“The government's view of the economy could be summed up in a few short phrases: If it moves, tax it. If it keeps moving, regulate it. And if it stops moving, subsidize it.” (Ronald Reagan**,** 1911 - 2004)

Promotors: Prof. dr. ir. K. Verheyen

Department of Forest and Water Management, Laboratory of Forestry

Prof. dr. B. Arts

Wageningen University, Chair group Forest and Nature Conservation Policy

Prof. dr. ir. R. De Wulf

Department of Forest and Water Management, Laboratory of Forest Management and Spatial Information Techniques

Dean: Prof. dr. ir. G. Van Huylenbroeck

Rector: Prof. dr. P. Van Cauwenberge

Ir. Peter Van Gossum

Prospects for regulative improvements in forest policy in the Low Countries

Thesis submitted in fulfillment of the requirements

For the degree of Doctor (PhD) in Applied Biological Sciences:

Land- and Forest Management

Mogelijkheden voor regulatieve verbeteringen van het bosbeleid in de Lage Landen

Refer as: Van Gossum, P., 2008. Prospects for regulative improvements in forest policy in the Low Countries. Ph.D.thesis, Ghent University, Ghent, 247 pp.

ISBN-number: 978-90-5989-335-1

Woord vooraf

Dit proefschrift kon enkel gerealiseerd worden dankzij de bereidwillige medewerking van zeer veel verschillende personen. Allereerst wil ik mijn promotoren Prof. dr. ir. Kris Verheyen, Prof dr. Bas Arts en Prof. dr. ir. Robert De Wulf bedanken. Kris bedankt om mij de kans te geven om een beleidsonderwerp als doctoraatsthema te kiezen en voor het bekritiseren van de talrijke artikels. Bas bedankt om mij een glimp te verschaffen in de wondere wereld van de beleidsanalyse, voor de goede begeleiding en de gastvrije ontvangst van mijn 3 Wageningense bezoeken. Robert bedankt voor de kritische opmerkingen bij de 2 duurzame bosbeheerartikels. Mijn dank gaat ook uit naar de andere co-auteurs en reviewers van publicaties die in dit proefschrift zijn opgenomen. I wish also to thank the members of the reading and examination committee Pieter Leroy, Ulrich Schraml, Hans Leinfelder, Dirk Reheul, Geert Van Hoorick and Myriam Dumortier.

Ik had ook het geluk om 2 fantastische thesisstudenten te hebben. Liselot en Sophie bedankt voor het uitstekend uittypen van de interviews en het ontrafelen van resp. het Vlaamse bosuitbreidingsbeleid en het Nederlandse geïntegreerd bosbeheer. Daarnaast waren maar liefst 99 personen zo bereidwillig om geïnterviewd te worden. Allen zeer hartelijk bedankt, zonder jullie medewerking was er geen proefschrift.

Zowel in Gontrode als in Wageningen was de werksfeer bijzonder aangenaam. Ik wens dan ook alle collega's te bedanken die ik op beide plaatsen ontmoet heb. Sommige onder hen wil ik in het bijzonder bedanken. Margot en Jeroen bedankt voor het nalezen van een aantal artikels op taal. Klaar u was één van de lichtpunten in donkere periodes en een bijzonder aangename bureaugenoot. Esther en Marielle bedankt om tijd vrij te maken om een aantal artikels te bekritiseren. Jim u bent een ware encyclopedie van het Nederlandse bosuitbreidingsbeleid.

I want to thank also the colleagues of the IUFRO 3.08- group and the Political theoretical workgroup for many helpful interesting discussions in a friendly atmosphere.

Het proefschrift heeft ook aan een zijde draadje gehangen. Plotseling was het helemaal niet meer belangrijk. Omdat een zeer ingrijpende gebeurtenis mijn leven ontwrichtte. 18 Maart 2008 had die dag maar gewoon niet bestaan. Nog steeds vraag ik waarom? Waarom? Daarom

draag ik dit proefschrift op aan mijn overleden broer Erik Van Gossum. Ik wil al mijn vrienden uit de grond van mijn hart bedanken omdat ze me door deze periode gekregen hebben. Sommige onder hen wil ik in het bijzonder bedanken. Hannah, Riet, Veerle, Klaar, Liselot, Daan, Lotte, Bart, An en Jeroen merci merci. Daarnaast bedank ik de familie Vloemans en Van Kerckhoven.

Mijn moeder en mijn vader bedank ik voor hun onvoorwaardelijk vertrouwen en aanmoediging tijdens de voorbije jaren. Marc, Hans, Kirsten, Wim, Gonde, bomma en moemoe merci voor de etentjes en gezelligheid. Daarnaast vergrootte de familie met Nore en Zita (dochters Hans en Kirsten) en mijn petekindje Linde (dochter Wim en Gonde). Deze drie nichtjes zorgen voor de nodige zonneschijn. Babu je bent Hannibal achterna gegaan, merci voor de vele jaren hilarische politieke analyses. Finally, I want to thank Jasmin, pohon asawa. Our live will be a wonderful multicultural adventure. Mahal kita Jasmin.

Dit onderzoek was deels mogelijk dankzij een beurs van het Bijzonder Onderzoeksfonds van de Universiteit Gent.

Contents

List of abbreviations

Abbreviations

ACF: advocacy coalition framework

CAP: Common Agriculture Policy

DB: duurzaam bosbeheer

DCA: detrended correspondence analysis

GHS: former Flemish Green Core Structure (Groene Hoofdstructuur)

EM: ecosystem management

EMS: Ecological Main Structure (Ecologische Hoofdstructuur, EHS)

FEN: Flemish Ecological Network (Vlaamse Ecologisch Network, VEN)

GH: geïntegreerd bosbeheer

ICT: instrument choice theory

IFM: integrated forest management

LTP: Long-term Plan Forestry

MEA: Millennium Ecosystem Assessment

NEPI: new environmental policy instrument

NIPF: non-industrial private forest owner

NGO: non-governmental organization

PAA: policy arrangement approach

RAA: regulatory arrangement approach

SFM: sustainable forest management (Vlaanderen: duurzaam bosbeheer; Nederland: geïntegreerd bosbeheer)

VORm: transferable development rights method (Verwisselbare Ontwikkelingsrechtenmethode)

QUAL: qualitative data

Organizations

AMINAL: former Flemish Environment, Nature and Land administration (Administratie Milieu, Natuur en Landrichting)

ANB: Flemish Nature and Forest Agency (Agentschap Natuur en Bos)

ARP: Spatial planning administration of the Flemish Region (Afdeling Ruimtelijke Planning)

BB: Flemish Farmers Union (Boerenbond)

BL: Flemish agricultural Land Afforestation Team (Team Bebossing Landbouwgronden)

BUT: Flemish forest expansion team (Bosuitbreidingsteam)

CBS: Statistics Netherlands (Centraal Bureau voor de Statistiek)

CD&V: Flemish Christian Democratic Party (Christen Democratisch & Vlaams)

CE: Flemish Cabinet of Environment (Kabinet van Leefmilieu)

DEFRA: UK Department for Environment, Food and Rural Affairs

EFN: Flemish Educative Forest and Nature Centre (Inverde)

Exf: Flemish Expert forest expansion

Exl: Flemish Expert legislation

Exps: Flemish Expert public support

Exsp: Flemish Expert spatial planning

EU: European Union

FAO: Food and Agriculture Organization of the United Nations

FG: Flemish forest groups or forest co-ops

FPG: Federation Private Landownership (Federatie Particulier Grondbezit)

Groen!: Flemish Green party

INBO: Nature and Forest Research Institute (Instituut voor Natuur- en Bosonderzoek)

KOTK: Flemish Cancer funding raising organization (Kom op Tegen Kanker)

L&V: former Dutch Ministry for Agriculture and Fishery (Ministerie van Landbouw en Visserij)

LNV: Dutch Ministry for Agriculture, Nature and Food Quality (Ministerie van Landbouw, Natuur en Voedselveiligheid)

LV: Flemish forest and land owners' association (Landelijk Vlaanderen)

MINA: Flemish Nature and Environment Council (Milieu- en Natuurraad Vlaanderen)

NARA: Nature evaluation team of the Flemish Nature and Forest Research Institute (Natuurrapport team van het Instituut van Natuur- en Bosonderzoek)

NFC: National Forest Company (UK)

NFEP: new forest expansion policy

NP: main Flemish nature conservation organization (Natuurpunt)

NVA: National Flemish Alliance (Nationale Vlaamse Alliantie)

RMZ: Organization responsible for waste processing and incineration (Regionale Milieuzorg)

SP.a: Flemish Socialist-Progressive party (Sociaal Progressief alternatief)

STATBEL: Statistics Belgium

SVR: Research Center of the Flemish Government (Studiedienst Vlaamse Regering)

TOBU: Forest expansion support team (Team ondersteuning bosuitbreiding)

VB: Flemish Nationalist Party (Vlaams Belang)

VBV: Flemish Forest Organization (Vereniging voor Bos in Vlaanderen)

VHB: Flemish Forest Council (Vlaamse Hoge Bosraad)

VLD: Flemish Liberal Party (Vlaamse Liberalen en Democraten)

VLM: Flemish Land Agency (Vlaamse Landmaatschappij)

VROM: Dutch Ministry of Housing, Spatial Planning and the Environment (Ministerie van Volkshuisvestiging, Ruimtelijke Ordening en Milieubeheer)

UNCED: United Nations Conference on Environment and Development

UNDP: United Nations Development Program

USDA: United States Department of Agriculture

Chemical elements

CO_2: carbondioxide

SO_2: sulferdioxide

NO_x: nitrogenoxides

NH_4: ammonium

1 Introduction

1.1 Shift in importance of forest related ecosystem services

General

Ecosystem services are goods and services that flow from ecological processes that have immediate or long-term benefits to human society (Notman *et al.*, 2006). The possible ecosystem services provided by forests are numerous; some authors describe as many as 100 different kinds of ecosystem services (Shvidenko *et al.*, 2005). Some examples are timber, climate regulation, biological control of pests and disturbance regulation (e.g., mangroves that mitigate the effect of a tsunami) (Costanza *et al.*, 1997). The various ecosystem services are related to each other in many different ways, ranging from synergistic to tolerant, conflicting to mutually exclusive (Shvidenko *et al.*, 2005). Some services, like biodiversity, are essential in sustaining ecosystem functioning and, thus, provide the underpinnings for many of the other services (Naeem *et al.*, 1999; MEA, 2005).

Commercial timber was, during the last century, one of the most important forest ecosystem services, especially in developed countries. The demand for other services, like recreation, wildlife, water and non-timber forest products, began to increase after World War II (Bengston, 1994). The shift in public importance of the different ecosystem services also resulted in a shift in forest management (§1.2).

Notwithstanding the growing importance of the other ecosystem services, timber remains very important. The public demand for timber grew significantly during the 1960-2000 period as the world's population doubled to 6 billion people and the global economy increased more than six-fold. To meet this demand, wood harvests for pulp and paper production tripled, and timber production increased by more than 50% (MEA, 2005). The impact of the increased harvesting on forest ecosystems is difficult to generalize (Shvidenko *et al.,* 2005). In some cases, timber harvesting has directly contributed to degrading of forest ecosystems and to deforestation. This is particularly true where institutional controls are weak and where destructive and often illegal logging practices are common. In other situations, where modern

forest technologies and effective governance exist, forest area and forest ecosystem functioning are holding steady or even improving, increased production notwithstanding (Shidenko *et al.*, 2005).

The recognition that forests can deliver a broad range of services in addition to timber is also reflected in the international literature (Fig. 1.1). Fig. 1.1 shows the relative increase of papers on the topics of timber, biodiversity, recreation or leisure, carbon, and ecosystem services within the literature on the topic of "forest*" during the 1990-2008 period. The most conspicuous result is the very rapid increase in the importance of carbon and biodiversity within the forest literature.

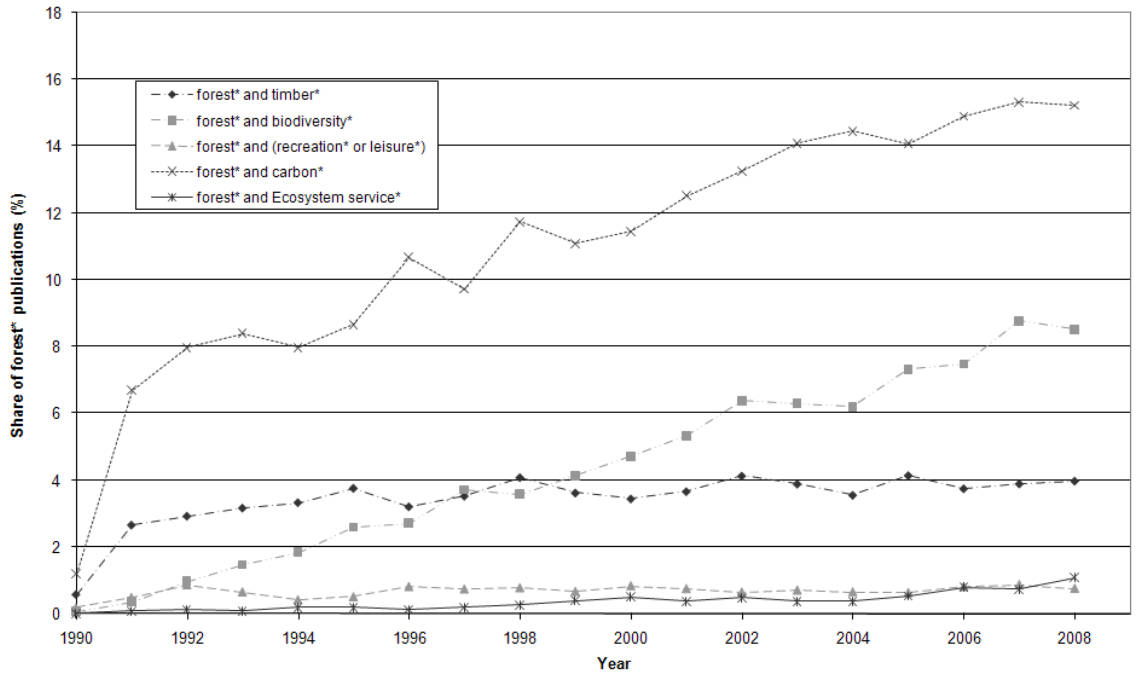

Figure 1.1. Percentage of "forest*'' publications in Web of Knowledge with topics "forest* and timber*", "forest* and biodiversity*", "forest* and (recreation* or leisure*)", "forest* and carbon*", and "forest* and ecosystem service*" during the 1990-2008 period

Flanders

Flanders is a region of Belgium. Until 1980, the main focus of Belgian federal forest policy was timber production. In 1980, forest policy was regionalized, and Flanders in particular started to emphasize the other ecosystem services. This was reflected in the Forest Decree of 1990, which emphasizes the following ecosystem services: timber, recreation, biodiversity and

regulating services. The "Long-term plan on Forestry" (AMINAL afdeling Bos & Groen, 1998a) emphasizes the same services and adds landscape quality and heritage value. Finally, the Forest declaration of the Higher Forest Council (Vlaamse Hoge Bosraad, 2003) gives the most complete discussion of the large diversity of forest ecosystem services. This document tackles the regulating services especially in more detail. The following regulating services are discussed: climate regulation, carbon sequestration, soil and surface water quality, water collection and reduction of flood risk, soil erosion, noise pollution and fine dust.

The Netherlands

In the Netherlands, wood harvesting played a prominent role at least until 1977. The "Policy document on Forestry and Forestry Policy in the Netherlands" (L&V, 1969) and the "Structural View on Forests and Forestry" (L&V, 1977) both emphasize its importance. However, the latter document already referred to landscape and recreation values in urban areas (Zevenbergen, 2002). The next policy document, "Long-term plan on Forestry" (L&V, 1986), emphasizes that besides timber, recreation, natural values and landscape quality are also important. The Forest Policy Plan (LNV, 1993) adds the environmental functions, emphasizing the following environmental services: carbon sequestration, reduction of noise pollution, protection of drinking water and reduction of soil erosion. In addition, the importance of forests for quality of life is underlined. In the subsequent policy document "Nature for people, people for nature" (LNV, 2000), this diversity is less emphasized, with the main focus on the biodiversity conservation function. Finally, in the "Agenda for the Dutch forest until 2020" (Wijdeveen, 2008), the diverse forest ecosystem services are again emphasized. Besides the already mentioned services, this document adds reduction of fine dust and forests as a source of renewable energy.

1.2 Shift in forest management

General

Forest management based on sustained yield aims to maximize and sustain the yield of a single resource, i.e., commercial timber, and dates back to the 18th and 19th centuries in central Europe (Behan, 1991). The discussion on multiple-use forestry started in the 1930s, but has only been considered as an alternative since World War II, especially in North

America and Western Europe (Bengston, 1994). The basic idea of multiple-use forestry was to broaden forestry's traditional focus on timber production to include the production of other commodities. The aim of multiple-use forestry is to maximize a *combination* of multiple outputs on a sustainable basis (Sedjo, 1996), where sustainability is taken to mean continuous production of these multiple outputs (Anderson, 1995). Recently, forest ecosystem management (EM) has come more and more into the picture, especially in the scientific debate. This is reflected by the increasing importance of ecosystem management in the international forest management literature[1] (Fig. 2.1.). Two types of ecosystem management can be distinguished depending on the importance of ecosystem protection and human needs. Environmentally sensitive multiple-use management continues to focus on the primary objective of satisfying human interests by fostering production of different outputs desired by people, but it recognizes the constraints imposed by ecological systems and some aspects of their spatial complexity (Yaffee, 1999). On the contrary, an ecosystem approach to resource management sets out to maximize ecological integrity or health, subordinate to the need for sustainable human use (Grumbine, 1994, Jones *et al.*, 1995).

Most countries in the world have moved away from the sustained yield side of the forest management continuum and named this new way to manage their forests sustainable forest management (SFM) (McDonald & Lane, 2004). The SFM concept has also been discussed at different international fora, such as the United Nations Conference on Environment and Development (UNCED) in 1992, the United Nations Forum on Forests (Humphreys, 2003; Humphreys, 2005), the Montreal Process, the International Tropical Timber Organization and the Ministerial Conference on Protection of Forests in Europe (see McDonald & Lane, 2004), as well as a host of forest certification schemes (see Wang, 2001; Holvoet & Muys, 2004). The aim of these international processes is to reach a more common understanding of SFM. At this international level, SFM is seen as a management system that "tries to balance the social, economic and ecological values associated with forests, with consideration of these values for future generations" (Hickey, 2008, pp. 109). However, there are still large differences between the different countries and the different actors (Hickey, 2008). This can be illustrated by the different SFM interpretations in Austria and the Netherlands. Austria, a country with an important wood processing industry, interprets SFM as a management system

[1] All Web of Knowledge publications listed with the topic "forest management*" or the synonyms "forestry*" or "silviculture*" in a specific year

that still mainly focuses on wood production and processing, but gives some room for forest recreation and biodiversity (Verbij, 2008). The Netherlands, a country with high societal pressure on forests, interprets SFM as a management system that integrates nature conservation, wood production and recreation (Verbij, 2008). Therefore, it is important to make explicit where a country's sustainable forest management interpretation is located along the sustained yield – ecosystem management continuum.

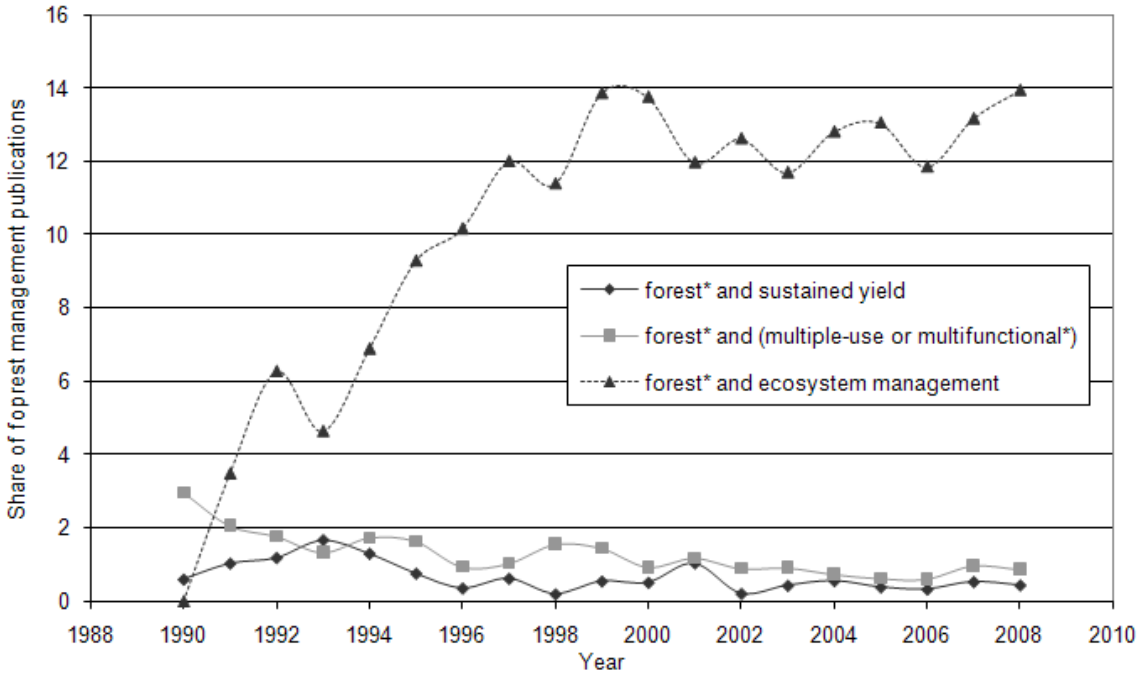

Figure 1.2. Percentage of forest management[1] publications in Web of Knowledge with the topics "forest* and sustained yield", "forest* and (multiple-use or multifunctional*)", "forest* and ecosystem management" during the 1990-2008 period

Flanders

Before the federalization, the forest sector aimed to realize a sustained yield of timber. The concept of 'multi-functionality' was included in the Forest decree of 1990. Since the UNCED conference, sustainable forest management (SFM) has also received much more policy attention (e.g., AMINAL afdeling Bos & Groen, 1998a), resulting in an implementation order on the criteria and indicators of SFM in 2003. SFM is defined as a management system that sustainably integrates the different forest functions (nature conservation, wood production and recreation) on a forest management unit level. Thus, the Flemish governmental understanding is mainly multiple-use management, with a strong focus on nature

conservation. It is also important to emphasize that many other actors, like nature conservation organizations or private forest owners, interpret SFM in a different way than the government does (see also §4.4.1).

The Netherlands

The policy documents "Forestry and Forestry Policy in the Netherlands" (L&V, 1969) and "Structural View on Forests and Forestry" (L&V, 1977) both emphasize the sustained yield of timber. The concept of 'multi-functionality' was only introduced with the "Long-term plan on Forestry" (L&V, 1986). In the subsequent policy document "Forest policy plan", the shift was made to SFM, operationalized as integrated forest management (LNV, 1993). This shift is confirmed in "Nature for people – people for nature" (LNV, 2000) and in the "Agenda for the Dutch forest until 2020" (Wijdeven, 2008). Integrated forest management (IFM) is quite similar to Flemish SFM, besides its focus on the forest stand level (Schulting & Wolf, 2006, p. 5) instead of the Flemish focus on the forest management unit. IFM also emphasizes mainly multiple use management with a strong focus on nature conservation.

1.3 Shift in policy and regulation

General

The introduction of such concepts as "ecosystem management", "sustainability", "sustainable forest management" and "biodiversity" also has implications for forest policy. Forest policy making is no longer limited solely to the government or other traditional stakeholders (forest owners and forest professionals), instead evolving into a multi-sector field (Verbij, 2008). A multi-sector field calls for shared responsibilities among different policy domains and raises issues about policy coordination and policy integration (Leroy & Arts, 2006). However, the extent to which new actors (e.g., nature and leisure organizations) have an influence over the decision making process differs greatly between countries. For example, this influence is still marginal in Austria, but quite large in the Netherlands (see Verbij, 2008 for an extended discussion). In addition, government initiatives to promote SFM or EM will only succeed when the social issues of a larger set of actors (e.g., forest owners, recreation organizations, tourism, nature non-governmental organizations, timber industry) are taken into account (Kaimowitz, 2003; Shvidenko *et al.*, 2005).

In general, a policy shift is taking place from a state-dominated government setting toward a governance setting in which the state is one of the actors, together with market parties and civil society (Scharpf, 1993). This political modernization is a manifestation of the horizontal process of de-differentiation – no clear separation of tasks between the state, market and civil society - and the vertical processes of individualization, Europeanization and globalization (Arts & Van Tatenhove, 2006). A consequence of the political modernization process is that social actors are forced to cooperate in multi-actor, multi-level and multi-sector policy networks (Meyer & Baltes, 2003). Cooperation between the government, the market and civil society is important because the state or the market alone will fail to deliver the requested forest-related ecosystem services (Merlo & Briales, 2000; Balwin & Cave, 1999). The market fails because many forest ecosystem services fall into the category of positive externalities or public goods (for a further explanation, see Cornes & Sandler, 1996; Merlo & Briales, 2000). Government fails because of imperfect knowledge, rent seeking, misaligned incentives and inefficient bureaucracies (see Landell-Mills & Porras, 2002). Another consequence of the political modernization process is a change in steering style from providing or command-and-control to enabling or facilitating (Leroy, 2000). The command-and-control style, which was preferred in many countries to ensure the delivery of forest ecosystem services (Glück *et al.*, 2005), is criticized for being inefficient, unnecessarily intrusive, unduly expensive to administer and possibly inequitable; stifling innovation; inviting enforcement difficulties and being difficult to revise as new information becomes available (Ackerman & Steward, 1985; Hahn & Stavins, 1991; Reitze, 1991; Orts, 1995; Sinclair, 1997). The so-called new environmental policy instruments (NEPIs), like price-based instruments, property rights instruments, voluntary agreements and motivational and informational incentives, are promoted as alternatives to the traditional command-and-control approach (Jordan *et al.*, 2003). The NEPI approach has a number of advantages, like greater regulatory flexibility and cost-effectiveness, a higher rate of acceptance by the regulatees and a lower regulation cost (Sinclair, 1997; Gunningham & Grabosky, 1998). However, this approach is also criticized because it has difficulties coping with free riders (Jordan *et al.*, 2005) and persistently irrational actors (Sinclair, 1997). Moreover, successful self-regulation mostly takes place in the shadow of the law (Sinclair, 1997), and this backdrop of dormant mandatory regulation is a necessity when there is a realistic threat of irreversibility, for example, the collapse of an ecosystem (Perrings & Pearce, 1994). The challenge is thus to design a regulatory system where the need for coercion is minimal and where conflict between private interests and the public good will

be reduced (Grabosky, 1995). A minimal coercion level does not mean that command-and-control instruments are neglected. Command-and-control instruments are still important (1) as backups to cope with reluctant compliers and with situations where less coercive instruments fail to deliver the identified policy outcome, (2) as deterrents to increase the number of voluntary compliers, (3) as the best available technique when interactions with the policy target group are scarce and (4) as a necessity for situations with a serious risk of irreversible loss or catastrophic damage (Gunningham & Sinclair, 1999). "Smart regulation" takes this challenge into account and proposes a shift to an implementation style that recognizes that government intervention will continue to take place, but selectively and in combination with a range of market and non-market solutions of public and private orderings (Gunningham & Grabosky, 1998). However, some authors (e.g., Böcher & Toller, 2003; Baldwin & Black, 2008) do not believe that smart regulation is "smart" enough to achieve the desired policy outcomes because it neglects the institutional environment.

It is important to clarify our understanding of regulation in this study because various definitions exist (Jordana & Levi-Faur, 2004). In this study, regulation is "the sustained and focused attempt to alter the behavior of others according to defined standards or purposes with the intention of producing a broadly defined outcome(s), which may involve mechanisms of standard-setting and behavior-modification" (based on Black, 2002).

Flanders

Until recently, Flanders was characterized by closed sectoral corporatist policy arrangements, like many countries in the mainland of Europe (Lijphart, 1999). The political modernization process also forced the Flemish actors to cooperation in multi-actor, multi-level and multi-sector policy networks. Nevertheless, Flemish environmental policies, which include forest policy, still focus mainly on command-and-control instruments (Deketelaere, 1998). Recently, the command-and-control style has gradually changed to a more stimulating style including social, economic and communicative strategies (Verbeeck & Leroy, 2006). This shift is also reflected in the policy letter of the Flemish Minister of Nature, Environment and Energy, which stated explicitly that "a shift from an active and demonstrative government intervention to a private stimulating policy" will be needed to realize the nature and forest aims (Peeters, 2004). However, the more coercive instruments are also still in use.

The Netherlands

In the past, the Netherlands was also characterized by closed sectoral corporatist arrangements. Contrary to the Flemish situation, political modernization has changed the policy style in the Netherlands. The Dutch forest policy[2] gives priority to less coercive instruments, like the power of persuasion and of (a good deal of) money (Dubbink, 2008). This preference has existed for a long time and will probably not easily change. For example, in the 1970s the use of more forceful juridical instruments was once suggested in parliament; the minister promised to study the possibilities, but he never revisited the issue (Dubbink, 2008). In addition, there is an increased emphasis on market approaches, negotiations between the government and other society actors and a decline of the role of the national government (Rientjes, 2002).

1.4 Research Aim

In the above sections, we have discussed that the shift in importance of forest-related ecosystem services has resulted in a shift in forest management. The forest management shift in turn has implications for forest policy in the sense that forest policy has to change to a multi-sectoral field. Furthermore, the political modernization process has resulted in a shift from government toward multi-level, multi-actor and multi-sector governance and from command-and-control policy instruments toward a combination of command-and-control instruments with new environmental policy instruments (NEPIs). The choice of appropriate instruments is an important step in crafting a thoughtful policy (Rist, 1998). Policy makers are supported in this task by instrument choice theories, like smart regulation. Some authors (Gunningham & Grabosky, 1998) believe that a policy's probability of success will be higher when the instrument choice recommendations are followed, while others (Böcher & Toller, 2003; Baldwin & Black, 2008) are more skeptical and emphasize that the institutional environment of the policy is more important.

Therefore, this research aims to investigate the relation between regulatory strategies and the extent of policy success in the forest domain. In addition, the extent to which regulatory

[2] Dutch forest policy is completely integrated in nature policy (Veenman, 2009)

performance can be improved by adding selected and accepted policy instruments will be investigated. Furthermore, ways in which the used instrument choice theory can be improved will be discussed.

The main theory that will be used in this research is the smart regulation theory (Gunnigham & Young, 1997; Gunningham & Grabosky, 1998; Gunningham & Sinclair, 1999; Howlett & Rayner, 2004). The theory proposes a number of principles to support policy-makers in their attempt to design a "smartly" formulated instrument design that is suitable to achieve the desired policy outcome (see §6.2). The "smartness" of a regulatory strategy will be estimated by the extent to which smart regulation principles are included in the investigated regulatory strategy (see §6.4).

The most appropriate way to tackle the research aim is a multiple case study. A case study is a research strategy that involves an empirical investigation of a particular contemporary phenomenon in its real-life context using multiple sources of evidence (Yin, 2003). The investigated cases can be theoretical or literal replications. Theoretical replication predicts contrasting results, but for predictable reasons, and literal replication predicts similar results. Theoretical replication requires that the selected cases differ mainly on the explanatory variables of the tested hypothesis, in our case regulatory strategy and are more or less comparable on the other influencing variables (Yin, 2003) or a most similar systems design[3] (Przeworski & Teune, 1982). Flemish and Dutch forest policy (for a more extended discussion of these policies, see Box 1) were selected as theoretical replications and the two most important current forest policy themes within Flanders and the Netherlands, namely "sustainable forest management" and "forest expansion", were considered as literal replications.

Flemish and Dutch forest policy employ very similar system designs in which the regulatory strategies used to achieve the desired forest policy outcomes differ (see also §1.2), while most other variables are similar. Belgium and the Netherlands are small and open economies, each with traditions of social partnership, welfare state and consensus democracy (Hemerijck *et al.*, 2000). In addition, Flanders and the Netherlands have similar development levels and are comparable in population density (Table 1.1). Furthermore, most governance indicators show

[3] Most similar system design means that the most comparable countries will be selected for comparative policy analysis; examples are Flanders and the Netherlands, Austria and Switzerland, Australia and New Zealand (see Scharpf & Schmidt, 2000).

only a minor difference between the two countries (Kaufman *et al.*, 2008; Table 1.1). Flanders and the Netherlands also have similar percentages of land area covered by forests (Table 1.1). However, the comparability is not perfect. The Flemish countryside is much more urbanized than the Dutch because of a failing of spatial planning in Flanders and successful, rather strict, spatial planning in the Netherlands (Leinfelder, 2004, 2007; Van Zadelhoff, 2008). In addition, much more of the Flemish forest area is owned by private forest owners with small woodlots than is the case in the Netherlands. Private forest owners own 41% of the forest land in the Netherlands, while this figure is 70% in Flanders (Table 1.1). The mean private property size is 1 ha in Flanders, while only 9% of Dutch forests are owned by private forest owners with a property size less than 5 ha (LNV, 2007; www.bosengroen.be). Flemish citizens show a lower confidence in their government than do the Dutch (Table 1.1). This lower trust will decrease the government's ability to solve problems (Hetherington, 1998). These differences will be taken into account when the regulatory strategies are compared.

It will only be possible to make a comparison between the Flemish and Dutch cases and not between SFM and forest expansion cases because the policy success estimations were done differently for forest expansion and SFM. Forest expansion success was measured as goal attainment, thus an ex post evaluation. Goal attainment means that policy success was estimated as the measured change in forest area relative to the desired policy objective of the state for the investigated policy period. It was not possible to estimate the preferable policy effectiveness because it was not known what the change in forest area would have been without the forest expansion policy. The failure and success factors were investigated using the policy type-based implementation model of Matland (1995). It was not possible to measure SFM in the same way because the policy was introduced too recently to have measurable results in the forest. Therefore, we opted to measure the governance capacity of the policy arrangement based on the method of Arts & Goverde (2006). Governance capacity is the extent to which new forms of governance are potentially able to successfully diminish or solve societal and administrative problems in the (near) future (Nelissen *et al.*, 2000). This is an ex ante evaluation.

Table 1.1. Comparison between Flanders and the Netherlands

	Flanders	The Netherlands
Human development index 2004 (SVR and UNDP)	0.947	0.954
Population density (inhabitants/km²) (STATBEL and CBS)	447	396
World governance indicators[4] 2007 (Kaufmann *et al.*, 2008)		
Voice and accountability[5] (%)	79[a]	81
Political stability[6] (%)	65[a]	66
Government effectiveness[7] (%)	82[a]	86
Regulatory quality[8] (%)	80[a]	86
Rule of law[9] (%)	80[a]	85
Control corruption[10] (%)	79[a]	95
Confidence in government 2000 (World Value Survey)[b]	2.8[a]	1.7
Past instrument preference (Dubbink, 2008)	Command-and-control	Economic and informative
Forest characteristics		
Forest cover (%) (Waterinckx and Roelandt, 2001; LNV, 2007)	10.8	10.6
Private forests (%) (www.bosengroen.be 08/08/2006; LNV, 2007)	70	41

[a] Belgium, [b] 4-point Likert scale: 1 (a great deal), 2 (quite a lot), 3 (not very much), 4 (none at all)

Thus, this research will attempt to answer the following specific questions:

- How successful are SFM and forest expansion in Flanders and the Netherlands?
- What are the policy failure and success factors in the Flemish and Dutch SFM and forest expansion cases?
- To what extent is the instrument mix "smartly" formulated in the Flemish and Dutch SFM and forest expansion cases?

[4] The original scale (-2.5 to 2.5) of the world governance indicators was transformed to a %-scale indicating the extent to which the requirement is fulfilled.

