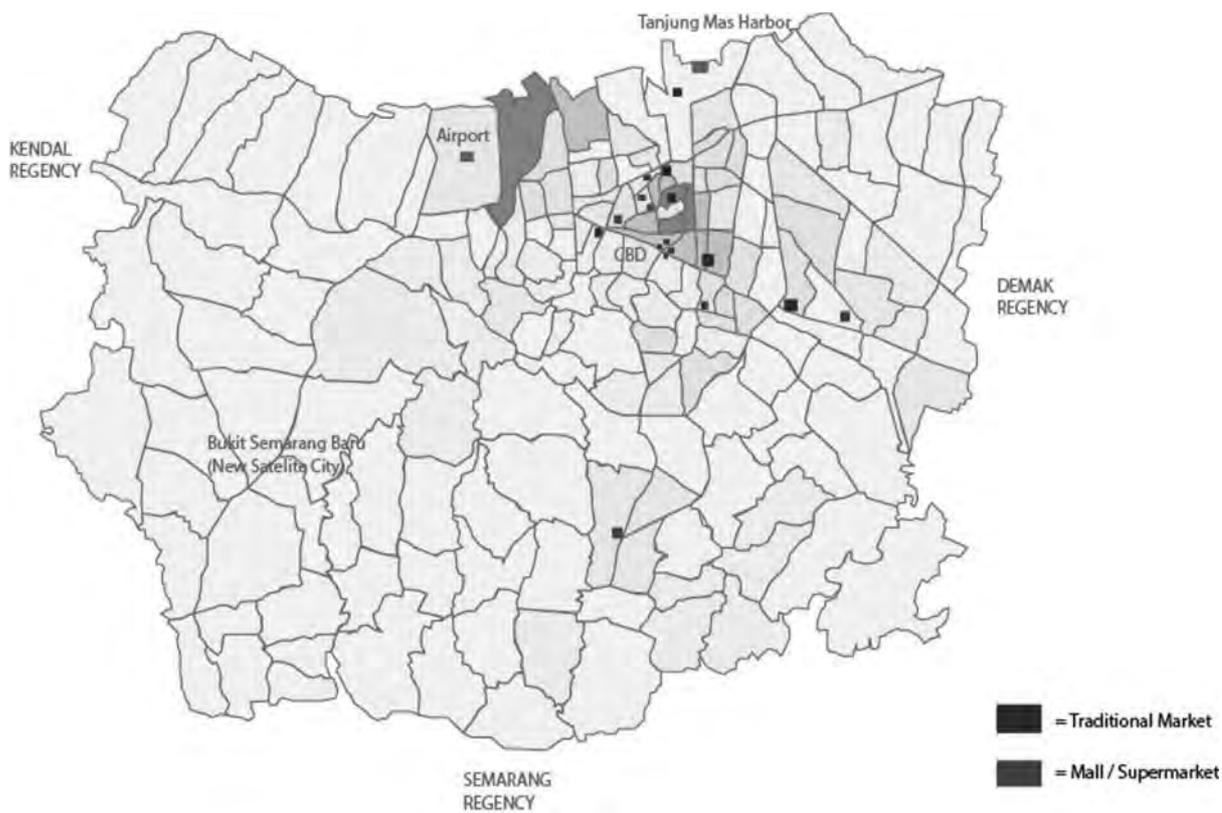
[fig.8] "Tionghoa Settlements and Market Facility"
Source : "elaborated by author"

[fig.9] "Tionghoa Settlements and Private School Facility"
Source : "elaborated by author"

Discussion

In the explanation above, we saw that is true, there is a concentration of *Tionghoa* settlements in some district of Semarang city. For a long time, stereotype that *Tionghoa* people are spatially segregated is exists. However, *Tionghoa* settlements from the colonial era served as district of commerce. Till today, they share their living space with another group. They allowed Javanese traders, rickshaw driver, street food stall, and even scavengers present in front of their shops. There is a symbiotic relation among different ethnic groups. The *Tionghoa* isn't isolated within their own settlements.

[fig.10] "Sharing Space between Tionghoa and other groups in Chinatown - Semarang"
Source : "elaborated by author"

After independence, settlements are not based on ethnicity like common practice in the colonial era. The shift from segregation based on race to segregation based on income had already begun by 1942, and was reinforced during the subsequent Japanese occupation, accelerating further after independence in the late 1940s through several simultaneous processes. (Evers, 1975) [25] The government of Indonesia after 1965 also encouraged *Tionghoa* people to be assimilated with indigenous Indonesian. The map of *Tionghoa* settlements did not tell us that all of the *Tionghoa* lives in a gated community since the map is based on sub-district map. Many of the *Tionghoa* also lives in the inner city kampung, side by side with other ethnic groups. Though mostly they live in the area which is still has an access to the road. But yes, like another group, they moved to a better place, when they have resources or they adjust their house to another activity (see an example in Pekojan *kampung* or Gg. Lombok).

By the 80s, high rise offices, gated residential communities, giant shopping malls and freeways have already taken root in Southeast Asia and have become key elements in the restructuring of urban space. The dispersion of *Tionghoa* community settlements has a relation with this phenomenon. The map shows the presence of big shopping mall, private school, church and temple in the area dominated by *Tionghoa*. In Semarang, one of the famous *Tionghoa* schools (for the upper class) is 'Karang Turi', when they move the school to the new gated community in the west Semarang, the price of property increase. Recently, the presence of this private school attracts *Tionghoa* to buy a house there.

Education is something really important in the Chinese culture. In the colonial era, the best education was taught by European school with Netherlands as the language of instruction. The second grade was Chinese school with Netherlands as the language of instruction. Many schools were run by the Catholic / Christian foundation. The image of better quality in the catholic school still remains today. Many *Tionghoa* send their children to study there. The map shows us that an old and well established Catholic school are located in the city center who has a significant Tionghoa inhabitant. However, in the subdistrict whose has a lot of luxury gated communities (Tawangsari sub-district) has several new protestant schools too. In the recent years, opening a school becomes a trend among many Christian foundations / church. In the other hand, the real estate developer should provide public and social space in their project. Cooperation with Christian foundation would help them boosting the promotion of their project. Especially when their target market is *Tionghoa* community. The presence of a good reputation private school will attract the customer. Their customers were not only the people of Semarang, but also the *Tionghoa* from Central Java province.

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[25] Evers, H-D., 1975, "*Urbanization and urban conflict in Southeast Asia. Asian Survey*", Vol. 15, 775–785.

For higher education, the map is a bit different. Semarang has a good Catholic university. Semarang also has several public and private universities too, including one famous Islamic university. In common, the university located in the new territory of Semarang (after 1976). The area around the university mostly grows as a new city center. Many people invest here. They build a dorm or student housing, shops, fancy restaurant and cafes. There are also a road and public transport that connected this area with the city center. But not many *Tionghoa* registered as a resident here. Although, they might have a business here. Mostly they are officially living in the city center.

With the explanation above, we know that the *Tionghoa* mostly living in the city center, include the kampung. But their number is not much in the *kampung* of new Semarang territory or the previous rural area. The *Tionghoa* of Semarang even dominated some of the inner city kampung who have almost similar characteristic with other inner city *kampung*.

This phenomenon was also arise in the 'formal' settlements. A real estate developer built many 'formal' settlements across Semarang. But the *Tionghoa* concentrated in the north and north-west sub district. In the other hand, the development of a higher education center provides an area with potential economic activity. But why, the *Tionghoa* didn't reside there?

There are several possible causes. Like mentioned above, since the preference becomes the main determinant factor, life style, character, financial resources and interest of the consument are really important. Different groups, even different households, have divergent ideas of what constitutes a desirable housing situation. Cultural belief, for instance the habit to maintain their primary home, or maybe Geomancy has an influence here, as well as family bonds and their livelihood. For instance, one of the respondent said that they buy a house in the coastal gated community, because that place is the location of 'the head of green dragon'. They believe that that area will give them more fortune, although they face flood from time to time. They will preserve the property of their ancestor, living not far away from their parent home, and continuing their parents business.

Talking about life style, even though the *Tionghoa* maintain their identity, but they also absorbed 'modern' lifestyle. In the research of gated communities in Medan and Jakarta, it was revealed that the *Tionghoa* are not happy to be compared with their indigenous neighbour. They would follow another life style that is matched with their social class. Living in an area that is surrounded by many fancy shopping malls, good private school, not far from the central business district (in the case of gated community), with high value of property are more attractive than living in a new city center in the previous rural areas. Whilst, having a business in a new city center is still possible. They also have the financial resources to buy a property in the city center.

Insecure feeling is also something important among the *Tionghoa*. Gated community offers the security guards. This also the concept of gated community which is not dominated by the *Tionghoa*. But why they are concentrated in Tawangsari subdistrict in north – west Semarang? Not far from another *Tionghoa* settlement in Tanah Mas. Perhaps, living among their own community provides them security feeling. This gated community also provides an easy access to the city center, as well as an access to the airport.

In the small interview conducted last year, it is revealed that mostly the *Tionghoa* considers the possibility to start their own business, when they searching a place to buy a house, although not all of the respondents working as a trader. Another consideration is a school facility for their children. That is why, they prefer to live in a settlement with the distance of 5 – 7 Km from the city center.

It is true that in some region the *Tionghoa* can't buy land or houses. But in Semarang, the *Tionghoa* could buy a land and house with ownership status (not only the right to use the land / building). Housing provision policy in Indonesia also gives them the same right with another group to access loan in housing ownership. This is a bit different with the policy in Malaysia, which is the policy there gives privilege for Malays tribe only. The first real estate development with a loan scheme in Semarang was in Tanah Mas. That area is one of the concentrations of *Tionghoa* in Semarang.

In the end, I conclude that the concentration of *Tionghoa* settlements is exists in Semarang. But the reason is not only about insecurity. The culture and daily life cycle of the households plays an important role here, as well as their instinct as trader community. The policy of the government in housing provision also gives them support to claim their place in the city. They could get benefit from financial assistance in housing property though in the majority they already have 'relative' strong financial resources. This 'segregation' also do not prevent them to have contact with another group, since they share space for livelihood, at least at the Chinatown, inner city kampung and district of commerce. This 'sharing space' action also provides protection for their business, since they share their space with indigenous Indonesian. However, gated community is a bit different, though the other ethnic group has no objection with this concentration.

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From dissensus to modernist consensus. On the irruption and reproduction of spatial orders in 20th century Guadalajara.

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This paper sheds light on the interrelationship between spatial arrangements and political processes in Guadalajara, Mexico, during the first half of the 20th century. Through a structural urban analysis the path–dependency relationship between political ideologies, projects and urban transformations is presented. Space throughout this reading is regarded as a stage simultaneously framing and affected by contingent social processes. In parallel, by addressing the 'distribution of the sensible' –that is, the contingent ways in which society and space are arranged according to a well defined system of hierarchies, places and functions– rather than reading the urban effects of 'industrialization' as a political-economic regime, it is possible to distinguish a particular kind of non-democratic politics steering the precipitated reshaping of the city centre: that of a 'modernist consensus'.

Casus belli

My research investigates the relationship between urban spatial arrangements and political processes by addressing the range of antagonism, contestation and disagreement that is at work in the historical development of Mexico's second largest city, Guadalajara. 'Disagreement', according to Rancière's thesis is "a determined kind of speech situation: one in which one of the interlocutors at once understands and does not understand what the other is saying. Disagreement is not the conflict between one who says white and another who says black. It is the conflict between one who says white and another who also says white but does not understand the same thing by it or does not understand that the other is saying the same thing in the name of whiteness" (1999, x). In other words, my research attempts to position dissensus –or 'the enactment of disagreements'– as a way of thinking and intervening the city; dissensus as the way urbanism proceeds, whether by its affluence or absence. In this occasion, I address the interplay between the spatial and the political in central Guadalajara from the early 20th century until the 1950s, in which a naturalized hierarchic constitution of the social, underpins the destruction and profound renewal of the city's historic core.

This urbanization episode has been defined –throughout the consulted literature– as "fordist" (Díaz Núñez & Perez Bourzac, 2010), "developmentalist" (Rivera Borrayo & Orozco Alvarado 2009, 853), "progressive" (Núñez Miranda, 1999), and overall, "modern". Furthermore, the modern condition and drastic physical reshaping of Guadalajara appear as natural givens: modernism as an abstract "aspiration" of the city (Díaz Núñez & Perez Bourzac, 2010, 71); urban renewal as a "modernizing strategy" (Nuñez Miranda 1999, 98); and both as the direct result of a new economic production and accumulation regime (Sanchez Del Real, 2008). Still, such notions seem to reproduce inherited narratives and understandings coming from different sites and realities, trying to make sense of on-ground spatial dynamics, however, without actually addressing them. I note this not to deny that modernization –especially through industrialization (Sanchez Del Real, 2008)– had spatial consequences in Mexico and Guadalajara, but to excavate the specific ways in which such universal notion of modernity was 'provincialized' (Sheppard et al. 2013); and reflect upon the different material and political outcomes that –to my understanding– do not necessarily coincide with existing accounts of Guadalajara's urbanism of the time. My intention then is to approach the spatial and political mechanisms that allowed these radical transformations throughout the mid-20th century, by conceptualizing space as 'the stage' (Heynen, 2013) in which contingent understandings of modernity, consensual politics and ideologies retrofit a series of urban policies and severe built fabric alterations. For this endeavour, the city structure and destructions are mapped, in parallel with the urban projects, discourses and idiosyncrasies of the actors involved. As a prelude to my case study, I briefly visit the political landscape of Mexico during the studied period drawing upon Jacques Rancière's political theory, and relating it to the urban phenomena.

Modernity and the 'partition of the sensible' in 20th century Mexico: notes on space, politics and the police.

> " I do not know if modernity is a blessing or a curse, or both. I know it is a destiny: if Mexico wants to be, it has to be modern" –Octavio Paz.