[5] Voice and accountability measures the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

[6] Political stability and absence of violence measures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism.

[7] Government effectiveness measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

[8] Regulatory quality measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

[9] Rule of law measures the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence.

[10] Control of corruption measures the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

- To what extent can policy success be explained by the "smartness" of the regulatory strategy?
- To what extent can the regulatory performance be improved by adding selected and accepted policy instruments? (only for the case with lowest performance)
- To what extent can the "smart regulation" theory be improved?

The choice of the appropriate theoretical and analytical frameworks to answer these research questions will be done in a pragmatic way, which means that frameworks will be selected depending on their appropriateness to answer the research question (see also Tashakkori & Teddlie, 1998). The choice of a specific framework and the reason for this choice will be given in the respective chapters. In addition, in Chapter 9 we will give an overview of our choices, an evaluation of the frameworks (strong and weak points) and the contribution of this doctoral thesis to the selected frameworks.

1.5 Outline

Fig. 1.3 gives a schematic overview of the thesis. The first part evaluates the (potential) success of the policy implementation and more precisely, the supporting and impeding factors of this implementation for the four cases: forest expansion in Flanders (Chapter 2), forest expansion in the Netherlands (chapter 3), sustainable forest management in Flanders (chapter 4) and sustainable forest management in the Netherlands (chapter 5). In the second part, the "smart regulation" theory is used:

- to estimate the "smartness" of the regulatory designs of the four cases and to test the hypothesis "that a smartly formulated instrument design will result in higher policy success" (Chapter 6);
- to improve the "smartness" of the current instrument mix of the most unsuccessful case, i.e., the Flemish forest expansion case, by adding new instruments that are acceptable to the politicians, higher officials and civil society (Chapter 7); and
- to develop a preliminary version of a new approach, the regulatory arrangement approach, that copes with the criticisms of the "smart regulation" theory (Chapter 8).

Finally, policy recommendations and conclusions will be given (Chapter 9) and the multi-theoretical framework (Chapter 9) and quality of the research will be critically reflected upon (appendix 1.1).

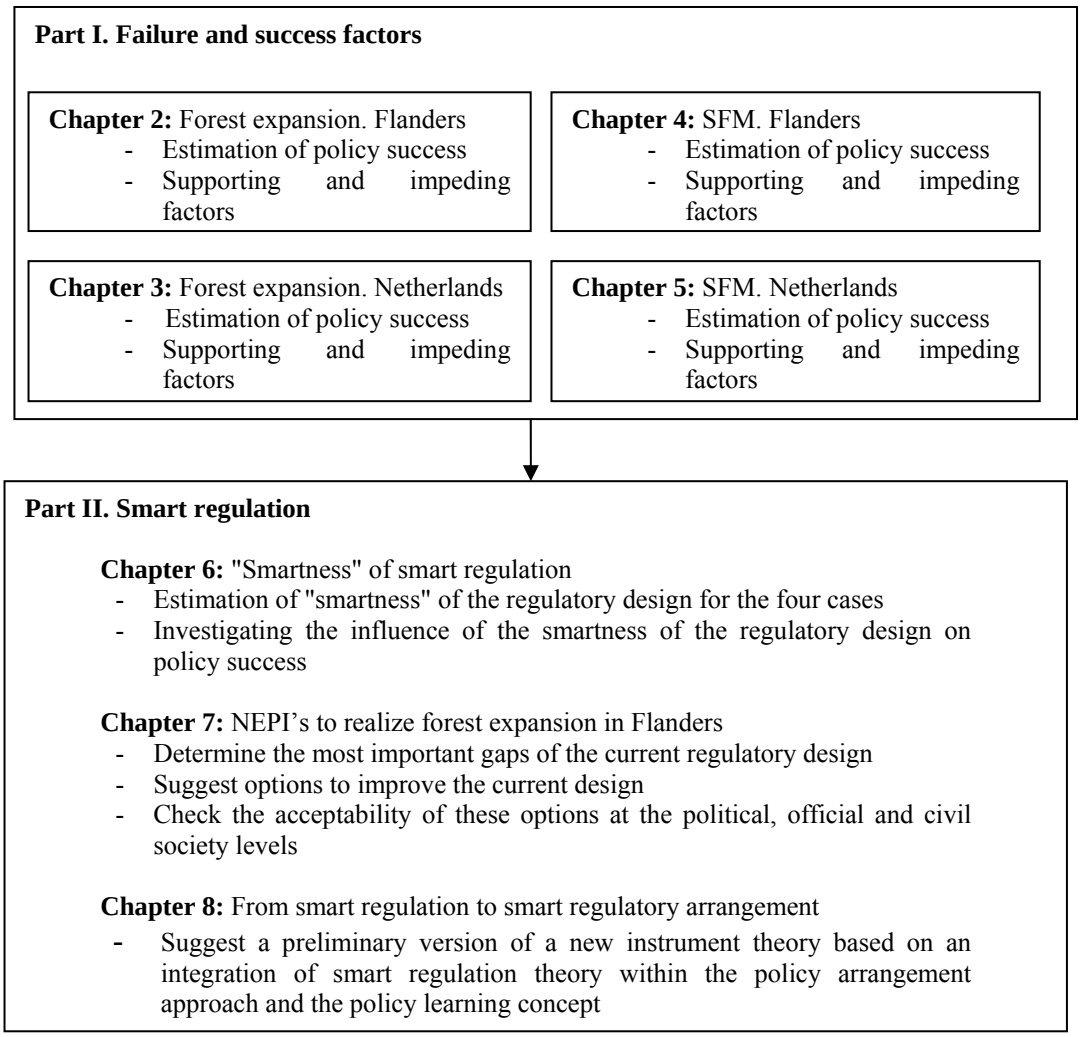

Figure 1.3 Schematic overview of the thesis

Box 1. Forests and forest policy in the low countries

The state of the forests

Flanders

The figures of Flanders are based on the first Flemish forest inventory (Afdeling Bos & Groen, 2000), which was done during the 1997-1999 period.

Flanders has a forest cover of only 10.8% of its land area (i.e., ~146.000 ha of forested land). About 70% of the forest consists of forest patches smaller than 10 ha and 14% even smaller than 1 ha. Thirty-eight percent of the forested area is incorporated into a national ecological network (FEN) and 40% forms a part of Natura2000 areas. Private persons constitute the largest group of forest owners. They own 70% of the Flemish forests. The Agency for Nature and Forests owns 13% and all other public owners own about 17%.

The main tree species (based on basal area and on volume, respectively) are Scots pine (*Pinus sylvestris*, 30%, 27%), Corsican pine (*Pinus nigra var. Corsicana*, 14%, 12%), poplar species (*Populus spp*, 13%, 16%), native oaks (*Quercus robur*, *Q. petraea*, 10%, 11%) and beech (Fagus sylvatica, 5%, 8%). The Flemish forest is relatively young. Fifty-five percent of the forest stands are younger than 40 years and 75% are younger than 80 years. The standing stock amounts to 211 m^3/ha, 3.8m^3/ha of which comes from standing dead wood. Sixty-four percent of the Flemish forested area still has no mixture: 29% is unmixed deciduous forest and 35% is unmixed coniferous forest. Mixed forest occupies 46%. Eighty-one percent of the Flemish forested area is in tree phase, 14% is in a pole phase, 2% is in a ticket phase and 1% is in the rejuvenation phase. The greatest part (95%) of Flemish forests consists of high forest. Eighty-nine percent of the forest is even-aged. The remaining 11% has some unevenness in its age.

A small majority of Flemish forests (55%) can be freely entered via pathways. The inventory team did not find rubbish in 77% of the Flemish forests. The recreational infrastructure is still quite limited: notice boards were only present in 19% of the forests, benches in 13% and parking lots in 11%.

Flanders is thus confronted with a low forest cover of mostly privately owned forests, which can be described in general as young, small in size, homogenous and even-aged. The Flemish forests

are threatened by acidification and eutrophication caused by SO_2-emissions of industry and traffic and the NO_x and NH_4-emmissions of intensive animal husbandry, by desiccation, by forest fragmentation and its impact on biodiversity and by continuing deforestation, i.e., about 1800 ha in the period from 2001 to the beginning of 2009.

The Netherlands

The figures for the Netherlands are based on the fifth forest inventory (LNV, 2006), which was done during the 2001-2005 period.

The Netherlands has a forest cover of only 10.6% of its land area (i.e., ~360.000 ha of forested land). Since 1982, the forested area has increased by an average of 1434 ha per year. The greatest increases have taken place in rural areas in Groningen and Friesland. There are 55,526 wood lots, 83% of which are smaller than 5 ha. Less than 1% are larger than 100 ha, but these complexes occupy 30% of the total forested area. A large portion of Dutch forests (68%) are situated on poor sandy soils. A small part (8%) are situated on base-rich soil in the dunes and Flevoland. Eighty-three percent of the forested area is incorporated into a national ecological network (EMS) and 33% forms a part of Natura2000 areas. Private persons constitute the largest group of forest owners. They own 31% of the Dutch forests. The State Forestry Service owns 27% and all private organizations for nature conservancy own about 17%.

The main tree species are Scots pine (*Pinus sylvestris*, 33%), native oaks (*Quercus robur*, *Q. petraea*, 18%), poplar and willow species (*Populus* and *Salix* spp., 7%), larch, (*Larix spp.,* 6%), Douglas (*Pseudotsuga menziesii*, 6%) and other pine species (Pinus spp, 5%). The Dutch forest can be described as relatively young. Thirty-four percent of the forest stands are younger than 40 years and 80% are younger than 80 years. Of the present wood volume per ha (208 m^3/ha), about 10 m^3/ha comes from dead wood, of which 4.6 m^3/ha is standing and 5.4 m^3/ha is lying. Fifty-three percent of the Dutch forested area still has no mixture: 21% is unmixed deciduous forest and 32% is unmixed coniferous forest. Mixed forest occupies 43% of the forest area. Sixty-six percent of the Dutch forested area is in the tree phase, 19% is in a pole phase and 10% is in a ticket phase. Forty-four percent of the rejuvenation groups of recent origin are smaller than 1 ha. The greatest portion (80%) of Dutch forests consists of high forest. Eighty-two percent of the standing forest is even-aged. The remaining 18% has some unevenness in its age. About 10% consists of woodlands with a special manifestation: regular regenerated nature forest, protection forest, country estate forest, spontaneous forest, scrub, etc.

The majority of Dutch forests (79%) have free entrance via pathways; 5% have limited entrance. About 16% are closed completely or not open to the public. An ample 35% of the forested area is directly accessible by car or public transport, which means that the same amount is adjacent to roads for car traffic. Paths are found in the majority of forests. Routes for walking (34%) and biking (21%) are most common. In 78% of the forests no waste was discovered; much waste was found in 3%. Litter from recreation was most frequent.

The Netherlands is thus confronted with a low forest cover. The forests can be described in general as young, small in size, homogenous and even-aged. The Dutch forests are threatened by acidification and eutrophication caused by SO_2 emissions of industry and traffic and the NO_x and NH_4 emissions of intensive animal husbandry, by desiccation, by forest fragmentation and its impact on biodiversity and by damage to natural regeneration caused by an unnaturally high level of game animals.

Forest policy

Flanders

The main targets of Flemish forest policy are forest conservation, sustainable forest management and forest expansion. These policy targets were legally ratified in the Forest decree of 1990.

The Forest decree aims to regulate the maintenance, protection, extension and management of forests. It emphasizes that the forest can fulfill multiple functions at the same time, including, among others, economic, social, educational, scientific, ecological, protective and flora and fauna managing functions. The decree is applicable to public as well as private forests and was made concrete through the following implementation orders: “deforestation restriction”, “SFM criteria and indicators”, “grants”, “fiscal exemption”, “forest management plan”, “forest groups” and "qualification system on wood operators and timber merchants" (for an extended discussion of these orders, see 4.4.2.1). In addition, specific practical guidelines for the management of the forests of the Forest Service were formulated in the Vision on Forest Management, an important future instrument for forest management aiming at a sustainable, multifunctional forest management.

Furthermore, in 1998 the Forest Service drew up two documents: the Long-term Forestry Plan and the Forestry Action Plan. The latter can be seen as an implementation plan for the Long-term Forestry Plan (LTP). Although often referred to as planning for the forest policy, this Long-term Forestry Plan was never approved by the parliament. Therefore, it can be seen as a guideline for future policy, but not as a legislative instrument. The LTP is based on four touchstones: sustainability, multiple use, international developments and commitments and social support. In this frame, four key notions are distinguished: quantitative forest maintenance, qualitative forest maintenance, forest extension and integrated task fulfillment.

Finally, the Nature decree is a second important legislative instrument relevant to the Flemish forests. This act underlines within the region-oriented policy the existence of the Flemish Ecological Network (FEN) and implements the European Habitat and Bird Directive. The Flemish Ecological Network is a coherent and organized entity of regions where a specific policy on nature conservation will be pursued, based on the characteristics and elements of the natural environment, the relations between several regions and the present and potential nature values. The Habitat and Bird directive led to a European network of protected areas, i.e., the Natura2000 areas.

The Netherlands

The main targets of Dutch forest policy are forest conservation, optimal fulfilment of the desired forest functions and forest expansion. The first target is guaranteed by the Forest Act. The second target was made more concrete by stimulating integrated forest management (80% of the forest area) and by stimulating forests with a nature conservation focus (20%). The third target was made explicit by the aim to increase the current forest area to 400,000 ha in 2020 and confirming this aim in all forest policy plans.

Dutch forest policy planning dates from 1969. The different policy plans up to now are: Memorandum on Forestry and Forest Policy in the Netherlands (1969), Structural View on Forests and Forestry (1977), Multi-year plan on Forestry (1986), Forest Policy Plan (1993) and Nature for People, People for Nature (2000). In 2000, forest policy (including its planning) was integrated into the Dutch nature policy. In Nature for People and People for Nature, forest is seen as part of nature. Wood production is no longer a target of Dutch forest policy. Forest expansion (in the EMS and urban areas) and function fulfillment (focus on nature) are still

mentioned as policy aims. The Dutch wood sector reacted to this plan with a Wood Action Plan (2000) and a Wood Vision (2005).

Other important legislative instruments are the Estate Act, the Nature Conservation Act and the Flora and Fauna Act. The Estate Act promotes forest accessibility and obviates forest parcelization by giving owners different tax exemptions, including one for the inheritance tax. The Nature Conservation Act protects ecologically valuable and/or vulnerable nature areas (through the EMS and Natura2000 areas). The Flora and Fauna Act regulates the protection of plants and animals. The way that this act must be implemented was quite unclear. The solution was to develop a behavior code - "Careful Forest Management". The two most recent laws are the Dutch implementation of the EU Habitat and Bird directive.

Finally, the Nature Management grant scheme supports forest and nature management financially when the owner meets agreed-upon targets described in management packages.

PART I. FAILURE AND SUCCESS FACTORS

Left up: Flemish Minister-president Kris Peeters planting a tree on the "boompjesweekend"(source: VBV), Right up: Dutch Minister Jacqueline Cramer (VROM) planting a tree (source: weromwenningen), Left down: Flemish SFM case "'Kempense Heuvelrug'' (source: UGent – Laboratory of Forestry) and Right down: Simon Klingen (in front), one of the initiators of "integrated forest management" (the Dutch version of SFM) (source: UGent – Laboratory of Forestry)

2 Flemish forest expansion policy: implementation failure and the ability of policy learning

After: Van Gossum, P., Ledene, L., Arts, B., De Vreese, R. & Verheyen, K. 2008. Implementation failure of the forest expansion policy in Flanders (Northern Belgium) and the ability of policy learning. Forest Policy and Economics, 10, 515–522

2.1 Introduction

Political and societal demand for forest conservation and forest expansion are omnipresent, especially in densely populated and sparsely forested regions such as Flanders (Northern Belgium), Randstad (the Netherlands), Copenhagen (Denmark) and Paris (France) (Konijnendijk, 1999). In Flanders, only 10.8% of the land area is covered with forest (i.e., ~146,000 ha of forested land) (Waterinckx & Roelandt, 2001); therefore, the need for forest expansion in Flanders is recognized in many policy plans (e.g., Long-term Forestry plan[11], Spatial Structure Plan Flanders[12]). Both plans confirm the policy goal of 10,000 ha forest expansion between 1994 and 2007 or an increase of 7% in the forest area. This expansion goal is not unrealistic for a highly populated region. For example, the National Forest region in the Midlands of England (500 km², population density of approximately 400 inhabitants/km²) increased its forest area from around 6% of the land area to more than 16% between 1991 and 2005 (Williams, 2006).

Since private owners control ~70% of the Flemish non-built-up land (forests and agricultural land), the forest expansion strongly depends on co-operation with these individuals. To encourage landowners to implement the government policy of forest expansion and forest

[11] This is the Flemish regional forestry plan; there is no national forestry plan because forest policy is a regional competence in Belgium.

[12] A structure plan is a policy document that specifies the framework of the desired spatial structure. It gives the long-term outlook on the spatial development of the area in question. Its aim is to give more coherence to the structure planning process (preparation, assessment, and implementation). A structure plan can be compared with a master plan for spatial planning on the level of the region of Flanders.

conservation, policy makers are using a wide range of regulatory, economic and informational instruments (sensu Vedung, 1998). The policy instruments that have been used in Flanders are grants and income compensation (as financial instruments) and restrictions on deforestation (as regulative instruments). In spite of the implementation of these instruments, the forest area declined by about 3,700 ha during the period 1994-2000 (www.bosengroen.be 09/28/2006). In the subsequent time period (2000-2005), further decrease of the forest area was reversed to a small yearly increase of 79 ha compared to the forest area present in 2000 (Dumortier *et al.*, 2005). However, at this rate, the policy goal of 10,000 ha net forest expansion would take 127 years to be reached (Dumortier *et al.*, 2005)!

A possible explanation for the failure of the forest expansion policy is its inadequate implementation (Mendes, 2006). Furthermore, when implementation fails, it is important that a support base exists to improve implementation in the near future. Therefore, this study aims to investigate the implementation of and the potential to adjust the Flemish forest expansion policy. In the next section, we will discuss the theoretical framework that is needed for both steps.

2.2 Theoretical framework

2.2.1 Policy implementation

In spite of the many definitions of policy implementation, there is a consensus on the general meaning of the term (Berman, 1978): policy implementation is the process in which decisions or actions are directed towards putting policies into effect (Goggin *et al.*, 1990; Winter, 1990; Hasenfeld & Brock, 1991). The single most important fault line in the implementation literature is the division between a top-down view (e.g. Van Meter & Van Horn, 1975; Linder & Peters, 1987, Mazmanian & Sabatier, 1989) and a bottom-up view (e.g. Berman, 1978; Hanf, 1978; Elmore, 1979; Lipsky, 1978; Hjern & Porter, 1981). The top-down approach begins with an authoritative policy decision at the central (top) level of the government and proceeds downwards through the hierarchical administrative structure in order to examine the extent to which the policy's legally mandated objectives are achieved and procedures are followed (Sabatier, 1986; Najam, 1995). The bottom-up approach focuses on the street-level bureaucrats, the real policy implementers (Lipsky, 1980) and starts with analyzing all the actors that interact at the operational (local) level, working backwards to map the outcomes and

impacts of the policy in terms of strategies adopted by the relevant actors in response to particular policy choices (Najam, 1995). A limited number of attempts tried to combine these two perspectives on policy implementation (Matland, 1995), e.g. Elmore's concept of forward and backward mapping (Elmore, 1985) and the communication model of intergovernmental policy implementation (Goggin *et al.*, 1990). The concept of Elmore is not a theoretical model in the traditional sense, but gives useful suggestions for policy designers (Matland, 1995): a policy designer should first consider the policy instruments and resources available for policy change (forward mapping) and then identify the incentive structure for implementers and target groups (backward mapping) (Pülzl & Treib, 2007). Goggin's communication model is based on the idea that implementers are political actors in their own right and that successful implementation thus requires complicated negotiation processes between the implementers and the central authorities (Pülzl & Treib, 2007).

Parsons (1995) pointed out that some of the differences between the top-down and the bottom-up approaches are as fundamental that seeking a comprehensive synthesis of both approaches is like trying to combine incommensurate paradigms. In reaction, Matland (1995) developed a policy type model that explains which approach is most appropriate (Table 2.1). Matland's approch was based on the policy problem classification of Douglas & Wildavsky (1983).

Table 2.1 Ambiguity-conflict matrix of Matland (1995) indicating the implementation type and the preferred model type (top-down, new top down, bottom up, or a combination)

		Conflict	
		Low	high
Ambiguity	Low	Administrative implementation: outcomes are determined by resources, analyzed with traditional top-down models	Political implementation: outcomes are decided by power, analyzed with newer top-down models that include political factors
	High	Experimental implementation: contextual conditions dominate the process, analyzed with bottom-up models	Symbolic implementation: local level coalitional strength determines outcome, analyzed with bottom-up and top-down models

The policy types are differentiated by conflict and ambiguity. Policy conflict will exist when more than one organization sees a policy as directly relevant to its interests and when the organizations have incongruous views. Ambiguity arises from ambiguity in goals, often a

prerequisite for getting new policies passed at the legitimating stage and ambiguity in means, the uncertainties of the role of organizations in the implementation process (Matland, 1995). Thus, the four different policy types make certain types of implementation more likely than others (Pülzl & Treib, 2007). Each implementation type has its own preferred model type(s) (top-down, new top-down, bottom-up, or a combination), which mostly consists of a set of explanatory variables that more likely than other possible variables to explain the investigated implementation process.

In Flanders, the goal ambiguity is very low. The forest expansion target of 10,000 ha between 1994 and 2007 was first mentioned in the policy letter of the Flemish Minister of Environment in 1995. This target is repeated in the Spatial Structure Plan Flanders in 1997, the Environmental Policy Plans of 1999-2004 and 2004-2009, the governmental policy statement of 1999-2004 and 2004-2009 and the Environment and Nature policy documents of 1999-2004 and 2004-2009. There are no official documents that counteract this forest expansion target. The ambiguity in means is also low but there is a trend towards a larger goal realization through the private sector. In contrast, the conflict level is high due to an incompatibility of the objectives of the nature (increase of 38,000 ha), forest and agriculture policy (reconfirmation of 750,000 ha). In order to create nature and forest, agricultural land will be needed. In the Spatial Structure Plan Flanders, the expectation was a decrease of 56,000 ha (for nature, forest and industry); however, in the period 1996-2004, the land area for agriculture use increased by 2.9% (according to the National statistic unit), or by 3.9% (according to the Manure bank) or by 4.1% (according to the Farmers union) (oral comm. farmers union). This evolution led to conflicts with the agriculture sector (oral comm. Flemish forest organization and farmers union). According to the framework of Matland (1995), the forest expansion policy is an example of political implementation (low ambiguity and high conflict) and, thus, the cluster of explanatory variables of the new top-down models (i.e., technical and political factors) are the most fruitful for analyzing the implementation process. This cluster of variables will be used as a checklist to investigate the Flemish forest expansion policy implementation and will be confined to the technical factors of Mendes (2006) and the political factors of Mazmanian and Sabatier (1989), together with the local political support of this policy. This local support is more a bottom-up factor, but was included because the municipalities also influence the implementation of the forest expansion policy in Flanders. Mazmanian and Sabatier (1989) describe the following political factors: general public support, support from upper-level political leaders, resources and support from relevant

constituency groups and the commitment of implementing officials. Mendes (2006) gives a good overview of the technical factors:

- *technical constraints* are budget constraints, normative constraints (e.g., legal regulations), the availability of material resources, human resources, communication, relevant knowledge and the relationships among policy instruments and between policy instruments and policy targets;
- *Stakeholder-related constraints* are individual rationality constraints (stakeholder must be better-off through the program) and incentive compatibility constraints (stakeholders' behaviour must be compatible with program target).

2.2.2 Policy learning

Adaptive and generative changes require organizational or policy learning and achieving this objective is largely a function of implementation evaluation (Rist & Joyce, 1995). Sabatier (1993) defines policy learning as "a relatively enduring alteration of thought or behavioural intentions that are concerned with the attainment (or revision) of the precepts of a policy core belief system". Kemp and Weehuizen (2005) distinguish three types of policy learning: technical learning (about instruments), conceptual learning (about goals and strategies) and social learning (about societal values, responsibilities, appropriate ways of interacting, and policy approaches). Technical learning is an example of single-loop learning, learning that does not question the fundamental design, goals and activities of the organization (Argyris, 1976). Conceptual and social learning are instances of double-loop learning. In single-loop learning, individuals, groups or organizations modify their actions according to the difference between expected and obtained outcomes. In double-loop learning, the entities (individuals, groups or organization) question the values, assumptions and policies that led to the actions in the first place; if they are able to view and modify those, then second-order or double-loop learning has taken place. Double loop learning is the learning about single-loop learning (Argyris & Schön, 1978). Double loop learning usually requires a crisis or revolution because organizational actors (e.g., administrations and agencies) are acculturated to be primarily single-loop learners (Argyris & Schön, 1978). The most important obstacles to policy learning are:

- lack of time to do anything other than to cope with events (Chapman, 2002);
- an aversion to failure, exacerbated by the political process, which uses failure to score points rather than to learn lessons (Chapman, 2002);

- the dominance of turf wars and negotiations between departments, effectively making end-user performance secondary to other considerations (Chapman, 2002);
- process predicament, the importance of procedures over outcomes. For example, the USDA Forest Service is so busy meeting procedural requirements that it has trouble fulfilling its historic mission (USDA, 2002).

Triggers to policy learning are:

- external system events like changes in socio-economic conditions, changes in public opinion, changes in systematic governing coalitions or policy decisions and impacts from other subsystems (Sabatier & Jenkins-Smith, 1993);
- changes in 'national mood' (Zahariadis, 1999);
- crises and shock events (Haas, 1992; Zahariadis, 1999).

In order to study policy learning, Sabatier and Jenkins-Smith (1993) developed the Advocacy Coalition Framework (ACF). The main assumption of the ACF is that actors can be grouped together in two or more advocacy coalitions. These long-lasting coalitions are held together by complex belief systems. The belief systems can be described as a hierarchical, tripartite structure that includes the deep core: basic ontological and normative beliefs, which are very resistant to change (e.g., humans are part of nature versus dominant over nature), the stable policy core beliefs: basic normative commitments and causal perception across an entire policy domain or subsystem (e.g., the appropriate division of authority between government and markets) and the more dynamic secondary aspects (e.g., instrumental choices) (Sabatier, 1998). The ACF states that policy core beliefs of governmental programs will not change as long as the dominant coalition that instituted that policy remains in power (although the secondary aspects of those programs may well change) (Sabatier, 1998). In addition, it is possible to link Sabatier's belief systems with the different types of policy learning. The deep core beliefs are very stable and long-lasting and, therefore, no learning is possible. The policy core beliefs are stable, but eventually changeable with double-loop learning. The secondary aspects are dynamic and single-loop learning is sufficient to change them. Thus, when only single-loop learning is possible, this can be an indication of advocacy coalitions with different core beliefs. It is then also important to know which actors are members of these coalitions and how their membership can be explained.

2.3 Research methods

2.3.1 Implementation analysis

Information sources for the implementation analysis were policy plans (n=5), legislation (n=5), policy evaluations (n=3), doctoral dissertations (n=2), EU regulations (n=2), policy documents and letters (n=7) (see appendix 2.1) and in-depth semi structured interviews (n=26). The documents were considered as separate sources of information at the same level as the interviews. The interviews were held with key actors from political parties, administrations, interest groups, experts and environmental non-governmental organizations (n=26; see Table 2.2). The interviews addressed the support base for forest expansion ("Is forest expansion needed in Flanders?" and "Under which circumstances forest expansion is possible?") and the failure of the forest expansion policy ("What are according to you the main reasons that the forest expansion targets were not reached?"). The answers on these questions were clarified with some additional questions, but these could differ between the interviews. The selection of interviewee(s) within the organization was based on document analysis; only persons with a specific interest in this forest expansion policy field were selected (e.g., the representatives of the political parties must be members of the parliamentary commission of Environment, Nature, Agriculture, Fishery, Countryside Planning, Spatial Planning and Real Inheritance). In large organizations such as the Forest service, different departments were questioned (e.g., the head office, the forest expansion team and the agricultural land afforestation team). In order to reduce the possibility that interviewees do not represent their organization's or department's ideas, the following procedure was used. Prior to the interview, it was emphasized by e-mail and telephone that the aim of the interview was to get the view of their organization or department. They also received the topic list in advance so that a discussion was possible within the organization before the interview. At the beginning of the interview, the importance of the organization's view was again emphasized. After the interview, if needed, respondents received the complete transcript to check within their organization. The interview transcript was also cross-checked with organization documents. All of this material was coded and analyzed using NVivo, a computer-assisted qualitative data analysis software. The coding was done according to the mentioned explanatory variables of our analytical framework. In the result section, the individual respondents will be mentioned for normative statements only.

Table 2.2 Lists of the interviewed political organizations (cat. 1), administrations (cat. 2), organizations of the civil society (cat. 3) and experts (cat. 4)

Acronym	Name of organization or party or knowledge field	Translation	Cat.
ANB	Hoofdbestuur Agentschap voor natuur en bos	Nature and Forest Agency (head office)	2
ARP	Afdeling Ruimtelijke Planning	Spatial planning administration of the Flemish Region	2
BB	Boerenbond	Farmers union	3
BL	Bebossing van landbouwgronden	Nature and Forest Agency – agricultural land afforestation team (2 persons)	2
BUT	Bosuitbreidingsteam	Forest expansion team (2 persons)	2
CD&V	Christen Democratisch & Vlaams	Christian Democratic party	1
CE	Kabinet van Leefmilieu	Cabinet of Environment (advisor of the Minister of Environment)	1
EFN	Inverde	Educative forest and nature centre[13]	3
Exf		Expert forest expansion	4
Exl		Expert legislation	4
Exps		Expert public support	4
Exsp		Expert spatial planning	4
FG	Bosgroepen	Forest groups[14] (3 persons)	3
Groen!	Groene partij	Green party	1
LV	Landelijk Vlaanderen	Flemish forest and land owners' association	3
MINA	Milieu en Natuurraad Vlaanderen	Flemish Nature and Environmental Council	3
NARA	Natuurrapport team van het Instituut van Natuur- en Bosonderzoek	Nature evaluation team of the Nature and Forest Research Institute	4
NP	Natuurpunt	Main nature conservation organization in Flanders	3
NVA	Nationale Vlaamse Alliantie	National Flemish Alliance	1
SP.a	Sociaal progressief alternatief	Socialist-Progressive party	1
VB	Vlaams Belang	Flemish Nationalist party	1
VBV	Vereniging voor Bos in Vlaanderen	Flemish Forest organization	3
VHB	Vlaamse Hoge Bosraad	Flemish Forest Council	3
VLD	Vlaamse Liberalen en Democraten	Liberal party	1
VLM	Vlaamse landmaatschappij	Flemish Land Agency	2

[13] Inverde is the main education center regarding forest, nature, and green areas. It focuses on the education of those interested in forest, nature, and green areas (i.e., forest owners and volunteers) and continuous on-the-job learning of professionals active in forest, nature, and green areas. One of the tasks of Inverde is to translate research results into education packages suitable for forest owners as well as employees of the Forest Agency.

[14] Within forest groups, private and local public forest owners co-operate to develop a more effective management of their forests. The forest groups are the main actors for management advice and support for private forest owners.

2.3.2 Policy learning

The in-depth interviews also addressed the policy learning topics: adjustment of the forest grants (as an example of single-loop learning) and juridical adjustments to the Tenure law and the Field code (double-loop learning). The chosen subjects are very important implementation gaps (see results) and for each subject the respondents' opinion about a proposed adjustment was questioned (e.g. "Can you agree with a tenure law change to make afforestation of agricultural land more easy; and under which circumstances?"). All of the interviews were tape-recorded, transcribed and analyzed using NVivo. The coding was done according to the mentioned explanatory variables of our analytical framework. In the result section, the individual respondents will be mentioned for normative statements only.

In order to define the different policy coalitions for forest expansion on a more objective base and as an internal consistency check, we used the ordination method 'Detrented Correspondence Analysis' (DCA) (Hill & Gauch, 1980). Calculations were made using the PC-ORD program (McCune & Mefford, 1999) and each question was equally weighted. Our main matrix was a binary table of all questioned topics (the nodes of the tree), which consists of 26 respondents, 4 answers divided in pro, contra and conditional and 3 single questions (i.e., a 26*15 binary matrix). The resulting ordination was interpreted on the basis of the interviews and documents. Unexpected ordination results were cross-checked with the respondents.

2.4 Results

2.4.1 Implementation analysis

In the next sections, we will discuss the implementation topics: political factors, technical constraints (communication and instrument-instrument matching) and stakeholder-related constraints (individual rationality constraints).

2.4.1.1 Political factors

In our analyses, it was difficult to make a clear distinction between the support from upper-level political leaders (the political parties and the cabinet) and the support of their relevant constituency groups (Farmers union, Nature NGO, Flemish forest organisation, Forest

groups, the councils and Educative forest and nature centre). These groups are highly related; therefore, the analysis was done for both groups together.

Both groups are positive with respect to the idea and the need of forest expansion. The majority refers to the binding regulations of the Spatial Structure Plan Flanders (10,000 ha forest expansion). According to the interviewees, the reasons for this forest expansion are biodiversity, the need for recreation in our overstrained society or in urban regions, the multifunctional use of forests, hunting and the buffer function of forests. This forest expansion may, however, interact negatively with the beauty of the existing landscape or cause insuperable difficulties for other sectors. Thus, all other sectors want to maintain their existing power position. They also have some instruments to keep this position at the expense of the forest expansion policy. For an afforestation project in nature designation zones, protected nature areas or protected landscapes, advice or a permit from the Nature Agency and the landscape administration, respectively, is needed. For an afforestation project in agricultural designation zones, a permit from the Land Agency and the higher forest official is needed. The policy objectives of the nature, landscape or land administration may, at times, differ from those of the forest administration; therefore, these permits can also counteract the forest expansion policy.

Even more important are the influence of the local political leaders (bench of the mayor and aldermen) and the strong influence of the agricultural sector on these leaders. In agricultural designation zones, the local municipalities must deliver afforestation permits before afforestation can take place (Field Code article 35 bis §5). The aim of this federal legislation was to give municipalities the opportunity to act against active afforestation in agricultural areas in the scope of good neighborliness. Within the current spatial planning, this legislation is out-of-date and the aims are less relevant. This permit is also obliged for the higher authorities and their administrations (such as the Forest Agency). It is strange that a federal act and a local authority can give restrictions to regional matters like forestry, spatial planning and nature conservation. At the moment, the provision of the afforestation permit is sometimes misused by local politicians to hinder decisions of the Flemish government or for favoritism. Thus, local politicians have a strong influence on the policy implementation. Fortunately for the Forest Agency, there exists one backdoor in this law: the permit is not needed for spontaneous forest development.

Finally, an occasional used backdoor for all permits (municipality, nature agency, landscape administration, land agency) is to design a spatial implementation plan for forest expansion.

This was recently done for the Park Forest Ghent. However, this is a time-demanding process and will probably only be used for large-scale projects.

2.4.1.2 Technical factor: Communication

Here, we distinguish between two types of communication: (1) communication of the existence of the grant schemes and (2) communication to the broader public.

A Flemish study on the attitude of private forest owners (Serbruyns *et al.*, 2001) revealed that only 40.3% of the small forest owners (< 5 ha) had knowledge of the existence of grants for afforestation and only 42.5% of them were aware of subsidies for reforestation. The result for the larger owners (> 5 ha) was somewhat better with 63.4% of the owners knowing about the existence of the afforestation subsidy and 68.0% about the reforestation subsidy.

General communication is an important spearhead for acquiring a broad social support base for forest expansion. At the moment, this communication is discontinuous, strong at the preparatory phase and the realization phase but almost absent in the in-between period. The communication at the preparatory phase creates expectations with the broader public that can almost never be fulfilled immediately. As a result, the support base of the project will decrease because people do not believe that the forest will ever be planted. Another problem is that the official communication is too specialized (source: Muys *et al.,* unpublished). It does not sufficiently use local knowledge or discuss the esthetical and ethical aspects of forests. The perceptions of the target groups about the forest and the forest discourse are also not known. These perceptions differ from the academic perceptions of the forest administration.

2.4.1.3 Technical factor: Instrument-instrument matching

There is one important inconsistency between the forest expansion policy and the agriculture policy: the Tenure Law. The Tenure Law is one of the most important obstacles for afforestation. In Flanders, 65% of the agriculture area is leased (Gotzen, 1997). The Tenure Law does not allow the termination of tenure for afforestation unless it is granted by the court

of peace[15], after having heard the local agricultural expert (article 10). In addition, the tenant cannot afforest without a written agreement with the leaseholder (article 28). Articles 6 and 7 allow public authorities (not the leaseholder) to terminate the tenure for public benefit or objectives of general importance (such as forest expansion) through expropriation. When terminating the tenure, the administration must wait at least three months (legal notice for tenure cancellation), with a maximum wait period of nine years and three months (the right of the tenant to fulfill the ongoing period), before afforestation can take place (article 11, 1°). In reality, the Forest Agency works within a compromise model so that the negative consequences for the tenant are limited. This practice is positive for the political and public support base, but this method will not be satisfactory for reaching the policy goal of 10,000 ha of supplementary forests as soon as possible because the target year (2007) has already passed.

2.4.1.4 Stakeholder-related constraints

The financial support of the Flemish government is too low to convince farmers and other private landowners to afforest their land (Meiresonne, 2001). Income support is only paid for five years for afforestations with poplar, conifers, and non-indigenous broad-leaved species. For farmers, this period is too short for income-security and agricultural grants are too competitive. Even more, Flemish farmers are rather opposed to afforestation (even classic poplar cultivation); only 13% of the Flemish farmers take this opportunity. Possible explanations are the insecurity concerning 'land designation', fear of a decreasing value of the land, strong beliefs that a reconversion to agricultural land will be legally impossible with time, fear of game damage to their agricultural crops and the 'long' rotation time (15 to 20 years for poplar) (Meiresonne, 2001). On the other hand, they seem interested in short rotation forestry for energy purposes.

[15] The justice of the peace is the most attainable magistrate in Belgium. When someone comes in contact with the court, it is primarily the justice of the peace. The competence of the justice of peace is broad; almost all aspects of daily life are included.

2.4.2 Policy learning

In the next sections, the possibility of policy learning is discussed. First, we will discuss the possibility of single-loop learning (e.g., adjustments of forest grants) and, then, of double-loop learning (e.g., support for legislative changes of the Tenure law and the Field code).

2.4.2.1 Single-loop learning

One of the implementation failures of the forest expansion policy program is that the financial support to the farmers and other private landowners is too low. This is the case for the initial grant and for the later yearly payment in return for the delivering of public goods. A possible improvement would be equal treatment in terms of the financial support for forestry and agriculture, whereby the support for forestry would increase. Almost one-third of the interviewees (exsp, LV, SP.a, EFN, NP, VBV, BUT, MINA) support this idea. The other interviewees neither reject nor support it. A further improvement would be to make the afforestation grant system area-specific; for example, higher grants in forest expansion areas than in agricultural designation zones. There would also be a need for a closed system without the possibility of misuse. Given the views of several respondents, instrumental learning seems possible. However, an increase in the grant amount will probably not be crucial for the effectiveness of the forest expansion policy. Hence, higher order learning seems needed.

2.4.2.2 Double-loop learning

The most important changes at the level of double-loop learning are an adjustment of the Tenure Law and the Field Code. When these laws remain unchanged, the possibility for single-loop learning, as mentioned in the above, seems useless.

The Social and the Liberal parties have tried to add an enactment of the **Tenure Law** so that the tenure can be terminated by the landowner for reasons of afforestation (article 7), but both failed. One of the problems is that the Tenure Law is federal competence[16] so it was thought to be impossible to change by a Flemish decree. However, the Tenure Law has

[16] Belgium has an interrupted federalisation process. Some competences such as international trade and agriculture were first federal competence and are now shared among federal and regional levels.

recently (2005) been amended by the Flemish Surface Mineral Decree[17] on the Flemish level. Hence, what is possible for private interest should also be possible for public interest (afforestation). A second problem is that the Tenure Law is a 'sacred cow' for the agriculture sector. Today, this sector is under great pressure, but the lobby seems stronger than ever. The social cohesion of the farmers against afforestation is also important. Under the previous legislature with the Green (Groen!) and Liberal parties (VLD), the change of the Tenure law did not go through. A possible explanation is that the VLD was trying to convince farmers to vote for the VLD and a change of the Tenure law would certainly not contribute to the success of this objective. Under the present legislature with the Christian Democratic party (CD&V) in the government, it will be politically impossible because of the strong link between this party and the agricultural sector. Nonetheless, some interviewees (NP, ANB, exsp, exf) expect a few changes in the near future because the use of the open space by the agricultural sector is less accepted by the public and farmers realize that extensification and new forms of agriculture (i.e., farm tourism) will become important. Thus, the support of farmers for a change of this Tenure Law is increasing. At the moment, many interviewees are advocates of a modification of the Tenure Law (VBV, NP, exsp, EFN, ANB, exf) or an integral revision of this law (Groen!, exps). In order to increase the political feasibility, the cancellation clause for afforestation can be linked to certain spatial designation zones (the green designation zones and the afforestation designation zone). For the farmers union (BB) and the CD&V, this indulgence is unsatisfactory and the existing Tenure Law must be preserved. On the other hand, most respondents agree that the afforestation cancellation possibility must be controlled for misuse. The enactment of the Tenure Law should be accompanied with soft instruments such as communication and participation as well as hard economical instruments. Many respondents emphasize also that small parcels of new woodland must be avoided by fitting individual afforestations in larger forest expansion projects.

Almost half of the interviewees are advocates for an abolition of the afforestation permit of the Field Code (SP.a, exps, EFN, exf, exsp, FG, exl, VHB, NP, VLD, ANB, Groen!). The fact that the local authorities, often with strong links with agricultural coalitions, must supply a permit can generate a serious hindrance for afforestation and forest expansion. It is also

[17] The amendment made it possible to cancel the tenure in order to exploit soil minerals. Both the landowner and the exploiter can cancel the tenure.

patronizing that owners must ask for a permit for afforestation. A regrettable trend is the misuse of the permit obligation to block Flemish policy objectives on the local level or to fight out political tribe disputes. In contrast, the farmers union believes that article 35bis is currently the only possibility to legalize forest expansion in agricultural designation zones. Thus according these respondents, an abolition of article 35bis will lead to the absence of a legal possibility to afforest in agricultural spatial designations. Therefore the Farmers union (BB) is in favor of this change.

The Christian Democratic (CD&V) and the National Flemish parties (VB) are against and want to retain this local autonomy. The Cabinet of the Minister of Environment (CE) expects that the local authorities respect the spatial decision of the higher political level and that the municipalities keep their own decision within this framework.

Given the above views and considerations, it seems that double-loop learning is not possible. A possible explanation is that there exist different, opposing and stable policy coalitions. This was further investigated with Detrended Correspondence Analysis (DCA), for which the result is shown in Fig. 2.1.

The first DCA axis explained 37% of the variance and the second 11%. The first axis can be interpreted as a gradient in willingness to conserve the existing situation of forest extension policy and divides the respondents into three groups: the 'continuity-oriented', the 'neutrals' and the 'change group' (see Figure 2.1). The topics 'contra – changing article 7 and 10 of the Tenure Law', 'contra – abolition of the Field Code' and the status quo of the forest grants are positively associated with this axis. Members of the continuity-oriented group are the Christian Democratic party (CD&V), the Flemish Nationalist party (VB), the National Flemish alliance (NVA), farmers union (BB) and, surprisingly, the Nature evaluation team (NARA). The unexpected position of NARA can be explained by their contra position of the Field Code. It is also important to emphasize that NARA is not a societal player, but an organization which delivers scientific information to objectify the policy debate.. The change-oriented coalition exists of the Green party (Groen!), the Flemish forest and landowners' association (LV), the Flemish Forest Organisation (VBV), the Flemish forest council (VHB) and the Liberal party (VLD). The other respondents are neutral.

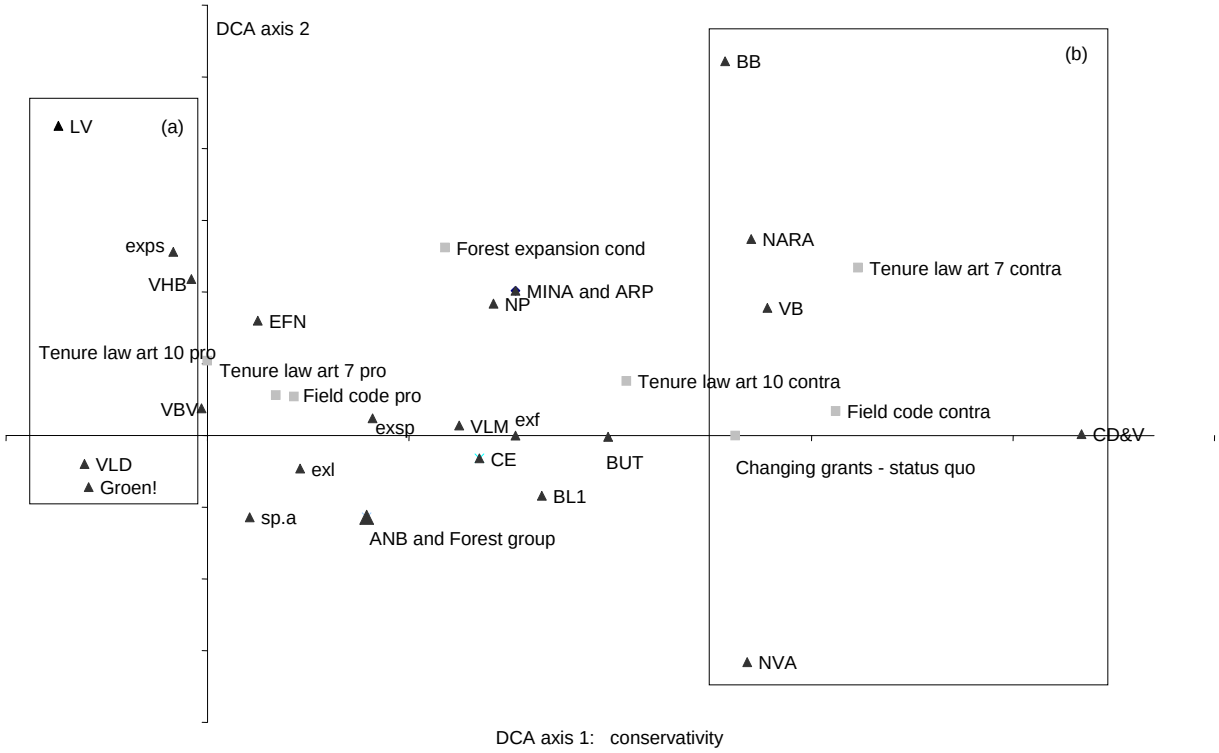

Figure 2.1 Scatterplot of the first two axes resulting from a Detrended Correspondence Analysis (DCA) of the results from the in-depth interviews on the Flemish afforestation policy; (a) progressive group (policy learning is possible to accelerate the forest expansion policy) and (b) conservative group

Through the disputed beliefs of both groups at the extremes of the continuum there is no (positive) evolution in forest extension policy possible at the moment. Important core beliefs to explain the position of the different respondents in the DCA are:

- the protection of the farmer (BB, CD&V) and, thus, a contra position for the Tenure Law change;
- local autonomy of municipalities (CD&V, NVA) and, thus, a contra position for the abolition of the Field Code;
- belief in the free choice of the landowner (VLD, LV) and, thus, a pro position for the Tenure Law change and the abolition of the Field Code;
- belief in the need for forest expansion (SP.a, exps, EFN, exf, exsp, FG, exl, VHB, NP, VLD, ANB, Groen!) and, thus, a pro position for the Tenure Law change and the abolition of the Field Code;

- an agricultural area without forests (BB) and, thus, a pro abolition of the Field code. The Farmers union (BB) believes that this is a needed change in order to realize the complete separation of agriculture and forest.

2.5 Discussion and conclusion

2.5.1 Implementation analysis

The major implementation failures for forest expansion given by this analysis are (1) the local resistance of farmers, (2) the influence of the relevant constituency groups (i.e., farmers) on the political leaders (upper-level and local), (3) imperfect communication, (4) inconsistencies with the agricultural and nature legislation and (5) too low financial support of farmers. Many of the failures are a result of the secondary position that forest policy holds relative to agriculture policy and the use of separate sectoral visions instead of an integrated rural vision.

The secondary position of forestry is common in many countries (e.g., USA) and organizations (e.g., FAO); forestry is commonly a part of the larger agriculture department. Also, in the EU, forestry is only one of the measures within the Common Agriculture Policy (CAP). Possible explanations of this secondary position are that many actors do not have enough knowledge to understand the importance of forest expansion, that their interest in forestry as economic activity is low and that the ranking of land use alternatives are primarily based on their contribution towards economic growth (increase of gross domestic product). Examples of this can be seen in promoting agriculture over biodiversity conservation (Young *et al.*, 2005), soil conservation (Penning-Rowsell, 1997) and afforestation and mining over current land use projects (Hilson, 2002). An alternative explanation from a spatial planning perspective was given by Leinfelder (2007). It is not an agricultural policy that is primary to forest policy in the case of forest expansion, but a dominance of economic discourse in the spatial planning. Although, the importance of an ecological discourse is growing since the implementation of the Nature Decree and the confirmation of the Flemish Ecological Network in the Spatial Structure Plan, both in 1997. The dominance of the economic discourse in Flanders is in contrast with the growing importance of a multifunctional discourse in the European agriculture policy.

The high price support given to the farmers keeps unproductive land in production. A decrease of this support can increase afforestation of this land (Plantinga, 1996). This is especially true in combination with high afforestation grants (Wiersum, 1996; Williams, 2006)

and early adopters, who reduce the distrust among other farmers by showing advantages and possible problems of this new system (Konijnendijk & van Laar, 1996) and increase the forest-related knowledge of farmers. There must be also a local appreciation of these new forests. In regions with a limited forest tradition, this appreciation was low (Elands & O'Leary, 2002). One of the reasons for this is that the forests are sometimes developed by outsiders and the locals feel that they lose control over their own community.

Given the specific federal structure of the state of Belgium, the question is whether it is possible to generalize the findings. We do think that generalizations can be made because, through the ongoing decentralization process, most unitary states have municipalities as decentralized units (Work, 2002). The consequence of this decentralization process is that, in practice, the line between federalism, unitary states and centralized systems becomes blurred (Work, 2002). This decentralization can also lead to increased political conflict and dispute between all levels of government (Giordano & Roller, 2003). Thus, the tug-of-war that goes on between multiple levels of government, as was found in this research, will be not unique for this case.

2.5.2 Policy learning

The analysis indicates that as long as the dominant coalition that instituted a specific policy remains in power, only single-loop learning will be possible. This is in line with Argyris & Schön (1978) that policy-makers primarily accepted only small adjustments of their policy and with Sabatier (1998) that policy programs will be stable when the dominant coalition stays in charge. This stability was already proven by many authors; for example, for forest certification in Indonesia (Elliott & Schlaepfler, 2001), the ecological amendment of the German federal forest act (Winkel & Memmler, 2004) and the convention on climate change in the USA (Sewell, 1996).

Thus, in order to turn this policy into the status quo and improve the forest expansion policy, a crises or organizational revolution will be needed, whereby the power distribution between both coalitions is positively changed towards the change-oriented coalition. However, the dominant coalition (the continuity-oriented) is characterized by a strong social cohesion between farmers, farmers' organizations, and CD&V. This strong social cohesion between individual farmers is confirmed by Knierim *et al.* (2003). This powerful group will also have a strong interest in keeping policies and government programs operating within their current

'sectoral' boundaries because this will increase their influence (Gouldson & Murphy, 1996). This is especially true because the agricultural sector is under pressure to change to more environmentally-friendly practices, which reduce the chance for policy learning (Maarleveld & Dangbégnon 1999). However, a change in the power distribution is not a guarantee that the changes that are needed are, indeed, realized. For example, in 1999-2004, there was a government coalition of the Liberal party (VLD), the Socialist party (SP.a) and the Green party (Groen!) and even then it was impossible to change the Tenure law and the Field code. Two different explanations are possible. First, in that legislative period, the VLD was trying to become a broad right-wing party and, thus, tried to convince farmers of their importance. Second, the progressive coalition consists of members who share the same objective (i.e. give the opportunity to private land owners to afforest their land) for different reasons while having different objectives on other "nature" themes at the same time. In contrast, the continuity-oriented coalitions have more parallel objectives for all nature and forest themes. The research also confirms the two aforementioned conclusions of Chapman (2002) that the dominance of 'turf wars' between sectors is an important impeding factor for policy learning and the use of failure to score points rather than to learn lessons.

2.5.3 Conclusions

Summarizing, the implementation analysis pointed out that the forest expansion program is not successful. This is mainly due to the secondary position that forest policy holds relative to agriculture policy and the focus on sectoral policies instead of an integral rural policy. On the theoretical level, the study confirms the usefulness of the implementation framework of Matland (1995). Even in a situation with a low ambiguity and a high conflict level, it is important to look not only to the traditional top-down implementation constraints, but to also incorporate some bottom-up implementation constraints (i.e., support of local political leaders). Thus, this study also confirms the importance of the street-level bureaucrats of Lipsky (1980).

The policy learning analysis pointed out that for the legislative changes (i.e., a more complex policy change), adjustments of current policy do not seem possible because two persistent coalitions, the 'continuity-oriented' and 'change-oriented', with polarized policy core beliefs exist. In contrast with the legislative changes, policy learning is possible for the adjustment of forest grants. Thus, at this moment, only small adjustments are possible in the Flemish forest policy subsystem. This confirms the statement of Agyris & Schön (1978) that policy-makers

primarily accept only small adjustments of their policy. In the absence of more complex policy changes, the outlook of the forest expansion policy remains unfavorable. Other confirmed policy learning statements are the ACF-hypothesis of stability of disputed core beliefs groups, the importance of turf wars and the aversion to failure.

3 Dutch forest expansion policy: decline in implementation success in the period 1986-2007?

After: Van Gossum, P., Arts, B., Van Laar, J., Verheyen, K. (submitted). Implementation of the forest expansion policy in the Netherlands in the period 1986-2007: decline in success? Land Use Policy, accepted with major revisions, November 2009

3.1 Introduction

Forest expansion is not new in the Netherlands. The increase in forest area started as early as the year 1800. At that time, the forest area had decreased to an estimated historic minimum of only 100,000 ha (Vernhout, 1988) (Fig. 3.1). Forest expansion in the 19th century was mainly done by private and municipal owners, who were motivated by the possibility to increase the profitability of their rural estate (private owners) or to reduce the unemployment (municipal owners) (Van Laar, 1994). The increase in forest area after the Second World War was inspired by the aim to increase the self-sufficiency in timber production. Later, forest expansion was also wanted within the framework of other ecosystem services such as recreation, production of clean drinking water, improvement of living conditions, biodiversity conservation and reduction of air pollution including the removal of fine dust and carbon sequestration. Next to this, two important policy changes took place. First, since 2000, the forest policy has been almost entirely integrated into the nature policy (Veenman *et al.*, 2009). For example, the policy document *Nature for people - People for nature* focuses on the conservation, development, restoration and sustainable use of nature (forests included) and landscapes for a sustainable society (LNV, 2000). Second, an ongoing decentralization of the nature and forest policy can be observed. In the Netherlands, the policy responsibilities are distributed between national (state), regional (provinces) and local (municipalities) governments. As a result of the decentralization policy, provincial authorities play an increasingly important role in rural planning as well as in forest and nature policy. Particularly through their authority to develop regional visionary plans, provinces play an important role in regulating the public and private development possibilities. Furthermore, the municipalities also have the right to decide on these development possibilities and they own 14% of the forest area (LNV, 2006), which makes them an important actor in forest policy.

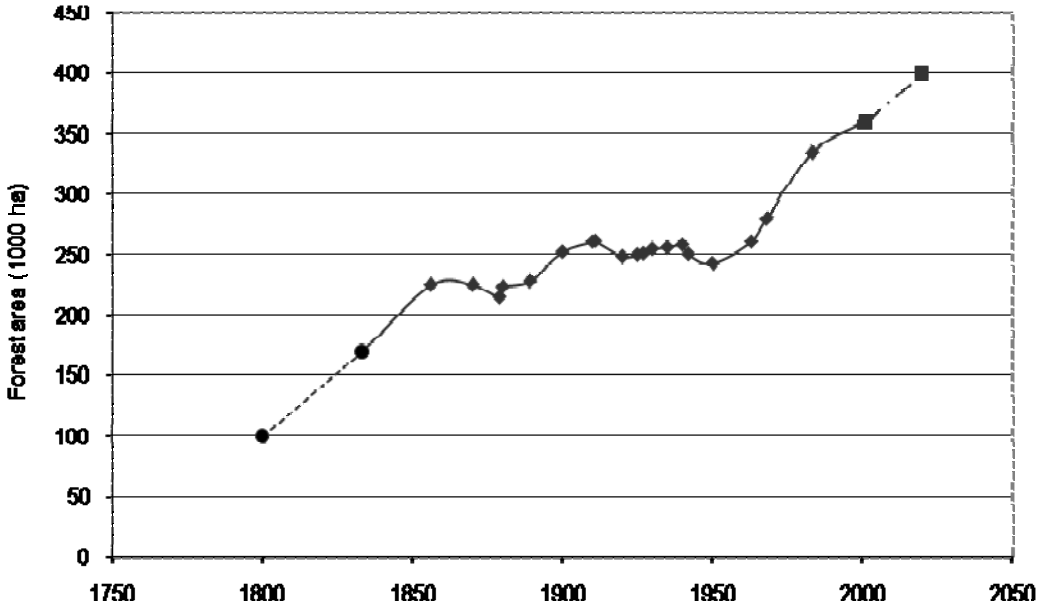

Figure 3.1 The increase in forest area in the Netherlands between 1800-2001 and the desired forest area in 2020 [adapted from Vernhout (1988)].The dotted line indicates estimations since the forest area in 1800 is not exactly known; the dashed line indicates the policy target.

Policy evaluations of forest expansion on the state level are scarce and were done by LNV (1992) and Edelenbosch (1996) for all actors, by Edelenbosch & Schrijver (1997) and De Heer *et al.* (1998) for the actor farmer and by Doppenberg & Landman (1996) and Van Doremaele (1998) for the actor municipality. These studies concluded that forest expansion is rather successful, except for the Randstad region (Table 3.1). Subsequent forest expansion evaluations were mainly done for Randstad (LNV, 2001; Farjon *et al.*, 2004; Van der Wielen & Bezemer, 2004) and Limburg (Verhart *et al.*, 2004; Buiting Bosontwikkeling, 2006), which means that the most recent analysis covering the forest expansion policy for all actors on state level dates of 1996. In addition, most studies focused on effectiveness of the forest expansion policy and dealt only sporadically with possible failure and success factors, and the investigated period is mostly only five years, which might underestimate the influence of a changing policy context on the realization of the forest expansion aim.

Therefore, the aim of this paper is to analyze the implementation process of the Dutch forest expansion policy over the period 1986-2007. We will focus on the failure and success factors of the forest expansion policy implementation.

Table 3.1 The policy targets and the extent of the realized targets for Randstad, Flevoland (afforestation was done on reclaimed state land) and the remainder of the Netherlands for the periods 1977-1989 and 1990-1995 (sources: LNV (1992, 1993), LNV & VROM (1993) and Edelenbosch (1996))

	1977-1989	1990-1995
Randstad: - target (ha)	2871	2270
- realized (ha)	1830	822
Flevoland: - target (ha)	4875	1780
- realized (ha)	6720	1880
Other areas: - target (ha)	4713	3790
- realized (ha)	4580	2840

3.2 Theoretical framework

The selected theoretical framework is the same as in the Flemish case, thus the ambiguity-conflict matrix of Matland (see Table 2.1). Contrary to the Flemish case, the matrix was further operationalized by organizing the different requirements for each implementation type in one clear overview, based on the implementation literature (Table 3.2). At the highest level, three dimensions (resources, network and rules) are distinguished. Each dimension is subdivided into several factors. The overview reveals some important similarities in requirements between the policy implementation types: (i) administrative and political implementation both have a hierarchical steering, low flexibility, high stability and low discretion; (ii) symbolic and experimental implementation are characterized by a multi-level steering, high flexibility, high discretion and low stability; (iii) political and symbolic implementation are both dominated by political disputes, the former at the central level and the latter at the project level; and (iv) administrative and experimental implementation shows both a high legitimacy, because there is a political agreement on the goals, the former at the central level and the latter at the project level.

Table 3.2 Checklist of resource, network and rule requirements for explaining failure and/or success of the administrative, political, experimental and symbolic implementation, based mainly on Matland (1995)[1] and completed with Hanf (1982)[2],' Sabatier (1986)[3], Mazmanian & Sabatier (1989)[4], Najam (1995)[5], Imperial (1998)[6], Dinica (2004)[7] and Mendes (2006)[8]

		Implementation type			
		Administrative	Political	Experimental	Symbolic
Model type		Top-down[1]	Top-down + political factors[1]	Bottom-up[1]	Bottom-up + political factors[1]
Levels		Central[1]	Central[1]	Multiple[1]	Multiple[1]
Actors		One actor, the involved organization[1]	Multiple actors[1]	Multiple cooperating actors[1]	Multiple actors (allies + opponents)[1]
Resources	Financial Means	Sufficient budget (policy aim)[1]	Win-win for the implementers[8]	Win-win for all involved actors[8] Sufficient budget (project level)[1]	Win-win for all involved actors[8]
	Human Resources	Sufficient manpower (policy aim)[1] Committed officials[3+5]	Not important because political disputes dominate[1]	Sufficient manpower (project level)[1] Committed local officials[3+5]	Not important because political disputes dominate[1]
	Knowledge	Competent officials[3+5]	Process management competence[5]	Competent local officials[3+5]	Local process management competence[5]
	Legitimacy	Representative democracy	General public support[4], Support of politicians[4], media[3], interests groups[4] and sovereigns[3]	Representative democracy (local)	Support on local level from general public[4], politicians[4], sovereigns[3], constituency groups[4] and media[3]
	Authority	Control and sanction deviant behavior[1]	Relatively few veto points[3] Low authority of opponents[1]	Right au Right authority balance within multi-level government[7] + between market government and civil society[7]	Strong authority of local coalition[1] Coercion to solve disagreements[1]
Network	Implementation structure	Hierarchical structure: coordination quality[1]	Polycentric structure[6] (central): strong cooperation between allies[1]	Polycentric structure[6] (multi): degree of cooperation[7], old-boys network[2]	Polycentric structure[6] (local): prevent strategic behavior[6], strong cooperation
	Communication	Top-down policy: communication clarity[3]	Communication with key-actors (vital resources)[1] and the public Customized communication[1]	Communication between all involved actors[7] and the general public Actors' internal communication[2]	Communication with local key-actors (vital resources)[1] and the public Customized communication[1]
	Negotiation	Not needed[1]	Bargaining on actions[1]	Negotiation between key actors[1]	Bargaining on actions[1]
Rules	Discretion	Low: clear responsibilities and tasks[1]	Low[1]	High[1]: clear general guidelines	High: +: bureaucratic entrepreneurs[1] -: minifiefdoms[1] and clientelism[1]
	Flexibility	Low[1]	Low[1]	High: encouraging policy innovation[1]	High: encouraging policy innovation[1]
	Stability	High: standard operating procedures[1]	High[1]	Low[1], but some continuity is needed	Low[1], but some continuity is needed

3.3 Material and methods

We used a case study methodology with mixed-method design. This research methodology involves an empirical investigation of a particular contemporary phenomenon, in our case forest expansion, with its real life context using multiple sources of evidence (Yin, 2003). A mixed-method design combines qualitative and quantitative methods of data collection and analysis (Tashakkori & Teddlie, 2003). The main purpose of combining these different methods was to strive for an objective evaluation on the one hand and to have a complete and nuanced picture of the Dutch forest expansion policy implementation on the other hand.

Information sources for the qualitative part were policy documents and plans (n=14), evaluations of nature and forest policy (n=10), evaluations of forest expansion policy (n=13), policy instruments descriptions (n=12), decentralization (n=3), public support (n=1), land acquisition (n=2) and forest expansion analysis (n=1) (appendix 3.1). In addition, to get a better understanding of the case we did one expert interview with the (former) forest expansion specialist of the State Forest Service. Furthermore, in-depth semi-structured interviews (n=15) were held with key actors from four provinces in the Netherlands (Gelderland, Drenthe, Limburg (a group interview with 3 persons), South-Holland), the Ministry of Agriculture, Nature and Food Quality (LNV), the Forest board (Bosschap); the Dutch National Fund for Rural areas, the State Forest Service, six non-governmental organizations (Natuurmonumenten, Probos, and the provincial landscape organizations of the four provinces) and the private development company Habitura. The respondents were selected by snowball sampling (Patton, 1990). In contrast with the Flemish case, neither politicians nor members of farmer organization were suggested as possible respondent. This can be a consequence of the complete integration of forest expansion in nature development.

All interviews were tape-recorded and transcribed. The interviews dealt with the support for forest expansion and urban green, the consequences of the decentralization, the merging of the forest expansion policy and the nature policy and the failure and success factors of the forest expansion policy. Additional questions were used to clarify certain answers of the interviewees. The selection of interviewee(s) within each organization was based on document analysis; only persons with a specific interest in the forest expansion policy field were selected. All the material was coded and analyzed, first according to ambiguity and conflict to select the implementation type(s) and then according to the requirements of the implementation type(s). During data analysis of the requirement codes, the fulfillment of the requirements was

separately checked for the spatial zones Ecological Main Structure[18] (EMS), the rural area and the urban area. The division in three different spatial zones was needed because the forest expansion policy of the state and the provinces differs also for these zones.

The information source for the quantitative part was an e-mail request to the 18 interviewees to evaluate, on a 7-point Likert scale (Likert, 1932), to which extent the requirements of experimental and symbolic implementation listed in Table 3.3 inhibit or stimulate the implementation of the forest expansion objectives in the three different spatial zones. It is important to mention that the e-mail request was only answered by 7 respondents [19], namely the State Forest Service (n=1), Probos, Forest board, Province of Limburg (n=2), Province of Drenthe, Landscape of Limburg and Landscape of South-Holland. The survey result will be given as the frequency distribution of the 7-point Likert scale. It was not possible to give the results for each respondent separately, because of confidentiality reasons.

3.4 Results

First, we will define the implementation type(s) of the forest expansion policy in the Netherlands, based on an analysis of the policy's ambiguity and conflict. Second, the success of the Dutch implementation type(s) will be evaluated, and the dimensions (resources, network and rules) will be investigated in detail for these implementation types. For each factor within a dimension, the scores for the requirements, resulting from the quantitative data analysis, will be compared with the findings of the qualitative data, i.e. the in-depth interviews and the studied documents.

[18] The Ecological Main Structure (*Ecologische HoofdStructuur*, EMS), the Dutch implementation of the ecological network idea, was introduced in the Netherlands in 1990.

[19] Seven respondents might look a low number, but with exception of two all core members of the Dutch forest expansion policy implementation did react. More problematic is that two requirements (ideal authority balance and strategic behaviour) were evaluated by only 5 and 4 respondents respectively (see Table 3.3). Hence, the quantitative results of these requirements were only taken into account when these results were confirmed by the qualitative data.

3.4.1 Implementation type

The goal ambiguity or goal vagueness is low for the Dutch forest expansion policy. The clearly formulated targets in the Long-term Forestry Plan, in the Forest Policy Plan and in *Nature for people - People for nature* are more or less the same: an increase of the forest area up to 400,000 ha by the year 2020. Some provinces, Limburg and Drenthe and some organizations, the Landscape of Gelderland (*Geldersch Landschap*) also made an own forest policy plan with clear afforestation goals.

The ambiguity in means, however, is very high. Since the role of the different organizations in the implementation process is not clearly formulated, the involved organizations often quarrel about who will take the lead in realizing a certain afforestation project. In addition, policy instruments are changing in short time periods, which increases the financial uncertainty of the afforestation projects. There is a gap between planning and effective realization: "*In the Netherlands, we are good at outlining a policy and at writing policy documents. However, as soon as the ink of the plan is dry, the financial means will have disappeared.*" (Landscape of Limburg). The very high ambiguity in means results in a rather high policy ambiguity.

The Dutch forest expansion goals conflict with other policy aims such as house-constructing and the development of industrial parks, particularly in the urban areas and the urban conglomerate Randstad. In the rural areas, there are also possible conflicts with agriculture. These conflicting objectives will influence the forest expansion policy negatively. However, according to the Dutch provinces, the realization of the EMS, which includes some forest expansion, will not be hindered by conflicting objectives. The slowing down of the EMS realization rate and the discussions on expropriations for realizing the EMS indicate that conflicts are nonetheless possible. Thus, the conflict level decreases from urban areas over rural areas to the EMS.

To sum up, according to the framework of Matland (1995), the Dutch forest expansion policy is an example of experimental-symbolic implementation (rather high ambiguity and conflict) in the EMS and an example of symbolic implementation (rather high ambiguity and high conflict) in rural areas, urban areas and Randstad.

3.4.2 Policy success of the implementation of forest expansion

Table 3.3 shows the respondents' evaluation (n=7) of the different implementation requirements for forest expansion in the EMS, the rural area and the urban area.

3.4.2.1 Resource dimension

We will successively evaluate the requirements for the factors financial means, human resources, knowledge, legitimacy and authority.

The survey respondents indicate that the available budget is only sufficient in the EMS and insufficient for the urban and rural area (Table 3.3, confirmed by the qualitative data). The Forest board forms an exemption because it is the only respondent who believes that the budget is also sufficient in the rural and urban area. It is important to mention that in the EMS, the available budget is not even used completely because finding available land that can be bought is a problem. In the urban areas on the other hand, many projects struggle for a sufficient budget because of the high land acquisition costs. Whereas agricultural land costs 30,000 to 40,000 €/ha in rural areas, the price increases up to a tenfold close to large urban areas due to speculation. Bringing together a large diversity of financial sources, e.g. the government, the private market and even the National Lottery, seems to enable projects to fulfill the high project costs. Nevertheless, land speculation remains an important impeding factor for the implementation of the forest expansion policy in urban areas. It can also be questioned whether it is always really a financial problem: "*The Netherlands, the province of Limburg and the city of Maastricht are not poor, they have lots of money. The problem is a lack of political will to realize urban nature.*" (Landscape of Limburg). The insufficient budget in the rural area is a result of the policy choices of the state, which only focuses on the EMS and urban areas.

Table 3.3 Evaluation of the implementation of the forest expansion policy in the Netherlands in the Ecological Main Structure (EMS), the rural area and the urban area. The frequency distribution of the 7-point Likert evaluation scores, ranging from -3 (a very strong failure factor) to 3 (a very strong success factor), is given.