After the Mexican revolution that culminated with the drafting of the 1917's constitution, the party in power, *Partido Revolucionario Institucional* (PRI), will uninterruptedly govern the country for more than 70 years. As described by various authors, the PRI regime during the 20th century could be considered, first and foremost,

as an incredibly efficient machine of *consensus* (Sanchez Prado, 2014, Williams, 2011). Peruvian writer Mario Vargas Llosa called the PRI's resilient political system "the perfect dictatorship" (Vargas Llosa, 1990). Although more than a dictator-ship, it might be better described as a '*dictator-ness*': a way of perceiving the world –both materially and symbolically– according to naturalized relationships, logics and possibilities within a well defined system; a social arrangement not just simply circumscribed under a struggle over political leaderships, parties and agendas. When Vargas Llosa firstly aired this argument in front of other 'intellectuals', Octavio Paz dismissed Llosa's interpretation by stating that rather than a dictatorship, "in Mexico there is a hegemonic system of domination… an hegemonic domination of one party". Through a state-theoretical perspective, it is possible to recognize such hegemony and domination of one party in Guadalajara's urban planning and development regimes by looking at the degree of legitimacy and co-ordination between dominant and subordinated groups of the time (Loopmans, 2008). Notwithstanding this very useful perspective, more than just accounting for a state of hegemony in urban policy, which without doubt is there, in this occasion I dwell into the ways in which space becomes both, an 'apparatus' for achieving this particular kind of hegemonic urban order –that could also be defined as modern–, and a 'receptacle' of socio-political dynamics reflected in its morphological transformation (Heynen, 2013). How could be possible then to relate these phenomena with the evolution and production of the city? And which is the role of space –if any– within this political configuration? In order to explore to which degree these political processes are reflected in and influenced by the material and symbolic features of the built environment, I approach this twofold question by bringing attention to how space becomes the stage of concurrent political logics that ultimately have a significant effect in the city's material and social development. Space, throughout this reading, is not just regarded as a passive container accommodating the offshoots of socio-cultural phenomena, but it is also acknowledged as an active instigator of societal change (Heynen, 2013). Coinciding with Heynen, by using the term 'space' I refer to "the physical reality of the built environment, to buildings, to interiors, to urban spaces and the way these entities interrelate." (2013, 343) Furthermore, to make sense of the relation between the spatial and political realms, I also draw upon Rancière's conceptualization of "the distribution of the sensible[1]" (1999, 2010), as well as approaching it through a fundamental distinction he poses between his understanding of "politics" and "the police" (Rancière, 1999, 2004, 2010). The latter, does not refer to the policing institutions nor the 'state apparatus', but it is a naturalized order of the social that partitions[2] the community into clearly identifiable groups, positions, hierarchies and functions; and establishes the ways in which those parts interrelate through what is commonly understood as politics. According to this view, the procedures of ordinary politics, policymaking, and urban planning fall within this category, but the police order goes well beyond formal(ized) institutions, also entailing the quotidian perception and interpretation of things supported by 'sensible evidences' e.g. policies, projects, categories and even connotations (Dikeç, 2009, 6). In this way, the logic of the police is one of distribution, identification, and of 'the proper' (Dikeç, 2005). Democratic politics, on the other hand, occur when a given practice, operation, event or act disrupts the hegemonic order, in which "the part of those who have no part" emerges and calls for a new (re)distribution of the sensible" (Rancière, 1999).

Sanchez Prado resumes one of the main traits in which the 'the police' is configured in Mexico that is worth to cite in length: "In Mexico, the [distribution of the sensible] corresponds with a near universal agreement between Mexico's political, economic and intellectual elites that the country's problem is *the fact that modernity has yet to arrive*. In consequence, there is a predominant discourse in Mexican politics and culture that sustains that the promise embedded in its potential arrival is deferred because of anti-modern traits in the Mexican national character, which typically consists of a generalization of the cultures of the poor and the marginalized." (2014, 372, my emphasis). During the studied period then, "modernity in Mexico was orchestrated by a total state that strived at all times to suppress the duality of state and society" (Williams, 2011, 12). This constant effort of suppression, as implied by Llosa's argument, was not carried out through violent repression, neither through the instauration of a unified identity, authority or sovereign –that is to say, it was not done in a totalitarian manner–, but by a combination of these and other forms of *consensus*. By not just repressing or excluding opposition groups, but by actively (ac)counting them within the PRI's political constellation; within the PRI's conception of the world. By assigning to the opposition empirical places, functions and status within the PRI's universe, the opposition itself identified with its assigned place –as 'the opposition', the 'governed', the 'clientele', and so on–, thus rendering most of 20th century political struggles into the realm of 'the police' (Rancière, 1999). That is, a dispute between well defined interest groups, instead of a conflict over the very logic in which the parties and parts of the community are counted.
Thus, the pursuit of modernity stands as the end game –or *telos*– over which every project, –urban or otherwise– becomes legitimized. In other words, modernization becomes the basis for delineating the "distribution of the sensible […] the abstract and arbitrary forms of symbolization of hierarchy [which] are

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[1] Also translated as "partition of the perceptible" or "partition of the sensible" (Rancière, 1999, 2004)
[2] The French term *partager* makes reference to both something that is divided and at the same time putted in common.

embodied as perceptive givens" (Rancière 2011,6-7). The city and its spatial arrangements in this way, have a direct relationship in defining the parts and places of the community, its allocation of functions, positions and hierarchies in both time and space. Simply put, space is integral to –what Rancière calls– "the police" (1999, 2011). However, coinciding with Sanchez Prado (2014), I'm also less concerned in coming to terms with Rancière's terminology than with engaging practically with the questions raised through his work; specifically on the role that space plays within such political processes in central Guadalajara. Now, going from this abstract –although very concrete– state of things in Mexico, the next section focuses on the specific way this 'distribution of the sensible' drastically materializes in what today is known as Guadalajara's historic centre, from the early to mid 20th century.

Post-colonial waves of 'order and progress'

The profound transformations occurred in Guadalajara's physiognomy during the 20th century couldn't be understood without the contingent social upheaval lived in the previous century. Contrary to what one may think, both Mexican independence and revolution wars barely affected Guadalajara's urbanism (Melé, 2006). In turn, conflicts such as the *Guerra de la reforma* and *La Cristiada[3]* wars carried more weight in the city's evolution as we will see further on. Guadalajara's economy, since its foundation, was concentrated around agricultural production coupled with the commercial and service sectors (Calvo, 1992). Until the 1970s, the city always functioned as a regional centre of accumulation and exchange rather than a properly industrial hub (Melé, 2006). For more than 3 centuries, the central district of Guadalajara –what used to be the exclusive Spanish grid– kept absorbing and accommodating different waves of urbanization by way of expanding its reticular structure (Lopez Moreno, 2001). It was until late the 19th and beginning of the 20th century that new urban patterns appeared in the west part of the city. With more than 110,000 inhabitants in the 1900, new *Colonias* European-style neighbourhoods such as *Colonia Francesa, Colonia Americana, Colonia Reforma*, among others, began composing an urban patchwork, differentiated from the homogenous structure of the now 'historic' city. In turn, inner Guadalajara was still highly compatible with the mercantile city model that had been taking shape since the Spanish colony, with an urban landscape composed of remarkably accessible commercial establishments coexisting with bourgeois residences, civic and religious premises (Gonzales Romero, 1988). As symbolic boundaries were dismantled by new political ideologies, the colonial dualist urban order with its topographical border dividing Indian and Spanish domains also dissolves. The San Juan de Dios river is culverted, giving way to a French-style parkway, and what used to be the edges of the 'two republics' developed into preeminent shared public spaces such as the *San Juan de Dios* market and *Alameda* park. The centre, without the colonial aura of the 'pure' and its exclusionary character, became –thanks to its morphological constitution– the stage where vibrant urban life unfolded (Nuñez Miranda, 1999). Eclectic architectural typologies framed the coexistence of all population sectors. Mixed-use buildings housed the rising mercantilist bourgeoisie on the top, while commercial premises were found on the ground floor, sheltered by *portales*, fig.2. These spaces functioned as thresholds between public and private domains; as articulators of formal and informal vending, ambulant and permanent; and apart from the main *plaza de armas*, they provided much of the material ground in which social life was reproduced (Villaseñor y Villaseñor, 1990).

[fig.1] Works on the San Juan de Dios River circa 1907. View of the resulting *Calzada Independencia* 1930s. Source: AMG

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[3] Both armed conflicts are part of the power struggle between Catholic conservatives and the liberal government during the 19th and early 20th century respectively.

[fig.2] Portales early 20th century. Source: AMG

Throughout 19th century Mexico, the changing condition of the dominant ideology –towards a liberal, progressive and modern apparatus– is also reflected in a series of mutilations in the built fabric. An anti-ecclesiastic sentiment among the political elites prevailed (Wilkie, 1998), and both war and politics leave their mark on religious complexes. The cutting-through and partial demolition of *Del Carmen* convent in order to prolong the street *Coliseo*, more than just responding to a functionalist logic of traffic efficiency, "obeyed to a political fact full of symbolism promoted by then-governor Santos Degollado, who, backed by the *Lerdo Law*[4], encouraged the urbanization of spaces previously occupied by churches, religious congregations and indigenous communities" (Núñez Miranda, 1999, 98). In a similar manner, streets were 'opened' by tearing down parts of *Santo Domingo* church and its annexed chapel; the college of *San Diego*, the *Santa María de Gracia* convent, and two chapels part of the *San Francisco* complex also disappeared among many more decimated church properties (Nuñez Miranda, 1999,98). These actions derived as well from legal dispositions dictated by the governor "in order to punish the traitors and conspirators against the Constitution [...] comprehending among the conspirators the bishops, priests, and other ecclesiastics, who by word or deed, in sermon or council, tried to persuade the people that the constitution should not be observed" (Cambre, 1949, 170–171). Later on, equivalent demolitions kept occurring justified for "functional reasons" (Lopez Moreno, 2001,121). Such as the opening of the San Francisco convent across its open-air *atrio* in 1888 –requested by the railway company– coinciding with the arrival of the first train to Guadalajara. The ideological shift fuses with functionalist understandings.

Likewise, not so much for a functional, but for an aesthetic factor, the old *pueblos de indios* –*barrios* of the city at the time–, where subject of constant modifications in their built structure. As these tissues are clearly differentiated from the 'ordered' grid pattern of the centre –not just by their form but also by their political structure[5]–, they were perceived by city authorities as 'backwards', based on "the liberal sentiment, which viewed indigenous forms of communal tenure as an impediment to progress and modernity" (Assies, 2008, 38). Indeed, Scott points out that "[t]he carriers of modernism tended to see rational order in remarkably visual aesthetic terms. For them, an efficient, rationally organized city, village, or farm was a city that looked regimented and orderly in a geometrical sense." (1998:4). The authorities' will to 'align' the streets of Mexicaltzingo and Mezquitán *barrios* according to the perceived "ontological superiority" of the grid pattern (Lopez Moreno, 2001, 54), is reflected in numerous expropriations and demolition of their built fabric. Such urban tissues –of the church and former *pueblos*–, thus reflect this changing political paradigm, while concurrently, by opening new urban arteries through them, new spaces of circulation are used as instruments to enable different types of flows in the city; encouraging economic and commercial activities in detriment of more 'traditional' livelihoods directly related with their past history. These urban politics and operations go by, it seems, uncontested, prefiguring a 'second wave' (Núñez Miranda, 1999) of urban transmutation at the centre of Guadalajara.

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[4] A Mexican law confiscating property held by the Catholic Church and other civil institutions such as indigenous communities, drafted by liberal politician Miguel Lerdo de Tejada, a prelude to the Reform War.
[5] The 'indians' villages' or *pueblos de indios* were part of a separate commonwealth –*república de indios*– under the tutelage of the Spanish colonial state, and apart from having its own internal government; it was characterized, among other things, by a communal tenure of land. See: Assies, 2008.
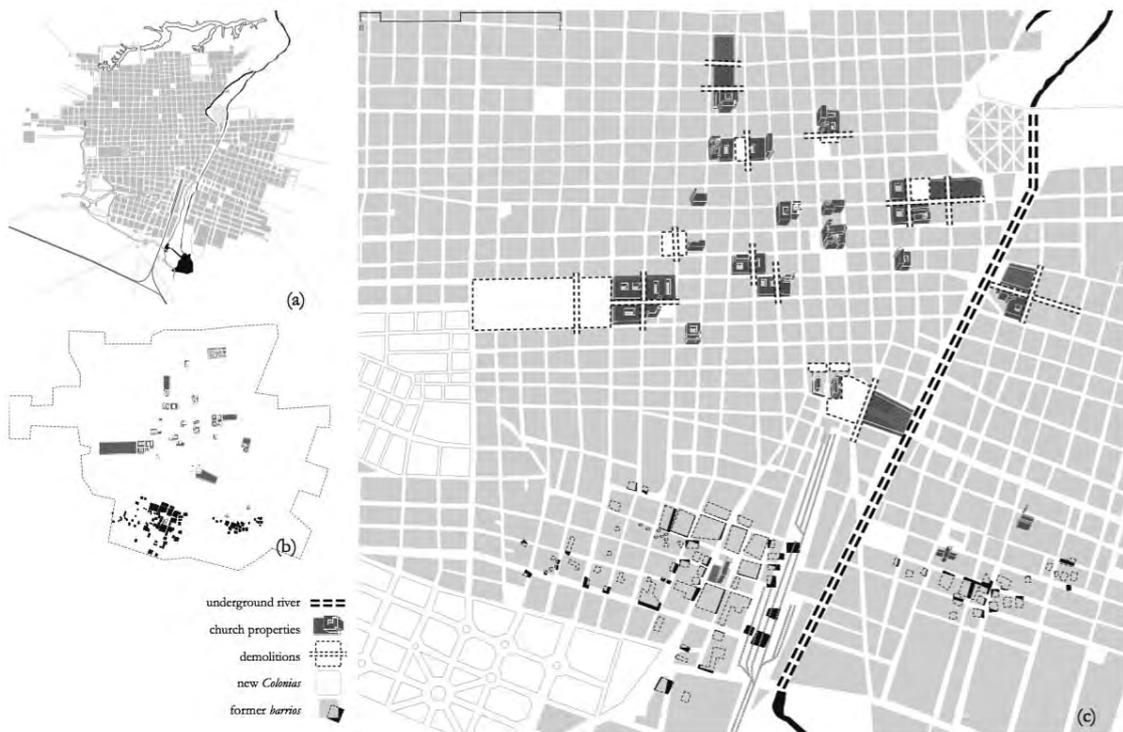
[fig.3] (a) Guadalajara 1896. (b) Central church properties and former barrios. (c) Guadalajara 1924, detailed demolitions, street openings and transformations in the centre. Source: elaborated by the author.