	EMS	Rural area	Urban area
Resources			
Financial means			
Sufficient budget (project level)	0, 0, 1, 0, 0, 2, 2	2, 2, 1, 1, 0, 0, 1	3, 0, 0, 2, 1, 0, 1
Win-win for all involved actors on project level	0, 0, 0, 2, 2, 0, 2	0, 0, 2, 0, 2, 0, 3	0, 0, 0, 2, 2, 1, 2
Human resources: sufficient manpower (project level)	0, 0, 1, 3, 3, 0, 0	0, 2, 0, 3, 2, 0, 0	0, 1, 2, 3, 1, 0, 0
Knowledge			
Competence of local officials	0, 0, 0, 1, 5, 1, 0	0, 1, 1, 2, 3, 0, 0	0, 1, 1, 2, 3, 0, 0
Competence to manage the local process	0, 0, 0, 2, 2, 2, 0	0, 1, 2, 1, 2, 0, 0	0, 1, 2, 1, 2, 0, 0
Legitimacy			
Support of the public	0, 0, 0, 0, 6, 1, 0	0, 0, 0, 1, 5, 1, 0	0, 0, 0, 0, 4, 1, 1
Support of the municipality	0, 0, 2, 1, 3, 0, 1	0, 1, 1, 3, 1, 0, 1	0, 0, 1, 0, 4, 1, 1
the provinces	0, 0, 0, 1, 3, 2, 1	0, 1, 1, 2, 1, 1, 1	1, 1, 0, 1, 2, 1, 1
Support of the state	0, 1, 0, 1, 2, 2, 1	1, 0, 1, 2, 2, 1, 0	0, 0, 0, 2, 4, 0, 0
Support of nature NGO's	0, 0, 0, 1, 2, 1, 3	0, 1, 0, 2, 2, 2, 0	0, 1, 0, 1, 1, 4, 0
Support of farmer organizations	1, 2, 2, 2, 0, 0, 0	1, 3, 0, 1, 1, 0, 1	2, 1, 1, 2, 0, 0, 0
Authority			
Strength of the local coalition	0, 0, 1, 4, 1, 0, 0	0, 2, 0, 3, 1, 0, 0	0, 0, 0, 4, 1, 1, 0
Coercion to solve disagreements	1, 1, 1, 3, 0, 0, 0	3, 1, 1, 1, 0, 0, 0	0, 0, 2, 2, 2, 0, 0
Ideal authority balance between the three hierarchical governmental levels	0, 0, 2, 0, 0, 2, 1	0, 1, 1, 0, 1, 1, 1	0, 0, 1, 3, 1, 0, 0
Network			
Implementation structure			
Strong cooperation between allies	0, 0, 0, 0, 3, 3, 1	0, 1, 0, 1, 3, 1, 1	0, 1, 0, 0, 5, 0, 0
Absence of cooperation between opponents	0, 2, 0, 1, 2, 0, 0	0, 2, 1, 0, 2, 0, 0	0, 1, 1, 2, 0, 0, 1
Old-boys network	0, 0, 1, 1, 3, 1, 1	0, 2, 0, 1, 4, 0, 0	0, 1, 0, 1, 3, 1, 0
Preventing strategic behavior	0, 2, 1, 1, 0, 0, 0	0, 2, 1, 1, 0, 0, 0	0, 2, 0, 2, 0, 0, 0
Communication			
Communication between cooperating organizations	0, 0, 0, 1, 3, 3, 0	0, 1, 1, 1, 3, 1, 0	0, 1, 0, 1, 3, 1, 0
Communication within organizations	0, 0, 0, 1, 2, 2, 0	0, 0, 0, 2, 3, 1, 0	0, 0, 0, 2, 3, 0, 0
Communication with the public	0, 0, 0, 1, 4, 2, 1	1, 0, 2, 1, 2, 1, 0	0, 0, 1, 2, 3, 0, 0
Negotiation			
Bargaining on actions is possible	0, 1, 1, 3, 1, 1, 0	0, 1, 2, 1, 1, 1, 0	0, 1, 0, 2, 1, 1, 0
Willingness to have results exists	0, 0, 0, 2, 0, 3, 1	0, 2, 2, 0, 0, 1, 1	0, 0, 0, 1, 2, 1, 1
Rules			
Discretion			
Discretion is high enough to take the local needs into account	0, 2, 0, 1, 3, 1, 0	0, 1, 0, 2, 2, 2, 0	0, 1, 0, 1, 3, 1, 0
Clientelism is not possible	3, 1, 1, 1, 1, 0, 0	4, 0, 1, 1, 0, 0, 1	2, 0, 2, 2, 0, 0, 0
Minifiefdoms do not exist	1, 2, 0, 0, 0, 2, 0	2, 1, 1, 0, 0, 2, 0	1, 2, 0, 1, 0, 1, 0
Flexibility of the current policy	0, 3, 1, 2, 1, 0, 0	0, 2, 0, 3, 2, 0, 0	0, 1, 0, 2, 3, 0, 0
Stability of the current policy	0, 0, 1, 1, 1, 1, 3	2, 0, 0, 3, 2, 0, 0	2, 0, 2, 1, 1, 0, 0

Apart from a sufficient budget, a fair distribution of the costs and expected benefits among all actors involved seems to be vital. In this way, each actor will perceive advantages in implementing the policy. The survey respondents think that this win-win situation is possible and will support the policy implementation (Table 3.3). However, the detailed analysis for the actor farmers pointed out that in 1996, 64% of the farmers argued that afforesting their land yields no advantages, mainly because of the associated land price devaluation (33%) and the uncertainty on the term of operation of the grant (21%) (Edelenbosch & Schrijver, 1997). For 11% of the farmers, particularly farmers with a low cost-effectiveness (De Heer *et al.*, 1998), the possible benefits from grants were higher than the expected afforestation cost. To convince more farmers, particularly the innovative ones, to afforest their land, many new instruments have been introduced: (i) creating new rural estates, which are associated with large tax reductions, was made possible by the government in 1995 and was implemented by many, but not all, provinces, e.g. in Zeeland since 1997 and in South-Holland since 2001, and by many, but not all, municipalities; (ii) compensation of the land value decrease was introduced for permanent forests in 2000; (iii) once-only payments were granted for carbon sequestration in 2001; and (iv) some regional governments give additional financial support, e.g. the province of Limburg gives grants for new forests close to urban areas. Thus, the possibility to have a positive return when afforesting land was higher than ever (Jansen, 2002). However, the land value compensation outside the EMS was terminated after only 4 years, and it was not clear whether the land value compensation and the grants were tax free, which also influenced the willingness to afforest negatively. The tax service of the Ministry of Finances has endorsed the fiscal exemption for land value compensation for 90% since 2000 and for 100% since 2002. Thus, during the period 2000-2004, there was probably a benefit for farmers, particularly for farmers with a low cost-effectiveness. Before and after this period, the benefit is less clear. The differences between the quantitative evaluation by the respondents and the qualitative document analysis can probably be explained as followed: the evaluation of the respondents was based on a broader range of monetary (maybe also compensation for water storage and fine dust capture) and also non-monetary benefits than the second evaluation where only the known governmental funded monetary benefits were taken into account.

The in depth interviews were more clear in their statements on the available manpower than the survey respondents. The former indicates that the manpower available on the policy level is barely satisfactory for forest development in the EMS and is not satisfactory in rural and

urban areas, e.g., *"The core group is indeed much too small"* (Province of Limburg) and *"The group is too small"* (LNV). The situation might become even worse in the future because of the changing priorities of the Ministry of LNV: *"It is currently like the story of Ten Little Niggers* [referrring to a book of Agatha Christie]*, the core group decreases each time when a person retires because there is nobody to replace him/her"* (Province of Limburg). The Ministry is now focusing on the European and international arena and has decentralized the previously national forest tasks to the provinces, which lowered the importance of forest policy and resulted in only one person within the Ministry working on this policy. However, the few people involved with the forest policy are really committed, and notwithstanding their other demands, they succeed in facilitating or realizing many forest expansion projects.

The survey respondents think that only in the EMS, the local officials have enough knowledge and competence to manage succesfully the local negotiation process for the forest expansion project (Table 3.3). The interviews confirm these findings. The Dutch legislation and grant system is indeed rather complex. Many actors, even large organizations, are overwhelmed by this complexity and need assistance during the preparatory stages of an afforestation project. In reaction, some provinces and the Ministry of LNV have appointed a contact person who should help private landowners with grant requests and other administrative steps necessary for the realization of an afforestation project. Some respondents state that the contact man has a *terrier function*: he should get his teeth into a project and solve all the problems that arise. This support will certainly influence the policy success positively.

The legitimacy or support for forest policy depends on the actor group. The forest expansion policy is supported by the public (Table 3.3) and, in the EMS, by the provinces, the state and nature NGO's. In urban areas, nature organizations and municipalities support forest expansion. In contrast, most farmers are against the policy, and the resistance is high in the urban area (all sources), since large cities often try to realize their green demands on agricultural land in nearby municipalities and in the EMS. The project legitimacy increases when projects combine objectives of different organizations or governments. For example, the municipal forest of Meppel (province Drenthe, 20 ha) was realized through a co-operation between the Meppeler Courant to celebrate the 150-year anniversary of the newspaper (support of interest groups), the municipality, the EU, the ministry of LNV (support of politicians) and some private organizations (support of interest groups).

The survey respondents believe that the strength of the local coalition does not explain Dutch forest expansion policy success or failure (Table 3.3). In contrast, the survey respondents and

the in depth interviews emphasize that the reluctant attitude to use coercive instruments like expropriation when the other solutions failed can be seen as failure factor in the EMS and the rural area. The interviews emphasize that this is also sometimes the case for the urban areas: *"A serious mistake in the realization of the Bentwoud* [a planned urban forest area] *was that a member of the Provincial Executive said that the project would be realized without coercion and without expropriations, which is how he dug the project's grave"* (Province of South-Holland). Most interviewees state that coercion should only be considered when all other possibilities did not succeed.

There was no agreement on the appropriateness of the current authority division (all sources). Nevertheless, all respondents agreed that the central government should give general guidelines and that a hierarchical higher level should have the possibility to interfere when the lower level fails (province interfere when municipality fail). They believe that a tripartite combination, state–province–municipality, will be the strongest guarantee for a successful policy implementation. This means that some respondents did have the opinion that this tripartite structure already exists, while others emphasize that higher level guiding (the state) was absent or was insufficient.

3.4.2.2 Network dimension

The implementation of the forest expansion policy is done by a diversity of actors including the civil society, nature NGO's, land owners, farmers and three hierarchical governmental levels: the state, the provinces and the municipalities. The implementation success will depend on the implementation structure, i.e. the way in which the actors are organized in a network structure and on the communication and negotiation between all the actors.

The network structure will be evaluated by the absence of strategic behavior, cooperation of allies, absence of opposition of opponents and the existence of an old-boys network. A negative point is the occurrence of strategic behavior. Positive points are that allies show strong cooperation and that the network is evolved to an old-boys network within the EMS and the urban area (Table 3.3.). In contrast, there is no agreement on the opposition of opponents. The interviews confirm these findings and give more insight into the effects of these requirements on the policy implementation. A high degree of strategic behavior can hinder or even completely obstruct the realization of a project. For instance, the city of Rotterdam will only realize a forest and nature development project in the *Oranjebuitenpolder* on condition that there are no financial risks. However, one of the respondents believes that in

fact, the city of Rotterdam does not want to lose land for nature development because other developments such as house-constructing are more financially attractive: *"Rotterdam wants urban green, but enterprises that deliver tax money are more important"* (Landscape of South-Holland). The consequence of this strategic behavior is that large cities try to realize their urban nature areas in the neighboring municipalities, which the municipalities do not accept as they prefer the current agricultural use. In addition, when a project is realized in several municipalities, every municipality tries to reduce its own share in the nature area.

Besides a low degree of strategic behavior, the willingness to cooperate is also essential for a successful project. However, it is important to take into account that cooperation between different municipalities and provinces will be difficult: *"Municipalities and provinces get nervous because it goes beyond their territory, and then, cooperation is miles away"* (Habitura).

Finally, an old-boys network can improve and/or speed up the project implementation because the old-boys members will try to realize forest expansion even when it is not the main target of their organization and because negotiations or discussions between members are mostly superfluous. In the Netherlands, an old-boys network of roughly ten persons currently does the policy implementation. Almost all respondents did known each other and the level of trust between them was high: *"Half a word is enough to understand each other"* (Province of Limburg). However, as said before, it is a disadvantage that the network is small.

The current project communication is one of the factors that explain the success of projects, particularly in the EMS (all sources). Positive is that most provinces discuss projects more and more with all stakeholders on a local scale. Negative is that many potential investors such as farmers and landowners do not known which financial stimuli can be used for forest expansion projects. Besides communication between the involved actors, good internal communication is also important, particularly within the civil service because of the current "box mentality", i.e. each civil servant has his own responsibility and his own budget, and officials are more likely to compete with each other, defending their own budget, than to cooperate. It is important to mention that the survey respondents evaluated the internal communication as a success factor in the three investigated areas. This means that the civil service actors have found a way to cope with the box mentality, e.g., the civil service actor "Province of Limburg" solves the box mentality by appointing persons as intermediates between different parts of the administration. Finally, communication with the public is important for acquiring a broad social support for forest expansion. At present, this communication is discontinuous: strong at the preparatory and the realization stage, but

almost absent in the in-between period. Communication at the preparatory stage arouses the expectations of the public, which in most cases cannot be fulfilled immediately. In this respect, for projects partly financed by real estate development, communication towards the public should wait till the project implementer has acquired a large part of the project area to avoid negative effects on the project realization due to speculation. It is important to emphasize that the survey respondents evaluated the communication with the broad public as success factor in the EMS (Table 3.3).

The survey respondents evaluate the current negotiation situation as a success factor in the EMS and are less clear for both other areas. Nevertheless, in the in depth interviews and the documents there was agreement that negotiations will be only succesful when there is a willingness to have results and when the project coordinators fulfill the following requirements: *"He must know well the entire public policy field; he should be able to identify where the problems are and suggest solutions; he should have affinity with management; he should be aware of all funding opportunities and he should cooperate closely with all actors"* (Province of South-Holland). It is important to mention that the interviewees find that most project coordinators fulfill these requirements. An example of a successful negotiation in the urban area is the *Eendrachtspolder: "It is a successful project because it was possible to reconcile the different objectives of the partners; the municipality Zevenhuize-Moerkapelle wanted a buffer zone against the urban sprawl of Rotterdam; the waterboard needed more water storage capacity; the Province of South-Holland did still have to develop some nature and forest and the recreation board wanted to increase the recreation possibilities"* (Province of South-Holland).

3.4.2.3 Rules dimension

We will successively evaluate the requirements for the factors discretion, flexibility and stability of the current policy.

The survey respondents agree that there is a negative effect of clientelist relations (Table 3.3), which is confirmed by the in depth interview and the analyzed documents. For instance, farmers and farming organizations have a large influence on many city councilors, particularly on those with roots in farming. Some councilors even succeed in influencing decisions at the state level, e.g. in the *IJsselmonde* project (650 ha nature and forest development): *"With assistance of city councilors the farmers succeed in influencing members of parliament. The result was a vague motion which stated that it must still be possible to do something with agriculture in the IJselmonde project.*

Nonetheless just because of the vagueness of this motion, the Council of the State did not accept the implementation of the project" (Landscape of South-Holland). A small majority of the survey respondents also dread that civil servants might take decisions based on their own preferences instead of the policy (minifiefdoms[20] in Table 3.3) which is confirmed by the in depth interview and the analyzed documents. Nevertheless, some discretion at the local level is needed to take into account the specific local circumstances when state or provincial policy is implemented. A small majority of the survey respondents indicate that the discretion of the local level is sufficient to take the local conditions into account (Table 3.3), which is confirmed by the in depth interview and the analyzed documents. However, some survey respondents clearly indicate that this discretion at local level is too high. To sum-up the discretion at the local level is probably too high; some higher-level steering will be needed to tackle clientelist relations and minifiefdoms.

Flexibility is important because innovation is influenced negatively by rules that are too strict: "*The success of the project is based on the innovative ideas of a member of the Provincial Executive. He disregards the current legislation. He goes beyond the juridical margin and gathers people who want to realize his ideas"* (Province of Limburg). The current flexibility is evaluated as too low, particularly in the EMS (all sources). However, policy innovation might be able to solve difficult problems such as land speculation. A promising idea is the VORm-policy, i.e. the interpretation of the American transferable development rights by the province of Limburg. The aim of this policy instrument is to realize a common public goal, e.g. forest development, with a bottom-up approach when there is a broad public support. The project financing is done by private actors who get in exchange the possibility to realize their own goals like house-constructing, which were forbidden under the existing legislation. The success of the VORm-instrument depends on the decisiveness and mobilizing power of the project initiators. Although the first experiences with this instrument are promising, there are some critics. Some respondents dread that forest and nature development will only be possible when there are private funds or a VORm-policy, while it might be worthwhile to finance forest expansion with only public money. In addition, the Limburg landscape organization does not like the widening of the common public goal from nature and forest development to an increased rural living quality, e.g. constructing a community centre. Notwithstanding these critics, the VORm policy might

[20] Minifiefdom or local kingdom is used to refer to situations where the local implementer is de facto law maker. Thus in those situations is the implementation discretion too high.

contribute to the realization of the forest expansion policy, also in urban areas. Many respondents do like the VORm policy, particularly as a solution in situations with many other claims.

Finally, the policy that influences forest expansion must have a certain degree of stability because the approval of forest expansion projects usually takes many years and the financial risks will be too high with an unstable policy: *"Forest owners must invest 50.000 à 70.000 euro in the preparatory stage, when there is still no guarantee that the project will be approved"* (Forest board). The survey respondents find that the policy is stable in the EMS and unstable in the urban area which is confirmed by the in depth interview and the analyzed documents. There is no agreement on policy (in)stability for the rural area (all sources). Nevertheless two survey respondents (Forest board and Landscape of Limburg) emphasize policy instability as a strong failure factor, e.g., "*nothing is a changeable as the grant schemes of the government*" (Forest board).

3.5 Discussion

Summing up all failure and success factors on the state level gives many starting points for improving the implementation of the forest expansion policy. A number of failure (a too low local capacity to manage the local process, clientelist relations and minifiefdoms on the local level) and success factors (local embedding and support of municipalities) are consequences of the growing importance of the local level due the ongoing decentralization process. The withdrawing central government also leads to failure factors such as the lack of central guidance, the inability to limit strategic behavior of municipalities and a lack of coercive threats in case the hierarchical lower level fails. Nonetheless, the failure factors cannot be considered as a logical result of the decentralization process because decentralization calls for *mutually supportive* democratic and *central and local* governance and not for a downsizing or dismantling of the central government (Ribot, 2002, emphases added to the original). Thus, a first starting point is reconsidering the current decentralization and, in particular, regaining a balance between central and local governance. Central guidance can overcome and control clientelist relations and minifiefdoms, can limit strategic behavior and can stimulate the local levels to implement the policy through a coercive threat.

The second group of failure factors, i.e., the absence of financial benefits for farmers, the financial uncertainty and the complex legislation, results in a limited implementation by farmers. If the government wants to stimulate farmers, they should realize that a farmer's aim

is to be better off after the project (Mendes, 2006) and to achieve his own goals or enhance his own values (Kline e*t al.*, 2000; Koontz, 2001). Farmers will base their decisions on these objectives, but will only take a decision when the certainty is high (Groeneveld *et al.*, 2004; Tranter *et al.*, 2004) and when the policy is understandable and clear. Thus far, this is not the case in the Netherlands although the legislative complexity is partly obviated by setting up regional contact points. It remains desirable, however, to clarify the legislative chaos and to improve the policy stability.

The third group of failure factors, i.e. land speculation and an unsatisfactory budget, might be solved by policy innovation. Policy innovation sometimes requires interpreting laws beyond the official interpretation (Caldecott & Lutz, 1996), which did only happen in the province of Limburg. Their version of the transferable development rights method, i.e. *VORm*, seems promising: it results in high local support of municipalities and interest groups, a clear assignment of tasks, a solution to preclude land speculation and a sufficient budget. Furthermore, the instrument is successful because it tries to satisfy everyone through compensating some landowners for losses, facilitating additional development profits for others and achieving significant land conservation objectives at low public costs (Fulton *et al.*, 2004).

The fourth group of failure factors consists of the strategic behavior of all actors and the lack of a coercive threat. Including regulatory responsiveness might solve these failure factors (Gunningham & Grabosky, 1998): when the policy is not implemented voluntarily, it will be done coercively. Although this regulatory threat can increase the success of a project (Farrier, 1995; Langpap, 2006), it is not sure whether the government still wants to realize the forest expansion policy. The central governmental level concentrates mainly on the realization of the EMS and the implementation of the European and international policy. Moreover, a lot of provinces do not have an own forest policy.

Finally, the last group of factors, i.e. the old-boys network, the willingness for results when the project aims were negotiated, a good internal and external communication and a possible win-win for all involved actors, shows that forest expansion is not impossible when everything is thoroughly discussed and all partners agree on the negotiated solution. However, to reach the national afforestation target in the Netherlands, most of the policy implementation improvements suggested above will be necessary.

Our study confirmed the usefulness of the framework of Matland (1995) based on four types of policy implementation. We further improved Matland's framework by arranging the requirements in a well-organized table, which reduced the very extensive list of possible explanatory variables within the implementation literature to a manageable set of factors. Nonetheless, the list of failure and success factors remained long, which in turn provided many possible starting points for policy improvement. Thus, for giving policy recommendations, it will still be needed to put the factors in groups with a common origin (e.g. decentralization) or a common solution (e.g. regulatory responsiveness). In this way, the policy implementation has to be interpreted from different perspectives, which will result in a comprehensive understanding of the entire policy process.

Our research also confirmed two key elements of the policy implementation of Pülzl & Treib (2007): (i) policy implementation is a continuum located between central guidance and local autonomy and (ii) policy implementation and policy formulation are interwoven tightly. For each forest creation project, the local policy is formulated based on the local, regional and national policy aims and the aims of all the actors involved. In addition, our results confirm the strong political nature of the interactions in the symbolic policy implementation, which was already emphasized by Matland (1995).

3.6 Conclusions

The implementation analysis pointed out that the forest expansion policy targets will not be reached within the planning period and that the realization rate is decreasing, due to the absence of central guidance, the legislative complexity, the low policy stability, the lack of supporting conditions for policy innovation, the lack of regulatory responsiveness and the latent policy at state level and in many provinces. Nevertheless, the transferable development rights method of Limburg is a promising innovation and forest expansion still happens, which is mainly the result of a good internal and external communication, a closed but effective network and the willingness to realize negotiated project aims that lead to a win-win situation for all actors involved.

On the theoretical level, our study confirms the usefulness of the implementation framework of Matland (1995) and improves this framework by arranging the requirements in a well-organized table.

Box 2. Comparing Flemish and Dutch forest expansion cases

The Flemish and Dutch forest expansion cases show some striking similarities. In both cases forest expansion is impeded by strategic behavior of farmers and local politicians. Farmers mobilize agricultural-minded politicians, mostly Christian-Democrats, to block forest expansion projects. Local politicians of rural municipalities are especially strong protectors of 'their' farmers because they try to avoid that they need to bear the cost of recreational areas of sprawling neighboring cities. The local politicians of these urban municipalities do not want to use their own land because they will loose then their future city growth possibilities. This is the traditional fight between urban and rural citizens who have a different view of rurality (Woods, 1998). In addition, it is also a consequence of avoidance behavior of municipalities to produce positive externalities for neighboring municipalities when they only bear the cost (Baumal & Oates, 1988; Seabright, 1996). Another similarity is that approval of a forest expansion project needs allowance of many other policy fields, like spatial planning, landscape and nature (the latter only in Flanders). Due to this, the realization of forest expansion projects takes more time than expected and it increases the financial uncertainty of the project because it is not sure that the project will be allowed. In the Netherlands, this is even made more complicated by fast changing grant schemes and laws, while there is more policy stability in Flanders.

Nevertheless, there are also some striking dissimilarities, which can explain the higher Dutch policy success. These dissimilarities are a supportive spatial planning policy, larger instrument diversity and a stronger power position of nature against agriculture in the Netherlands. The latter is important because it reflects a different rural discourse in the Netherlands. The Dutch rural space is more seen as a multifunctional space, while in Flanders the productive space discourse is still in front (Boonstra, 2004; Leinfelder, 2007).

The Netherlands has a much stronger spatial planning tradition than Flanders (Van Zadelhoff, 2008). Due to this, national and provincial maps clearly indicated the preferred locations for new nature (including forests). In Flanders, no forest expansion zones exist and as long as there is no complete designation of the agricultural area many rural municipalities will block forest expansion projects, even those of the Forest service. In addition, one third of the Flemish forests do not have a spatial designation "forest" (Leyman & Vandekerkhove, 2003). As a result forests are still being converted to other land use. This makes a net forest expansion even more difficult. Furthermore, the much stronger tradition in spatial planning in the Netherlands

than in Flanders is also an advantage for policy instruments like new rural estates, red-for-green and transferable development rights. The strict Dutch spatial planning has made the chance to live in the countryside rather small, while the market for rural housing is growing because many early retired want to live in the countryside (Leinfelder, 2007). Therefore, the willingness of Dutch people to pay for nature and forest creation in exchange of a rural living possibility will be high. Contrary, in Flanders already many people live in the rural countryside. Thus the usefulness of instruments like red-for-green will be lower (Leinfelder, 2007).

In the Netherlands there is more a tradition to find and develop new policy instruments. Because of the existence of a policy instrument market, specialized organizations like "Habiforum" and "InnovatieNetwerk" develop new policy instruments (e.g. Dutch version of transferable development rights) in co-operation with other private and public organizations. There is no such tradition in Flanders. Due to this the policy instrument diversity is rather small in Flanders.

The power of the nature and agricultural sector is more equal in the Netherlands, while in Flanders the nature sector is much weaker than the agricultural sector (Bogaert & Gersie, 2006). In the past, both regions did have powerful corporatist agriculture arrangements (Hees, 2000; Bogaert & Leroy, 2008). These arrangements can be described as closed, relatively stable, sectoral old-boys network of members of the civil society, politicians and higher officials (Andeweg & Irwin, 2002). However, closed sectoral arrangements are not suitable to face the current inter-sectoral policy issues (Howlett & Ramesh, 2002). Therefore we observe a weakening of these corporatist arrangements. In the Netherlands the corporatist agriculture arrangement came to an end in 1996 when the Agricultural board was terminated (Hees, 2000). The changing relations within the Dutch agricultural arrangement can be illustrated by the implementation of the European nitrate directive. The Dutch Christian democrats support the strict rules on the use of manure because they consider that it will be in the interests of the farmers and an expression of good (Christian) stewardship of nature (Van Zadelhoff, 2008). Thus the Dutch Christian democrats made the choice to withstand the pressure from their traditional clientele and to take their responsibility for the protection of the environment. In addition, the protection of the environment and nature are nowadays also mainstream political topics in the Netherlands (Van Zadelhoff, 2008), thus demonstrating an increase of the power of the nature sector. Contrary, the Flemish corporatist arrangement is still strong as can be seen in the almost non-implementation of the forest expansion policy as well as many other

examples like the nitrate directive (Bogaert & Gersie, 2004; Leinfelder, 2007). Flemish Christian-democrats are still strong allies of farmers and try to block all regulations which can have a negative effect on them. In addition, the environment and nature is in Flanders still the domain of left wing parties, like the Green party and the Social-Democratic party.

The power difference of the nature sector is connected with a marked difference in public support for nature conservation in the strict sense. About 10% of the Dutch citizens are paying members of nature conservation organizations (Van Zadelhoff, 2008), while this is only about 3% in Flanders. The same difference can be seen in the total area of protected nature; some 2% in Flanders compared to over 10% in the Netherlands (Van Zadelhoff, 2008). Nevertheless, the substantial support for protection of nature and the environment is almost similar in Flanders and the Netherlands (Van Zadelhoff, 2008). This reflected in the support for Green parties, the way that parliamentarians vote in the European parliament and the success of public forest events. The Flemish green party (Groen!) gained 6.2% of the Flemish votes in the national elections in 2007; in the Netherlands this was 4.6% (www.europeangreens.org 14/04/2009). In terms of eco-friendly voting, the Netherlands and Belgium ranked 3rd and 4th respectively among the 15 'old' members states of the EU (www.foeeurope.org 14/04/2009). Flanders and the Netherlands have large-scale forest events, respectively the forest week (since 1979) and the tree celebration day (since 1957). Both events lead to a large-scale mobilization of the civil society to participate in a large diversity of forest related activities. Thus, the real challenge for Flanders is to solve the very great difference in support for the environment in the Flemish society at the general level and the lack of support for practical measures at the national, regional and local level. This is not only a challenge for policy-makers, but also for the civil society as a whole (Van Zadelhoff, 2008).

4 Flemish SFM policy: an institutional evaluation

After: Van Gossum, P., Arts, B., De Wulf R., Verheyen, K. An institutional evaluation of sustainable forest management in Flanders. Land Use Policy, accepted with major revisions November 2009

4.1 Introduction

There is a growing recognition of the importance of sustainable forest management (SFM) in forest policies across the globe (McDonald & Lane, 2004). SFM is generally defined as a management system that "tries to balance the social, economic and ecological values associated with forest, with consideration of these values for future generations" (Hickey, 2008, pp. 109). Many studies (a.o. Toman & Ashton, 1996; Luckert & Williamson, 2005; Drever *et al.*, 2006) investigate the management implications of SFM. However, it is also important to address the broader social context that enables SFM (Kaimowitz, 2003; Shvidenko *et al.*, 2005; Folke *et al.*, 2005; Rist *et al.*, 2007). In that respect, Dietz *et al.* (2003) introduced the concept of sustainable governance. The concept of governance is used to describe modern society's situation where the policy process is dominated by networks of different actors that depend on each other's cooperation (Rhodes, 1997). Thus, a network of actors, rather than the government alone, will make policy decisions (Lebel, 2005), will resolve trade-offs and will provide a vision and directions of sustainability (Boyle *et al.*, 2001). Resolving trade-offs will be important because the implementation of SFM involves multiple actors who typically have conflicting interests (Varma *et al.*, 2000; Wang, 2002).

Thus if efforts to implement SFM are to succeed, it is important to consider several institutional factors (Cortner *et al.*, 1996, 1998), including the process of consensus-building around the meaning of 'sustainability' (Jennings & Zandbergen, 1995) and the process by which sustainability becomes institutionalized in rules, actor networks (Meyer & Baltes, 2004) and power (Leach *et al.*, 1999). The consensus-building around the meaning of SFM is not easy because SFM is interpreted differently by the different actors (Hickey, 2008). There are many studies which use an institutional approach to investigate sustainable management of common pool resources (e.g. community-based management) (a.o. Gibson *et al.,* 2002,

2005; Behara & Engel, 2006; Pagdee *et al.*, 2006; Fleishman, 2008; Nayak & Berkes, 2008; Coleman, 2009). However, such investigations for forests with a less common pool character, like forests which are privately owned, are scarce and even absent for forests with a highly fragmented ownership. Nevertheless, also in those situations it can be important to introduce SFM, because it is sometimes the only possibility to fulfill the current public demands of forest related ecosystem services (e.g. recreation, biodiversity conservation).

Therefore, we will focus on the evaluation of institutional factors in a highly fragmented ownership situation, in this case Flanders. The Flemish forest context is very suitable for this attempt because there is a very high ownership fragmentation (mean size of forest property is only 1 ha), a high population density (447 inhabitants/km²) (www.statbel.be), a forest coverage of only 10.8% (Waterinckx & Roelandt, 2001) and 70% of the forest area is privately owned (www.bosengroen.be). In addition, the public demands for recreation and biodiversity conservation can only be fulfilled when most forests are sustainably managed, thus including the private forests. Because the market alone fails to deliver these requested services (see Merlo & Briales, 2000), the government needs to interfere. The Flemish government has therefore formulated a SFM policy, which is implemented through different policy instruments. It is this policy and the institutional environment in which the policy is embedded that will be evaluated. Whereas it is possible to do this evaluation from different actor perspectives, we have chosen to do this evaluation from the perspective of the actor which introduced the SFM policy, i.e. the central government. We are aware that "the" central government does not exist. The government is a heterogeneous actor (Lipsky, 1980). Therefore, we have based "the" governmental perspective on the most important official policy document on SFM, i.e. implementation order on criteria and indicators for SFM. It is also important to emphasize that we do not take automatically the government vision for granted. The aim of this research is to make an evaluation in which extent the interpretation of one actor (government) differs from the real world. This vision is in line with the pragmatic approach which assumes that there is a single "real world" and that all individuals have their own unique interpretations of that world (see for extended discussion Morgan, 2007).

In this paper, we will first present a framework for institutional evaluation based on the policy arrangement approach. Next, we provide a brief description of our strategy for data collection and analysis. Subsequently, we apply our theoretical framework and finally discuss the different SFM perspectives and the institutionalization of SFM in terms of rules, actor relations and power dependencies.

4.2 Analytical framework

We have chosen to use the policy arrangement approach (PAA) (Van Tatenhove *et al.*, 2000; Arts & Van Tatenhove, 2004; Arts & Leroy, 2006; Wiering & Arts, 2006) as analytical for this research, because it attaches the same importance to the dimensions actor, power, rules and discourse. The PAA builds upon multi-actor network models (see Marsh & Rhodes, 1992; Rhodes, 1997), but pay more attention than these models to: (1) institutional contexts in which policy actors must operate, (2) the substance of policy making and (3) the power relations between the policy actors involved (Wiering & Arts, 2006, p. 328). The PAA as analytical tool has two central concepts, i.e. political modernization and policy arrangement. Political modernization refers to the shifting relations between the state, market and civil society in political domains of the society – within countries and beyond – as a manifestation of globalization, Europeanization and individualization (Arts & Van Tatenhove, 2006). The consequence of political modernization is that forest policy making is no longer a single task of the government nor solely limited to the traditional forest sector members, i.e. forest owners and forest professionals. (Verbij, 2008). However, the extent that new actors (e.g. nature organizations, leisure organization) have an influence over decision making process differs largely between countries. For example, this influence is still marginal in Austria but quite large in the Netherlands (see Verbij, 2008 for an extended discussion). This research will not investigate the political modernization shift, but take into account that forest government is to some extent evolved to forest governance.

Policy arrangement is defined as – "the temporary stabilizations of the substance and organization of a particular policy domain" (Van Tatenhove *et al.*, 2000, p 54, emphasizes added in the original). The stabilization is assumed to be temporary because the arrangements are under pressure of change (Arts & Van Tatenhove, 2004). The temporality of the stabilization seems in first instance to be contradictory for a SFM analysis. However, this is not the case because SFM interpretations can change over time (Hickey, 2008). In addition, it can be desirable that rules change to achieve the policy goals (Baldwin & Black, 2008) or to give new actors the possibility to join the actor network (Meyer & Baltes, 2004). The policy arrangement can be analyzed along the following four dimensions: (1) actors and their coalitions involved in the policy domain (organization); (2) division of resources between these actors (organization); (3) rules of the game (organization and substance) and (4) current policy discourses (substance) (Van Tatenhove *et al.*, 2000, Arts *et al.*, 2006). These four dimensions of a policy arrangement are inextricably interwoven, implying that any change to

one dimension induces change upon other dimensions. Each of the four dimensions can be used as analytically starting point to analyze the policy arrangement (Liefferink, 2006). In this research, we have chosen for an actor perspective because it is the most tangible way to get an overview of the policy arrangement around a given issue, in our case sustainable forest management (Liefferink, 2006). A central element by using PAA in an actor perspective is delineating discourse coalitions and grouping them in allies and enemies (Liefferink, 2006)

The PAA as evaluation tool investigates the (potential) governance capacity of the arrangement (Arts & Goverde, 2006); i.e., the extent to which new forms of governance are potentially able to successfully mitigate or solve societal and administrative problems, which are legitimately recognized by the stakeholders, in the (near) future (Nelissen *et al.*, 2000). A high governance capacity means that the institutional preconditions of the policy arrangement contributing to effective realization of the desired policy impact are fulfilled. In order to measure this capacity, Arts & Goverde (2006) borrowed the concept of "congruence" from Boonstra (2004). The capacity is high when there is sufficient coherence among (1) the policy views of the different actors (strategic congruence), (2) the dimensions of a policy arrangement (internal structural congruence) and (3) the investigated policy arrangement and the adjoining policy arrangements (external structural congruence). Considering the fact that forest policy is gradually evolved to a multi-sectoral policy field we decide to tackle both congruencies together.