[fig.4] Demolition of Santo Tomás apse and altar circa 1930. Source: AMG.

Modernist irruption and creative destruction in Guadalajara.

The cross of avenues

Industrialization, between 1929 and 1980, is the dominant current in the country's economic development. However, in the specific case of Guadalajara, the commercial, services and most importantly, real estate sector guilds dominated the economic development of the city, consolidating a powerful "local bloc" (Sanchez Del Real, 2011). The *Cristiada* war triggered a significant influx of population, as the situation in the countryside were it was waged became more unstable and precarious (Núñez Miranda, 1999). Guadalajara, with almost 230,000 inhabitants by 1940, more and more is set to become "the great city of the 'small industry'" (Arias, 1985), with numerous small businesses, family workshops, stores and markets spread across the city but relatively concentrated within and around the historic centre (Melé, 2006). The city's structure and low-rise morphology remained almost intact for centuries, however, in a relatively short amount of time –1947 to 1952–, the historic core's physiognomy was brutally modified. 'Modernity' –or what was locally

understood by it– made its way through the architectural heritage. The enlargement and extension of numerous streets and avenues, including the two main central axes *Avenida Alcalde –16 de Septiembre* and *Avenida Juárez,* constitute some of the most significant urban interventions carried out in Guadalajara since its foundation (Lopez Moreno, 2001; Núñez Miranda 1999; Vazquez, 1989). Both main avenues' section would be widened from 10 to 25 meters; this will affect huge tracts of historical built fabric including the most representative typologies of the centre, the *portales*. New dynamics of circulation and exchange are promoted; motorized traffic begins its supremacy in Guadalajara's urbanism. The car becomes, tacitly, one the subjects upon which the interventions are directed. Only in the first phase, more than 12,500m² on 14 blocks where demolished (Sanchez Del Real, 2008, 53), although the magnitude of the works can be better grasped by dint of the accompanying map [fig.5]. Such radical operations are a direct result of the urban policies of state governor Jesus Gonzalez Gallo, who, during his term, was able to build a certain consensus between the political and economic elites. Gonzalez Gallo's six-year term was defined by political "unity and concord" (Ruiz Razura, 2015:57), where he was able to build a network of influential actors around a common vision for the modernization of the city; including important figures such as the mayor of Guadalajara, the archbishop José Garibi Rivera, the co-founder of one of today's three main political parties in Mexico, *Partido Acción Nacional's* Efraín González Luna, among with property-owners and other merchant's representatives, industrialists and worker unions (Ruiz Razura, 2015:57-58). The public use declaration of the expropriated properties in 1947 mentions the benefits and justifications, arguing that with the coming works: "the traffic problem is solved; the general appearance of the locality is improved; it contributes to the commercial development and vertical growth of the city, and to the widening of the commercial zone of the capital." (Sanchez de Real, 2008, 54)
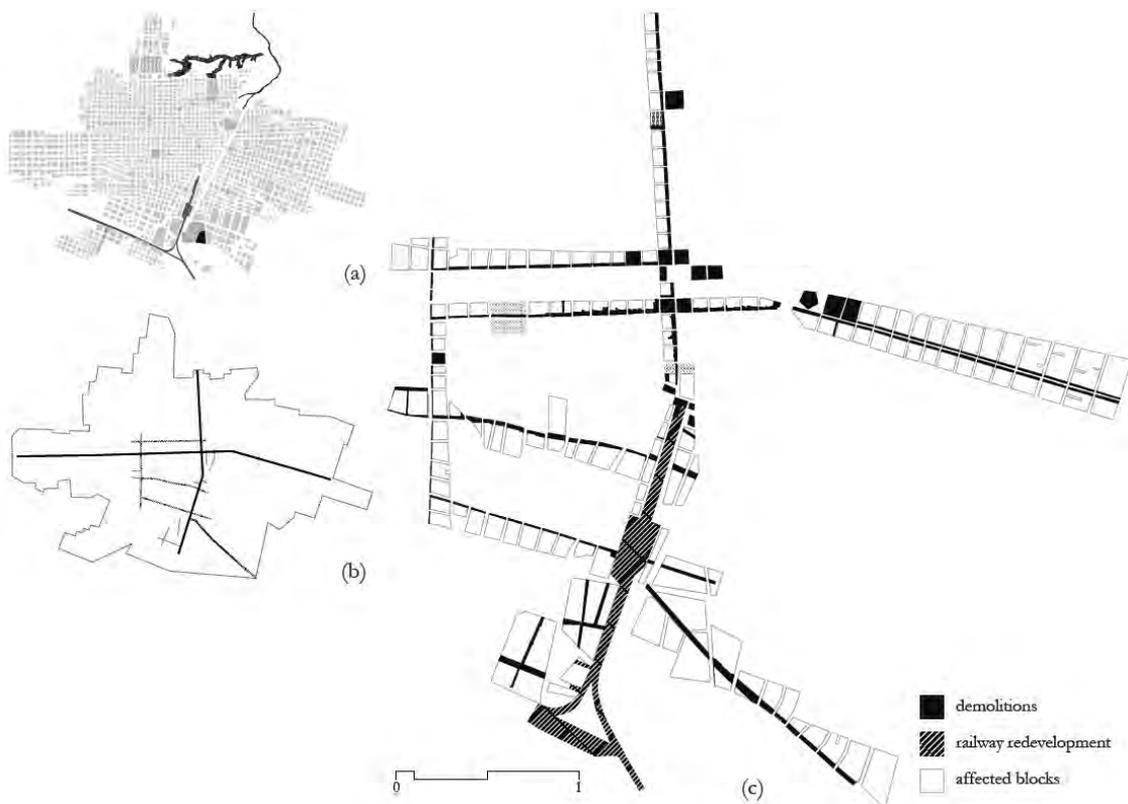
[fig.5] (a) Guadalajara 1944. (b) Proposed new axes. (c) Demolitions. Source: elaborated by the author.
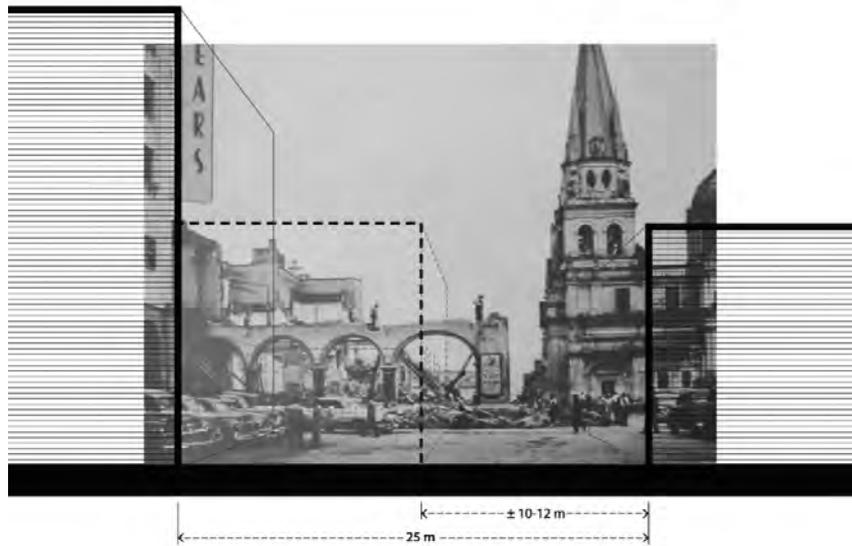
[fig.5] *Avenida 16 de Septiembre* section. Source: elaborated by the author from AMG.

The works were financed by a combination of federal resources and by the proprietaries themselves by imposing them a capital gains tax[6], calculated by net increases in value arising from the future revaluation of their properties. This was the main source of discontent although it was not widespread (Ruiz Razura, 2015). Opposition voices make their appearance through local printed media. However, such disagreement with Gonzalez Gallo's project are circumscribed within the police logic of the time: the public opinion expressed in local newspapers conceives 'urban progress' in the same way as the governor, and does not differ with the proposed city model –a modern one–, but only the methods to achieve such model are questioned (Sanchez Del Real, 2008, 17; Ruiz Razura, 2015). These other voices argued for prioritizing water and sewage infrastructure works, the transfer and improvement of the railway station, among other issues instead of widening avenues (Sanchez Del Real, 2008,17). Nevertheless, the operations continue. Here it is possible to account for both, a hegemonic condition of statist urban policy steered by the dominance of one party (PRI); and the consensual, un-spoken, or tacit acceptance of such distribution of hierarchies, roles and forces orienting Guadalajara's urbanism. Gonzalez Gallo's urban policy, in this way, tends to be mingled more and more with the urban 'police' of the city in Rancière's terms (1999). In spatial terms, more than erasing the unique typologies of the centre, these are 'upgraded'. The old *portales* of the centre are reborn, but instead of accommodating the bourgeoisie on top, office spaces occupied by doctors, law firms, banks, and so on, are multiplied. On the ground floor, the transformations also respond to a decidedly will to 'depurate' the cultural practices unfolding in the place. Just as the traditional *alacenas* stalls and other street vending modes were associated with 'traditional' habits of the past, these too are the main targets of modernization. Even if the *portales* typology, for centuries allowed the plural assemblage of 'formal' and 'informal' vending, the latter activities are banned and banished to new underground commercial passages commonly known as the "catacombs" (Sanchez Del Real, 2008, 51). These merchants are the only ones who truly dissent with the instauration of the new spatial order, and they enact their disagreement by continuing their vending activity even amidst the demolitions, which causes in the citizens "a mixture of sadness and bewilderment" (Sanchez Del Real, 2008, 55). The space of the *portales*, although being subject of constant policing, will allow a multiplicity of uses; they will evolve into true political spaces were "the part of those who have no part" (Rancière, 1999) comes forth, and materializes, once again, in an urbanism of dissensus.

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[6] Locally known as *impuesto de plusvalías*.

[fig.7.] The *alacenas* stalls before demolition. Entrance to the underground passageways after. Source: AMG

The cross of plazas

If the cross of avenues is born out of pure instrumentality –that of making space for the growing car traffic and circulation of both people and goods–, the *Cruz de Plazas* or "cross of squares" project, authored by architect Ignacio Díaz Morales, constitutes a gesture that tries to 'modernize' the monumental character of the centre according to 20th century standards. Thus, in order to give a more functional physiognomy to the "traditional beauty" of Guadalajara (Riviera Borrayo & Orozco Alvarado 2009), the project consists in the creation of new public open spaces surrounding the Guadalajara cathedral, and visually connecting it with existing landmarks such as the Degollado Theatre. The project received public criticism as well, however, again the claims were made on the basis of punctual characteristics and not as a whole (Ruiz Razura, 2015). Newspaper editorial comments argued for a change in the disposition of the largest *Plaza de la Liberación*, arguing for its relocation on the front side of the cathedral instead of its backside. With the consensus of architects, proprietaries and authorities, the only impediments for its realization were the edifices –with its occupants– standing in the projected areas. The necessary demolitions for the project are in any case considered as a heritage conservation issue. The built patrimony and traditional livelihoods remain 'invisible' to both architects and authorities (Sanchez Del Real, 2008). Apart from the editorial opinions printed in various local newspapers of the time –studied by Ruiz Razura (2015)–, little is known about the displaced tenants and the possible resistance waged against such urban remodelling. What we do know is that since the early 20th century, elite families previously dwelling in the area gradually moved from the historic centre to new aristocratic settlements in the west (Nuñez Miranda, 1999; Vázquez, 1989), and that original property owners remained throughout the renewal works (Sanchez Del Real, 2008). Pointing out that centre's dwellers did not have sufficient political leverage –*potestas*– to organize an effective resistance to their displacement. The result was more open space, new commercial premises and offices, higher flows of car traffic, and housing stock decrease in the city's 'first quarter'. The centre of Guadalajara consolidated this way as the 'central business district', an ambivalent place: vacant –as residential use was gradually diminished– but simultaneously populated by strong urban activity. Persisting since colonial times, a rich culture of street trading practices thrives by the multiplication of public ground. As such, these new spatial features give way to renewed social frictions that prevail until today. A multitude of *ambulantes*, informal vendors proliferate, and will become the target of numerous attempts of regulation (Flores Hernandez, 2016, 2016a).

[fig.7] Guadalajara in 1944 with highlighted blocks of the *Cruz de Plazas* project. Source: by the author from AHEJ

The *cruz de plazas* project, more than answering to "the need for open spaces", and "the need of entering modernity" was born out of pure speculation of its architect, Diaz Morales, which was *later* instrumentalized by the governor for his political vision of the city. As explained by its conceiver, "on one occasion, while visiting the rooftop of the Guadalajara cathedral", Diaz Morales recounts, "I contemplated the two blocks located behind, which were surrounded by a series of buildings with great architectural value, and *it occurred to me to think about a large square*; from the same roof I looked to the north and to the west, and I saw a garden and a space without purpose. It was then that I conceived the idea of projecting the cross of squares." (cited in Kasis Ariceaga, 2004, 54-55, my italics). However, the cross of plazas project itself seems to answer the calls for modernist urban spaces at the time (Giedion, 1944). The *Cruz de Plazas* project assembles two opposing notions that seem irreconcilable for the modernists, on the one hand, the total rejection of monumentality, "where the 'dead' body of the traditional city was seen as a frustrating impediment to social change that must be swept away" (Mumford, 2000, 150), and on the other hand, with the "new monumentality", consisting in the creation of new public spaces –although Giedion and others had in mind new community centres, expo pavilions, and the like (Giedion, 1944). The Cruz de Plazas project, rather than erasing or creating new monumental landmarks, generates new ways of perceiving and interacting with existing ones. The monumentality of Guadalajara's centre is not rebuilt from scratch; it is neither negated, but only transformed.

So we have different 'modernities' occurring in the historic centre; from one side, the sudden materialization of abstract goals, which is translated in physical adaptations to encourage new flows and accumulation of capital (Sanchez Del Real, 2008); while on the other side, that of aesthetics and appearances, which is materialized in new monumentality, providing "an adequate frame for man's intimate surroundings, […] planned from the human point of view" (Giedion, 1944, 551). In the political realm, however, both spatial transformation currents are part of the same dominant, consensual, forward-pushing order of things.
Simultaneously, it is during this period that Guadalajara city begins a path dependency towards becoming a metropolitan area. By the decade of 1970, the conurbation of Guadalajara's surrounding municipalities will concentrate 60% of the Jalisco state population (Díaz Núñez & Pérez Bourzac, 2010). The enlargement of *Avenida Alcalde* coupled with the cross of squares actually functions as kingpin for this path. It is literally the remnants of the old city what provides the ground for future urban expansion to the north (Sanchez Del Real, 2008; Ruiz Razura, 2015), as the *barranquitas* ravines –the natural borders delimiting the traditional city since its foundation– are gradually filled with the old city debris.

Provisional remarks on the consensual politics and projects of urban monumentality

If disruption is the essential feature of the political (Rancière, 1999), then, a disruption in the morphological constitution of the city also accounts as political. However, the precipitated instauration of a new order –with both material and symbolic manifestations–, in this case a 'modernist' one, prefigures an urban landscape characterized by consensual relationships and transformations; one in which dissensus is eclipsed by 'statist' urban politics and projects. Throughout history, as we will see further on in my research, the most distinguishable trait in the urbanism of Guadalajara's centre, is both its conceptualization and instrumentalisation as a 'monument'. Born as a monument, the centre of Guadalajara would be hereafter defined by the continuous contention on what the meaning and use of this monumental space might, could and should be. By addressing the 'distribution of the sensible' (Rancière, 2004) –that is, the contingent ways in which society and space are arranged according to a well defined system of hierarchies, places and functions– rather than reading the urban effects of the 'industrialization' regime, it is possible to make sense of the actual relationship between political and spatial processes. What underpins Guadalajara's drastic spatial transmutations in this short period is a naturalized order of things dictating that modernity postponement has to end. Furthermore, during this period, one is able to distinguish a particular kind of non-democratic politics steering a precipitated reshaping of the city: that of a 'modernist consensus'. By this I do not mean that everyone agreed with the kind of operations, demolitions, and projects carried out in the historic centre; neither I imply that no resistance was played whatsoever. But by characterizing this period's politics as consensual, I mean that there was a general agreement upon the *distribution* of roles, forces and hierarchies shaping the city. An urbanism developed within a well-defined horizon of possibility. Even if there were voices questioning such transformations –although heavily invisibilized–, such resistances took for granted the given 'distribution of the sensible' without actually trying to disrupt it. Thus, the consensual politics of monumentality propose the historic centre as an hegemonic, unquestionable and hierarchical space, in which, simultaneously, the *telos* of *tapatío* modernity is reflected in the erasure of historical built fabric, and space is used as a tool to enable new urban logics of circulation, accumulation and interaction according to the

material and symbolic vision of its proponents. Such vision however, will be constantly subverted by the always sophisticated and paradoxical urbanism that nowadays unfolds in its grounds.

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Archives

[AMG] Archivo Municipal de Guadalajara, Mexico

[AHEJ] Archivo Histórico del Estado de Jalisco, Mexico.

De-hierarchizing Belo Horizonte's foundational plan, building theory from off the map

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Planned to be the capital of Minas Gerais state in 1895 Belo Horizonte presents an emblematic case of new city building in Brazil, the first in this scale, a half-century before Brasilia. The plan for the city has repeatedly been considered as being inspired by positivism, a mismatched copy of European and North American models. Such interpretations have perpetuated core-periphery perspectives that have long dominated social sciences. Through a decolonial perspective, this paper will propose a move from ideology to habitus, appropriating the concepts of Althusser and Bourdieu, aiming to move away from the predominant role given to urban projects and models and shed light to the rhizome of social practices that also shape cities. While bringing new light to the urban history of Belo Horizonte, the research also contributes to more general Brazilian and Latin American urban theory, as a starting point to build a more cosmopolitan theory from off the map.

Introduction: theory from 'off the map.'

Urbanism origins as a discipline date from the early 19th century although only acquiring such as status a century later. It emerged as a direct response to the problems caused by Industrial Revolution to the cities and consequently to daily human life. Such an experience was, however, a privilege of a less than a handful of urban centres: London, Paris and New York to name a few. The experiences of this limited number of cities served as the basis for canonical socio-urban studies such as those developed by Michel Foucault, Walter Benjamin and many others. Since then the field of urban studies has evolved as an entry gate to conceptualise cities - and human life in cities - across the entire globe, having the industrial revolution as a point of departure but also retrospectively.

Jennifer Robinson's (2002) essays on 'world' and 'global' cities point to the present paradoxical condition lying within urban theories and studies in which the understandings of city-ness rest on the experiences of a small group of (western) cities. According to her, such a narrowing of experiences is responsible for today's limited scope of creative imagination towards cities, more specifically of urban public policies. Instead, she proposes a more cosmopolitan approach to urban studies that should centre on accounts of 'ordinary cities' rather than 'global cities'.

Boaventura Sousa Santos' (2004) critical work on social sciences argues that modern western reasoning has been effective in expanding the experiences of a few parts (namely the west) to the entire globe. He names this as logic 'metonymical reasoning', producing one single totality by ignoring everything else that does not fit within, through effective homogenization. These have resulted in the waste of a rich multiplicity of (social) experiences, rendering limited imaginations about possible futures. Aligned with Robinson, he proposes the production of a 'cosmopolitan reasoning' that acts through the multiplication of totalities while widening the scope of social experiences and consequently possible futures. The procedure he calls 'sociology of absences' allows to shed light on the non-existences produced by modern western thinking and its homogeneous application worldwide.

The exporting of (European) modern ideas have not only imposed how the rest of the world thinks (or at least should do) about cities but has also significantly influenced on how we act on them[1].

Since the invention of the idea of Latin America (Mignolo, 2005) its territory and its people (from within and imported from abroad) have constituted a fertile experimental ground for ideas coming from the centre such as progress, civilisation, development, modernisation, industrialisation. Following the modern logic of the linearity of time, such views render as primitive, traditional or barbarian anything that lays outside, considered as lagging 'behind' while the central countries are positioned ahead in the timeline as role models. Consequences of this are the notions of bricolage, incomplete, distorted or anomalous modernity in which different temporalities co-exist and often collide (Bhabha, 1994; Martins, 2000; Santos, 2004; Waisman, 2013; Almandoz, 2016). Another significant outcome of the mismatched application of the modernisation project in Latin-American cities is the constant notion of a lag between project and reality (Gorelik, 2005). The attention focus on the first term rather than the second leaves for the 'under development' constant frustration feelings of never really getting there.

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[1]. It's informative for example how much actions targeting urban population is captioned and sponsored by organisations such as the UN or the World Bank

The focus on representations rather than real life has also had its reflections on the history of urbanism, often told through projects, plans, master plans and legislation. The result of this approach is a history of ideologies and discourses laying behind such projects, which in fact only alludes to reality. Considered by Althusser (1971) as the imaginary representation of the relations of individuals with their real conditions of existence, ideology, in this case, represented by fulfilled modernity, is situated only within the imaginary, in the dreams. As pointed by Mignolo (2004, 2005) we can no longer speak of modernity without its counterpart, coloniality, be it associated with colonialism, cultural and economic imperialism or even in the contemporary situation of immigration in the former Metropolis. Therefore, one can no longer speak of ideological projects of progress and modernisation without an account of its contrasting realities from the perspective of the colonised if we wish to construct more cosmopolitan reasoning.

Since its foundation, the state-planned Belo Horizonte, today at the centre of a metropolitan region of almost 6 million inhabitants, has been accounted as the ideal, modern planned city. It emerged as the counter-part of colonial Ouro Preto, the provincial capital substituted along with Brazilian colonial and imperial pasts, ran-over by the white horse of the new Republic. The city's urban plan from 1895 [fig. 1] has been interpreted as the materialisation of French positivist ideas of progress and order, having its rigid grid been justified mostly by alleged inspirations on Haussmann's, Paris and Le Enfant's Washington D.C. Its orthogonal grid crossed by diagonals, dramatically imposed over an undulated landscape could only be justified as a mismatched copy from European models, a practice established in Brazil since colonisation. The foundation history has never, however, been told from the perspective of the misplaced, of the excluded, of the men factually building it. The accounts of the city's first dramatic territorial expansion in the 1940s are underlined by the application of the garden-city urban model in combination with sparkling Brazilian Modern Architecture but rarely by the fact the brand new foundational movement coincides with the moment in which the urban poor had finally managed to become visible in a previously 'eliticized' city centre.
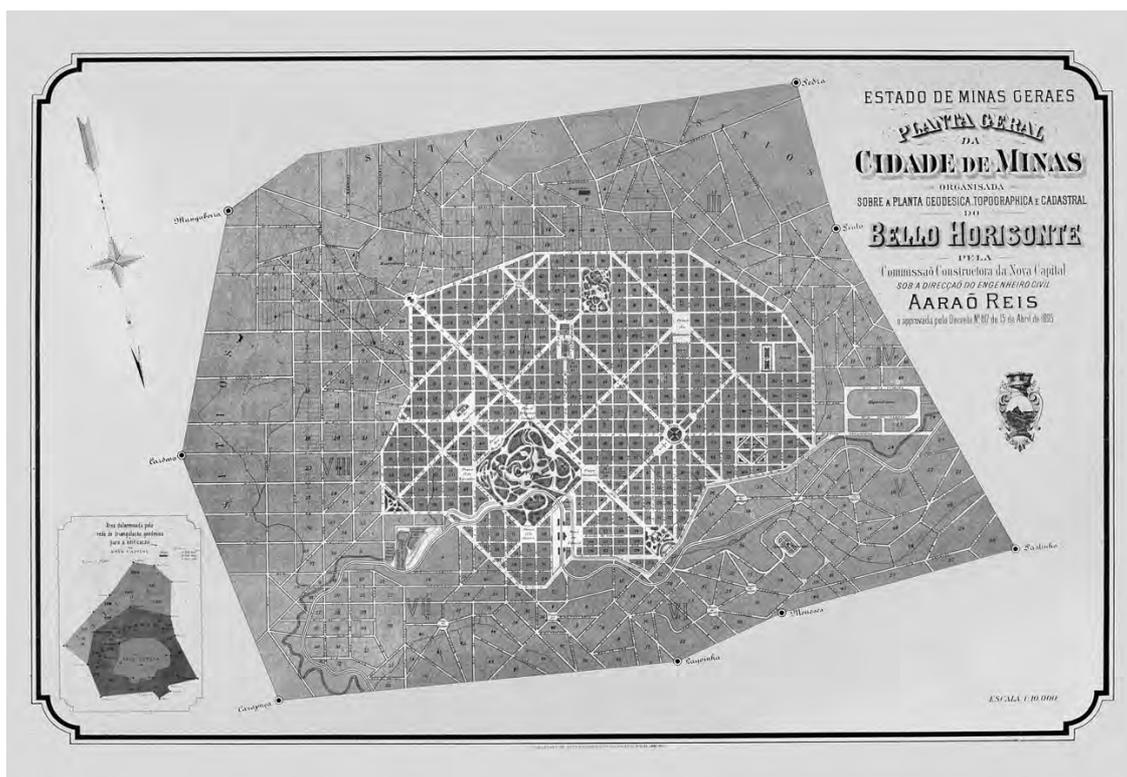
[fig.1] Plan for Belo Horizonte, by Aarão Reis, 1895. Source: APM (edited by author)

Such interpretations of French or North American inspirations done nothing but perpetuate core-periphery perspectives that have long dominated social and urban studies in Brazil and elsewhere. The focus on models and theories coming from the 'centre', as exemplified above for the case of Belo Horizonte, has had some severe consequences on Brazilian urban history and studies, with direct reflection on the production and management of urban space. Those usually tend to overlook the rhizome of local socioeconomic and political arrangements that have contributed to shaping cities, acting besides those (supposedly imported models). In an attempt to produce a 'sociology of absences', or rather, an 'urban history of absences', this paper will address this issue particularly, by moving away from the protagonist role assigned to projects as the primary

generators of planned cities. It aims to shed light instead, on the local assemblage of social relations, political-economic interests and political ecology acting in this materialisation.

The proposed shift means moving dialectically between conceived spaces and lived spaces (Lefebvre, 1991 [1974], 2016 [1972]), from ideology to habitus (Bourdieu, 2013 [1977])). If state-plans can be considered as the aestheticisation of ideology (Goonewardena, 2005), which, according to Althusser act as to guarantee (labour) social reproduction, which social forms are reproduced, instead, by non-hegemonic everyday practices? How might a focus on praxis serve to grasp, measure and redefine social reproduction and its relations   to   city-making?

This change of focus, going hand in hand with the idea of dismantling long-standing core-peripheral relations, requires a de-hierarchisation of structures and fields, disconnecting the notion of cause and consequence, beginning or end, and considering, instead, a milieu. In this paper, the appropriation of Deleuze and Guatarri's (1987) ideas of rhizome, plateau and cartography with be two-fold. Firstly, it shall de-hierarchise sources, images, maps, narratives, all to be considered as truthfully equal testimonies of urban histories, besides more traditional academic bibliographical references. Secondly, the research will use interpretative and descriptive cartography which shall combine topographies, topologies, events, laws, and social groups through a careful selection and isolation (Corner, 1999) aiming to project new histories and possibilities of interpretations. The dialectic move between maps and texts is also a move between materialised urban form and processes, which is our primary focus. While focusing on objects and form, we are instead trying to capture the essence in processes, or the set of relations that are involved in its construction, since, as Latour (2005)made clear, its the process of fabrication and discussion over an object that makes social relations visible. Therefore, we will look at the crystallised urban form to grasp performance, travelling between tracing and mapping, as Deleuze and Guatarri have suggested.

The conceptual tools and critical perspectives laid out in this paper will contribute to the refinement of the frame and lenses through which the author's doctoral research is developed. Provisionally entitled "Reconciling spaces of modernism and insurgency: spatializing urban fissures in Belo Horizonte, Brazil", the study proposes a reconstruction of the history of this city through the contrasting of projects, plans, ideologies to practices, materialities and real life. One of the hypothesis that 'urban fissures' will be found in their encounter. This term is yet to be thoroughly defined, but so far it refers to unexpected social and urban forms that emerge through creative hybridisation. While focusing on three key events that triggered critical shifting moments in the city, the research intends to uncover untold histories and hidden logic that have, perhaps much more than official history and projects, shaped the city.