To evaluate the governance capacity of the current SFM policy arrangement we follow the idea of Wiering & Arts (2006) to link a number of "criteria" and "indicators" to the different dimensions of the arrangement (Table 4.1). However, the notions of "criteria" and "indicator" are placed between brackets, as we are aware that – in a strict methodological sense – we are not dealing with "true" indicators here, namely empirical assets which can be immediately observed (Wiering & Arts, 2006). Yet these "indicators" can help us to evaluate the institutional setting empirically and more thoroughly. In addition, it is also recommendable to have a "preferable state" for each "indicator", i.e. the governance capacity requirement in Table 4.1.

Table 4.1 Criteria and indicators to evaluate the governance capacity of the "sustainable forest management policy arrangement" from a governmental perspective based on Liefferink (2006)[1], Wiering & Arts (2006)[2] and Buizer (2008)[3]

Dimensions	Governance capacity		
	'Criteria'	'Indicator'	'Requirement'
Discourse	SFM coalitions[1, 2]	Similarity in perspectives	Supporting coalitions of SFM actors
Rules	SFM rules[2]	SFM formalization	Formalization of SFM discourse + no negative effects of other discourse formalization
	SFM acceptance	Congruency of formal and informal rules	Formal rules are accepted, which means that these formal rules are in line with the informal rules
Actors	Relationships[1, 2]	Actors' relationships	SFM actors have many positive relations
	Trust[3]	Actors' trustworthiness	SFM actors are trustworthy
Power	Resources[1, 2]	Actors' power resources	SFM actors control most resources
	Reputation[1, 2]	Actors' power reputation	SFM actors have a high reputation

The first dimension, discourse, will be restricted to actors' perspectives of SFM in general and of some selected concrete SFM activities (see §4.3.2). It is important that both components are questioned, because (private) forest owners might display relatively favorable attitudes towards abstract concepts (such as SFM), but frequently oppose the specific elements of an actual plan (Brunson *et al.*, 1997). Actors which have a high similarity with the governmental SFM perspective can be seen as supporters of this perspective, while actors with a high dissimilarity can be seen as challengers (Arts & Van Tatenhove, 2004; Liefferink, 2006). The SFM discourse analysis will group actors in supporting and challenging coalitions. The likelihood that the governmental SFM policy will be implemented successfully increases when the governmental perspective coincides with the perspectives of the different coalitions (the supporting SFM coalitions).

The second dimension, rules, consists of substantive and organizational aspects (Wiering & Arts, 2006). The substantive aspect, SFM regulations, is the extent to which changes in forest management discourse are reflected in changes in regulation (Wiering & Arts, 2006). Thus, the transposition and formalization of policy discourse into formal rules. In addition, it is important to investigate if there are no 'perverse effects' of the current and past transposition and formalization of other policy discourses, because these effects will impede the realization of the SFM policy (Gunningham & Young, 1997). The organizational aspect will be analyzed by rules acceptance. Rules acceptance is an important indicator because it measures the congruence between formal and informal rules (Ostrom *et al.*, 1994; Poteete & Ostrom, in

press). Thus, rules acceptance measures the extent that the formal rules are in line with the informal rules (the rules-in-use). A low congruence means that the formal policy aims can only be realized by coercion, which is not in line with the governance concept, or by bridging the gap between formal and informal rules. The 'rules acceptance' evaluation will be done separately for the regulative, economic, and communicative instruments, because the owners' acceptance decreases from communicative instruments over economic to regulative instruments (Gunningham & Grabosky, 1998). The likelihood that the governmental SFM policy will be implemented successfully increases when the SFM discourse is formalized in rules and the resulting rules are accepted, which means that the formal rules are in line with the informal rules.

The third dimension, policy actors, will be restricted to actor network relations and is based on the key factors of successful network governance (see Meyer & Baltes, 2004). The key-factors are in line with the emphasized factors of PAA-authors (Wiering & Arts, 2006; Buizer, 2008). We are aware that actor constellations, the key actors in the arrangement, are also important (see Wiering & Arts, 2006). However, there is no agreement in which actor constellation is the most suitable to achieve SFM in the literature (see Coleman, 2009). Therefore we have chosen to describe and not to evaluate the actor constellation. Key factors for successful network governance are trust to guarantee cooperation (Shannon, 1990; Meyer & Baltes, 2004; Folke *et al.*, 2005; Buizer, 2008) and information exchange (Edelenbos & Klijn, 2007) and durability of actor relations to produce trust (Meyer & Baltes, 2004). The later is quite similar with the criterion "interaction patterns" of Wiering & Arts (2006). The criterion "trust" refers to a more or less stable perception of actors about the intentions of other actors, that is, that they refrain from opportunistic behavior (Edelenbos & Klijn, 2007). Important sources of trust are the frequent interactions and previous trustworthy relationships (Dasgupta, 1998; Hardy *et al.*, 1998), the expected shared gains of cooperation (Hardin, 1991; Kramer *et al.*, 1996) and respecting others' knowledge and using it in appropriate way (Charnley *et al.*, 2007). The criterion "relationships" refers to the number and mutual consents of the ties between one actor and the different other actors in a social structure (Wasserman & Faust, 1994). The likelihood that the governmental SFM policy will be implemented successfully increases when the SFM coalition members are trustworthy and have many positive relations with other actors.

The fourth dimension, power, will be restricted to strategic dependency of network actors (Meyer & Baltes, 2004; Liefferink, 2006), which can be analyzed by dispositional power (Arts

& Van Tatenhove, 2004) and power reputation (Lieshout & Westerheijden, 1994). The first criterion, dispositional power, takes the asymmetrical division of resources between actors into account (Goverde & Hinsen, 1994; Arts & Van Tatenhove, 2004) and measures potential power (Lieshout & Westerheijden, 1994). Possible resources are regulatory power (formal[21] and formalized[22] authority), money and personnel (Liefferink, 2006), expert power (knowledge), ownership power (Finkelstein, 1992) and communication possibilities. We are aware that regulatory power links power and rules. However, we do not see this as a problem because we investigate only the power manifestation and neither the discourse formalization in rules nor the acceptance of the rules. The second criterion, power reputation, measures an actor's power through appraisal by other actors and provides thus a better indication of the actual use (Lieshout & Westerheijden, 1994). More precisely, the power reputation of actor i according actor j is defined as the expectation of actor j that actor i has the power to really implement his promises or threats, by taking into account the expected influences of other actors (k, l, …) on actor i. The likelihood that the governmental SFM policy will be implemented successfully increases when SFM coalition members have a high power reputation and controls most power resources.

4.3 Material and Methods

An appropriate way to tackle the research objective is a single case study. A case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon with its real life context using multiple sources of evidence (Yin, 2003). Single cases allow researchers to investigate phenomena in-depth, providing rich description and understanding (Walsham, 1995; Darke *et al.*, 1998). However, the results are more difficult to generalize and, therefore, it is important to discuss the generalizations limitations.

[21] Formal authority is defined as an authorization to implement legislation. For example the Forest service is the formal authority to judge a grant proposal for the ecological forest function.

[22] Formalized authority is defined as an authorization which an actor gets as member of a committee which has impact on forest management (e.g. steering committee forest management plan) or because of a special resource he/she controls (e.g. the province controls human resource management of the forest).

4.3.1 Description of case study area and evidence for representativeness

The forest management unit "Kempense Heuvelrug" in the Campine region in the province of Antwerp (northern Belgium, 51°N, 4°E) covers 1000 ha and is owned by almost 1000 different owners. Sixty-four percent of this area is privately owned and 45% belongs to only three owners, i.e. two public owners and one large private owner. This means that most other forest owners have a property of less than 1 ha. The selected case is a coniferous forest on poor sandy soils, which was planted in the beginning of the 20st century on heathland and shifting sands. The characteristics of the selected case are quite comparable with those of Flanders. In Flanders, 70% of the forests are privately owned, 60% are coniferous forest on sandy soils and the mean private property size is less than 1 ha (Waterinckx & Roelandt, 2001; Serbruyns *et al.*, 2001).

In addition, all Flemish SFM key actors are involved in the case and were interviewed (see §4.3.2 for the method), between brackets we mentioned the number of interviewed respondents of this type (and when needed, the respondent name). The key actors are:

- non-industrial private forest owners (NIPF): natural persons (n=11, coded as e.g. NIPF-nature which is a non-industrial private forest owner with a nature conservation motive) and artificial persons like nature non-governmental organizations (n=1, "Nature NGO") and youth organizations (n=1, "Youth");
- public forest owners:
    - Flemish level: Forest service (n=1) and Nature service (n=1),
    - regional level: provinces (n=1, "province of Antwerp"),
    - local level: municipalities (n=2, "Kasterlee" and "city Herentals"),
    - other public organizations like public health organizations (n=1) and public landscape foundations[23] (n=1; "Kempens Landschap");
- third parties which have influence on management:
    - forest experts: forest group[24] (n=1, "Kempense Heuvelrug"), forest consultants (n=1, this organization was responsible to draw up the forest management plan) and local experts (n=1),

[23] The aim of the landscape foundation is to preserve the typical landscape of the Campine region in the province of Antwerp.

- Flemish government: the Landscape service (n=1), the Nature service (n=1) and the Forest service (n=1); and

- users (n=2, tourist services "Herentals" and "Kasterlee").

In addition, it is important to mention that the most recent actors – the landscape foundation (founded in 1997) and the forest group (founded in 1994) – did have at least 10 years to develop their network relations. Therefore, it was possible to evaluate the contributions of each actor correctly.

4.3.2 Collecting and analysis of case study data

The case study was conducted in a stepwise approach. The first step, the familiarization, was an investigation of the most crucial documents which were related to this case and the research subject (n=15, see appendix 4.1). The second step was the collection of the field data. This was done through semi-structured in-depth interviews, which are an essential source, because it is the best way to access case participants' views and interpretations of actions and events (Walsham, 1995). Access to the case was achieved by contacting the coordinator of the Forest group "Kempense Heuvelrug", a forest consultant and a local expert (three important peers). This peer contact resulted in an initial list of possible respondents.

The initial and subsequent interviewees could give new respondents with the same or different view, i.e., snowball sampling (Patton, 1990). This process continued until the interviewees gave no new names of possible respondents and/or no new themes emerged in the analysis of interview transcripts or by applying of the saturation principle of thematic topics (sees also Lincoln & Guba, 1985; Guest *et al.*, 2006; Bowen, 2008). Thematic saturation was reached after conducting 26 interviews (see §4.3.1 for the respondents) and analyzing 15 documents. The number of interviews corresponds with the necessary sample size in the literature: 30-50 (Bertaux, 1981) and 20-30 (Cresswell, 1998).

All in-depth interviews asked questions on SFM discourse (SFM in general and the specific SFM themes wood production, recreation, reducing the use of exotic trees, increasing the amount of death wood and creating open space in the forest), on rules (acceptance of SFM

[24] The forest groups are the main actors for management advice and support to private forest owners and one of their statutory tasks is to introduce SFM by private forest owners

rules and interaction with other rules), on actors (existence and appreciation of relation with an actor, trust in an actor and why they trust that actor) and on power (forest area, committee membership, forest related education and experience, human resources, communication means, reputation of an actor).

The interviews and documents give mainly qualitative data. However, to make the evaluation more objective, the respondents were also asked to rank all actors on a 4-scale Likert scale (very low, low, high, very high) for the extent that they trust a specific actor and the extent that a specific actor is influential in the investigated management unit. The quantitative and qualitative data on trust and power reputation were collected at different moments to check respondents' consistency. In addition to this direct collection of quantitative data, quantitative translation of qualitative data was also applied when this leads to interpretable data (Onwuegbuzie & Johnson, 2006) and enriches the qualitative descriptions (Onwuegbuzie & Leech, 2004) (see further).

The data coding of the interviews and the documents were based on the described theoretical framework (thematic coding). In addition, we remained open for new themes or ideas that were not covered by the theoretical frame. The coding was mainly done by one person. The research rigor of the data coding was improved by including member and peer checking. The case study draft report was checked by two peers (forest consultants). In addition, the case study draft results were presented for three different audiences (the respondents, the central level of the Forest service and all Flemish forest group coordinators). It is important to emphasize that in this research, member and peer checking were considered as a part of the process of error reduction, which also generated further original data, which in turn required interpretation (Bloor, 1997).

The collected data as well as the treatments of the data (coding) were systematically stored in a digital case study database, i.e., NVivo 7.0.

4.3.3 Evaluation of governance capacity

This section explains the further processing of the data in order to evaluate the governance capacity of the policy arrangement (see Table 4.1). The processing of the data on the indicators "acceptance of rules" and "SFM rules" will not be discussed because the analysis of these indicators was only based on the qualitative data, i.e., the interviews and documents.

A three-step procedure was followed to analyze objectively the similarity in SFM perception between the different actors.

First, the different perceptions of SFM were deduced from the qualitative data, i.e., policy documents for the governmental actor and interviews for the other actors, through open coding of the code texts on SFM, recreation, wood production, exotic trees, dead wood and open spaces. For example, the respondents' perceptions of the code 'dead wood' could be coded in the following sub-nodes: "dead wood gives the forest a messy view" (1/0); "dead wood makes other trees sick" (1/0); "dead wood brings more life into the forest" (1/0) and "dead wood increases the risk of forest fires" (1/0). This resulted in a binary table with 27 actors and 26 perceptions.

Second, this table was used as input for the ordination method "Non-linear multidimensional scaling" (see Clarke, 1993; McCune & Mefford, 1999; Jovan & McCune, 2006). Ordination methods have already shown their usefulness to quantify qualitative data, e.g., to structure actors' reality perceptions (Termeer, 1993) and to analyze the structures and functions of national regulatory authorities (Tenbücken & Schneider, 2004). Calculations were made with PC-ORD 4 (McCune & Mefford, 1999), and the results were plotted on an ordination figure.

Third, the actors were grouped in SFM coalitions based on their position in the ordination figure from the second step. In addition, the resulting discourse coalitions were described.

To evaluate the criterion 'relationships', the qualitative data on actors was translated quantitatively to the number of mentioned relationships with other respondents (max: 26) and each relationship was given an indication of the nature of the relationship (negative, positive, neutral). For the criterion "trust", the quantitative and the qualitative data showed the same relative differences, which means that the trust answers of the respondents were consistent. However, it was only possible to compare the quantitative and qualitative data for 13 respondents since many - mainly private - forest owners did not answer the additional survey. For the group of non-respondents of the survey, we could only rely on the trust data of the interviews, which is not that problematic considering the high consistency of interview and survey trust data for the survey respondents. The trust data are given as the percentage of all actors that trust a specific actor, i.e., scores "high" or "very high" on the Likert scale and as the mean Likert value. The ordinal Likert scale was made numerical as follows: very low (-2), low (-1), high (1) and very high (2). These numerical values were then used to calculate the mean Likert value for each specific actor. Besides the quantitative data, the interview data

were also used to investigate which factors were/are important for building up trust in the investigated case.

The necessary quantitative and qualitative (QUAL) data to estimate the relative power position of each actor were collected through the interviews and document analysis. This method is comparable to the method of Jordan *et al.* (2005), which is used for the comparative analysis of policy instruments.

The qualitative power data were translated into quantitative data via a 4-point Likert scale by comparing and classifying the qualitative data of all the actors. For example, the quantitative translation of knowledge was done as follows:

- Score 3: a bachelor or master degree in forestry or at least 5 years of practical experience (full-time) in forest management
- Score 2: 2-5 years full-time practical experience
- Score 1: some practical experience (less than 2 years)
- Score 0: absence of practical experience

The estimations of the different types of power resources were based on the following data:

- Property size (based on interviews): the size of the forest property of an actor (ha) and/or the forest area for which ANB (ha/2) or another actor (ha/3) give management advice
  The "advice area" was divided by 2 or 3 to account for the status of statutory and voluntarily co-management system;
- Financial and staff support (documents and interviews): grant (€), estimated employees (QUAL) and volunteers (QUAL);
- Knowledge (interviews): forest education and/or experience (QUAL);
- Communication (interviews): an actor's communication means (QUAL);
- Formalized authority (interviews): membership of committee of forest management plan (QUAL), nature target plan (QUAL) and/or forest group (QUAL) and/or the actor controls a special resource, e.g., the province controls human resource management of the forest (QUAL);
- Formal authority (documents): an actor's legal power to influence owner decisions (QUAL).

To estimate the aggregated power resource value for each actor, the average of these type-specific power resource values was calculated.

Finally, the quantitative "power reputation" value was calculated in a similar way as the trust value. The quantitative power reputation values were also consistent with those mentioned in the interviews.

4.4 Results

4.4.1 Evaluation of strategic congruence

The governmental perspective on SFM emphasizes continuation and multi-functionality of forests (AMINAL afdeling Bos & Groen, 1998a, 1998b). Amongst the management aims of the government are the removal of all exotic trees irrespective of the species, the increase of the amount of dead wood and the increase of recreation possibilities. Wood production should still be possible, but only in balance with the other functions (AMINAL afdeling Bos & Groen, 2001). The governmental vision on SFM will only be realized when the forest owners agree with these interpretations. In Fig. 4.1 the similarities of the SFM perspectives of the different respondents and the government are presented. Based on the actors' SFM perceptions it is possible to distinguish four challenging and one supporting discourse coalition(s).

A first challenging discourse coalition (the property rights coalition) consists of five private forest owners who perceive SFM to be in conflict with their property rights. Wood production, mostly for own use, is regarded as important. Recreation is not allowed. The attention for the ecological function is low: the owners are against leaving dead trees in the forest and against creating open spaces in their forests. They do not like to change their current practices. Thus, this coalition questions if private forests need to deliver public services like biodiversity conservation and recreation.

A second challenging discourse coalition (nature coalition) consists of five nature-minded respondents (Landscape service, Nature service, city Herentals, Tourism Herentals and the nature NGO), who perceive SFM as biodiversity-oriented forest management. Therefore all exotic trees must be removed irrespective of their invasive character. Recreation is only possible when it does not endanger the ecological function of the forest. The economic function is not considered as important. However it goes even further, this group emphasizes that the stimulation of SFM is only worthwhile when the biotope "forest" will result in the

highest biodiversity value. This is not the case for the investigated situation, because other biotopes like heath and shifting sand will result in higher biodiversity values. Thus, this coalition gives a priority to the biodiversity conservation function and questions even if it is not better to deforest.

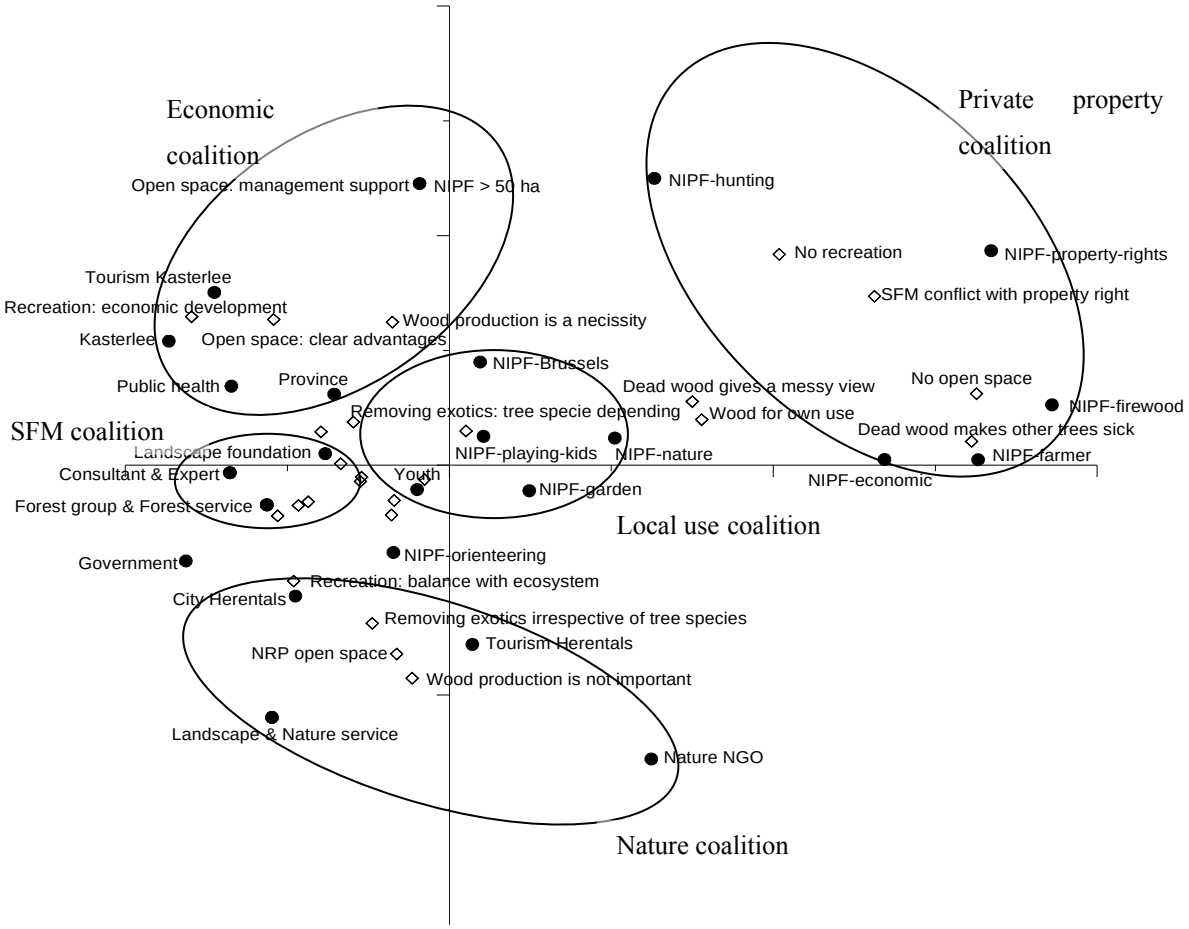

Figure 4.1 The classification of the different investigated actors (closed dots) according to their similarity in SFM perceptions (open dots) by using an ordination method on the actor-perception matrix (solution with final stress[25] of 13.89, this value was lower than would be expected by chance with a p-value < 0.05). The interpretation is done by looking at the position of the actors relative to the perceptions: the closer a perception is situated to an actor in the two-dimensional ordination space, the more important that perception is for the actor.

[25] The stress value is the extent that the solution differs from the reality.

A third challenging discourse coalition (economic coalition) consists of five respondents (province Antwerp, municipality Kasterlee, Tourism Kasterlee, public health organization and the private forest owner > 50 ha), which have strong mutual contacts. SFM is regarded as a balancing of different functions, but the economic function remains a necessity. Ecological improvements like "open space" are only allowed when the ecological advantages are obvious. The creation and the preservation of these open spaces, which requires active management, must be financially compensated. Finally, recreation is, especially for Kasterlee, an important economic factor which receives a lot of attention. Thus, this coalition gives a priority to the economic function.

The fourth challenging discourse coalition (local use coalition) consists of five private owners (including the youth organization). In their opinion dead wood provides a messy view of the forest and wood is mainly useful as firewood. The management decision to remove exotic trees will be based on a balancing of the economic and esthetical characteristics of the species on the one hand with the invasive character of these species on the other hand. This balance is negative for black cherry (*Prunus serotina*), but positive for Corsican pine. Thus, this coalition questions some of the suggested biodiversity conservation management measures.

The supporting discourse coalition (SFM coalition) (Forest group, Forest service, consultant, expert and landscape foundation), believes that SFM combines multi-functionality with forest conservation. Recreation is important. Wood production should be in balance with the other functions. The amount of dead wood must be increased, taking into account other considerations like the safety of the recreants and the risk for forest fires. Thus, this coalition can largely agree with the governmental SFM vision.

To summarize, in this study area the different stakeholders do not share the same discourse, resulting in a low strategic congruence. It is possible to distinguish four challenging discourse coalitions, which group 20 of the 25 classified respondents[26]. Thus, only 5 respondents support the governmental SFM vision.

[26] One respondent remains unclassified.

4.4.2 Evaluation of structural congruence

4.4.2.1 SFM rules

In Flanders, only recently (predominantly 2003) a formalization of the SFM discourse in rules has taken place. The Forest Decree aims to maintain the Flemish forest area and regulates the management of all forests. These aims were made operational by the implementation orders "deforestation restriction", "SFM criteria and indicators", "grants", "fiscal exemption", "forest management plan", "forest groups" and "qualification system on wood operators and timber merchants".

"Deforestation restriction" limits the circumstances that deforestations are allowed and makes compensations obligatory for the allowable deforestations. This implementation order is important to conserve forests in the long run.

"SFM criteria and indicators" gives a very detailed description of the governmental vision on SFM, e.g. a SFM managed forest needs to have a share of at least 20% of indigenous tree species or the owner should have the intention to reach this threshold in the near future. The implementation order consists of criteria for the social, economic, environmental and biodiversity conservation function. In addition, it makes SFM monitoring obligatory for the owner.

"Grants" stipulates that forest owners can get grants for ecologically valuable forests (e.g. forests with a high share of indigenous broadleaved species), opening of the forests for recreation (only for private owners), reforestations (excluding exotic trees) and the creation of a forest management plan. From this list, it is clear that the economic function is not financed by grants. This is in first instance understandable because wood is a private good. However, it can also be questioned because forestry is not profitable in Flanders (Dienstencentrum voor Bosbouw, 2000) and desirable management measures are retarded (e.g. late first thinning) or not done (e.g. pruning of young trees) (Callens, 2008).

"Fiscal exemption" stipulates that forest owners can get a fiscal exemption of inheritance taxes when there is a SFM management plan

"Forest management plan" prescribes that all public forests and all private forests larger than 5 ha located within the Flemish Ecological Network (FEN)[27] need to have a forest management plan according the SFM criteria and indicators and the nature plan targets. The method to develop this management plan is described by a manual and it includes among others a comprehensive inventory of the wood and herb vegetation. During the time of investigation, the extended forest management plan for the case was under development. This plan was developed by a forest consultant in cooperation with the forest group "Kempense Heuvelrug", the Forest service, all interested owners (n=300) and the forest users (mainly recreationists and tourism).

"Forest groups" stipulates that the staff and operation costs of the forest group will be financed by the Forest service. The forest group has the statutory task to promote SFM with all forest owners. The forest group makes use of personal advice, field courses, excursions and a periodical to fulfill this task. However, the communication is mostly restricted to forest management "in general". As a consequence forest owners do not realize that some of the currently implemented management measures such as suppressing the invasive *Prunus serotina* or thinning can be the first steps towards "sustainable" management.

The qualification system on wood operators and timber merchants ensures that the impact of the wood processing activities on the remaining forest will be minimal and that these activities are done by qualified persons.

Besides the translation of the SFM discourse, it was also emphasized that it is important that there are "no perverse effects" of discourse translations of adjoining policy fields. However, there are "perverse effects" from nature policy discourse formalization. The Nature Decree regulates the conservation, management, development and compensation of nature and stipulates that a Flemish Ecological Network and European bird and habitat directive areas need to be designated. The management of those designated areas is made operational by a nature target plan. This plan describes the conversion of the current nature situation (in this case coniferous forest) towards the desired nature types (in this case heath and shifting sand) at regional scale (in this case "Heuvelrug-benedestrooms"). This plan is also developed in interaction with the owners and users. It is important to emphasize that many respondents in the case were dissatisfied with the less participatory approach to designate the Flemish

[27] Flemish ecological network (FEN) is the Flemish implementation of the ecological network idea.

Ecological Network, especially because the designations resulted in "not compensated" management restrictions. A similar dissatisfaction exists all over Flanders.

The dissatisfaction resulted on Flemish level in a mobilization of organized resistance against the government (Bogaert & Gersie, 2006; Bogaert & Leroy, 2008), which also endangers the fulfillment of the governmental SFM vision. For example in May 2003, there was a large demonstration against the nature, forest and environment policy of the government. This demonstration was organized by a large coalition of anglers, hunters, property owners and farmers. The demonstration resulted in an intention to change policy style from "an active and demonstrative government intervention to a private stimulating policy", which was stated explicitly in the policy letter of the Flemish Minister of Nature, Environment and Energy (Peeters, 2004). Nevertheless, it is important to take into account that this does not exclude the possibility of the nature coalition to use the European habitat directive as a stick to achieve their nature conservation goals. Some of the nature coalition members mentioned this possibility explicitly in the interview: "*we expect much of Europe … at a given moment Europe will complain that the habitat directive targets are not fulfilled and then the government will NEED to focus more on these targets"*.

Summarizing, there is a formalization of SFM discourse in rules, but this was done only recently and seems to neglect the economic function. In addition, there is the possibility to have perverse effects of nature policy discourse formalization. Fortunate, the perverse effects are small thanks to a recent shift in Flemish regulative perspective from coercion to stimulation. Nevertheless, perverse effects of the European level are still possible.

4.4.2.2 Acceptance of SFM rules

In the next section the acceptance of the SFM rules will be separately given for the regulative, economic and communicative instruments. Rules acceptance will be used as measurement of the congruency between formal and informal rules.

The Forest Decree is only agreed upon by 15 out of 26 respondents, especially the nature and private property coalition questions this decree. The nature coalition (nature NGO, landscape and nature service) has difficulties with the forest compensation regulation, because it conflicts with their "open space" objective. The complete private property coalition is against the Forest Decree and some of them even remain advocates of the old idea of an absolute

freedom on his/her property: *"Is it not very sad when you have a garden and you are not allowed to do anything and is a forest something else than a garden?"* In addition, the private forest owner of the economic coalition and two members of the local use coalition consider the current legislative situation to be out of proportion, especially because the owners have the feeling that their past efforts are sanctioned instead of appreciated: *"It is thanks to the owners that the government can still protect nature and forest. Therefore, these owners need not to be sanctioned with management restrictions. It is better to appreciate them for this good past work"* (large forest owner). Nevertheless, they concede that some legislation is needed. Furthermore, the obligatory forest management plan is contested by almost all respondents. The plan is contested because the method is too prescriptive, put too much emphasize on inventory and is too static. Nevertheless, most respondents emphasize that a cross-boundary plan is a necessity to achieve SFM in a parcelized forest management unit.

The acceptance of economic instruments is on the contrary high. For many owners, these instruments are a necessity to cover the costs of the SFM goals of the government. Nevertheless, the opinions on the circumstances when economic instruments can be used differ between the respondents. Some respondents mention a public benefit and/or a negative effect on the owners' income as condition for this incentive. The nature NGO stipulates an ecological improvement as mandatory. They consider shifting sand areas and heath as the reference plant communities. Therefore the nature NGO do not like that forest owners get governmental funding to preserve their forests: "*it is like you give grants to destruct heritage, this is not done in Bruges (cultural world heritage), why than for nature heritage like potential heathland and shifting sands"*. Furthermore, many forest owners do not apply for grants because the administrative burden is too high and especially those of private property coalition think that they will lose control over their forest: "*when you asked grant you will be under governmental control*". Finally there is a perception that not all owner types (private owners, nature NGO's, public owners) receive the same amount of funds for the same work. Most believe that the other is in a better position, e.g.:

- *"Forest owners get money without much required management measures"* (nature NGO),
- "*Forest owners have not the same grant possibilities for biodiversity conservation management measures like nature NGO's*" (member of local use coalition)

Finally, the acceptance of communicative instruments, like personal advice, field course, excursion and the forest group periodical, is very high:

- "*I like especially the personal advice possibility*" (local use coalition member);

- "*The thinning exercise in my own forest was very interesting and I have learned a lot*" (local use coalition member)
- "*I go to field excursions and also when I have questions to the forest group office*" (private property coalition member)
- "*I like to read the forest group periodical, it includes much interesting information*" (economic coalition member)

Personal advice to the forest owner is most appreciated communicative instrument and thus a very effective instrument to promote SFM (see also Van Gossum *et al.*, 2005).

Thus the formal rules are not in line with the informal rules for the regulative instruments. The congruency of formal and informal rules was more satisfactory for the economic and communicative instruments.

4.4.2.3 Relationships and trust

The total number and the nature of the relations and the trust level of different actors are listed in Table 4.2.

Table 4.2 Total number and number of positive, neutral and negative relations and the trust level of different actors (only actors who have a relation with at least 30% of the other investigated actors are listed)

Actor	Number of relations (max 26)				Trust	
	Total	Positive	Neutral	Negative	Trusted* (%)	Mean**
Forest group	23	17	3	3	75	1
Forest service	19	14	3	2	75	0.5
Nature NGO	19	9	6	4	43	0
Nature service	14	6	6	2	29	-0.57
Municipality Kasterlee	14	8	5	1	43	0
Province Antwerp	9	9	0	0	57	0.29
Private forest owner - nature***	8	7	1	0	-	-
Private forest owner > 50 ha ***	8	5	1	2	29	-0.29

* % respondents who gave a '"high – very high" score for this actor
** values between -2 and 2: -2 to 1.51: very low, -1.50 to -0.76: low, -0.75 to -0.26: rather low, -0.25 to 0.25: not low not high, 0.26 to 0.75: rather high, 0.76 to 1.50: high and 1.51 to 2: very high
*** owner is also member of the Board of Directors of the forest group

Not surprisingly, the Forest group and the governmental administrations have many relations with the other actors through their specific tasks. More interesting is that 74% of the relations of the Forest group and the Forest service are positive. In addition the Forest group and the

Forest service are trusted by 75% of the actors in this local network and their mean trust value is respectively high and rather high (Table 4.3). The higher trustworthiness of the Forest group can be explained by the fact that the forest group only provides suggestions for management measures to the forest owners, which thus still have the free choice to implement them. In contrast, the governmental organizations, like the Forest service, also have a controlling and enforcement task. Thus, the Forest service will forbid or enforce some management measures or reduce the grant when the owner only partly complies.

In contrast with the Forest group and the Forest service, the nature NGO and the Nature service have respectively only 47% and 43% positive relations and their trustworthiness is much lower (Table 4.3). The same conclusion can be made for the more economically oriented actors. Their situation is only slightly better than those of the nature coalition.

In general, it can be concluded that the Forest group and the Forest service, which are both SFM coalition members, are central and trustworthy actors. For the other actors and especially those of other discourse coalitions the number of positive relations and trustworthiness is lower. Hence the governance capacity requirements for actor dimension are fulfilled.

Because trust is important for building relations between actors, the influencing factors of trust in this case will be discussed in more detail. The trust in an organization is largely determined by the personal contact with individual employees or members of this organization. As the organization is identified with the person, the relations between actors and organizations can change rapidly: "*I am charmed by the current forest group coordinator; … However, the predecessor was awful, a liar*" (private property coalition member). Other important points of attention to build trust are that both sides respect each other's ideas and that someone's concerns are appreciated by others: *"the Landscape service official visits my property not as an inspector but as a friend to appreciate what I have done"* (large private forest owner). In addition, it is also important that both sides keep in touch, because the building of trust takes time: "*I did not know the provincial delegate, but through the regular interaction with him, he was the former chairman of the forest group … I have learned to appreciate him and to trust him*" (large private forest owner). Finally, trust is important to accept information of another actor: "*I trust the forest group coordinator … the good thing is that owners will look different to their forests than before through the information they get*" (local use coalition member).

4.4.2.4 Power resources and reputation

An estimate of the power resource position and the power reputation of the different actors are given in Table 4.3 and Table 4.4, respectively.

The Forest group and the Forest service, both SFM coalition members, have the largest amount of power resources on their disposal and have a high power reputation. Both organizations have the highest forest related education and experience. In addition, the Forest group controls more than half of the communication means, while the Forest service controls 40% of the formal authority. Nevertheless, the SFM coalition controls about 40% of the power resources, which makes them dependent on the other discourse coalition. This is especially so for formalized authority (only 22%), property size (26%), management support (38%) and formal authority (42%).