An attempt to produce urban theory from the Brazilian city of Belo Horizonte has several dimensions. Instead of acting presumptuously, it rests on the premise that there is no 'one general theory', but several theories. So producing urban theory from Belo Horizonte means an emphasis on the locus of enunciation, from a city 'ordinary city' laying 'off the map' (Robinson 2002) that consists nevertheless of an important contribution to the construction of a more cosmopolitan approach to cites. Not only sitting outside the canon of western/northern cities from which urban theory is usually built upon, but Belo Horizonte also lays off the range of South-American mega-cities which are often the focus of attention of developmental studies having the misfortunes of the 'Third World' as a predominant concern. One of Parnell and Robinson's propositions for diversifying the starting points of global urban theory is to build relevant theory "on empirical and analytical work about real-life experiments in city-building, whether in the form of official government programs or the mundane, ordinary practices associated with reproducing livelihoods and 'lifeworlds' inside the city" (2012, p. 598). This is precisely what this research intends to do, by contrasting ideas (ideology) to real-life practices (habitus) through their materialisation in Belo Horizonte, contributing for the expansion of possible starting points from which to build theory.

The first section will contrast Althusser's definition of Ideology (1980) to Bourdieu's concept of habitus (2013 [1977]) while trying to understand if and how each can be used to explain, on one hand, the set of ideas hidden behind (state) plans and discourses and, on the other, the persistent - or revolutionary - modus operandi of everyday city-shaping operating as to perpetuate long-standing inequalities. In this specific territory, those are particularly persistent in several forms of socio-spatial urban segregation.

The following section proposes a re-reading of the history of Belo Horizonte's project and foundation (1895-1897) while performing a critical revision of existing bibliography, infiltrated and contrasted with primary data and interpretative and descriptive cartography. The method intends to de-hierarchize historical sources and narratives proposing to move away from a history of ideas towards a history of local social practices and relations. In this paper, the analysis will focus primarily on two aspects surrounding it's project and implementation: (1) the alleged positivist influences and inspirations on previous models; (2) the criticisms of the plan as being a failed copy as well as elitist. The study understands that the recurrent interpretations that Brazilian urbanism is distorted copy of models from the 'centre' have acted as to make invisible the particularities of the local, creating many of what Boaventura Sousa Santos has called non-existences (2004). Having that in mind, the author shall also be especially careful while testing the application of foreign

concepts (mostly French) to the Brazilian context. The paper will close with a reflection on the importance of contextualising normative categories previously naturalised as absolute (Miglievich-Ribeiro, 2014), and, if need be, expose the parochial elements of inherited perspectives (Robinson, 2016, p. 192) Trying to be faithful to the idea of the rhizome and Santos' refusal for totalizing science, the author redeems to the impossibility of performing a just and complete de-hierarchization and de-construction of its research object and acknowledges its incompleteness. Time and space will always constitute severe limitations for any project for pluri-versality, but it is worthwhile nevertheless to explore new possible starting points.

[fig.2] Location map of Belo Horizonte, Minas Gerais, Brazil. Source: Elaborated by the author.

From ideology to habitus, and back

Understanding the implications of ideology in Latin America becomes essential when acknowledging the omnipresence of discourses of modernisation, progress, civilisation, and development that have haunted its territory and its people causing dramatic effects, having particular consequences in the shaping is urban realms. The first evidence is that the very idea of the "Americas" was, according to Mignolo (2005, p. 2) an invention forged in the European process of consolidation and expansion of the Western worldview, associated with its colonial history. After the Jesuit missionaries, theology was replaced by modern science, along with the ideas of progress and the linearity of time, as if culture was the very logic substitute for nature, civilisation for barbarism, modern for tradition and so on.

Althusser has defined ideology as being the imaginary representation of the relations of individuals with their real conditions of existence. As it is situated in the dreams, ideology becomes latently transformative when there is a gap between the subject's representations and their real conditions of existence. It projects an ideal scenario without necessarily picture how one gets there. This lag between "what/where we are" and "what/where we desire to be" is precisely the trigger that, on one hand, sets motion to ideology and even utopia but, on the other, perpetuates frustrations of the "incomplete project" as the one of modernity, a constant in Latin America.

Despite being situated in the imaginary, and perpetuating itself mostly through discourses and education, ideology finds its material existence within a specific apparatus and its practices, operating to translate - often through imposition - a particular dominant system of ideas and representations exercising over a group. This means, in short, that the ideas of men are eventually translated into their acts, configuring practices, themselves regulated by rituals inscribed in the core of the material existence of an ideological apparatus. Hence, any urban history that claims to be pluri-versal[2] must include not only the realised and unrealised projects, the dreamt of masterplans and abstract laws - pregnant of urban ideologies - but more importantly their translations to practices and actions resulting in materialised urban form.

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[2] a term used by Mignolo (2004) for designating a plurality of sciences, rather than universality.

In the history of urbanism, great urban canons and models often foreground the city materialisation, especially in the peripheral countries. Until recently, 'formal' or 'top-down' city building was the only valid mode as it usually follows a known referential urban model or at least a purposeful ideology. Meanwhile, 'informal' processes that shape the city, the practices of everyday life, are shadowed or disregarded as mere 'accidents' when going in a different direction of the one determined by the plan. Equally, the focus on grand state projects and mainstream state actions makes invisible a whole set of practices and small tactics that in fact makes most of the urban realm.

As Althusser made clear, state apparatuses are the particular locus of the perpetuation of a dominant ideology, for its capacity of exercising power and making the representations of the dominant groups valid and particularly visible. A more or less coherent set of worldviews makes its way through political discourses, especially in the justification of projects and policies or, more bluntly, through educational systems and norms, not to mention through a national constitution. It becomes easy therefore to draw connection lines between State ideology and State projects and eventually State actions. However, the author has also shown that state apparatuses have in fact no unity, being composed of several different institutions (and ultimately individuals) with diverging interests, acting either in perpetuating the dominant ideology or contradicting it. Thus, while a political project for a city might claim for certain political ideals, based on imaginary relations to their real conditions of existence, the everyday practices of regulations and punctuated juridical decision might act otherwise. This contradiction reinforces the need to look not only at ideas but to pay careful attention to the intricate network of practices, working as 'lines of flight'[3] in the field of ideology.

Besides, state apparatuses have increasingly been competing with religion, family, culture and greatly to media and capital either sustaining the dominant ideology or, more rarely / less visibly, contrasting it. Thus, in urban history it is not only the State that conceives and makes the city through its plans and converging actions. Its materialisation is instead a collective construct of either dominating or conflicting ideology and, more importantly, a result of *habitus.*

Habitus, a concept developed by Bourdieu, is also a product of the unconscious, this immanent law, *"that goes without saying"*, because *"it comes without saying"*. As he explains, they are "systems of durable, transposable dispositions, functioning as principles of generation and structuring of practices and representations, which can be regulated without meaning obedience to rules." (Bourdieu, 2013 [1977]). Practices become durable and transposable through *habitus* as they tend to reproduce series of moves that are organised as strategies without being the product of strategic decisions. By making itself present in practices, this system of dispositions works like "a past which survives in the present and tends to perpetuate itself in the future".

The author observes that even if practices follow a stated project or plan they are only apparently determined by the future. He explains: "always tending to reproduce the objective structures of which they are product, they are dominated by the past conditions which have produced the principle of their production, that is, by the actual outcome of identical or interchangeable past practices, which coincides with the actual outcome of identical or interchangeable past practices, which coincides with their outcome to the extent (…) that the objective structures of which they are product are prolonged in the structures within their function" (2013 [1977], p. 72-73). This explains why so often governmental plans and projects keep on reproducing the past instead of being able to invent new futures, precisely because the objective structures that originate such practices have not changed.

Those are produced according to a determinate condition of existence, commensurate with the economic and social necessities to which they belong, and follow therefore their own objectivism. As such they are dominated by their past conditions, being reproduced throughout generations without following a rational basis. If it is so, how do we explain gradual social changes or even ruptures in the course of history? Those are feasible because habitus is as much durable as it is transposable. It is not merely mechanical repetition, but it is subjected to changes guided by approval or disapproval, conditioned by one's material conditions of existence. When the environment in which systems of practices are produced become too distant from the one in which they are experienced, making small adjustments impossible, conflicts are liable to occur. The disputes are not only of age but mainly of classes. If we try to see this through the perspective of colonialism, what happens when habitus from the Metropolis get transposed to the colony? Two options are possible: hybridism or conflict. But when habitus is more than merely everyday practices and customs and starts to generate a whole set of principle of rules and norms violently imposed, only the second option exists.

Supported by Weber, Bourdieu argues that "juridical or customary rule is no more than a secondary principle of the determination of practices, intervening when the primary principle, interest, fails" (2013, p. 76). Therefore, it is not that practices are obedient to rules, but often the other way around. If we consider the meaning of the word rule as something that goes beyond law and includes social norms and theoretical models, the rule can also be defined as a principle immanent in practice, more implicit than unconscious. It is

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[3] See Deleuze & Guatarri, 1988. *A Thousand Plateaus: capitalism and schizophrenia*

the set of principles, or rules, that precedes law, and not the other way around. Reflecting on the juridical dimension of the urban, one might interpret that urban regulation might not be only in line with state apparatus and its ideology but might follow, instead, *habitus*, namely, strategic interest. This happens because the established systems of practices are predominantly not connected to ideals or representations but in fact to objective necessity which relates to the real conditions of existence instead of imaginary ones.

However it might be confused with 'social customs' or even 'culture', *habitus* is not expanded to all society but is particular to groups and communities. Within specific groups and classes, the regularity and objectivity of actions are a result their homogeneous objective conditions. Despite resulting from the inculcation of harmonic objective structures - it is through inculcation that ideology finds its way into being formulated as practical schemes and later constituted as principles -, the *habitus* presents a degree of subjective diversity once interiorized by individuals. This means that while actions of different subjects might seem divergent in appearance, they can belong to the same structuring principles regulating practices inside a homogeneous group or class. This heterogeneity with homogeneity requires a more profound understanding of practices, being able to transcend the identifications of actions themselves, identify the structuring principles of such practices. The method of Bourdieu proposes for this in Theory of Practice is to move from *opus operatum* to *modus operandi,* namely, from the products of practices to their generating processes.

Like Bourdieu, the research is not solely interested in grasping practices, but mostly their generating principles. Instead of finished products, practices must be seen as relational processes in constant change even if their structure is similar. To achieve this goal, the historical approach becomes of extreme importance. Looking retrospectively on the history of Belo Horizonte, the concept of *habitus* will be essential for identifying - under the shadows of urban models, plans, projects, ideologies - durable systems of practices that are equally, if not more, responsible for constructing the city. The work hypothesises that the crossings and interruptions between ideology and *habitus* are accountable for creating a variety of mismatches which will be here treated as urban fissures[4]. These mismatches occur, on one hand, when ideology (discourse) is confronted by *habitus* (objective action) and, on the other, when they are produced in real or imaginary conditions of existence very distance afar from the ones in which they are applied/imposed through modernization, and it's darker face, colonialism.

Founding a city: new form, old habits

Planned and founded at the turn of the 19th century, Belo Horizonte is inserted within a privileged group of cities in which ideology has been particularly present. It has been extensively active in the discourses that have motivated and justified its construction, and it is still solidly at stake today in its urban history. This next section will provide a brief recapitulation of the ideas around its plan and foundation from the perspective of ideology and *habitus*.

Since at least five centuries the 'Ideal City' possibility has fascinated architects, urbanists, politicians and novelists alike. Renaissance and Enlightenment allowed thinking in perspective, experimentally and rationally. Columbus' "discovery" of the Americas in 1492 has been influential in nourishing already latent imaginaries of new starts for humanity. Platon's *Republica* (384-377 a.c.) had already made clear how a desired ideal society also needed its ideal spatial organisation. Soon after "Eden" had been finally found Thomas Moore's relived this dream by designing his own island *Utopia* in 1516, reinforcing the connections between ideal society and space.

However, the fact that some historians might dismiss is that the new cities that have emerged since then are not merely the product of romantic dreaming but are deeply intertwined with political projects following specific strategic interests. Regardless the inspirations, new city designs often emerge at the turmoil of either critical political shifts or social unsettling. L'Enfant's plan for Washington D.C. (1791) emerges three years after the Constitution of 1787 after a proposition of Jefferson to construct an ex-nihilo capital in a neutral site, affirming the national identity through the decisive implementation of central power (Corboz, 2003). Barcelona's extension[5] designed by Cerdà (1859) follows a period of intense social unrest due to the dreadful living conditions fostered by high population density culminating in the demolition of its medieval walls and the approval for extension (Aibar and Bijker, 1997) The less known La Plata was found in 1882 as a provincial capital after Buenos Aires had been federalised under intense political dispute (Gutiérrez, 2002).

It was not different with Belo Horizonte. Already a dream since soon after Brazil's independence in 1822, the construction of a new capital for the Province of Minas Gerais became finally possible after the instalment of the Republic (1891) and consequently the publication of the provincial constitution. Not coincidentally all three examples from above, together with Haussmann's' Paris, have persistently been cited as inspirations for Belo Horizonte. This information is repeated to such an extent that it becomes difficult to give precise

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[4] concept to be defined

[5] Although not being an entirely new city, it is considered as such due to the dimensions of the plan, and its importance for urban planning and design.

references, having crystallised today as 'common sense' in the historiography of Belo Horizonte[6]. Indeed, the construction of La Plata, in the neighbour Argentina, had considerable influence for politicians of the province of Minas Gerais. According to the accounts of Abílio Barreto, who was a present witness of the city construction and its first urban historian, the future city was much publicized by the national press, "considered as a true wonder of science and modern art, inspired by the great Argentinian city of La Plata" (Barreto, 1928, p. 255).