Table 4.3 The estimated relative distribution (%) of power resources of the most important actors

Power resources	Forest group	Forest service	Nature service	Municipality Kasterlee	Nature NGO	NIPF > 50 ha	Public health organ.	Province Antwerp
Property size	15	11	5	15	3	11	7	0
Financial and staff support	26	12	17	12	23	2	7	0
Knowledge	14	14	5	5	5	5	2	9
Communication	55	18	9	0	9	0	0	9
Formalized authority	12	10	6	16	6	16	14	10
Formal authority	0	42	32	0	11	0	0	0
Total	20	18	12	8	9	6	5	5

Table 4.4 The power reputation of the different actors (only actors with have a high power reputation according 50% of the other respondents are listed)

Actor	Power reputation	
	High reputation* (%)	Mean**
Forest service	100	1.75
Nature service	86	1.43
Forest group	86	1.25
Municipality Kasterlee	75	0.63
Private forest owner > 50 ha	71	0.57
Province Antwerp	71	0.57
Nature NGO	57	0

* % respondents who gave a "high – very high" score for this actor
** values between -2 and 2: -2 to 1.51: very low, -1.50 to -0.76: low, -0.75 to -0.26: rather low, -0.25 to 0. 25: not low not high, 0.26 to 0.75: rather high, 0.76 to 1.50: high and 1.51 to 2: very high

The most appropriate discourse coalitions are the nature and economic coalition, which both control a quarter of power resources. Thus, when the SFM coalition cooperates with one of them they will control together almost 65% of the power resources. However, cooperation with only one of them is insufficient to control more than 50% of each power resources because the nature coalition is a necessity to controls 50% of the formal authority and the economic coalition is a necessity to control more than 50% of property size resource. In addition the Nature service, a nature discourse coalition member, and the municipality of Kasterlee, an economic discourse coalition member, also have a high power reputation. Thus, it will be desirable that there will be cooperation between the SFM, nature and economic coalition. Finally, both the private property coalition and the local use coalition control a low amount of the power resources[28], respectively 3% and 5%. Nevertheless, more important to emphasize is that each of these coalitions control 16% of the power resource property size.

4.4.2.5 Evaluation

The structural congruence of the investigated case, i.e. the coherence among the dimensions of a policy arrangement, of the investigated case is low. The SFM formalization seems to neglect the economic function. In addition, there are "perverse effects" of the nature discourse formalization, which resulted in an owners' disagreement with the governmental nature, forest and landscape policy. The regulative SFM instruments have a low acceptance, especially with the nature coalition and with the private forest owners, which means that there is no congruency between formal and informal rules. The SFM network of the investigated case is fragmented. The power resources are scattered across three different discourse coalitions (SFM, nature and economic). Furthermore, the SFM coalition controls only 40% of these resources. The two other groups both have a quarter. Even more important is that the

[28] To calculate the power resources of the local use coalition and the private property coalition we have made the assumption that the non-interviewed respondents were equally distributed in both groups. This assumption was based on the distribution of the interviewed private forest owners. Five were classified in the local use coalition, five were classified in the private property group, one was unclassified and one belongs to the economic coalition. However, the later is an unique situation, only one private owner owns 150 ha in the investigated forest management unit.

economic coalition controls almost half of the land and the nature coalition almost sixty percent of the formal authority. Finally, the power reputation of the Nature service, a member of the nature coalition, is the second highest.

However, partial structural congruence does exist. There is a recent SFM discourse formalization and a reduction of the perverse effects of nature policy because the Flemish government now prefers to stimulate instead of coercion. In addition, the acceptance of communicative and economic instruments is high, which means that for those instruments the formal and informal rules are more congruent. The trust in and the number of positive relations in the network of the Forest group and the Forest service, both SFM coalition members, is high. This is not the case for the economic and nature coalition members. The Forest group and the Forest service are also both powerful and together they control more than a third of the power resources. Other actors also believe that these actors will use their power, resulting in a high score for power reputation. Moreover, the Forest group has almost a communication monopoly with the forest owners. Thus the potential influence of the Forest group can be high because these communicative instruments are most accepted by the (private) owners.

Summarizing, there is a rather high probability that the governmental SFM policy can be implemented through the Forest group and the Forest service, but the realization of the SFM goals will be dependent on two other powerful groups: the economic coalition and the nature coalition. To succeed in the realization of the governmental SFM aim, negotiations will be needed between the government, SFM, economic and nature coalition.

4.5 Discussion

The discussion focuses on the appropriateness of the Flemish SFM policy, on the generalization possibility of the empirical findings and on an evaluation of the developed theoretical framework.

It can be questioned whether the Flemish government has chosen an appropriate approach to achieve their SFM targets. Firstly, the detailed codification of the government SFM vision into law can be seen as a first failure (Haeuber, 1996), because this excludes a priori other SFM perspectives (Schanz, 1998; Yaffee, 1999). In addition, this was strengthened through the exclusion of the economic function in the SFM grants. Because of this, the economic

coalition finds that their SFM perspective was completely neglected. Furthermore, the obligation that the forest management plan needs to adhere to SFM criteria and to the nature vision of the nature target plan, which was developed simultaneously, reduces the possibility to come to integrated and balanced social, economic and ecological goals. These goals are important to increase the likelihood that the management plan is socially acceptable, economically feasible, and ecologically sustainable (Keough & Blahna, 2006). A more appropriate strategy is to develop a policy strategy which makes use of the strengths of the different discourse coalitions. For example, the realization of the most ambitious ecological aims can be appointed to the nature coalition, while the economic coalition ensures wood production. The policy strategy for the private property and local use group members will be more to keep their postage-stamp size forest properties under management (Sampson & DeCoster, 2000), which is done in Flanders by the forest group. When the government wants to realize also SFM with the private property coalition members more strict regulatory strategies will be needed, because their non-compliance will be high (see Braithwaite, 2003). However, the more strict enforcement will only be applied by non-compliance, because a second failure of the Flemish SFM approach is the command-and-control character of nature and forest policy (Gunningham & Grabosky, 1998). The owners respond with organized resistance, because the reasonableness (Bardach & Kagan, 1982) and the fairness (Levi, 1997) of this coercive approach were questioned. The protest was strong because of the coercive approach result in many land use rights restrictions (Shogren *et al.*, 2003; Sullivan & Napier, 2005). The Flemish government has learned of this protest and changed to a more stimulating style. Some of the owners have noticed this change and get again more respect in the government and in their SFM policy. A respectful treatment of forest owners by the government result in a higher willingness to comply (Braithwaite & Makkai, 1994; Feld & Frey, 2002) and a higher acceptance of more strict enforcement by non-compliance (Lind & Tyler, 1988). Nevertheless, the Flemish SFM approach also has a very important strength, i.e. the creation and the stimulation of forest groups by the government. This research showed that the policy success of the SFM policy will depend on those forest groups. The reason why these forest groups are so important can be clarified by three factors. Firstly, the Flemish forest groups satisfy all the requirements of Brunson *et al.* (1997) for successful policy instruments for private forest owners, which are inform and educate the owner, allow wood trade, involve the owners of the neighboring forests and be independent of the government. Secondly, governing the many private forest owners in Flanders without creating intermediates like the forest group will be very difficult (de Bruijn & ten Heuvelhof, 1998).

Thirdly, it is an appropriate solution when the forest owners do not trust the government, because a low trust undermines the government's ability to solve problems (Hetherington, 1998). As can be seen in this research the trustworthiness of the forest group is higher than those of the government. Thus it will be worthwhile that the government continues with their recently introduced cooperative approach, while leaving the law in shadow for reluctant owners who are completely against any management change. In addition, it would be better to broaden the SFM perspective in the detailed codification so that the economic and nature coalitions' SFM perspectives are also included.

It is important to discuss the generalization possibilities of the selected representative case. First, the peers (forest group coordinators, officials of the Forest service and forest consultants) confirm that the general conclusions of the case are also valid for Flanders. Second, in the theoretical sense, many of the results can be generalized because the results are confirmed in the literature. Four of the five discourse coalitions are mirrored in the literature. These are the nature coalition (Grumbine, 1994; Sparks, 1995), the private property coalition (Fitzsimmons, 1996a, 1996b), the economic coalition (Salwasser, 1994; Zeide, 1998; Yaffee, 1999) and the SFM coalition (Yaffee, 1999). The same counts for the rules acceptance (see Gunningham & Grabosky, 1998) and the trust building factors (see Dasgupta, 1998; Hardy *et al.*, 1998; Charnley *et al.*, 2007; Abrams *et al.*, 2003). Third, generalizations in the analytical sense will be possible. The transferability will be the highest for comparable situations, i.e., highly-populated regions with a fragmented network structure centered on the state forest service and the forest group and with a need to cooperate with the economic-oriented and the nature-oriented discourse group, which have both conflicting SFM interpretations.

Finally, the policy arrangement approach (PAA) was well suited to analyzing the Flemish institutional structure on SFM. The strength lies in the mutual analysis of the four dimensions. In doing so, it was possible to understand that the Flemish government had made the mistake to codify their SFM perspective into law, while there are four challenging perspectives. In addition, the Flemish SFM policy can only be realized when the SFM coalition, who has the forest group and the forest service as main actors, cooperate with the nature and the economic coalition because these three coalitions are strategic dependent on each other. Conversely, an actor centered analysis would mainly have indicated which actors were important for the SFM realization, but less how these actors are grouped in discourse coalitions and how these coalitions mobilize resources to realize their ideas. In addition, without the inclusion of the power dimension it was only possible to conclude that five

discourse coalitions exist, but we would not have an idea of the strategic dependencies of these coalitions. The weak point of this approach – the absence of hypotheses and criteria – was overcome by including criteria, indicators, and governance capacity requirements. Another contribution to the PAA is the use of ordination methods to delineate the different discourse coalitions on a more objective base.

4.6 Conclusions and policy recommendations

Apparently the governance capacity, the extent to which new forms of governance are able to successfully diminish or solve societal and administrative problems, in the Campine SFM policy arrangement is low. There are four challenging discourse coalitions, the regulative instruments are not accepted and the network is fragmented. However, there is partial congruence: government and SFM coalition (forest group and forest service) coincide. The Forest group and the Forest service, both SFM coalition, are also the most powerful and trusted actors. The Forest group has almost a communication monopoly with the private forest owners and these communicative instruments in particular have a high acceptance. Hence, there is some governance capacity in the network, in the sense that SFM can be achieved in the near future. However, the situation, which is built on trust for the Forest group and the Forest service, remains vulnerable.

Possible ways to increase the governance capacity are:

1. a less strict statutory definition of SFM, it is important that the SFM discourse is discussed and developed in the field with all actors on the scale of the forest management unit. It is important to emphasize that most criteria are accepted, but some are really controversial like the strong focus on indigenous tree species, excluding Douglas, Larch and Corsican pine. Also the Forest service does not always implement the absolute preference for indigenous tree species. The negotiation will tackle the controversial elements. Forest quality will still be guaranteed, the negotiation will be done by all relevant stakeholders on the scale of the forest management unit and focus only on some of the criteria.
2. the elimination of the nature-forest conflict by stimulating negotiations between the SFM, nature and economic coalition, which is also needed for the SFM discussion on regional scale;

3. enhance the recently introduced cooperative approach by using coercive instruments only for reluctant forest owners who are completely against SFM and give even these owners the chance to cooperate first.

5 Dutch SFM case: an institutional evaluation

After: Van Gossum, P., Arts, B., Baert, S., De Wulf R., Verheyen, K. An institutional evaluation of sustainable forest management in the Netherlands. Society & Natural Resources. Submitted August 2009

5.1 Introduction

The aim of this research is to evaluate the existing Dutch institutional structure regarding SFM. The Dutch state, i.e., the Ministry of Agriculture, Nature and Food Quality (LNV), has clearly formulated their understanding of SFM and wants to realize this understanding in most forests through regulation and cooperation with other actors. However, it is important to make three clarifications regarding SFM. First, in addition to SFM goals for most forests, the Dutch state also has nature conservation goals for some specific forests. Since nature conservation forestry can be seen as a special variant of SFM, the state will be satisfied when an organization wants to realize one of both goals. Second, various actors' understanding of SFM can differ. Therefore, it is important to investigate consensus building around the meaning of SFM with a discourse-oriented analysis. Third, integrated forest management is the functional Dutch operational incorporation of SFM.

This aim will be investigated in a similar way as the Flemish SFM case (see §4.2 for theoretical framework, §4.3.2 for collecting and analysis of case study data and §4.3.3 for evaluating governance capacity). Nevertheless, it is important to mention some differences with the Flemish case. These differences are:

- Member checking was for the Dutch case done by sending the draft report for review to all respondents, because the respondents did live at much larger distance and therefore it was not possible to do this with a research presentation like in the Flemish case.
- Access to the case was achieved by contacting only the coordinator of the Forest group "Zuid-Nederland," (an important peer).

- The "open space" question was not asked, because there is almost no difference in interpretation of the necessarily implementation of dead wood and open spaces between the different actor groups (oral comm. Forest group).
- Most in-depth interviews (26 of 31) were done by two interviewers and transcribed as quickly as possible. Two interviewers are preferable because it allows one interviewer to focus on the interviewee while the other interviewer takes notes and prompts when necessary (Darke *et al.*, 1998). However, this was not possible for the Flemish case.
- Thematic saturation was reached after conducting 31 interviews and analyzing 29 documents (see appendix 5.1). It is important to mention that one respondent, the Noord-Brabant's provincial official working in the field of nature and forest policy, refused to cooperate. Because the provincial actor is getting more important through the decentralizing of nature and forest policy, we decided to collect information on this actor and the provincial policy through secondary sources. The sources were the forest group, which was involved in the implementation of the provincial scheme and by the province of Limburg; the group knew the Brabant's scheme quite well and could also present the differences with their scheme. It is important to remark that the province of Limburg was only a data source and was not further investigated.
- Twenty respondents did answer the additional survey.
- The governmental perspective was based on the SFM perspective of the Ministry of Agriculture, Nature and Food Quality (LNV).
- The power resource assumptions, which differ of those of the Flemish case, are:
    - Property size: all co-management systems (ha/2), because owners who apply for a co-management system pay for it,
    - Informal authority: is estimated by membership of working groups of the Forest board (QUAL), an actor's influence on decisions of the ministry of LNV (QUAL), and direct contact with the Minister of LNV (QUAL).

In the next section we will describe the case study. Thereafter we will apply our theoretical framework and, finally, we will discuss the institutionalization of the SFM discourse in terms of rules, actor relations and power dependencies.

5.2 Case study: description and evidence for representativeness

The Dutch province of Noord-Brabant has a population density of 396 inhabitants/km² (www.cbs.nl) and forest coverage of 14.5% (Hagedoorn, 1998). Forty-one percent of the forest area is privately owned, 42% is publicly owned and the remaining area is owned by nature NGO's (LNV, 2006). The most common tree species are Scots pine (*Pinus sylvestris*) (47%) and Pedunculate oak (*Quercus robur*) (13%) (Hagedoorn, 1998). The characteristics of the selected case are quite comparable with those of the Netherlands. The population density is exactly the same (www.cbs.nl) and the ownership structure is almost the same (31% private, 52% public and 14% nature organizations). The most common tree species are also Scots pine (33%) and pedunculate oak (13%) (Probos, 2006). However, there is one difference. The Dutch forest coverage (10.6%) (LNV, 2006) is a bit lower than those of Noord-Brabant.

In addition, all Dutch SFM key actors are involved in the case and were interviewed, between brackets we mentioned the number of interviewed respondents of this type (and when needed, the respondent name). The key actors are:

- private forest owners: these owners are further divided in the following property size classes: <5 ha (n=2), 5-10 ha (n=2, one of those was also wood merchant), 10-100 ha (n=2), 100-500 ha (n=4), >500 ha (n=1);
- water collection companies (also private owner, n=2): their aim is to collect water and to preserve the water quality;
- nature and landscape organizations: their aim is to protect, conserve and develop nature and landscapes, the well-known Dutch organizations are "Natuurmonumenten" (active on scale of the Netherlands, n=1) and the twelve provincial landscape organizations (n=1, "Brabants Landschap");
- public owners: these owners are further divided into State Forest Service (n=1), municipalities (n=2), Ministry of Defense (n=1) and other public owners (n=0);
- other actors that have an influence on forest management: these actors are the provinces (n=1, province of Limburg, see further), the forest groups[29] (n=1, Forest group "Zuid-Nederland"), estate agents (n=1), forest consultants (n=3), wood merchants (n=3), the ministry of Agriculture, Nature and Food Quality (LNV, n=1),

[29] The Dutch forest group is a non-profit forest cooperative of private and public owners with paid membership and without structural support of the government.

the Forest board[30] (n=1), the Federation Private Landownership (FPG, n=1) and the Forest group Union[31] (n=1).

In addition, it is important to mention that the most recent actor – the forest group – did have at least 15 years to develop its network relations. Therefore, it will be possible to evaluate the contributions of each actor correctly.

5.3 Results

First, the results for strategic congruence, i.e., similarity between the SFM perspective of the government and the different actors (discourse), will be given. Next, the results for structural congruence, i.e., sufficient coherence among the dimensions of the SFM policy arrangement (discourse, rules, actors, power), will be given. Each section will end with an evaluation of the governance capacity.

5.3.1 Evaluation of strategic congruence

5.3.1.1 Discourse coalitions

With regard to SFM, the Dutch state (LNV) emphasizes an *integration* of the social, ecological and economic forest function at the *forest stand level*. LNV want to convince forest owners: to use indigenous tree species, to increase dead wood in their forests natural or even with silviculture techniques such as stem girdling, to increase the public accessibility of their forests and to improve recreational quality. The economic function of the forest is important for several reasons: the LNV encourages domestic wood production over imports, the economic function serves as an SFM steering mechanism and the forest is an important source of income for many private forest owners.

However, as mentioned, this multi-functionality is not a goal for all forests; there are also forests with a nature conservation focus. The LNV SFM vision will only be realized in those instances where other actors agree with the state's vision. By analyzing similarities and differences between actors' SFM perspectives, we distinguish three challenging and three

[30] The Forest board is a lobby organization which unifies all forest and nature stakeholders.

[31] The Forest group Union is the umbrella organization of forest co-ops.

supporting discourse coalitions (Figure 5.1). A coalition is supportive when their perspective is quite similar to the state's SFM perspective.

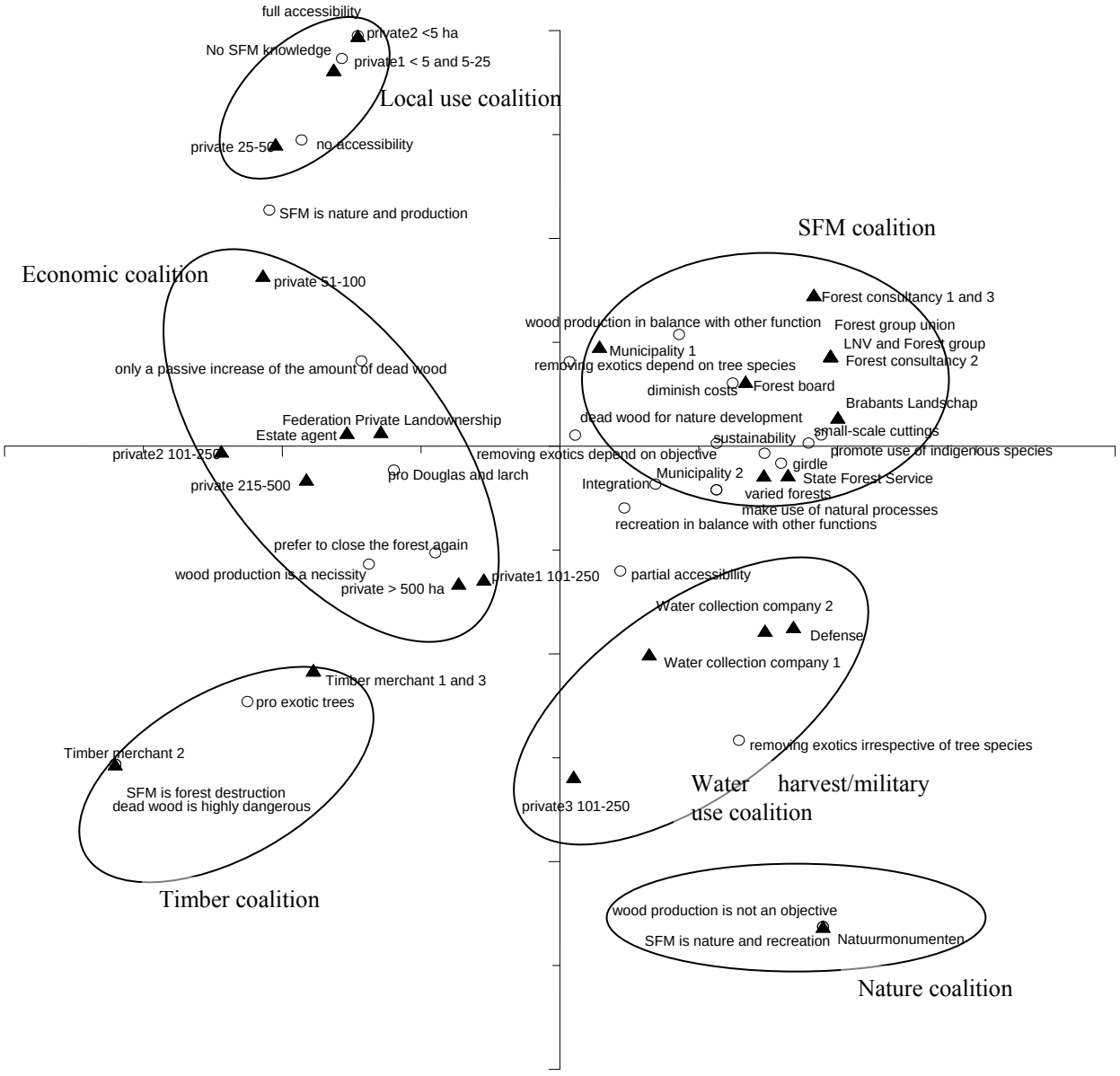

Figure 5.1 The classification of the different investigated actors (filled symbols) according to their similarity in SFM perceptions (open symbols) by using an ordination method on the binary actor-perception matrix based on the interview data (solution with final stress[32] of 12.64 and this value was lower than would be expected by chance with a p-value < 0.05). The interpretation is done by looking at the position of the actors relative to the perceptions: the closer a perception is situated to an actor in the two-dimensional ordination space, the more important that perception is for the actor.

[32] The stress value is the extent that the solution differs from the reality.

A first challenging coalition (timber coalition) consists of the timber merchants. This coalition prefers exotic tree species such as the Douglas fir (*Pseudotsuga menziesii*) and larch (*Larix spp.*) because the wood quality of these trees is higher than of indigenous broadleaf species. Therefore, they regret the governmental aim to reduce the share of exotic tree species. Two of them recognize the importance of ecological forest functions (e.g., dead wood) and of SFM but their preference goes to the former clear-cut system of individual stands, because this system requires less complicated logging activities. One timber merchant has a more extreme view; in his opinion, SFM is wood destruction and dead wood is highly dangerous for wood processing activities.

A second challenging coalition (local use coalition) consists of four private forest owners with small forest properties in the range of 1.5 ha to 30 ha. Their dissimilarity with the government is high and their knowledge on SFM is limited. The forest is usually inherited or/and a part of a garden. Wood is usually not sold, as its use is limited to firewood for personal use. They are aware that dead trees are a suitable habitat for many fungus and animal species and they appreciate this diversity; therefore, an increase of the amount of dead wood is not regarded as a problem. Regarding exotic tree species, they are aware that invasive species like black cherry (*Prunus serotina*) must be suppressed. On the other hand, there is no intervention for non-invasive exotic species because of aesthetic reasons.

A third challenging coalition (nature coalition) consists of only one actor, "Natuurmonumenten," the largest Dutch nature organization. All forest management (including timber harvest) is directed towards the improvement of the nature conservation function. There has not been an explicit production target since 1984. A long-term aim of the organization is removing all exotic tree species, irrelevant of their invasive character. Natural regeneration is preferred. The organization also aims at a natural amount of dead and decaying trees in their forests. This aim is preferably accomplished through natural processes, but when this is not possible on the short-term, the organization interferes by girdling healthy trees. Most nature and forest reserves are accessible to all citizens. The organization gives preference to crooked paths and zones areas to create quiet places for wildlife and to protect vulnerable vegetations.

A first supporting coalition (economic coalition) consists of five private forest owners with large forest properties, the Federation Private Landownership (FPG) and an estate agent. They define SFM as an integration of the different functions. However, they also emphasize the importance of the economic functions, especially as a source of income to finance the

forest management. Presently, exotic trees such as the Douglas and larch produce the best financial result: "*the Douglas is the bread tree for the private forest owner.*" (FPG). Exotic trees will only be eradicated when they have a clear negative effect, as in the case of the black cherry. Next to economic reasons, nostalgic and sentimental reasons hamper the shift to indigenous broadleaf species. This coalition recognizes the importance of dead wood for the forest ecosystem. They also enjoy a varied forest with many plant and animal species. However, girdling to produce dead trees is a step too far.

A second supporting coalition (water harvest/military use coalition) consists of the water harvest companies, the Ministry of Defense and one private forest owner with a large property. This coalition is characterized by a tree species independent removal of exotic tree species. They are willing to girdle healthy trees to increase the amount of dead wood. In addition, they have positive attitudes towards recreation when it does not endanger their primary function of military use or water harvest. Wood production is not a main objective. The private forest owner, who will sell wood to cover the forest management costs, is an exception.

The third supporting coalition (SFM coalition) consists of the municipalities, the forest consultancies, the Forest group "Zuid-Nederland," the State Forest Service, the landscape organization "Brabants Landschap," the Forest groups Union and the Forest board. The perspective of this coalition is the same as that of the State (LNV).

5.3.1.2 Evaluation

To have a high level of strategic congruence, differences in perspective between the government and other actors must be small. The SFM coalition has the same SFM perspective as the government and thus congruence is high. The same goes for the economic and the water collection/military use coalitions; both coalitions agree with the governmental perspective on SFM when the benefits cover the costs or when SFM does not endanger the primary respective functions of water harvest or military use. The congruence is lower for the timber coalition, the local use coalition and the nature coalition. It is important to emphasize that the nature coalition, i.e., "Natuurmonumenten," fulfills the policy aim of forests with a nature conservation function. This role is also accepted by the SFM, economic, water collection/military use and local use coalitions. In contrast, the timber coalition deplores that "Natuurmonumenten" does not have a focus on production, while it is important that the

Netherlands still have some domestic wood production. The different vision of the local use coalition is partly a knowledge problem, but the coalition already reacts favorably to fulfill the ecological forest policy objectives. On the other hand, it is also a consequence of the fact that forest owners with a forest property less than 5 ha are neglected in Dutch forest policy, while they own together about 9% of the Dutch forests.The SFM vision of the wood coalition emphasize the increasing complexity of the logging activities and safety issues because of the increasing amount of dead wood. Nevertheless, the modern wood processing techniques can cope with these problems. Summarizing, the strategic congruence for this case is high and can probably be increased by capacity-building of forest owners with a small forest property. It will also be important to include timber merchants as target group of SFM policy.

5.3.2 Evaluation of structural congruence

5.3.2.1 SFM rules

The Dutch state and the province of Noord-Brabant formalized the SFM discourse in SFM-specific policy instruments, i.e. the communication project Integrated Forest Management[33] and the provincial scheme Integrated Forest Management[34]. However, at the moment of investigation, the discussed SFM policy instruments were already terminated. Nevertheless, these SFM-specific rules were embedded in an institutional environment with already many other rules which support the SFM policy. The already existing SFM supportive rules are the

[33] The Communication project Integrated Forest Management was a short-term project (2003-2005) which aims to inform and to stimulate all Dutch forest owners to manage their forests sustainably. This was done by workshops, field excursions and the creation of model forests.

[34] The Scheme Integrated Forest Management (1998-2006) aims to stimulate the implementation of SFM by private and municipal forest owners with a forest property of at least 25 ha in the province of Noord-Brabant through workshops, field excursions, and the formulation of a free management plan. The management plan stipulates the needed measures to convert forest from the current situation to the desired SFM situation. The plan was prepared by a forest consultant (e.g., Forest group "Zuid-Nederland) in close cooperation and consultation with the owner. All suggested management measures were clarified and discussed, enhancing the effective implementation of these measures.

Forest Act, the Estate Act and the Grant scheme Natura 2000[35]. The Forest Act maintains the forest area. The Estate Act promotes forest accessibility and obviates forest parcelization by giving the owner different tax exemptions, including one for the inheritance tax. The basic package of the Grant scheme Natura 2000 can be seen as a general forest grant because most eligible Dutch forest owners complies with the accessibility and the biodiversity conservation requirement.

The respondents mentioned that there were no negative effects from discourse formalizations of adjoining policy fields. This is strange at first glance because the realization of the European habitat/bird directive targets in the case study area implied mostly deforestation to restore the former heath or shifting sand landscape. However, it is logical when also the following facts are taken into account:

- a complete integration of nature and forest policy in the Netherlands;
- the nature NGO "Natuurmonumenten," the landscape organization "Brabants Landschap," the State Forest Service and Ministry of Defense all agree with the European habitat/bird directive targets and together own enough forest area to realize these targets; and
- private forest owners will not be coerced into realizing these European targets.

Summarizing, there was a formalization of SFM discourse in SFM-specific rules, which was strengthened by the already existing SFM supportive rules. The later rules still exist. In addition, there are no perverse effects of discourse formalizations of adjoining policy fields.

5.3.2.2 Acceptance of SFM rules

In the next section, the respondents' acceptance of the SFM rules will be presented separately for the regulative, economic and communicative instruments. Rules acceptance will be used as measurement of the congruency between formal and informal rules.

[35] The Grant scheme Nature Management supports forest and nature management financially when the owner meets the agreed targets described in management packages. The targets are more ambitious for the plus package than the basic package. This difference in ambition is compensated by a slightly higher grant. In addition to the management grant, a general recreation grant also exists. The compliance of the owner with the scheme requirements is monitored and controlled by the government.

The regulative instruments – the Forest Act and the Flora and Fauna Act[36] – are both well known by the respondents, with the exception of two private owners with a small property. The Forest Act is praised for its simplicity and effectiveness. Many respondents emphasize that it is due to the Forest Act that there is still forest left in the Netherlands. The respondents' opinions are more divided about the Flora and Fauna Act. The timber merchants are against it because logging operations are hampered. Many forest owners switch to winter cuttings to prevent problems with this act because of the breeding season of many birds, but the soils are often swampy in the winter and soil damage increases due to the heavy logging machines. The large organizations like State Forest Service and most other organizations do not have a problem with this act, especially after the introduction of the code of behavior 'Careful Forest Management.'

The appreciation of the economic instruments depends on the scheme, but these instruments are generally appreciated when the advantages outweigh the disadvantages. The grant scheme Nature Management 2000 is well known, with the exception of the private forest owner with the smallest property. Most respondents criticize this scheme. The financial surplus value of the plus package does not compensate for economic losses and the loss of management freedom. Therefore, even large organizations like "Natuurmonumenten" opt for the basic package. Furthermore, owners do not like the rigidness of the control system. Frequently, forest owners have a sufficient amount of dead trees in their forest, but they are not on each hectare as the scheme requires. Other criticisms include a bias towards the nature function and insufficient attention to recreation, since the effort is only rewarded when the targets are reached irrespective of external influences. In contrast, the Estates Act is well known by the respondents who could benefit from this act (private forest owners > 5 ha) and the resulting fiscal incentives are highly appreciated. This is also the case for the economic part of the Scheme Integrated Forest Management: "*The provincial grant was a blessing to anchor integrated forest management within 5 years in the province of Brabant, especially for the municipal forest and private forest with large property size"* (forest consultant). Notwithstanding the fact that this grant was discontinued, forest owners want to continue with this new management type. A new grant would only speed up the conversion process towards SFM.

[36] The Flora and Fauna Act regulates the protection of plants and animals and is quite similar with, for instance, the American Endangered Species Act. The way that this act must be implemented was quite unclear. The solution was to develop a behavior code – "Careful Forest Management".

Finally, the acceptance of communicative instruments is very high. The communicative part of the Scheme Integrated Forest Management is well known, and the respondents especially liked the forest management plan and the guidance of the forest group in this plan. Before this scheme came into being, the (private) forest owners were accustomed to the traditional clear-cut system of individual stands. The integrated forest management plan process has since changed their harvest system to small-scale cuttings. Another example to illustrate this behavior change is that, in the past, only very exceptional owners would have considered leaving wind-damaged wood in the forest. Presently, this is an obvious step for most owners to take. There was only one negative remark – the participants considered it regrettable that there is a minimum size of 25 ha to enroll into the program, which excludes many forest owners with a small property. In contrast, the Communication project Integrated Forest Management is less known and many respondents were not particularly enthusiastic about it. The project idea was good in itself, since most forest owners like excursions, want to learn from each other and enjoy exchanging ideas. However, the respondents believe that it went wrong by putting the project into practice: *"the idea to disseminate the integrated forest management method is good but it needs to get then to the people*" (private forest owner)

Summarizing, the high acceptance indicates that formal and informal rules are congruent, besides the current rather strict way to monitor the grant scheme (Nature Management 2000) and the relatively low compensations of the plus packages of this scheme. This means that the congruency between formal and informal rules can be improved by an adaption of the rather strict monitoring to a less strict monitoring (e.g. self-regulation) and by increasing the difference in financial compensation of the basic and plus packages.

5.3.2.3 Relationships and trust

The total, positive, neutral, and negative number of relations and the trust level of different actors are listed in Table 5.1. Actors with a very good score for the indicators 'trust' and 'relationships' are the Forest group "Zuid-Nederland" (SFM coalition), the nature organization "Natuurmonumenten" (nature coalition, supportive for nature conservation aim), the landscape organization "Brabants Landschap" (SFM coalition), the State Forest Service (SFM coalition) and "Federation Private Landownership (FPG)" (supportive economic coalition).

Table 5.1 Total, positive, neutral and negative number of relations and the trust level of different actors

Actor	Number of relations (max 30)				Trust	
	Positive	Neutral	Negative	Total	Trusted*	Mean**
Ministry of LNV	5	3	0	8	50	0.00
Ministry of Defense	4	1	0	5	64	0.07
Province of Noord-Brabant	6	16	0	22	40	-0.30
Municipality	5	2	4	11	53	0.00
Forest board	9	17	2	28	59	0.24
Forest group union	5	0	0	5	50	0.06
Forest group	22	1	1	24	74	0.53
FPG	11	1	0	12	71	0.57
Forest consultancies	10	0	0	10	63	0.31
Estate agent	6	0	0	6	57	-0.07
State Forest service	17	2	2	21	71	0.29
Natuurmonumenten	18	2	3	23	65	0.35
Brabants Landschap	20	3	0	23	76	0.88
Water collection companies	7	1	2	10	60	0.30
Private forest owner > 500 ha	4	1	0	5	57	0.07
Private forest owner 251-500 ha	11	1	0	12	57	0.07
Private forest owner 101-250 ha	11	1	0	12	57	0.00
Private forest owner 51-100 ha	9	1	0	10	43	-0.36
Private forest owner 26-50 ha	5	0	0	5	31	-0.77
Private forest owner 5-25 ha	3	0	0	3	15	-1.08
Private forest owner < 5 ha	3	0	0	3	8	-1.42
Wood merchant	4	7	1	12	12	-0.94

* percentage of respondents who score actor "high – very high"
** value between -2 and 2: -2 to -1.51: very low, -1.50 to -0.76: low, -0.75 to -0.26: rather low, -0.25 to 0.25: not low not high, 0.26 to 0.75: rather high, 0.76 to 1.50: high and 1.51 to 2: very high

The forest group is appreciated because it is a cooperative society with voluntary and paid membership, which provides the following advantages to their members: forest management advice and voting rights in the general assembly. The nature and landscape organization and the State Forest Service are trusted because they are well-known, old organizations with clear objectives. Moreover, these large organizations are willing to cooperate with their neighbors. This is highly appreciated, especially by the private forest owners. The FPG is appreciated as interest group of private forest owners. In general, the good scores for these organizations can be explained by the fact that they have regular personal contact with many of the other actors. These contacts resulted in positive experiences in which each actors' knowledge was appreciated. In addition, these organizations have a high knowledge competence (one is sure that the other actor is competent and can give useful suggestions). Contrary, the network position scores of the Forest board, the timber merchants, the province, and the municipalities are lower. In addition, the province and the timber merchants are also distrusted. The usefulness of the obligatory membership of the Forest board is not obvious

for many, primarily the local actors. They do not know what advantages the membership can bring to them. This is confirmed by the external evaluation of the Forest board by Van der Mark *et al.* (2005). The low score for the province can be explained by their lack of knowledge and their lack of interest in forestry. Finally, the private forest owners, especially the one with a small property, are also distrusted. Given the high scores of three SFM coalition members and the fact that the differences between economic, nature and SFM coalition are accepted, it is possible to conclude that the governance capacity requirements for actors are fulfilled.

5.3.2.4 Power resources and reputation

In order to have a high governance capacity, it is important that those actors who promote the desired SFM vision are powerful and that other actors are not. Estimations of the power resource position and the power reputation of the different actors are provided in Table 5.2 and Table 5.3, respectively. Notwithstanding the fact that no single actor controls a large quantity of resources, it is still possible to conclude that actors who promote SFM are powerful. Three of the six most powerful actors –the State Forest Service, "Brabants landschap" and the Forest group – belong to the SFM discourse coalition. The power reputation of the State Forest Service is high. In addition, three other SFM members – the Forest board and the 2 municipalities – have a rather high power reputation. Furthermore, LNV is also powerful and has the highest power reputation. Even more interesting is the fact that the SFM-coalition, together with LNV, controls two-thirds of the power means and the only resource with less than 50% control is forest related knowledge (46%). Furthermore when the two other supportive coalitions –the economic coalition and the water collection/ military use coalition- are taken into account the power control increase to four-fifth of the resources.

Thus, when all actors of the supportive coalitions work together, the likelihood is very high that the SFM policy aim will be realized. Furthermore, there is even no opposition of other powerful actors like "Natuurmonumenten" and the province of Noord-Brabant. Both control almost all remaining power resources and have a high power reputation. "Natuurmonumenten" do not force the other actors to their perspective. We expect the same of the province, considering their active promotion of SFM during 1998-2006 through the Provincial Scheme Integrated Forest Management. However, this is not confirmed by an interview because the provincial official of Noord-Brabant refused to cooperate.

Table 5.2 The estimated relative distribution (%) of power resources (property size, financial and staff support, forest-related knowledge, communication, informal and formal authority, and total) of the most important actors.

Power Resource	State Forest Service	Forest group	Brabants Landschap	Natuur-monum-enten	LNV	Province Noord-Brabant	Forest board	FPG	Forest group union
Property size	28	19	18	12	0	0	0	0	0
Financial and staff Support	17	17	16	14	0	0	0	1	1
Knowledge	4	4	4	4	4	3	4	4	4
Communication	8	13	13	13	0	0	4	4	4
Formalized authority	10	0	10	10	0	5	21	21	21
Formal authority	0	5	0	0	43	39	4	0	0
Total	11	10	10	9	8	8	6	5	5

Table 5.3 The power reputation of the different actors

Actor	Reputation	
	High reputation*	Mean**
Ministry of LNV	89	1.39
Ministry of Defense	31	-0.54
Province of Noord-Brabant	85	1
Municipality	65	0.29
Forest board	67	0.33
Forest group union	59	0.24
Forest group “Zuid-Nederland”	50	-0.1
Federation private landownership	50	-0.07
Forest consultancies	17	-1
Estate agent	23	-0.77
State Forest service	88	1.06
Natuurmonumenten	71	0.41
Brabants Landschap	47	0.18
Water collection companies	36	-0.14
Private forest owner > 500 ha	36	-0.5
Private forest owner 251-500 ha	29	-0.71
Private forest owner 101-250 ha	20	-1
Private forest owner 51-100 ha	14	-1.36
Private forest owner 26-50 ha	14	-1.43
Private forest owner 5-25 ha	0	-1.85
Private forest owner < 5 ha	0	-1.83
Wood merchant	0	-1.76

* percentage of respondents who score actor "high – very high"
** value between -2 and 2: -2 to 1.51: very low, -1.50 to -0.76: low, -0.75 to -0.26: rather low, -0.25 to 0. 25: not low not high, 0.26 to 0.75: rather high, 0.76 to 1.50: high and 1.51 to 2: very high

5.3.2.5 Evaluation

The structural congruence of the investigated case, i.e., coherence among the dimensions of a policy arrangement, is high. The SFM discourses are institutionalized in clear, well-known and accepted rules. The rules acceptance indicates that formal and informal rules are congruent. It is also important to mention that forest owners want to continue with SFM management, even without financial incentives. A possible weak point is that the power resources distribution is scattered across many actors. Nevertheless, most actors' relations are solid, even between different discourse coalitions, resulting in cooperation between most actors. Moreover, all actors of the SFM-coalition, together with the Dutch state, control almost two-thirds of the power resources. This increases even to four-fifth when the two other supportive coalitions are taken into account and there is no opposition of the remaining powerful actors. Two of the members of the SFM-coalition (State Forest Service and the Forest board) and the Dutch state enjoy also a high reputation in the local network. Thus there is a high likelihood that the SFM policy will be realized.

5.4 Discussion and conclusions

5.4.1 Discussion

The discussion will focus on the main empirical findings for each dimension: the behavior change of forest owners (rules/discourse), the control scheme of Grant scheme Nature Management 2000 (rules), trust-building factors (actors) and the scattered distribution of power resources (power). Furthermore, the generalization-possibility of the findings will be discussed.

The government has stimulated the forest owners of Noord-Brabant to manage their forest sustainably by using communicative and economic instruments; most notably, the provincial Scheme and the Communication project were both used on Integrated Forest Management. The owners will continue with SFM even after the termination of these policy instruments. This likely enduring behavior change was realized by the step-by-step implementation of the forest management plan and by excursions. All are communicative instruments that allow interactions between policymakers and the target group. These instruments are classified by Schneider and Ingram (1990) as learning instruments. According to Schaaf & Broussard

(2006), the importance of learning instruments is that they can change the behavior rather than only influencing the behavior, as is the case of regulative and economic instruments. Regulative or economic instruments can induce certain behavior for the duration of the policy, but because there has been no shift in attitude, the policy target may return to previous behaviors due to underlying attitudes (Pretty & Ward, 2001).

Most respondents criticize the grant scheme (Nature Management 2000) because of its rigid control system. It is not an option to abandon control because it is important for the government to check if the intervention resulted in the desired effect, outcome or impact. Otherwise, no-one can tell what does and does not work (Sparrow, 2000). However, it should also take into account that *information gathering* stands on the same level as *influencing* (Hood & Margetts, 2007). For *influencing*, the owners' acceptance decreases from communicative instruments, to economic instruments, and then to regulative instruments (Gunningham & Grabosky 1998). The same counts for *information gathering* from self-control, over enforced control[37] to governmental control.

The trust-building factors in the province Noord-Brabant were personal contact, positive experiences in the past, appreciation of each actor's knowledge and high knowledge competence. Furthermore, impersonal organizations such as the Forest board were, for many forest owners, less trusted than known organizations such as the Forest group. In literature, the importance of frequent interaction and past trustful relations (Dasgupta, 1988; Hardy *et al.*, 1998), respecting others' knowledge or benevolence (Abrams *et al.*, 2003, Charnley *et al.*, 2007), competence-based trust (Abrams *et al.*, 2003; Levin *et al.*, 2002), personal contacts (Abrams *et al.*, 2003) and familiarity with organization (Braddach & Eccles, 1989) are emphasized. The relation between trust and knowledge exchange is also confirmed (Penley & Hawkins, 1985; Edelenbos & Klein, 2007). Trust increases also the likelihood that knowledge acquired from a colleague is well-understood and absorbed so that a person can put it to use (Argyris, 1982).

The power resources are scattered across the different organizations, emphasizing a need for cooperation. This is accomplished in reality. The different local, regional and national actors work together in the field, discussing forest policy improvements and have formal and

[37] Enforced self control means an obliged requirement for the owner to self-monitor the implementation of the agreed SFM standards.

informal meetings. In the literature, this constellation is described as a polycentric institutional arrangement (Imperial, 1999a) that contains quasi-autonomous decision-making units operating at multiple scales (Ostrom, 1996; Folke *et al.*, 2005). It involves both local and higher organizational levels and aims to find a balance between centralized and decentralized control (Imperial, 1999a). A great deal of environmental policy research (e.g., Ernst, 1995, Olsen & Lee, 1991) criticizes this arrangement type, i.e., fragmentation and duplication of authorities, wasteful conflicts and turf fights (Imperial, 1999b). The literature contains also a clear preference for either market-based or centralized institutional arrangements (Imperial, 1999b). However, polycentric institutional arrangements can offer distinct advantages over centralized systems of government (Ostrom, 1989, 1994). They allow for functional specialization (Imperial, 1999b; Blomquist, 1992), which can improve the quality of scientific, time and place information and also reduce the information costs (Imperial, 1999a). In the Dutch SFM case, there is also a clear functional specialization between lobbying organizations (Federation Private Landownership, Forest group Union), management organizations (State Forest Service, "Natuurmonumenten" and "Brabants Landschap"), management support organizations (Forest group and Forest consultancies) and a consultative body (Forest board). Within the management organizations, there is also specialization as "Natuurmonumenten" tries to realize forests with a nature conservation focus on national level and "Brabants landschap" tries to accomplish integrated forest aims on provincial level. Therefore, all have their own role in the realization of governmental forest aims, confirming the specialization advantage of polycentric institutional arrangements. Thus, in this case, the polycentric arrangement contributes to the realization of SFM. This result is not uncommon. Folke *et al.* (2003) and Berkes *et al.* (2003) emphasized the importance of polycentric institutional arrangements for ecosystem management because they can match social and ecological structures and processes operating at different spatial and temporal scales.

It is important to discuss the generalization possibilities of the selected representative case. First, when another Dutch province was selected, many of the respondents and rules would be the same. The following SFM coalition members are national: Forest board, Forest group Union, Forest consultancies (n=3), State Forest Service and LNV. We expect that the general trend of the results will be the same. Nevertheless, provincial differences will exist because the ownership structure is different (LNV, 2006), the aims of the landscape organizations differ (some are closer to the aims of "Natuurmonumenten"), the provincial policies differ (SFM-policy is more important in Gelderland and Limburg) and they are subject to the discretion of

street-level bureaucrats of the investigated organizations (Lipsky, 1980). Second, in the theoretical sense, many of the results can be generalized because the results are confirmed in the literature. Third, generalizations in the analytical sense will be possible. The transferability will be the highest for comparable situations, i.e., highly-populated regions with a very cooperative polycentric network structure with trustworthy actors.

5.4.2 Conclusions

The governance capacity – the extent to which new forms of governance are able to successfully diminish or solve societal and administrative problems – in the Brabants' SFM policy arrangement is high, resulting in a potential successful implementation of the governmental SFM policy. The success of the policy is a result of the combination of non-coercive instruments, especially learning instruments, in an already very cooperative polycentric network structure with trustful/trustworthy actors. In addition, the government used the strengths of each organization to realize its targets. Nevertheless, it can be improved by opting for self-control or enforced control of the grant requirements instead of a control by the government and by including forest owners with a small forest property and timber merchants as target groups of the SFM policy.

Box 3. Comparing Flemish and Dutch SFM cases

The Flemish and Dutch SFM cases border geographically almost on each other, have similar tree species composition, soil conditions and historical land use. Notwithstanding this comparable physical context, the governance capacity of SFM arrangement is much higher in the Netherlands than in Flanders. This governance capacity difference is a consequence of a systematic lower score for all governance capacity indicators.

Possible explaining factors are the less interventionist character, the stronger nature-forest integration, the stronger actor cooperation, the higher acceptance for governmental restrictions on private property rights and the lower degree of ownership fragmentation in the Netherlands. A less interventionist approach is important because many forest owners will have a higher willingness to achieve sustainable forest management (Braithwaite & Makkai, 1994; Feld & Frey, 2002; Murphy, 2004b). In addition, tougher enforcement by non-compliance is seen as more procedurally fair when persuasion has been tried first (Lind & Tyler, 1988; Braithwaite & Braithwaite, 2001). Nature and forest are completely integrated in the Netherlands (Veenman *et al.*, 2009), while this is not the case in Flanders. This integration is important to avoid nature-forest policy struggles. Most Flemish respondents mentioned nature-forest conflicts, while this was not the case in the Netherlands. The Flemish nature-forest conflicts are caused by actors' preconceptions. Flemish foresters have the feeling that the nature sector's attention is directed primarily to "open" types of vegetation and less to woodland sites (Van Herzele, 2006). Many nature organization members find that the forest sector pays too less attention at nature conservation. Due to this there is a large distrust between the nature and the forest sector, which complicates the cooperation between actors. However, it is important to mention that recently the Forest and Nature service were integrated in one administration. The integration can result in less nature-forest conflicts in the field. Nevertheless, it will depends on how the former forest officials and the former nature officials of central, regional and local level will take both aims into account. In addition, the nature-forest conflict was not limited to governmental actors. It will also depends on how the other actors react. In this respect, it is worth noting that the Flemish forest organization and the Nature organization Natuurpunt have a joint discussion group on forest issues. The stronger Dutch actor cooperation can be explained by the following aspects: (1) the trust between the Dutch actors is much higher than between the Flemish actors and (2) the Dutch cooperating actors take the niche or specialization of each of the organizations into account.

Dutch policy-makers have the advantage that most forest owners can accept that their private property rights are restricted by the government. These restrictions will be needed for a successful implementation of sustainable forest management. In contrast, Flemish policy makers have more difficulties because private forest owners of the economic coalition accept only "sufficient" compensated restrictions and the private property coalition members does not accept any restriction on their rights. Fortunately, the total power of the later is quite small; they control about 3% of the power resources in the investigated case. Nevertheless, policy-makers cannot neglect them completely because this coalition controls about 16% of the power resource property size.

Finally, the Dutch success story was/is also realized with a better forest owner situation. Private owners own less forest land (32% in the Netherlands against 70% in Flanders) and the forest property of these owners is also larger (private owners with forests less than 5 ha owns 9% of the forests in the Netherlands against a mean size of 1 ha for private forests in Flanders).

PART II. SMART REGULATION

"If the people be led by laws, and uniformity sought to be given them by punishments, they will try to avoid the punishment, but have no sense of shame. If they be led by virtue, and uniformity sought to be given them by the rules of propriety, they will have the sense of shame, and moreover will become good." (Confucius, 551-479 BC, Analects)

"Government can easily exist without laws, but law cannot exist without government" (Bertrand Russell, 1872-1970)

6 "Smart regulation": can policy instrument design solve forest policy aims of expansion and sustainability in Flanders and the Netherlands?

After: Van Gossum, P., Arts, B., Verheyen, K. "Smart regulation": can policy instrument design solve forest policy aims of forest expansion and sustainability in Flanders and the Netherlands. Forest Policy and Economics, doi:10.1016/j.forpol.2009.08.010.

6.1 Introduction

European and North American governments face increasing public demands for forest products and services. In particular, governments in densely populated regions like Flanders (northern Belgium) and the Netherlands are confronted with strong, increasing recreational as well as ecological demands. Considering the fact that Flanders and the Netherlands are sparsely covered with forest[38], policy-makers can only satisfy the increasing demands by a combination of forest expansion and multi-functional forest management, which in both regions is operationalized as sustainable forest management (SFM). The forest policy in both regions focuses mainly on these policy themes and this is reflected in clearly formulated policy objectives. The Flemish government wanted to expand the forest area in the period 1994-2007 with 10,000 ha, and wants to realize SFM in all forests (AMINAL afdeling Bos & Groen, 1998a, 1998b). The Dutch government wants to expand the forest area with 66,000 ha in the period 1983-2020[39] or an increase of 20% in the forest area and wants to realize SFM in most forests (LNV, 1986, 1993, 2000). The success of these policies will depend on the cooperation of private owners, who own many forests[40] and also most non-forest land and on the bargaining between forest policy and other policies (such as nature, agriculture, industry and

[38] The FAO defines counties with less than 10% forests as Low Forest Cover Countries, the forest cover in Flanders and the Netherlands is only a little bit higher than the upper bound with 10.8% (Waterinckx & Roelandt, 2001) and 10.6% (LNV, 2006), respectively.

[39] In 1983 the forest area was 334,000 ha. The policy target is to increase the forest area to 400,000 ha.

[40] A total of 70% in Flanders (http://www.bosengroen.be/ 12/09/2008) and 41% in the Netherlands (LNV, 2006)

and living), which have frequently conflicting aims.

It is important that policy-makers take into account the weak and strong points of the different policy instruments. Until recently forest governance across the globe tended to use mainly "command-and-control" policy instruments (Glück *et al.*, 2005). However, this approach is criticized for being inefficient, unnecessarily intrusive, unduly expensive to administer, perhaps inequitable, stifling of innovation, prone to enforcement difficulties and difficult to revise as new information becomes available (Ackerman and Steward, 1985; Hahn & Stavins, 1991; Reitze, 1991; Orts, 1995; Sinclair, 1997). The so-called new environmental policy instruments (NEPIs), like price-based instruments, property right instruments, voluntarily agreements and motivational and informational incentives, are promoted as alternatives for the traditional command-and-control approach, especially by free market advocates (Jordan *et al.*, 2003). The NEPI approach has a number of advantages, like a higher regulatory flexibility and cost-effectiveness, a higher acceptance by the regulatees and a lower regulation cost (Sinclair, 1997; Gunningham & Grabosky, 1998). However, this approach is also criticized because it has difficulties coping with free riders (Jordan *et al.*, 2005) and persistently irrational actors (Sinclair, 1997). Moreover, successful self-regulation mostly takes place in the shadow of the law[41] (Sinclair, 1997) and this backdrop of dormant mandatory regulation is a necessity when there is a realistic threat of irreversibility, for example, the collapse of an ecosystem (Perrings & Pearce, 1994). In addition, it is important to remember that regulation may be the only technique capable of exerting pressure on compelling resource users and others to realize the policy aim when persuasion and education fail, when enterprises are unwilling to improve their environmental performances voluntarily, and when economic instruments or voluntarism lack dependability (Gunningham, 1997).

The challenge is thus to design a regulatory ordering where the need for coercion is minimal and where conflict between private interest and the public good will be reduced (Grabosky, 1995). Smart regulation takes these challenges into account and proposes regulatory design

[41] Shadow of law is a metaphor which is regularly used within regulation literature. It is based on the fact that most regulatees do not notice that most NEPI's requires supportive command-and-control and that the less interventionist instruments works better when the possibility of a strong intervention (like expropriation) exist. The threat that it can be used is mostly enough. To illustrate the importance of command-and-control for NEPI's I will give an example: transferable development rights works only when there is a law which assign certain areas as sending area (no building) and other areas as receiving area (building area).

principles to ensure the "smartness" of the regulation (see §6.2). Thus it can be expected that the realization of a policy aim will be more successful when these principles are fulfilled. Smart regulation leads, for example, to higher farmers' acceptance of biodiversity conservation (Gunningham, 1997) or other agro-environmental measures (Gunningham & Grabosky, 1998). This acceptance is crucial for actual effectiveness of a policy or program (Bemelmans-Videc *et al.*, 1998) and also a necessity for any system of democratic government, which must allow the exercise of power without coercion (Connelly *et al.*, 2006).

The aim of this research is twofold. First, we will investigate how "smart" forest policy is formulated in Flanders (northern Belgium) and the Netherlands. Second, the Smart Regulation hypothesis, *when regulation is more "smartly" formulated, the chance that the policy will be successful will be higher,* will be tested. In this research, policy success will be measured by the extent that the officially determined targets are reached (effectiveness) or by the estimated potential that these targets can be reached in the near future (potential effectiveness).

However, it is important to clarify why we have chosen smart regulation theory as our instrument of choice, notwithstanding the critique that it is too naïve (Böcher & Töller, 2003). Two critical comments can be distinguished. First, policy-makers, when faced with a problem, do not have a complete "tool-box" of instruments at their disposal, from which they can choose the most suitable instruments on the basis of complete information (Böcher &Töller, 2003). This is so because instrument selection is a highly complex, contingent and sometimes self-dynamic political process (Böcher & Töller, 2003) and because policy-makers are confronted with instrument choice restrictions (Böcher, subm.) For example, institutional aspects mostly support the logic of path dependency, which means that instruments that were initially applied are hard to be changed in later periods (North, 1992 in Böcher, subm.). In addition, discourses, for example, on deregulation and on effectiveness and efficiency, influence the choice of instruments (Böcher, subm.). Second, the performance of policy instruments depends not only on their technical characteristics but also on the institutional framework within which they are used (Majone, 1976; Bressers, 2004). Notwithstanding these pertinent comments, a technocratic instrument analysis still seems useful, depending on the research question. We can agree with Böcher (subm.) that, when the research aim is to analyze the reason behind the choice of specific instruments, a technocratic approach or naïve instrumentalism cannot deliver an appropriate insight. However, a technocratic approach remains, in our opinion, useful for policy success comparisons of different instrument designs within a given institutional context. We are aware that the possible instrument designs will be

narrowed by the existing instrument preferences. However, we do not see this as a problem, because our aim is to analyze the "smartness" of the instrument design and its relation with policy effectiveness rather than the reason why a specific design was chosen.

6.2 "Smart Regulation"

The term "smart regulation" was first coined in the context of environmental policy to describe a post-command and control implementation style expected to be capable of dealing with increasingly technically and politically complex policy issues (Howlett & Rayner, 2004). Smart regulation aims to be a solution for the intellectual stalemate between those who favor strong state regulation of business and those who advocate deregulation (Ayres & Braithwaite, 1992; Grabosky, 1994; Gunningham & Young, 1997; Gunningham & Grabosky, 1998). Therefore, smart regulation proposes a shift to an implementation style which recognizes that government intervention will continue to take place, albeit selectively and in combination with a range of market and non-market solutions and public and private orderings (Gunningham & Grabosky, 1998). Smart regulation must be "responsive," i.e., a regulatory agency should recognize and respond to the diversity of organizations it regulates, making its regulatory regime adapt to how individual organizations behave (Walshe, 2002).

It is important to emphasize that smart regulation is not yet a coherent theory, but more a heuristic framework. In this research, smart regulation will be used as a normative concept that was based on the design principles of different authors (Gunningham & Young, 1997, Gunningham & Grabosky, 1998, Howlett & Rayner, 2004). These design principles were further operationalized in "indicators" and "preferable state" for each "indicator" (Table 1). The notion of "criteria," "indicator," and "preferable state" are placed between brackets, as we are aware that – in a strict methodological sense – we are not dealing with "true" indicators here, namely empirical assets which can be immediately observed (Wiering & Arts, 2006). Yet these "indicators" can help us to evaluate the "smartness" of the instrument mix empirically and more thoroughly. It is important to remark that the importance of these "indicators" and the necessity to fulfill them depends on the context-specific nature of the problem.

Table 6.1 Principles and indicators to evaluate "smart" instrument design based on Ayres and Braithwaite (1992), Gunningham & Young (1997), Gunningham & Grabosky (1998) and Howlett & Rayner (2004)

Principles	Indicator	Preferable state of indicator
No perverse effects of other policies	Absence of perverse effects	Perverse effects are absent or small
Broad range of complementary instruments	Diversity	A large diversity of policy instruments is used when this is needed to solve the problem
	Complementarities	The instruments used have no negative effects on each other
Broad range of institutions	Regulatory pluralism	Existence of surrogate regulators
	Empowerment	Government empowers surrogate regulators, when needed
Develop or use NEPI	Use of NEPIs	NEPIs are used to improve the existing instrument mix
Invoke motivational and informative instruments	Use of motivational and informative instruments	Regulatees know the reason for the policy and the different instruments that are used to regulate them. In addition, they have enough knowledge and are motivated to implement the policy.
Prefer less interventionist measures	Preference of less interventionist measures	Policy-makers started with the lowest possible intervention level
Ascend a dynamic pyramid	Instrument sequencing	More interventionist instruments can be used when less interventionist instruments fail
	Big stick	Big stick exists and will be used when necessary
Win-Win	Win for regulatees	Regulatees perceive policy as an advantage for them
	Win for government	Adequate monitoring and explicit benchmarks exist

The first design principle focuses on the interaction of the investigated policy design with the already existing instruments of other policies. All other principles focus on instrument design recommendations within the investigated policy. The smart regulation principles are the following:

1. *Avoid perverse effects of other policies* (Gunningham & Young, 1997). A perverse effect or incentive promotes behavior that causes unsustainable resource use, most of which are unplanned side-effects of policies adopted to attain other objectives. (McNeely, 1988; OECD, 1996). The influence will be higher when the other policies which create these perverse effects are seen as more important (e.g., Penning-Rowsell, 1997; Hilson, 2002, Young *et al.*, 2005). Policy integration, i.e. "a process of uniting and harmonizing separate policies to produce an integrated and coherent policy system," is seen as a solution to avoid perverse effects (Briassoulis, 2005, p. 50). The smart

regulation requirement for this principle is that perverse effects need to be absent or small or that there is policy integration.

2. *Prefer policy mixes incorporating a broad range of instruments* (Gunningham & Grabosky, 1998; Howlett & Rayner, 2004). This advocates a careful selection of the most cost-effective regulatory combinations. All individual instruments have both strengths and weaknesses and none are sufficiently flexible and resilient to be able to successfully address all environmental problems in all contexts. Therefore it is important to consider systematically the benefits of the mutual application of different instruments (Gunningham & Grabosky, 1998). The smart regulation requirements for this principle are that different instruments are used when they are necessary to solve the policy problem and that the applied instruments have no mutual negative effects.

3. *Prefer policy mixes incorporating a broad range of institutions* (Gunningham & Grabosky, 1998; Howlett & Rayner, 2004). Similar arguments for regulatory pluralism apply with regard to institutions. Besides the government and the regulated sector, a great range of institutional actors including commercial and non-commercial third parties, such as suppliers, customers and the growing cast of auditors and certifiers, exist and can assist in taking the weight off government intervention. In addition, empowerment of surrogate regulators is important because the participation of second and third parties, particularly commercial third parties, in the regulatory process is unlikely to arise spontaneously except in a very limited range of circumstances where public and private interests substantially coincide (Gunningham & Rees, 1997). Thus, the government remains important as a facilitator, catalyst and coordinator of second and third parties (Gunningham & Sinclair, 1999). The smart regulation requirements for this principle are that surrogate regulators exist and that they are empowered by the government when needed.

4. *Develop or use new environmental policy instruments (NEPI's) when traditional instruments fail* (Howlett & Rayner, 2004). NEPIs will be defined in this research as new instruments which are based on property rights as well as market and network techniques. We are aware that some informative instruments are also NEPIs; however, these instruments will be the subject of a separate requirement, along with more traditional informative instruments like brochures. Examples of used NEPIs in the forest sector are property rights instruments, tradable development rights, carbon offset payments, conservation easements, forest certification, forest cooperatives and community-based natural

resource management (Cubbage *et al.*, 2007). The smart regulation requirement for this principle is that NEPIs will be considered when traditional instruments alone are insufficient to solve the policy problem.

5. *Invoke motivational and informative instruments* (Gunningham & Young, 1997). These instruments improve the understanding of why a policy may be important and this will increase the owners' willingness to take action – even when the owners' material interests are not improved by doing so (Baker, 1995). However, according to Barr & Carry (2000), information and education work best when targeted policy agents perceive self-interest in adapting the recommended measures. Otherwise those instruments must be used in combination with others. The smart regulation requirement for this principle is that regulatees need to know the reason of the policy and the different instruments which are used to regulate them. In addition they need to have enough knowledge and be convinced to implement the policy.

6. *Prefer less interventionist measures* (Gunningham & Grabosky, 1998). The term "intervention" has two principal components: prescription and coercion. Prescription refers to the extent to which external parties determine the level, type and method of the improvement. Coercion on the other hand, refers to negative pressure on a regulatee to improve its performance. Both components have their influence on the intervention level. A high intervention level tends to score very badly on legitimacy (Gunningham & Grabosky, 1999). This is especially the case for communities with anti-authoritarian traditions, such as the agricultural sector (Sinclair, 1997). Implicit in this principle of "starting with the least interventionist policy measure" is the assumption that the measure actually works (Gunningham & Sinclair, 1999). That is, the instrument must be capable of delivering the identified policy outcome. In some cases, this will mean that "what works" requires a relatively high level of intervention, but even in such cases it will still be possible to apply the principle and the requirement to choice for the lowest possible intervention level. We are aware that the criteria "NEPI" and "less interventionist" can have some overlap. Many NEPI's are "less interventionist", but this is not always the case. For example, the NEPI "forest certification" can still be interventionist in terms of prescriptiveness, i.e. forest owners may be required to address specific issues and certain behaviors, as prescribed under codes of practice. In addition, not all "less interventionist instruments" are NEPI's. For example, an information brochure is not a NEPI.

7. *Ascend a dynamic instrumental pyramid to the extent necessary to achieve policy goals* (Gunningham & Grabosky, 1998). This is based on two important considerations. First, a given instrument may be effective in influencing the behavior of some, but not of others. Secondly, a particular instrument, which prior to its introduction seemed likely to be viable in its entirety, may, in the light of practical experience, prove not to be so. Thus there is a need to build in regulatory responsiveness and instrument sequencing (i.e., enabling escalation from the preferred least interventionist option) if it fails to increasingly more interventionist alternatives. The gradual escalation[42] to the top of the pyramid (interventionist instruments) can be done by the government, the private sector and third parties (Gunningham & Grabosky, 1998). However, instrument sequencing is not always appropriate (Gunningham & Sinclair, 1999). For example, in situations which involve a serious risk of irreversible loss or catastrophic damage, a graduated response is inappropriate because the risks are too high. In addition, a graduated response is only appropriate where the parties have continuing interactions (Gunningham & Sinclair, 1999). Nevertheless, the existence of a big stick, even when that stick is never used, enhances the performance of the less interventionist instruments (Ayres & Braithwaite, 1992). The idea is that the greater the heights of "punitiveness" to which an agency can escalate, the greater its capacity to push regulation down to the cooperative base of the pyramid.
8. *Maximize opportunities for win-win outcomes* (Gunningham & Gabrasky, 1998). A key challenge for policy-makers is to ensure that regulatory solutions optimize the opportunity for win-win outcomes and facilitate and reward enterprises for going "beyond compliance" while also maintaining a statutory baseline and ratcheting up standards. To realize a win for the government, adequate monitoring and explicit benchmarks will be needed to measure effectiveness (Merenlender *et al.*, 2004; Saterson *et al.*, 2004; Mayer & Tikka, 2006). It is important to decide how the impact of the policy will be measured before intervention, otherwise *no one can tell what works and what does not* (Sparrow, 2000, emphasis added to the original). Nevertheless, the lack of monitoring and goals is an all too common problem (Wilcove & Lee, 2003).

[42] This escalation is different from the more frequently used conflict escalation. Escalation in the sense of smart regulation means that the coerciveness of the instrument will increase (going from information distribution to strict regulation).

6.3 Material & Methods

The most appropriate way to tackle the research aim will be a multiple case study. A case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within a real context, using multiple sources of evidence (Yin, 2003). Theoretical replication predicts contrasting results, whereas, for predictable reasons, literal replication predicts similar results. Theoretical replication requires that the selected cases differ mainly on the explanatory variables of the tested hypothesis and are more or less comparable on the other influencing variables (Yin, 2003). Flemish and Dutch forest policy were selected as theoretical replication and the two most important forest policy themes within Flanders and the Netherlands, namely "sustainable forest management" and "forest expansion", as literal replication. In §1.4 we demonstrate that Flemish and Dutch forest policy fulfill largely the theoretical replication required. However, the comparability was not perfect (there is a lower trust, a higher forest parcelization and more spatial disorder in Flanders than the Netherlands), which makes that we expect that the same "smartness" of the instrument mix will result in a lower policy success in Flanders than the Netherlands. In addition, there will be small differences in the smart regulation requirements for the Dutch and Flemish cases. The Flemish mix needs to focus more on network management and trust-building than the Dutch one. The complexity to steer many actors, like in the Flemish SFM case, can be reduced by introducing an intermediary organization (De Bruijn & Ten Heuvelhof, 1998). Trust in the government can be improved by seeing the land owners as trustworthy actors (Braithwaite & Makkai, 1994; Feld & Frey, 2002).

6.3.1 Data collection and analysis

The data collection and analysis were theory driven and aim to estimate (1) policy success (effectiveness or potential effectiveness) and (2) the degree that the smart regulation requirements were fulfilled. Each case was conducted in a stepwise approach. The first step was an investigation of all documents which were related with this case and the research objectives (familiarization aim). The second step was the collection of the field data. This was done by in-depth interviews. Interviews are an essential source because, through interviews, researchers can best access case participants' views and interpretations of actions and events (Walsham, 1995). Data collection and analysis were done at the same time, and the collection was ended when no new relevant knowledge for the research was obtained beyond that of

previous interviews (i.e., the application of the saturation principle; Lincoln & Guba, 1985). Saturation was reached after 26 interviews and 14 documents (Flemish SFM case, conducted in 2006), 31 interviews and 29 documents (Dutch SFM case, 2007), 26 interviews and 21 documents (Flemish forest expansion case, 2005) and 15 interviews and 56 documents (Dutch forest expansion case, 2007). All interviews were tape-recorded and literally transcribed. The data coding was based on the already described theoretical framework (thematic coding). In addition, we were open to new themes or ideas which were not covered by the theoretical framework (first open coding and then axial coding). The collected data as well as the treatments of the data (coding) were systematically stored in a digital case study database,(i.e., the computer-assisted qualitative data analyses software NVivo 7.0).

6.3.2 Estimations of "smartness" of instrument design and policy success

The fulfillment of each "smart" regulation principle was estimated on a 7-point Likert scale[43]. A positive sign means that the instrument design is in line with a particular smart regulation requirement and a negative one that it is not. The number of signs gave an indication of the strength of the relation. The "smartness" of instrument design was then estimated as an average of the scores for each requirement. Because we did not know the relative importance of each principle, we made the decision to assume that each principle had the same importance.

Furthermore, the expected "smartness" trend was indicated with ± for status quo, ↑ for an improvement and ↓ for deterioration.

Policy success was estimated differently for sustainable forest management and forest expansion. Forest expansion success was measured as goal attainment, thus an ex-post-evaluation. Goal attainment means that policy success was estimated as the measured change in forest area against the desired policy objective of the state for the investigated policy period. It was not possible to estimate the preferable policy effectiveness, because it was not known what the change in forest area would have been without the forest expansion policy. The forest expansion failure and success factors were investigated by using the policy type-

[43] The more commonly used 5-point Likert scale was insufficient to do justice to the instrument design differences between the four cases.

based implementation model of Matland (1995). It was not possible to measure SFM in the same way, because the policy was introduced too recently to have measurable outputs in the forest. Therefore it was chosen to measure the governance capacity of the policy arrangement, based on the method of Arts and Goverde (2006). Governance capacity is the extent to which new forms of governance are able to successfully diminish or solve societal and administrative problems (Nelissen *et al.*, 2000). This is an ex-ante-evaluation. This also means that only a regional comparison was possible. In addition, only for the forest expansion cases the causal link between "smartness" of instrument design (T_0) and goal attainment (T_1) could be investigated. The hypothesis is, in this situation, an instrument design which is more "smartly" formulated will result in a higher goal attainment, whereas for the SFM cases it was only possible to investigate the co-variance between "smartness" of instrument design (T_0) and governance capacity (T_0). The hypothesis is now that when the "smartness" of instrument design is high the governance capacity will also be high. To investigate these hypotheses, goal attainment or governance capacity was estimated on a 7-point Likert scale (see Table 4 for the scale division).