It is well known that, at the time, Brazilian engineers made references to the works of Haussmann and other urban experiences such as Chicago, the foundation of new capitals such as Washington D.C., Saint Petersburg and more closely, La Plata (Salgueiro, 2001). So, it seems doubtless that the previous experiences of new city-building and, especially of new capitals have been not only influential in the decision of Minas Gerais' politicians to build their own new capital but have primarily served to bring power and a degree of credibility   to   their   discourses.

The main issue about such alleged inspirations is when they go beyond the political project and swarm the interpretations over its urban form, designed by the engineer Aarão Reis in 1895. For the historian Heliana Salgueiro (2001), the plan for Belo Horizonte is not only exemplary of the status of the architecture and urbanism of the end of the 19th century but also of the transference of models which is so usual in Brazil. Despite the similarities regarding form with the cities as mentioned earlier, "it is not enough to identify an antecedent to conclude that it constitutes a precedent"[7](Corboz, 2003). Therefore, why can't' we consider that, instead of representing a transference of models, the analysed project is, in fact, the result of local hybridisation or inventiveness?
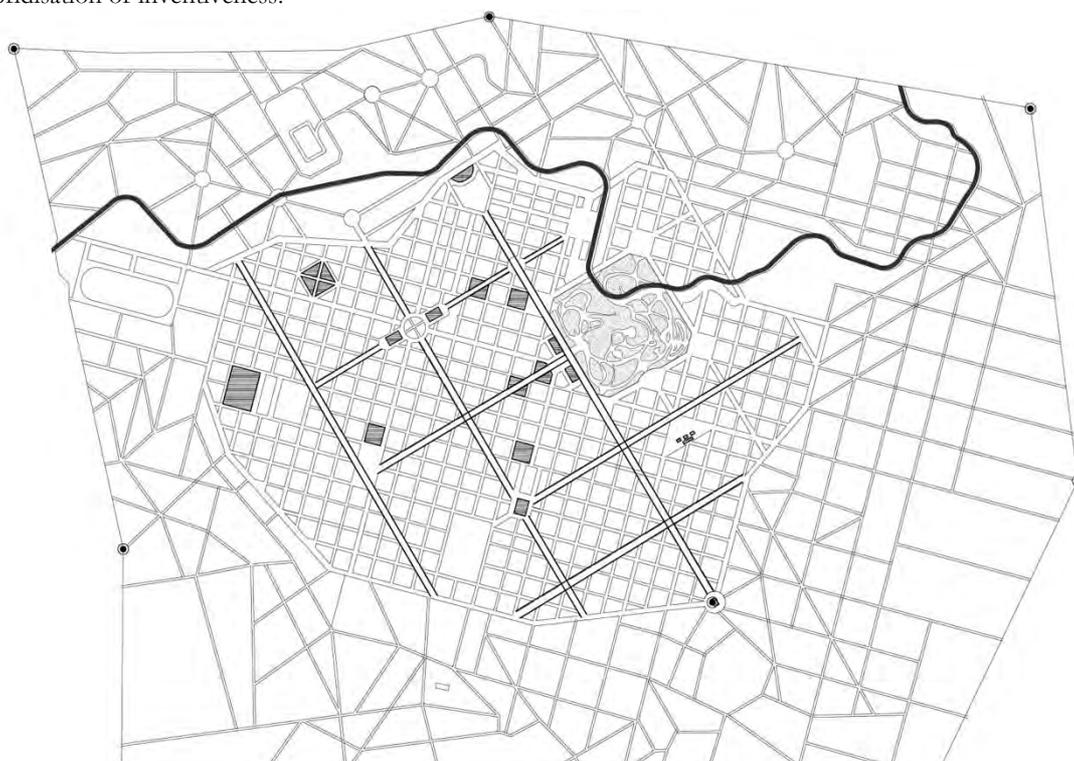
[fig.3] Scheme showing the relation between the diagonals and the sites reserved for public buildings, which do not follow Baroque principles. Source: elaborated by the author.

The careful examination of the plan, comparing it to its antecedents, will point to many similarities, but also to many differences. Like the previous examples, Belo Horizonte's plans presents the juxtaposition of two grids - one orthogonal, another diagonal. The blocks measure rigorously 120x120m, and all diagonals form a 45-degree angle with the smaller grid and 90 degrees between each other and are regularly distributed. In opposition, Corboz has shown that Washington's grid - the one that supposedly had inspired Belo Horizonte's design - is neither regular nor symmetric as it might seem. The "poetic of irregularity" that he found in the plan of L'Enfant will find its way in Belo Horizonte's plan only years later when the regularity of

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[6] To cite a few: (Barreto, 1928; Plambel, 1979; Gomes and Lima, 1999; Trevisan, 2009; Tonucci Filho, 2012)

[7] In the original: ""Car it ne suffit pas d'identifier un antécédent por en conclure qu'il constitue un précédant." freely translated by the author.

the proposed grid is broken, transformed and transcended when it encountered preexistences and other obstacles (sometimes political) and took different shapes besides the proposed.

What we call transcendence - i.e. the ability of the urban form to transcend its pre-determined plan and become something else, organically - is what other authors have considered as a failure. For example, it has been criticised for presenting a reversed growth pattern, from the periphery to the centre ((Villaça, 2000; Paula and Monte-mór, 2004)), meaning, the contrary of what European cities had shown us. Our hypothesis is that those critics are based on distorted perspectives that see it more as a plan to be strictly followed and less as a project for a city which is necessary open, changeable and visionary, serving to the construction of scenarios and formal hypothesis while its material construction and reconstruction is as much collective as it is endless. What its critics have also disregarded is that the city's plan was not only composed of its central part, the one neatly divided in a grid and surrounded by a perimetral avenue, called the Urban Zone. The focus on the neat core has overshadowed its complementary parts, the surrounding Suburban Zone, with less strict regulations for occupation and the Rural Zone, a green belt for food supply, very loosely designed. It had been determined, previously to the plan, that only an initial part would be built in the first moment and the city would gradually grow according to necessity. Then, the fact that, by the end of the 1930's part of the Urban Zone was yet still empty while a large part of the (already envisioned) Suburban Zone was already filled is not by any means a reversed growth, but its desired direction.

Reputedly being drawn under positivists influences, it was expected for the plan of 1895 to follow geometry and rationality strictly, to construct the path to an ideally just and harmonious society through the construction of an ideal city. So, when the plan - and to a great extent its implementation along the following decades - has shown considerable degrees of indeterminacy and improvisation, which were indeed long perpetuated practices in Brazilian society, as observed by Holanda (1936)), it is immediately considered as a failure or somewhat incomplete modernity. Moreover, as its occupation continued to perpetuate long-standing social segregation patterns it is judged as elitist - let's remind that slavery was abolished in Brazil less than a decade before the city's foundation.

The isotropy of Aarão Reis grid, interrupted by parks, squares and monuments equally placed suggest an intention - however naive - of equity in the distribution of land, absent of hierarchy, as the ideology of the ideal positivist city suggested. How did the homogeneous trace of Aarão Reis was suddenly accused of being segregationist and elitist? It turns that, deeply rooted unequal logics were superimposed to the regular tracing, resulting in a hierarchical occupation of the territory. Those were long embedded in the mentality of power holders and were therefore imprinted through State determinations.

[fig.4] Urban tissue of Belo Horizonte's core, overlapped by income data. Shades from light to dark represent average income of inhabitants, from lower to higher, evidencing a social divide in the city core. Data from: RMBH, 2014. Source: Elaborated by the author.

The Law n. 3, additional to the constitution and previous to Reis' plan set the anticipatory guidelines through which the city would be planned, constructed and finally inhabited, favouring some in detriment of others. As a first act, the state authorised the expropriation of all the land in which the site survey took place was and very rapidly undertaken by Aarão Reis, who was also the engineer in charge, with the profound regret of the village's population. Immediately, the periferization of the more impoverished communities started. Besides reserving plots and blocks for the state, for future occupation and selling (which lately triggered some speculation), the Commission was also responsible for marking the parcels that could be required by the functionaries of the state, by the owners of Ouro Preto and too the expropriated owners, as it was carried. Besides that, it was also a responsibility of the Commission, with the authorisation of the state, to determine the prices of plots to be sold by public auction. Therefore, the suggested regularity of the plan collapses completely, superimposed by a social (injustice) layer, of segregative nature, perpetuating a *habitus* deeply embedded in Brazilian society.

[fig.5] Overlapping of the plan for Belo Horizonte with the cadastre map of demolished village. Source: Elaborated by the author over historical maps available at APM.

As seen, much criticism has been directed to Aarão Reis' grid while few consider the constitutional Law n.3 and subsequent decrees that have, by words and not by drawing, pre-determined how the plan should be drawn, built and occupied. The constraints of the works to be executed on the basis of a population of 30.000 implies that not more than 15% of the planned city would be in fact constructed by the State at first, provided with the main infrastructures necessary to the fulfilling of the administrative functions of the state and municipality. Facing that, Aarão Reis presents for approval, together with the final plan of the city, also the reduced plan to be executed, according to him, more than enough to host a population of 30.000 inhabitants, with the demarcation of the plots reserved for the state, to the Functionaries, or to the property owners of Ouro Preto and the expropriated from the demolished village. In addition, the functionaries and expropriated owners could require plots either in the Urban or Suburban Zones, which indicates that the suburbanisation of Belo Horizonte, instead of being chaotic as it has been suggested, it was in fact very well-orchestrated by the Construction Commission, with the consent of the state (Reis, 1893). The inaccessibility of prices and the strict rules to acquired plots in the Urban Zone ended up directing common workers, attracted by the job opportunities, to the suburbs or even populating improvised shacks all over the construction site. In the face of the growth of the favelas in the Urban Zone as much as in the surroundings, and also in the face of the compromise of the Commission to offer housing in good hygiene conditions and affordable for rent for workers, the authorities were obliged to take action. In 1902, the *Vila Operária* (workers village) was created through a decree, and assigned to occupy the 8th sector of the urban Zone (today Barro Preto neighbourhood). To make it feasible, an exception to the rules had to be implemented - not the first, nor the last - to adjust them to social reality. Therefore, the sector is transformed into Suburban

Zone, meaning the softening of the norms for the concession of land, as well as its occupation parameters. However, a certain degree of 'civility' was required to those wishing to live there, once they would only have the right to concession of plots if they prove to be: "a) workers, therefore, to subside from manual labour, (…); b) have resided in the capital for, at least, two years before making a requirement for plot concession, having performed his craft during this time; c) have good manners and be dedicated to work" The law adds the paragraph: "The conditions of letters a and b will be proven by the testimony of three respected people according to the mayor; the letter c, by means of a certificate from the police authority"[8] (Plambel, 1979).
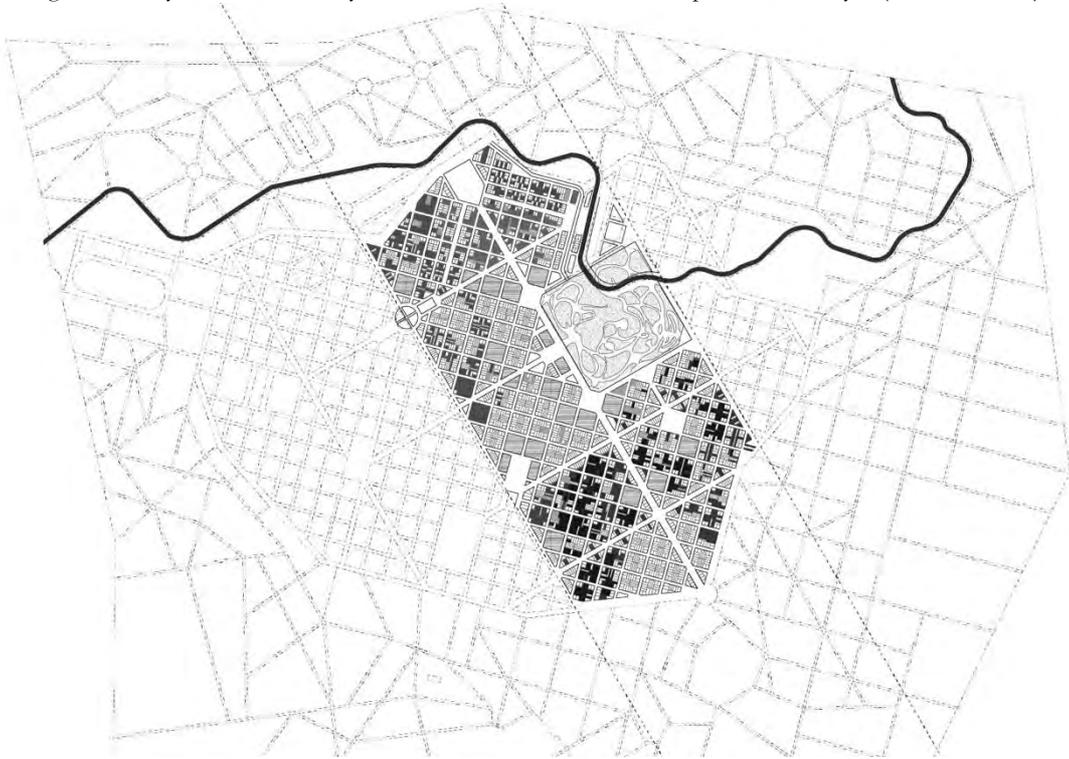
[fig.6] Area to be initially constructed, highlighting plots reserved. Source: Elaborated by the author.

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[8] freely translated by the author.
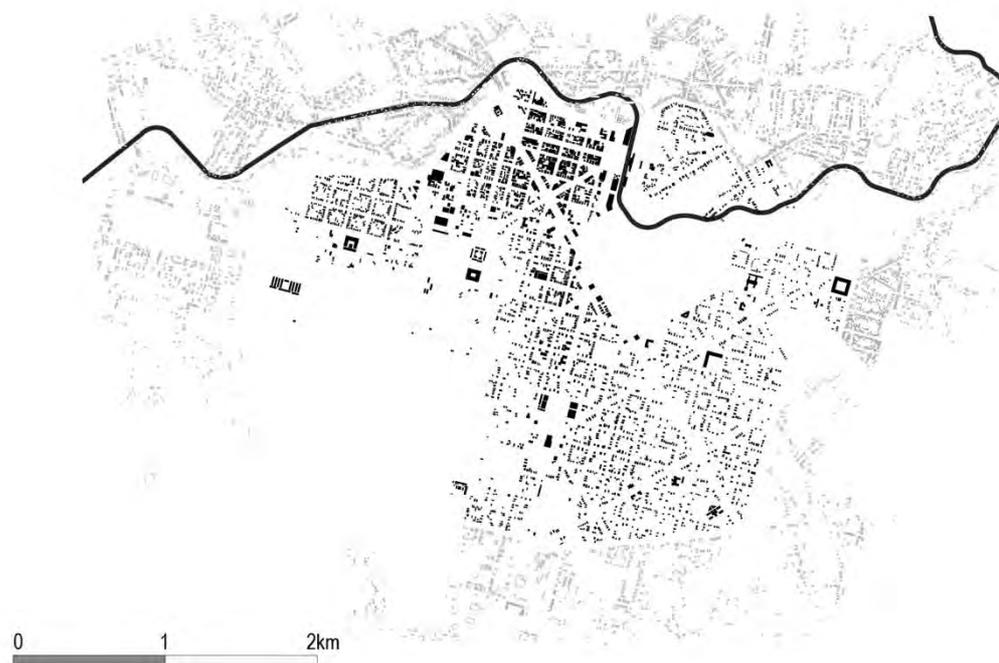
[fig.7] Built area according to the cadastre plan of 1928-29. In black buildings inside the Urban Zone, in grey in the Suburban Zone, sectioned by the railway. Source: elaborated by the author.

Therefore, the suburbanisation, the favelisation and the socio-spatial segregation of the city conform a durable *habitus,* which is not nonetheless inaugurated with the city but inherited from colonial times. The positivist ideology has led politicians and engineers to make a restart in Minas Gerais' society through the construction a new capital, a modern symbol for the fresh republic but was unsuccessful in whipping away a history of segregation patterns. As slavery had recently been abolished and the freed blacks and the *mestiços* already formed a significant share of Brazilian population, exclusion could no longer be (juridically) built on the basis of race. Such practices were them forced to adapt and change to the new configurations within the newly installed state apparatus, ensuring the durability but also the adaptability of *habitus.*

Concluding notes: from ideology to habitus, paths to a theory from off the map

The brief analysis of Belo Horizonte's plan, seen under the perspective of ideology and *habitus* have demonstrated how the focus on the first has obscured the second, almost to the point of making it invisible, or non-existent, to use the term of Santos (2004). The impacts of ideology on the project as well as its later interpretations have been - at least - three-fold.

Firstly, regardless of being inspired by positivism and/or Baroque urbanism or not - the author does not wish to enter that debate - the project for the new capital was nicely wrapped up in discourses of modernity, order and progress that seem, even today, overtly ambitions if one considers the nation and province real conditions of existence. While order was provided for only those who could pay, modernity and progress were far from being a project for all. In fact, such mottos have impregnated so well in the Brazilian imaginary (order and progress are stamped in the Brazilian national flag) that they are, up to date, used as justifications for state projects and actions.

Secondly, putting the spotlight on the technical aspects of Aarão Reis' urban design, especially in the shape and disposition of avenues, monuments and sewage system have almost completely erased the amalgam of laws, decrees, concessions and small decisions that are complementary to the plan and have accreted to its implementation. Underlying those, are the networks of social demands and practices which are later transposed to legislation and ultimately, city form. Once we consider this rhizome instead of one punctual idea translated into urban design, it becomes evident the impossibility of a totalizing theory or viewpoint. A de-hierarchization of sources, giving voice to silenced documents allows constructing new points of departure for theory.

Thirdly, the persistence of the use of foreign (global) urban models to explain our own (local) actions has rendered images, or rather, ideologies, that become too detached from the real conditions of existence,

meaning, local practices and long-standing *habitus*. A criticism of Belo Horizonte's plan while looking only at the supposed model instead of local reality has only one possible interpretation: of a mismatch.

In the 'periphery of theory', tendency is usually to depart from global theories and interpret how those were applied locally through transculturation or hybridism. One of the possible paths for constructing a truthful theory from off the map is first to be immersed by local practices and *habitus*, the structures that have been transposed over generations and only in a second-moment test if and how concepts formulated abroad have been inserted, translated, adopted. This requires not only a de-hierarchization of sources but also to make ruptures in the modern notion of linearity of time, disconnecting the ideas of cause and consequence. For example, for Belo Horizonte, it might as well be that positivism has not come from above to influence the plan of the city, but it has been strategically used, moulded and adapted to respond to local demands, practices or even ideologies.

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Death and life of citizen initiatives through participatory public policies in Madrid: towards an *open source* urbanism or towards the end of it?

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After 15 years-long participant observation of Madrid's self-managed spaces, witnessing their struggles and transformation, we acknowledge now, since the arrival in June 2015 of the leftist party to the Local Government, the launch and development of a series of participatory practices within the public policy. In fact, the leftist coalition has expressed the need to change the way urbanism is developed in Madrid: towards a more open and participatory model, fighting against big projects and those made without public inquiry. The new Mayor has also recognized the work of organized citizens (mediated by some groups of architects) in the making of alternatives to the old non-participative policies. Whether these official statements are only a discursive change, or a real change in in the public procedures, has yet to be determined. The paper is a discussion chapter in the making for the PhD Research. It exposes to discussion the methods used in the Research to analyse the projects that have been formalized and transformed by the public administration. Exploring the proposals made by the Mayor to adapt citizen initiatives, the paper questions the extended critic of these activities as a mere entertainment for citizens, not managing to change the status quo.

City making and social unrest: the response of Architect Collectives

During the period of 1996 to 2007, the Spanish economy grew more than any other economy in Europe. In those years, the surface of Madrid doubled. The public powers were, with the help of European funds, building mobility infrastructures and housing to fulfil the modernization of Spain. This process rapidly extended the limits of the city but was severely criticized (Observatorio Metropolitano 2007) due to its lack of global vision, letting the private stakeholders make the city in a non-transparent procedure. Acceding to the critics coming from neighbourhood associations, the inner city and the new neighbourhoods where lacking the public, social and health infrastructures that should follow up with the urban growth.

Throughout the nineties, the neighbourhood associations born during the last years of the dictatorship (60s to 75) continued fighting for more social infrastructures. But in the same time another group appeared. Some young architects grouped themselves into collectives, in order to come off form the more hierarchic architecture studios. These architectural collectives were born to contest the official way of making the city, considering it was non-transparent thus closed to citizen participation. The first collective in Spain that proposed another manner in which architects can work in the city making, was created in Seville in 1996 by Santiago Cirugeda. This collective still exists today, and it is called Recetas Urbanas (urban recipes). Their proposal for young architects willing to give more (social) sense to their work is to create a series of DIY tools for the empowerment of the ordinary people. Following these *urban recipes*, anybody could make the city according to his desires. In this way, the collectives put Architecture knowledge to the service of the people. In the next years, other collectives appeared in Madrid: Basurama (Love for the trash), Todo Por la Praxis (Giving Everything for the Hands-on) and Laboratorio Urbano (Urban Laboratory). Following Recetas Urbanas' critical theory, they develop citizen tools for the improvement of public spaces, in a hands-on attitude (Basurama, 2006, 2011). Few years later, several architectural collectives all over Spain joined the existing ones, continuing, completing, and diversifying the work of the pioneers.

The work of these collectives is not limited to the criticism of the status quo, it is instead more proactive, and it is developed through 3 main elements: first, they advocate for occupying empty plots and buildings, as examples of self-management of public spaces. Second, they organize debates and public assemblies for the discussion about methods for civic empowerment. And third, they contribute to build a network between different citizen initiatives.

The Architects Collectives consider the urbanism model of the late nineties as closed (to spontaneous uses and to self-management of public spaces and plots), totalitarian (regulated with restrictive use of public space), nor without public inquiry or participatory processes. What they propose instead is an urbanism that is: transparent (in its practices and also its leaders), evolutionary (open to change the rules of use at any moment of evaluation) and inclusive (of deprived and dispossessed but also including offbeat practices and self-management). What they call a new *open source* model for urban practices is interpreted by the different collectives in several manners and put in practice through the three fields: hands-on action, debates and networking. The term *open source* is borrowed to the computer science, where the openness is intended as experimental, collaborative and shared hands-on infrastructure. Their projects follow the *learning-by-doing* culture: not formulating the principles beforehand, but doing it in the making. In their learning approach, many of the collectives establish links with urban struggles and citizen associations, overcoming the local demand (for the occupation of an empty plot or building) in order to fight for a greater good: the use of public spaces and facilities in a non-commercial perspective. This way, many of the collectives' projects establish places where self-management of its activities is not only allowed but also fostered. The mediation activities developed by the collectives are partially dedicated to the demands of support to the local

government (through permits of occupation, funding, and discussion about the future use of the place). In this sense, the collectives express their detachment in regard to the *temporary-use* urbanism, which proposes the use of empty spaces or buildings during a limited period of time, but does not always fight for what happens once the space is rebuilt or the building sold (Zuloark 2014).

Thus, in the first decade of the years 2000, Architects Collectives proliferated all over Spain, acting locally in their territory but starting to think globally as a network. In Madrid, several collectives worked together on a regular basis. Between the years 2004 and 2007 diverse collectives emerged in Madrid: PKMN (read as Pac-Man), Zuloark and Vivero de Iniciativas Ciudadanas (Citizen Initiatives Incubator). In 2007 the informal existing network of collaboration between the different collectives was given the name Arquitecturas Colectivas (collective architectures), gathering every year since, in a different city, for local projects, networking and knowledge production. Some of their reflections and interviews with urban specialists such as Saskia Sassen, are compiled in the publication 'Arquitecturas Colectivas. Camiones, Contenedores, Colectivos', appeared in 2011.

The opportunity of the economic and political crisis

The crisis in 2008 had a considerable effect in the making of the city of Madrid, with the stoppage of many of the big building projects. Somehow, it had a special effect in the work of the collectives, who found in the crisis the opportunity to reformulate an adaptive and resilient methodology for urban development, open to changes and to citizen expertise. One of the results of this reorientation led to the research of new modes of representation of their work. Helping to establish a network between the different collectives/associations/struggles/squatters, the collectives found themselves useful in the development of cartographies to classify the different approaches. These cartographies aimed not only to strengthen the collaboration between the different struggles, but as a tool to show the local government another way of making and managing the city. After a series of political events during the years after the crisis, such as the Occupy Madrid movement in May 2011, the work of the collectives became more related to political issues (Estalella 2012). One of the results of the results of this momentum was the opportunity to legally occupy one of the public plots, symbol of the ravages of the crisis, with the Campo de Cebada: a self-managed semi-public space of 4000 m². During its 6 years of operation, the place has become a symbol of the non-commercial use of public space and of the negotiations with the local government in order to impeach the rebuilt of the place in any other way than a public space.

During the years 2011 to 2015, the Collectives worked in different cartographies as to reinforce their (political) presence. The collaboration between the Collectives and the urban struggles, such as the Plataforma de Afectados por la Hipoteca (a platform that gives support to those threatened by housing evictions due to the mortgage crisis) has shown the need to aim for a bigger goal, overcoming the differences among the groups, and working as a network. After a phase of unrest, where several of the collectives have seen their self-managed space endangered, the collective Basurama wrote an open letter in the form of a Manifesto for the safeguard of these spaces their hands-on methodology (Periodico Diagonal, 17/03/2015). The text, moved around the collectives, expanding the demand for support of the self-managing initiatives. The occupants and improvised managers of Campo de Cebada were also fed up with the lack of political and financial supports, as with the slovenliness of some of its users that neglect the space and even tarnish Campo's public image. To show their discontent, they also published, in March 2015, an open letter and pasted a manifesto on the public tabloid that serves as outside communication for the assemblies (on the enclosure of the plot, near the entrance gate). In this general atmosphere of discontent and distress, but hoping to obtain political support, the network Red de Espacios Ciudadanos (Network of Civic Spaces) was created. With this name, the network wanted to give a positive message, putting the accent in a series of spaces that already existed in Madrid, rewarding their experience in the offer of non-commercial leisure and learning activities, social encounter, and even civic empowerment.

Following this proactive attitude, a group formed by 4 Architects Collectives and the Federation of Neighbour Associations, gathered the information for creating a map of all the citizen initiatives, occupied empty plots, and squats. The cartography publicly presented in September 2015 was called Los Madriles and compiled more than a hundred initiatives. The map was also presented in a series of public encounters (September to December 2015) in order to discuss the methods, in a debate formula, in which the existing and the missing initiatives could collaborate to foster citizen empowerment. The recently elected leftist Local Government, originating from the Occupy movement, has acknowledged the work of the collectives and has incorporated their discourse to theirs.

Since the apparition of the new Local Government in June 2015, the hope of the institutionalization of different collective practices grew up. The new government has started its political agenda with a meeting with several Architects Collectives and talking about a *new model* of urbanism: a series of new public policies, more in line with an *open source* urbanism. The launch of different participatory procedures (such as the ones for the renewal of the Plaza de España square and the pedestrianisation of the Gran Vía) has been greeted with enthusiasm by the supporters of greater transparency in the city making and citizen participation. Complementary with the public policies, public cultural centres such as Medialab and Intermediae, have launched *citizen laboratories* and groups to discuss and make proposals for the cultural agenda.

Understanding the emergence of the participatory imperative in Madrid

The advent of a new kind of city making made by Architects Collectives in Spain has aroused quite interest. Firstly, in the Collectives themselves: to understand the phenomena, to avoid the danger of becoming a trend and to redefine their work as mediating between the citizens and the local government for establishing co-management agreements for (existing or in the making) civic spaces. This has generated numerous debates between the collectives, not only during the Arquitecturas Colectivas encounters, but also through intertwined publications in blogs and books. In fact, some of the groups are more political engaged (against the existing government and its behaviour towards the alternative self-managed spaces and squats), while others collaborate with the Public Administration, following its planning and rules. These last ones are criticised as giving an illusion of citizen participation, while in fact imposing their will to the neighbours affected by a so-called participatory initiative.

Secondly, it has awakened the interest of the media: trying to explain the projects of these collectives, while somehow mixing different currents as if the collectives made an indistinct whole. This has generated certain amount of seminal grey literature: an article by the Architecture specialist of the paper El Pais[1], and a special feature dedicated to the Collectives in the journal Architecturas Vivas[2]. The El Pais article insisted in the idea of the Collectives as a response to the crisis, which has awaken some critics from different Collectives because, as they say, their work started way before the crisis, thus not as a discontent but as an alternative to what was being done in terms of participation (La Ciudad Viva, 13/11/2012[3]). It has also raised the question about the role of the Public Administration that can take advantage of the situation to neglect its role as provider of Social equipment and Cultural activities. The dedicated issue of the journal AV aimed to open a new field of action for Architects, but ended up dividing the Collectives, uncovering a controversy between those who felt that they were manipulated and those who agreed with the image the article gave of them.

Thirdly, the phenomenon has raised the interest of the Academia: several anthropology researchers, such as Alberto Corsín and Adolfo Estalella, have based their ethnographic research in the monitoring of several collectives, considering that their approach of *learning-by-doing* could be implemented as a collective learning about the city, while we still learn how to do it. Their work has produced seminal reflections over the *right to infrastructure*[4] (emulating the Right to the City) and the right to the experimentation[5]. Together with Basurama and Zuloark Collectives, Corsín and Estalella have created the program Ciudad Escuela[6] (School City, different but similar to the Learning Cities movement). This program gives value to the informal learning people involved in citizen initiatives acquire: how to build and manage public spaces, how to negotiate with the Administration for occupying-permits and a better project for the rebuilt of empty spaces, how to create a network to gain support and visibility…

Finally, the clear interest the new Local Government has expressed in its official communications reveals the necessity to study the collectives' work as vector of a new practice of citizen empowerment. The public programss Laboratorios Ciudadanos (citizen laboratories) and Imagina Madrid (imagine Madrid), launched during 2016 and driven by the cultural centre Medialab and the City Council's Administration respectively, indicate a possibility that the changes applied to public policies may not be only discursive.

The Doctoral Research retraces the apparent opposition between the official urbanism model, tackled to be executed behind closed doors, and the one proposed as participative and *open source*. In order to study this opposition, the Research defines their differences and similarities, determining their complementarity and possible collaboration. Two years after the implementation of participatory practices in Madrid, the time has come to evaluate to what extent these official practices have learned from informal procedures or still have to learn. The first criticism with the local government's programs has just started.

The Research question explores whether this other way of making and managing the city by its citizens can be complementary to public practices, changing and completing them, or a mere façade to an urban agenda that stays the same. The paper exposes the institutionalization and transformation of citizen practices into new ones, putting into discussion the methods that can be applied to the Research to determine if they are an illusion of change.

Problematisation: can collective practices reformulate participative practices?

As we have seen, the Architects collective practices take place in 3 main domains.

The first and most visible is the work developed in empty spaces. The occupation of Campo de Cebada and smaller plots has constituted a fruitful field of experimentation to imagine new strategies of action. The everyday conflicts in Cebada were part of the learning about how to communicate with the users of the space to point out the need to collectively take care of the place. The regular assemblies occurring mostly every Monday for 6 years in Cebada were an experiment on how to take collective decisions for the programming of a public space. The evolving relationship with the Public Administration, passing through different stages,

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[1] 'Tras el tsunami de la crisis', Anatxu Zabalbeascoa, appeared in 20/10/2012

[2] https://issuu.com/paisajetransversal/docs/arquitecturaviva_145_colectivos

[3] http://www.laciudadviva.org/blogs/?p=15305 appeared in 13/11/2012

[4] http://www.prototyping.es/uncategorized/the-right-to-infrastructure appeared in 28/10/2013

[5] http://www.prototyping.es/wp-content/uploads/2013/11/Estalella_Derecho-a-la-Experimentacion.pdf appered in 16-17/11/2013

[6] http://ciudad-escuela.org/about/

has been also a field for learning about the maintenance and reproduction of such self-managed spaces. The Administration initially welcomed the initiative (maintaining the neighbours busy and allowing them to occupy the space, while a rebuilding plan was elaborated), but it became more and more indifferent to the place. The disregard of the Local Government suggested that the occupants of the plot were already condemned to disappear when the new project would be ready (in June 2014 appeared a new construction project featuring a mixed building of housing and shopping mall[7]). Finally, the new government of 2015 has acknowledged the collective advocacy efforts, making a proposal for the rebuilding of the demolished swimming-pool and sports centre, as well as a public square, promising it would be collectively-managed. The opposition parties have raised the question of the real possibilities for this space to be effectively managed by an association or collective. The occupants of the space have still not been informed about the terms of such agreement, which starts to raise doubts about an effective will of supporting any self-managed space.

The Doctoral Research method draws on the participant observation of several Case Studies (the Cebada itself, but also Esta es una Plaza and Espacio Vecinal Arganzuela). The researchers Estalella and Corsín have based their work in the formulation of several apprenticeships about these self-managed spaces. Thus, to complete the Doctoral analysis, the research develops an extended Academic review (based on journal papers and on an impact assessment study made by researchers for one of Basurama's projects). It also reviews the media (based on interviews available online, articles and blogs) in order to acknowledge the impact of the practices and spaces over the political discourse and agenda.

The second domain of action for the Collectives is the organisation of debates and reflective gatherings. Retracing the evolution of the debates that stack together one upon another, the Research Methods follow the argument line that manages to emerge and produce new projects. In fact, one of the Case Studies, the Ciudad Escuela program, comes from a series of informal discussions between the collectives and goes so far as to propose itself as a platform for civic empowerment initiatives. The program Instituto Do it Yourself (which promotes the construction of furniture as devices for discussion, learning and sharing) is one of its results. The Research reviews the records of the public encounters, which have deliberately created by the Collectives such as to foster the reproduction of their ideas (in a *creative commons* attitude). The Research is completed by participant observation when possible and semi-direct interviews (before a debate, for its preparation, and afterwards, for the conclusions).

The third main activity of the Collectives is the development of networks for collaboration. Several of these collaborations are difficult to grasp and analyse accurately by the sole combination of interviews and media review. Instead, what is more seizable is the Cartography production, made from the collaboration between collectives and neighbour associations. The Research crosses the different collective maps to find out which spaces or struggles have been transformed, reproduced elsewhere, abandoned or institutionalized. This classification of spaces and struggles between valorised and rejected, would establish the basis used in the Research to determine the conditions for a collective space to be institutionalized, without losing its radical soul or its capacity to really complete the city practices in a more transparent, participative and inclusive process.

The combination of the three domains in which the Collectives work, hands-on action, debating and networking, is probably the key to produce a bigger impact than the solely activity developed on empty spaces which struggle to have their say in the negotiations for a self-management private-public agreement.

Discussion

The analysis of the results of the Doctoral Research results has pointed out a series of self-managed spaces, initially announced as maintained and funded, but which are now in a process of conversion. The results of this conversion are not yet available to analysis. That is the case of the ancient public market of Arganzuela that struggles to become a civic space since several years. Other spaces such as the Campo de Cebada have recently closed the doors (December 2017), finished silently their activities, awaiting the works that will not be starting until the springtime. This final ending, even for a future project that announces to be self-managed, leaves mostly discontent. In the one hand, some neighbours are afraid of who is going to manage the space and in which basis (no agreement with any association has yet been signed). In the other hand, the ones that used to manage the space are afraid that their fight for the management of the space, which included assemblies, negotiations, conflicts and learning-by-doing, will finally not be part of the future space. After some interviews with the association that occupied the Cebada, it appears that they are willing to hand the management to other neighbours. What they would not like to happen is to come back to a full management by the administration, within a law that regulates strictly the use of public space[8].

In regard to the difficulty to change the participatory practices with the incorporation of the knowledge developed by Architects Collectives, Saskia Sassen has expressed, in the publication edited by Recetas Urbanas (Cirugeda Parejo 2011), the importance of political engagement as a means to achieve this change.

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[7] http://www.elmundo.es/madrid/2014/06/26/53ac15f4268e3e53698b4577.html El Mundo, 26/06/2014

[8] The Ley Orgánica de Protección Ciudadana (Law for the Protection of the Citizens), approved in 2015 with popular struggle and opposition, and the Ley de Prevención de Drogodependencia y Otros Transtornos Adictivos (the Spanish Alcohol Law), approved in 2002, are the main instruments of control of the deviations and spontaneous/unwanted uses of the public space.

However, what she understands by political, is "not criticising the formal political system, but the possibility to make something known, to voice something" (Alvarez Benitez in Cirugeda Parejo 2011, pg 59). In her conversation with Arquitecturas Colectivas' members, Sassen values the idea expressed by Cirugeda of a city managed and programmed by its inhabitants, but she cautions against letting this management only to the empowered, not letting it be done by the dispossessed and the distressed. In this sense, the evaluation of the inclusiveness of a project, a debate or a networking activity is crucial to determine its real changing impact. She cautions also against the incapacity to create a management agreement that can be adaptive and flexible in order to evolve with the future needs of the city (op. cit. Page 66).

In another interview made by Madrid's collective Paisaje Transversal, Sassen is enquired about the term *open source urbanism* she has used in an article about Smart Cities. The term, she explains, refers to the idea of squares and trees as the *hardware* of the city and the practices of the people as its *software*. She continues exposing the idea that one can change the city *hardware* and not to pay attention to its *software*, but it is in this last element, people's everyday activities and struggles, where considered as a whole, relies the possibility for the city to evolve according to time. The *open source* concept can be used, says Sassen, as a tool that helps the people take ownership of the city and its evolution[9]. In this sense, the term is used as a prototype: not being able to close its definition to something fixed, but allowing it to evolve according to the practices it refers to.

Catherine Neveu, in her article about the *wildling*[10] of the public practices (Neveu 2011), analyses the intricate relationship between official participatory practices and social movements, advocating for an intertwined presentation of their mutual influence, instead of exposing the practices as a binary opposition. In this sense, we have tried to present the collective practices as multiple and diverse, in order to escape of the binary opposition, but also of the mistake of putting all the collective practices in the same box.

Neveu adds also the advice to not to limit the term *participation* to the only institutional practices, as she realizes it is already practiced by social movements deliberately distinguished from the institutions. The form, in which these social movements contribute, is, according to Neveu, the development of political subjectivities, raising the debate about what makes society. In this sense, our distinction of the three main domains in which the collectives develop their activities: hands-on management of space, debating and networking, tries to demonstrate the systemic strategy that starts to produce a form of *open source* urbanism. It is the interaction of the three that raises the debate.

Laurence Bherer, in her article about the ambiguous relationship between participation and public policies (Bherer 2011), she sees a sign of the democratisation of the public practices, but she raises the concern about if her analysed practices constitute just a charade or if they reveal a real change. As she analyses mainly the Administration's public policies, it is difficult to see the *contamination* of official practices that comes from social movements, as we could observe from Neveu's work. Thus, it is important to establish a complete panorama of the different participative practices (official and collective ones), and not only a representative panel of them. Even if a selection of Cases of Study, for every of the tree domains, should allow to define in depth each one of the themes addressed with the different practices, the comparison or contamination should be done with the whole amount of activities.

In the end, the exploration of other researches in the field of the interaction between collective and participative official practices brings more or less the same family of questions. The first question that arises is whether the collective practices and the official participatory procedures can be complementary or they are condemned to be in a competitive position one from the other. The second, inquiries about the strategies or conditions for adapting an existing civic space or collective to an ideal (open: transparent, inclusive and participatory) official procedure: should they remain separated? Or can be merged? If so, in which conditions? This adaptation or merge should be applied to the actors involved, the spaces used and the programming developed. And finally, how can we formulate a series of reproductive conditions for the merging of citizen initiatives into participatory practices, in order to limit the improvised procedures?

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Challenging the capitalist cityscape? The inclusion of citizens in vacant space reuses in Barcelona and Budapest

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Abstract

With the occurrence of the global financial crisis in 2007-2008, debates focused on how and if capitalism has been questioned, transformed, or have become immune to criticism. As a corollary of the crisis, 'vacancy' has become once again a visible and politically significant issue, playing a key role in determining how cities respond to local problems and wider global challenges, both on a temporary and more permanent basis. Therefore, it is necessary to focus research on how different actors re-use these spaces and whether it provides a criticism to capitalism, and in what ways. Meanwhile, scholars argued that in the policy discourse of local governments 'concepts such as equality or social justice are replaced by an emphasis on belonging, inclusion, participation, recognition, legitimacy, governance, absence of conflict or co-responsibility' (Eizaguirre et al., 2012: 2007). The role of local citizens in urban transformations thus can be understood as a result of the tendency that 'the civil society concept has come to represent less rights-oriented democratic politics than merely an anti-statist appendage for the 'compassionate' side of market society' (Somers, 2005: 17), adjusting to entrepreneurial discourses and rules of the market, holding accountable institutionalised practices in creating 'civic monocultures' (McQuarrie, 2013). In the following I will argue for a deeper theorisation of citizen participation in vacant space reuses, looking into discourses that shape the various reuses of vacant spaces, understanding the crisis as a path-shaping moment for capitalist restructuring. The aim of this paper is to locate alternative imaginaries and how these are attached to value orientation towards the realms of social justice and equity. In doing so, I will rely on the book of Boltanski and Chiapello (2005), who argued that the next crisis that capitalism will suffer has to be followed by a 'social critique' for its injustices, rather than for its inauthenticity, which entails the 'artistic critique'. Empirical fieldwork is carried out in two European cities: Barcelona and Budapest. Methodologically, this study emerges from a qualitative study, based on semi-structured interviews and non-participatory observation of city council policies that offer a public competition for citizen initiatives to reuse vacant sites. The two cities provide different contexts for analysis, Barcelona being a post-austerity Mediterranean, and Budapest a post-socialist East European city, offering examples outside of the mainstream Anglo-American literature and meta-narratives of neoliberalizing cities.

Keywords: Vacancy, Citizen participation, Alternative imaginaries, Barcelona, Budapest

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Pieter Uyttenhove (Ugent)
Brian McGrath (Parsons New School)
Lieven De Cauter (KUL)
Bart Verschaffel (Ugent)
Hillary Angelo (University of California)
Stijn Oosterlynck (UA)
Bert De Munck (UA)
Els Vervloesem (AWB)
André Loeckx (KUL)