Furthermore, the expected goal attainment or governance capacity trend was indicated with ± for status quo, ↑ for an improvement and ↓ for deterioration.

6.4 Results

First, an analysis of the extent that the "smart" regulation design principles were fulfilled at the moment of investigation will be given. This will be done separately for the forest expansion and the SFM cases. In addition, more recent instrument design trends will be discussed. Second, an analysis of the (potential) policy success will be given. Third, the hypothesis that a "smart" policy design will result in a high (potential) policy success was tested.

6.4.1 Fulfillment of the smart regulation requirements

6.4.1.1 Forest expansion cases

The Flemish and Dutch forest expansion case scores on the smart regulation design principles as follows:

- *Avoid perverse effects of other policies.* Flemish and Dutch forest expansion policy both encounter perverse effects of agriculture, landscape and spatial planning policies. This is unavoidable considering the secondary position of forest policy relative to these other policies (for extended discussions see chapters 2 and 3). The secondary position of forest expansion in Flanders, for example, is reflected in the agricultural Tenure law: the lease of agricultural land cannot be terminated when the owner wants to afforest his/her land (Tenure law). This prohibition has a large impact because 65% of the Flemish agriculture area is leased (Gotzen, 1997). Besides the already discussed policies, the Flemish forest expansion policy also encounters negative effects from the nature policy. This is not the case for the Dutch forest expansion policy because the former is integrated in nature policy. In the Netherlands, respondents mentioned the following negative effects of landscape and spatial planning policy on forest policy are: (1) an increase of the cost of the forest expansion project and (2) an increase of the time gap between project idea and final realization. The cost for an archeologically survey (landscape policy) can be high and it is needed to do one for a forest expansion project when this project is located in archaeological zone.
- *Prefer policy mixes incorporating a broad range of complementary instruments.* The **Flemish policy mix** consists of direct government realization, restrictions for deforestations, grants and income compensation. The instrument diversity is small, especially when it is taken into account that the government wants to convince farmers, landowners and municipalities to afforest their land. There are also some instrument incompatibility issues. For example, the deforestation restriction is necessary to prevent losses of the existing forest area as a result of, for instance, urban sprawl. However, a drawback of this restriction is a lower effectiveness of the financial instruments, because farmers are less willing to afforest their land. Farmers believe that they cannot deforest anymore and therefore they avoid to afforest. On the contrary, the **Dutch instrument** mix is very diverse and consists of direct government realization,

restrictions for deforestations, grants, compensation for land value decrease[44], new rural estates[45], carbon offset payments, image-building, red for green[46], transferable development rights[47] (only in province of Limburg), capacity-building (2001-2004) and information. However, all instruments cannot be combined. First, it is not always possible to combine instruments from different government levels, like those from the state with those from the province. Second, some instruments exist only during a short time period. This mean that the overall diversity is lower than can be expected from the full list of possible instruments. In addition, regulatees are confronted with a (fast-) changing policy context.

- *Prefer policy mixes incorporating a broad range of complementary institutions.* In the **Flemish case**, there is almost no regulatory pluralism, because the government is in essence the only regulator, and surrogate regulators are only used for specific projects on an ad-hoc basis. For example the Flemish forest organization (VBV) works together with different organizations, like Regional Environmental Care[48] (RMZ), the forest service (ANB) and a cancer fund raising organization[49] (KOTK), the Peace movement and

[44] This compensation has been possible since 2000 for all new forests However, since 2004, it has only been available within the Ecological Main Structure (EHS), the Dutch implementation of the Ecological network idea

[45] New Real Estate provides permission for the development of a limited number of housing units in the rural area in exchange for a considerable amount of new, publicly accessible nature areas. The minimum area is 5 ha, and 90% of the area must be 'new' and accessible to the public (http://www.brabant.nl/Wonen/ 14/09/2006).

[46] Red for Green is a policy instrument which allows profit-generating activity, such as real estate development, in a place where it is normally legally impossible because of existing spatial designation, for example, for agriculture. This authorization results in a substantial benefit for the developer because the spatial designation is changed, in this example, from an agricultural to a residential area. The government gives this authorization only when the project developer spends a large part of this benefit in the simultaneous realization of a new forest or nature area close to the place where the real estate is developed (Evers et al., 2004).

[47] This instrument is based on the American transferable development rights. The resulting instrument allows house construction in the countryside outside of current housing zones in exchange for quality improvement of the countryside.

[48] RMZ is responsible for waste processing and waste incineration in the Flemish province of Limburg. To compensate for their CO_2 emission, they give the Flemish Forest Organization a budget to buy land to afforest.

[49] KOTK sell trees to get funding for cancer research. ANB provides land to afforest and young trees. The VBV organizes the public event (e.g. a quiz with Flemish famous persons). Because of the link with cancer, the new forests are more publicly acceptable.

the White Children movement[50], to realize their own organizational aim of forest expansion. In addition, the empowerment of those surrogate regulators is also low. In the **Dutch case,** there is already some diversity, but the government (state, provinces and municipalities) remains the most important regulator. Surrogate regulators are Probos[51] and a private development company Habitura[52]. Probos was the regulator for the development of capacity-building instruments during the period 2001-2004 and received governmental funding to fulfill this task. Habitura is responsible for the planning, especially in rural areas. This company designs a total plan for a specific region, with a legally required financial balance of the negative (e.g., housing, industry, shingle extraction) and positive (e.g., nature and forest development, removal of former agricultural production sites) effects on the spatial quality of rural areas. This plan is designed in cooperation with all stakeholders. Habitura is a special case because the regulation is done without empowerment of the government.

- *Develop or use of new environmental policy instruments.* There are no **Flemish NEPIs;** previously used policy instruments (regulations, grants, purchase and compensation) are more or less traditional. On the contrary, there are many **Dutch NEPIs**, such as image-building, new rural estates, red-for-green, transferable development rights and carbon offset payments. However the government decides under which conditions these NEPIs can be used. Sometimes these conditions are rather strict and/or are hindered by the Dutch regulatory complexities. For example, in the Dutch province of Limburg, of the 10 best red-for-green projects selected from 30-35 possible projects, only three are currently realized.
- *Invoke motivational and informational instruments.* The use of these instruments is limited in **Flanders**. For example, afforestation advice on a structural basis is limited to public owners. Furthermore, the communication on financial instruments seems to fail because the existing grant schemes are not well known by private owners (Serbruyns *et al.*, 2001). However, this situation is improving through the communicative efforts of

[50] The White Children movement was founded as a reaction to the failure to end child disappearances and pedophilia. The new forest has a more symbolic meaning, as a way to remember the disappeared children.

[51] Probos is a Dutch non-governmental organization. The main aim is to promote sustainable forest management and afforestation by private owners, and to realize a solid financial base for these activities.

[52] Currently Habitura is only active in the province of Limburg.

the forest group[53]. In the **Netherlands**, motivational and informative instruments are used more than in Flanders, but it remains rather limited. The dissemination of juridical, technical and financial information on afforestation was done by Probos from 2001 to 2004. This is now replaced by the provincial (Limburg and Drenthe) and national contact points for private land owners. In addition, early adopters were/are important to convince other farmers of the pros of afforestation for an agricultural company.

- *Prefer less interventionist measures.* The current situation in **Flanders** is opposite to the requirement. The government gives a priority to high interventionist measures and direct realization by the government (55% of the policy target). However, the aim of the current Minister of Nature, Environment and Energy is to reduce the direct realizations by the government and stimulate private initiatives to a larger extent than before. To the contrary, less interventionist measures are mostly preferred to realize the **Dutch** forest expansion targets. Nevertheless, agriculture company relocation, even when it is discussed with and agreed to by the farmer, remains to some extent an interventionist measure.

- *Ascend a dynamic instrumental pyramid.* In fact, this possibility exists in the Flanders and the Netherlands. However, the instrument with highest intervention level, expropriation, has a low acceptance and will be not used in Flanders and is under discussion in the Netherlands. The expectations are that it will be used in the Netherlands for the realization of some urban forests.

- *Maximize opportunities for win-win outcomes.* In **Flanders**, this requirement is not fulfilled because a win for farmers, an important stakeholder, is missing. It is still in the greater interest of farmers to continue their current use of agricultural land because the agricultural grants are higher than the afforestation grants (monetary loss). In addition, a farmer who afforests his/her land will be seen as a traitor by the other farmers and thus lose his/her social network (non-monetary loss). All grant-funded projects are controlled or monitored by the government. In **the Netherlands**, it can be

[53] The Flemish forest group is non-profit forest cooperative for all forest owners in a legally defined region. Membership is free of charge and voluntary. The forest group is grant-supported by the Flemish government and sometimes also the provincial government.

concluded, based on regulation from 2000 to 2004, that there was probably a win for farmers, especially those with a low cost-effectiveness. In the period before and after this, whether or not there was a win is less clear (for a full discussion, see §3.4.2.1). The grant-funded projects are controlled and monitored by the different grant-makers, like the National Green Fund and the government.

In summary, the "smartness" of **Flemish instrument design** for forest expansion at the moment of investigation is **low**. Less "smart" elements are the preference for interventionist instruments, the absence of a gradual escalation, the absence of NEPIs and surrogate regulators, the low diversity of the instrument mix and the rather limited use of informative and motivational instruments. In addition there is a large influence of perverse effects of other land-based policies. The "smartness" of the **Dutch instrument design** for forest expansion is **neither low nor high**. On the one hand, the perverse effects of other policies are large, and there are no clear advantages for farmers who want to afforest their land. On the other hand, policy-makers use a broad range of instruments, including many new environmental policy instruments and informative and motivational instruments. In addition, less interventionist measures are preferred. It is worth noting that the difference in instrument design between **Flanders and the Netherlands** is especially the consequence of the large difference on only three principles, i.e. NEPI's, instrument diversity and less interventionist instruments.

Due to recent trend in regulation, the **Flemish** instrument mix has changed to a mix which is more in line with the smart regulation principles. In mid-2008, a first NEPI was introduced (i.e., Million Tree Campaign). This campaign is a communication project to convince all citizens (individual persons; organizations; companies; local, regional and national governments) to plant 1 million trees within the four-year project duration. The project makes use of a website, blog, newsletter, events, social networks and media campaign. The project is implemented by the Flemish forest organization, which acts as surrogate regulator, and is financed by the Nature and Forest service (ANB). At the end of 2008, this organization developed a user-friendly manual for forest expansion projects for local governments (informative instrument). Finally, in 2009 the government made forest expansion projects more financially attractive by allowing all actors to make use of the government fund, "deforestation allowance payments," which gives a higher public funding than afforestation grants. The **Dutch** instrument mix has also slightly changed to a mix which is more in line with the smart regulation principles. In mid-2008, the old spatial planning law was replaced by a new one. The new spatial planning law makes it possible for municipalities to demand

financial contributions from real estate developers for green development when they do not offer such contributions voluntarily, thus an improvement of the "dynamic instrumental pyramid" principle.

6.4.1.2 Sustainable forest management cases

The Flemish and Dutch SFM case scores as follows on the smart regulation requirements:

- *Avoid perverse effects of other policies.* The **Flemish** SFM policy encounters some perverse effects of nature policy. For example, the nature policy aims to realize more "open space vegetations," like heath, though the forest policy sometimes promotes SFM in the exact same location. In contrast, the **Dutch** SFM case encounters almost no perverse effects of the nature policy, at least since the introduction of the behavior code "Careful forest management"[54].
- *Prefer policy mixes incorporating a broad range of complementary instruments.* The **Flemish** instrument mix is diverse and consists of legally defined SFM criteria and indicators, an obligation to develop a forest management plan according the SFM criteria and indicators for all forests (besides the private forests with a property size smaller than 5 ha) within the Flemish Ecological Network[55] (FEN), grants, tax advantages (only when the legally defined SFM criteria are followed) and forest groups (with field excursions. The tax advantage and the grants compensate the owner for his/her realization of the legally defined SFM. The different instruments are complementary, but it is not certain that the economic compensation outweighs the regulatory demands. The **Dutch** instrument mix is even more diverse and consists of legislation, grants, tax advantages (higher for publicly accessible rural estates), capacity-building (2001-2004), information, model forests[56] (especially during the period 2003-2005),

[54] The behavior code "Careful forest management" was developed as a solution for the unclear forest management implications of the Flora and Fauna act, which regulates the protection of plants and animals.

[55] Flemish ecological network (FEN) is the Flemish implementation of the ecological network idea.

[56] Model forests are forests where different forms of SFM are simulated and the resulting financial, social, ecological and economic consequences are monitored. These forests also give the owners an idea of what the possible results of different management measures can be.

field excursions, group certification[57], forest groups[58], workshops and free consultation to prepare a management plan (1998-2006). However, some instruments are only in use during a short time period. This means that the overall diversity is lower than can be expected from the full list of possible instruments. In addition, regulatees are confronted with a rapidly changing policy context.

- *Prefer policy mixes incorporating a broad range of complementary institutions.* The Flemish and Dutch government are still important regulators, although in both regions there are surrogate regulators. In Flanders, the forest group has an important role as a surrogate regulator for the informative and motivational instruments and is funded by the Flemish and sometimes the provincial government for this task. In the **Netherlands,** the government appoints/appointed the surrogate regulators forest groups, the Forest Group Union[59], Probos[60] and some private companies with the development of capacity-building instruments. For example the forest group "Zuid-Nederland" was involved in the development and implementation of many SFM management plans which were funded by the province of North-Brabant. In addition, group certification is a possibility and the group certification host is the Forest group union.

- *Develop or use new environmental policy instruments.* Aside from the many traditional instruments, NEPIs are becoming more popular in **Flanders**. The forest group is the first NEPI introduced in Flanders to regulate SFM, first as pilot project in the case study area and later as a general policy approach for the entirety of Flanders, with 19 regionally bounded forest groups. In the **Netherlands**, a larger diversity of NEPIs is used. Besides forest groups, group certification and many different capacity building activities are in use.

- *Invoke motivational and informative instruments.* In **Flanders**, informative and motivational instruments are in use and their importance in the instrument mix is increasing. The

[57] Group certification is a way to reduce the transaction cost of certification; multiple owners of forests can be certified in one certificate. The verification is a common task of the group certificate holder (control of their members) and the certification organization (only a random sample of forests will be controlled).

[58] The Dutch forest group is a non-profit forest cooperative of private and public owners with paid membership and without structural support of the government.

[59] The Forest group Union is an umbrella organization of the three Dutch forest groups.

[60] Probos is a Dutch non-governmental organization. The main aim is to promote sustainable forest management and afforestation by private owners and to realize a solid financial base for these activities.

forest group is the main actor whose role is to inform and educate private forest owners. The forest group coordinator gives on-site management advice and makes use of this opportunity to negotiate with the owner to improve his management. Currently the focus is on specific forest management activities, like thinning and combating the invasive black cherry (*Prunus serotina*) and less on the broader SFM picture. In the **Netherlands**, informative and motivational instruments are very important. A good example is the interactive forest management approach, in which the importance of particular management measures are explained and discussed with the owner. Before this tool came into being, an owner would have rarely considered leaving wind-damaged wood in his/her forest. Presently this is an obvious step to take.

- *Prefer less interventionist measures.* In **Flanders**, the interventionist approach still dominates. SFM is specified in legally defined criteria and indicators and is mandatory for all forests within the Flemish Ecological Network (with the exception of private forests less than 5 ha). Furthermore, the exemption of the inheritance tax is only possible when a forest management plan, according to the legally defined criteria, exists, and this management plan is also compulsory for all public forests. To the contrary, in the **Netherlands,** less interventionist instruments are preferred, as can be seen in the preference for informative and economic instruments. However, the control or monitoring system of the most important grant scheme is very rigid. The expectations are that this will change because the provinces are now in charge of this grant scheme (see discussion below).

- *Ascend a dynamic instrumental pyramid.* The problem is that the **Flemish** SFM policy was started with a top-down coercive approach. For example, within the Flemish Ecological Network, the governmental vision on SFM was mandatory for all forest (with exception of private forests less than 5 ha) and it evolved to a less coercive approach with grants, tax advantages, forest groups, information and education. Thus it was done in the opposite way as the requirement suggests. This will have a negative effect on the owners' acceptance of the SFM policy, especially because these private forest owners were almost unregulated until 1990. The result is that some private owners have a complete aversion to the government. Fortunately, other owners can accept the combination of regulation and compensation, though they emphasize that the instrument sequence was not the right one. In contrast, instrument sequencing is not in use in the **Netherlands**.

- *Maximize opportunities for win-win outcomes.* In **Flanders**, owners see grants as a governmental recognition of their public contribution, but they also emphasize that the current grants could not compensate the necessary costs completely. In addition, some owners are not interested, irrespective of the grant amount, because they believe that the government will take over control of their land. Furthermore, a win for the government is not always certain because a clear monitoring system is missing. In the **Netherlands**, forest owners emphasize that the cost of satisfying the monitoring requirements of the grant scheme "Nature management" is too high. They estimate that 50% of the budget is going to monitoring by the government and self-monitoring by the organization. Together with the high management cost (labor is especially expensive), the result for most (private) forest owners is negative, even when grants are included. It can be questioned if it is possible to realize a monetary win for the owners. However, this does not automatically preclude a win for the owner, because non-monetary ownership motives may be of greater importance. Many respondents believe that a win can be possible for private owners, especially when the rigid control system is changed to a less rigid one. Nevertheless, some monitoring will still be needed to guarantee the win of the government.

In summary, in **Flanders,** the "smartness" of the instrument design for SFM at the time of this investigation is neither low nor high. One positive is the rather large diversity of the instrument mix, including one new environmental policy instrument (forest group as intermediary organization for the capacity-building task) and a large diversity of informative and motivational instruments. Some negatives include the opposite gradual escalation (especially not preferable when the trust in the government is low), the absence of a clear monitoring system, the traces of a (former) interventionist approach and the perverse effects of nature policy. In the **Netherlands**, the "smartness" of the instrument design for SFM is high. The positives are the large diversity of the instrument mix, including many new environmental policy instruments and informative and motivational instruments, the less interventionist approach and the use of surrogate regulators for the capacity-building and certification task. However, the win-win requirement is not completely fulfilled. This is especially because the high interventionist character of the current monitoring. Another less "smart" element is the short duration of some of the policy instruments.

Due the recent trend in regulation, the **Flemish** instrument mix has changed to a mix which is more in line with the smart regulation principles. A new NEPI, the group certification, was

introduced at the end of 2008. The certificate is open for all Flemish forests and is coordinated and funded by the Forest and Nature Agency (ANB). The aim of the government is to make the group certificate cheap so that many owners will show an interest to join. In contrast, the "smartness" of the instrument design in the **Netherlands** is reduced because the province of Noord-Brabant is no longer interested in the promotion of SFM. In addition, almost all specific SFM regulation is replaced by more general nature regulation. A positive trend is that new possibilities for the monitoring system of the grant scheme "Nature management" are investigated. An example is a special agreement between the Province of Gelderland and the Landscape of Gelderland (a nature non-governmental organization). The Landscape of Gelderland has made a seven-year nature action plan (including forests), with an estimated cost of 100 million Euros, of which 80 million will be paid by the province. The Landscape of Gelderland is also responsible for the monitoring, thus eliminating strict provincial control.

6.4.2 Policy effectiveness

6.4.2.1 Forest expansion cases

In **Flanders**, the desired change for the policy target was a forest expansion of 10,000 ha within the period 1994 to 2007. From 1994 to 2000 the forest area declined by about 3,700 ha (www.bosengroen.be 09/28/2006). In the subsequent time period (2000-2005), further decrease in forest area was reversed, amounting to a small yearly increase of 79 ha (Dumortier *et al.*, 2005). Thus, the net result is that the Flemish forest area decreased from 1994 to 2005. The expectations are that it will be very difficult to realize an increase in Flemish forest area. Two explanations of this non-implementation or even negative implementation of the policy refer to the secondary position of forestry and the fact that forest policy opponents are very powerful (for full descriptions see Chapter 2). In the **Netherlands** the target was to increase the forest area to 400,000 ha. The Dutch forest area was increased by 26,000 ha during the period 1983 to 2001, or by 81% of the targeted growth for that period. However, in the subsequent period 2001 to 2007, respondents believe that the forest area did not change anymore. Thus, if this estimation is correct, the policy success was just 61% over the investigated period. In addition, the expected trend is that it will remain difficult to further expand the forest area in the Netherlands, meaning a further decrease of the policy success.

Currently, Dutch forest expansion is the result of enthusiastic persons from civil society, higher officials and politicians, who succeed in the realization of forest expansion projects by creating a win-win situation for all involved actors (for full description see chapter 3).

6.4.2.2 SFM cases

For the **Flemish** SFM case, the governance capacity, the extent to which new forms of governance are able to successfully diminish or solve societal and administrative problems (Nelissen *et al.,* 2000), is rather low (for full description see chapter 4). This is because there is neither a general understanding of what SFM means nor an acceptance of the different understandings. In addition, the acceptance of the regulative instruments and of the SFM policy in general is low. Furthermore, there is cooperation and competition between actors, depending on their SFM understanding. Nevertheless, there is some governance capacity: the government's vision for SFM coincides with those of the Forest service and the forest groups. The Forest service and the forest groups are key actors in the realization of SFM policy:

- they are the most powerful and trusted actors, and
- forest groups have nearly a communication monopoly with the private forest owners, and these communicative instruments in particular have a high acceptance.

On the contrary, the governance capacity for the Dutch SFM case is high (for full description, see Chapter 5). The differences in SFM understanding are small and the actors accept these small differences. The regulatees know and accept the SFM policy instruments. Moreover, the forest owners want to continue with SFM management, even without financial stimuli. A possible weak point is that the distribution of power resources is scattered across many actors. However, most actors' relations are solid, resulting in cooperation between them. Moreover, all actors, who have a similar SFM understanding to that of the government, control together with the government almost two thirds of the power resources. The expectation is that the policy effectiveness will be high.

6.4.3 Relation policy effectiveness or governance capacity and instrument design

In Table 6.2 the qualitative evaluation of all smart regulation requirements and policy success is given for the four cases. When both forest expansion cases are compared, it is possible to

conclude that a more "smartly" formulated instrument design leads to higher policy success. Also, a comparison of the SFM cases leads to confirmation of the hypothesis that a more "smartly" formulated instrument design is connected with higher governance capacity. Important regional differences include the less interventionist approach and the higher popularity of new environmental policy instruments (NEPI) in the Netherlands. Furthermore, due to less favorable conditions in Flanders, Flemish policy success was in both cases lower than could be expected from the "smartness" of the instrument mix.

Table 6.2 Qualitative evaluation of smartness of instrument design and policy success of forest expansion and sustainable forest management in Flanders and the Netherlands

	Forest expansion		Sustainable forest management	
	Flanders	the Netherlands	Flanders	the Netherlands
Smart Regulation Requirement				
No perverse effects of other policies	---	--	-	0
Many complementary instruments	-	++	+	+
Many complementary institutions	0	+	+	++
NEPI's	---	++	+	++
Less interventionist approaches	--	+	--	++
Informative and motivational	+	++	+++	+++
Gradual escalation	-	-	--	0
Win-Win	--	-	+	+
Smartness of instrument design	--	+	0	++
Trend in smartness	↑	↑	↑	↓
Policy success estimations				
Policy success (current)	---	+		
Policy success (trend)	±	↓		
Governance capacity			-	++

Legend:

- for the smart regulation requirements (status): ---: complete opposite to the requirement, --: opposite, -: rather opposite, 0: neither opposite nor in line, +: rather in line, ++: in line, +++: complete in line;
- for smartness of instrument design: ---: -24 to -18, --: -17 to -11, -: -10 to -4, 0: -3 to 3, +: 4 to 10, ++: 11-17, +++: 18-24
- for the trends: ±: status quo, ↑: improvement, ↓: deterioration;
- for policy success: ---: <0% of policy target, --: 0-20%, -: 20-40%, 0: 40-60%, +: 60-80% ++: 80-100%, +++: >100%;
- for governance capacity: ---: very low, --: low, -: rather low, 0: neither low nor high, +: rather high, ++: high, +++: very high

6.5 Discussions

The discussion will focus on the most conspicuous findings. First, surrogate regulators will be discussed. Notwithstanding the change from government to governance in many countries, our results emphasize that these surrogate regulators are still not common and that empowerment by the government is needed to introduce them. Second, we discuss the impact of third factors on the (potential) policy success. Thus, is the difference in policy success a consequence of the "smartness" of the instrument design, or can third factors alone explains this difference? Finally, an evaluation of the used theoretical framework "Smart Regulation Theory" will be given.

The government remains in all cases the most important regulator and is involved in almost all new environmental policy instruments. Government involvement can be expected because surrogate regulators (Gunningham & Rees, 1997), NEPIs (Jordan *et al.*, 2005) or forest co-ops (Kittredge, 2005) mostly do not arise spontaneously. Thus government will be needed to facilitate, catalyze or even commandeer the participation of second and third parties in the regulation process (Gunningham & Sinclair, 1999). However, many policy-makers still regard the case for adopting NEPIs or surrogate regulators as largely unproven and thus not a good alternative for regulation, even when they recognize the imperfectness of this regulation (Jordan *et al.,* 2005). In addition, government is not always willing to give up a regulatory position (North, 1990). This ambivalent attitude is also clear from our research:

- The transfer of the regulatory task by the government to surrogate regulators is done spontaneously for capacity-building. Beyond that the government initiated the creation of the surrogate regulators (Flemish forest group) or financed them (Probos, Dutch forest group).
- The regulatory transfer is also done for product-labeling (forest certification). Although forest certification is not easily done in Flanders and the Netherlands, forest owners of both regions are both confronted with high individual transaction costs, which can be reduced by applying for a group certificate. A group certificate makes an intermediary organization necessary (see also Gullison, 2003; Rametsteiner & Simula, 2003; Newsom *et al.*, 2006). In the Netherlands, the Dutch Forest group union is the intermediary organization. However, in Flanders, no such organization arose spontaneously, so the Flemish Forest service took this role. The literature confirmed that both options are accepted by private owners. Forest owners prefer certified

foresters, forest-related associations and the government as intermediate organizations (Vlosky, 2000; Newsom *et al.*, 2003).

- However, it seems that the Flemish and Dutch government are more reluctant to transfer other more coercive tasks. This is reflected in the need for government approval of many NEPIs in the Dutch forest expansion case, like new rural estates, red-for-green and transferable development rights.

It is also important to question the reason behind the introduction of these surrogate regulators in Flanders and the Netherlands. The Flemish forest group was introduced in response to growing distrust in the government (Van Gossum *et al.*, 2006) as a surrogate and to simplify the interaction between the government and the many private forest owners. Finally, surrogate regulators must also be suitable to realize their appointed role. The forest group is responsible for group certification (Dutch SFM case), SFM and capacity-building (both SFM cases). The suitability of the forest group to realize these tasks is confirmed in the literature (respectively, Barten *et al.*, 2001; Tyson *et al.*, 1998; Barden *et al.,* 1996).

According the relevant literature, possible third factors for a successful policy implementation are actors' resources (power), actors' objectives (discourse) (Bressers, 2004; Van Tatenhove *et al.*, 2000) and actors' capability to implement (information and capacity) (Bressers, 2004) and to cooperate (trust) (Meyer & Baltes, 2004). These third factors can give alternative explanations for policy success or failure. For example, the non-implementation of the Flemish forest expansion can be explained as a power struggle between different sectors, particularly including the agricultural sector (power). The successful implementation of the Dutch SFM policy can be explained by the existence of a cooperative polycentric network with trustworthy actors (power and trust), which take the different actor objectives into account (shared discourse). Nevertheless, these third factors alone do not explain policy success or failure. For example, the policy struggle between forest expansion and agriculture is currently won by the agricultural sector; particularly because they can use the existing instruments which favor agricultural land use. In the Dutch SFM case, the preference for less interventionist instruments was also seen as an important success factor. In addition, it is also questionable that these are real third factor effects because most of the above third factors are also implicitly included in the smart regulation principles. Thus, the additional explanatory value of third factors will probably not be so high. Power is included in the principles "perverse effect" (power of actors from adjoining sector, like farmers) and "dynamic instrumental pyramid" (possibility to put regulators' power in front when there is non-

compliance). Actors' objectives are included in the principles "less interventionist measures" (actors will comply when it is in line with their objectives) and "dynamic instrumental pyramid" (when objectives differ and the regulator uses his power to realize his objective). Actors' capability for implementation is included in the principle "invoke motivational and informative instruments" (provide answers for why policy is needed, how actors can apply for grants). Trust is included in the principle "less interventionist measure" (seeing regulatees as trustworthy).

The smart regulation theory was very useful as a normative evaluation tool of the instrument design. Strength of this theory is that the combination of all requirements also satisfies the literature recommendations for owner type-specific policy instruments (Pregernig, 2001; Serbruyns & Luyssaert, 2006; Van Herzele & Van Gossum, 2008). For example, the instrument sequencing principle satisfies the instrument preferences of the following forest owner types mentioned by Pregernig (2001): the environmentalist (preference for informative instruments), the forestry entrepreneur (preference for financial incentives over regulation) and the traditionalist (preference for regulatory instruments). Nevertheless, the current theory can be improved by including information-gathering as a second task of policy instruments, next to the influencing task. This is confirmed by Hood & Margetts (2007). It is also important to put monitoring on this level, because monitoring or the information-gathering must also be smartly designed. The importance of this is reflected in the Dutch SFM case, in which strict monitoring is highly criticized. Finally, some critical remarks can also be made on the "smartness" estimations of instrument design. These estimations will be more precise when the instrument mix which the regulatees perceive is stable. Thus, the estimations for the Netherlands, with low policy stability, will be less precise than those for Flanders. Furthermore, the fast-changing policy in the Netherlands decreases the potential policy effectiveness, which would have been higher if the policy was stable. This is because, when regulatees face high policy uncertainty, the policy uptake is lower (Groeneveld *et al.*, 2004; Tranter *et al.*, 2004).

6.6 Conclusions

The main added value of this study is the confirmation that "technocratic instrumentalism" can contribute to a more successful policy. The Flemish and Dutch cases confirm that policy success, measured as goal attainment or governance capacity can be improved by a "smartly"

formulated instrument design. The effect of this design will be higher when the policy stability is high and the institutional and policy context supportive. However, we are aware that policy-makers are restricted in their capacity to formulate a "smart" instrument design. Nevertheless, policy-makers still have the capacity within their institutional context to choose the most "smart" instrument design. Aside from the restrictions of the institutional context, policy-makers also have their own preferences. Policy-makers prefer to keep the regulating responsibility for interventionist instruments, while they actively stimulate or even create surrogate regulators for capacity-building and certification. In addition, the study suggests that the existing theory can be improved by including information-gathering as a second task of policy instruments, besides the influencing task. Finally, the study emphasizes that the influence of smart regulation on policy success will be higher when there is policy stability.

7 New environmental policy instruments to realize forest expansion in Flanders: A base for smart regulation?

After: Van Gossum, P., Ledene, L., Arts, B., De Vreese, R., Van Langenhove, G. & Verheyen, K., 2009. New environmental policy instruments to realize forest expansion in Flanders (northern Belgium): a base for smart regulation? Land Use Policy, 26, 935-946.

7.1 Introduction

Political and societal demand for forest conservation and afforestation are coercive, especially in densely populated and sparsely afforested regions, such as Flanders (Northern Belgium), Randstad (the Netherlands), Copenhagen (Denmark) and Paris (France) (Konijnendijk, 1999). In Flanders, the forest index is only 10.8% (146,381 ha) (Waterinckx & Roelandt, 2001) and the need for forest expansion in Flanders is expressed in many policy plans (e.g. Long-term Forestry plan[61], Spatial Structure Plan Flanders[62]). These plans confirm the policy goal of a 10,000-ha forest expansion between 1994 and 2007 or an increment of the forest index of 0.7%. However, at the current rate, the policy goal of a 10,000-ha net forest expansion will only be reached in 127 years (Dumortier *et al.*, 2005)! To explain this policy failure, Van Gossum *et al.* (2008) emphasize the lack of sufficient support for these policies from some political parties, administrations and NGOs. Most importantly, there exists very limited interest among farmers in planting forests.

This lack of implementation is in conflict with the increasing demand for forest expansion for a variety of reasons, which are also internationally confirmed. There is a positive link with quality of life and recreation near the cities (Vitse, 2004; Garrod & Willis, 1992; Tyrväinen & Miettinen, 2000; Morancho, 2003). The increasing recognition of global warming and possible

[61] This is a Flemish forestry plan. There is no national forestry plan because forest policy is a regional competence in Belgium.

[62] A structure plan is a policy document that specifies the framework of the desired spatial structure. It gives the long-term outlook on the spatial development of the area in question. Its aim is to give more coherence to the structure planning process (preparation, assessment, and implementation). A structure plan can be compared with a master plan for spatial planning on the level of the region of Flanders.

effect-oriented solutions like biomass production and carbon storage (e.g. Parker *et al.*, 2000; Sin *et al.*, 2007) also supports the planned forest expansion. Another trigger is the positive link with human health (e.g. Ulrich, 1984; Hartig *et al.*, 2003; Kaplan, 2001; Shin, 2007). Finally, forest expansion is important for biodiversity conservation.

The new forest expansion policy (NFEP) in Flanders should target all of these different interests so that a broad support base might be created. In developing this new approach, it is important to take into account that the traditional command-and-control approach is criticized by economists for being inefficient, unnecessarily intrusive and unduly expensive to administer. Some regulations limit innovation and discourage people from searching for new, more efficient ways to achieve the intent of the regulation. Moreover, regulatory instruments may be inequitable and are difficult to revise as new information becomes available (Ackerman & Stewart, 1985). They may therefore build a sense of false security (Gunningham, 1997). The so-called new environmental policy instruments (NEPIs), such as price-based instruments, property right instruments and motivational and informational incentives, are promoted as alternatives to the traditional command-and-control approach (Jordan *et al.*, 2003). This new approach is in line with the vision of the Flemish Minister of Environment, who stated in his policy letter that "a shift from an active and demonstrative government intervention to a private stimulating policy" will be needed (Peeters, 2004). However, also this new approach is criticized because it has difficulties to cope with free riders (Jordan *et al.* 2005) and with persistent irrational actors (Sinclair, 1997). Moreover, successful regulation with NEPI's mostly takes place in the shadow of the law (Sinclair, 1997). Thus command-and-control regulation will still be needed, but more as a stimulus for companies to avoid a more coercive approach and as a back-up for situations where NEPI's like persuasion, education, economic instruments and voluntarily agreements fail (Gunningham, 1997). Gunningham (1997) also emphasizes that in virtually all situations, a mix of instruments will be more effective than any single instrument.

Hence, the aim of this paper is (1) to evaluate the current instrument mix in Flanders with special attention to new environmental policy instruments, (2) to design options for a smart regulation for forest expansion in Flanders and (3) to estimate the acceptability of the new instruments at the political, official and civil society levels.

To select an appropriate instrument mix, the instrument selection guidelines of the Instrument Choice Theory (ICT) will be used. The ICT will provide an idea of which instrument categories will be needed to design an appropriate instrument mix for forest

expansion in Flanders. When the needed instrument categories do not exist in Flanders, new instruments must be developed or imported from other countries. The lesson-drawing or voluntary policy transfer literature will be fruitful in these explorations because they address the question of under what circumstances and to what extent a program that is effective in one place can be transferred to another (Rose, 1991). Finally, it is also important to check the political acceptability of the possible transferable policy instruments. The literature on legitimacy and support analysis will be fruitful in those explorations.

The study is an illustrative example of instrument choice and success for a land-based policy in the multi-actor and multi-level environment typical of a densely populated country like Belgium.

7.2 Theoretical framework

7.2.1 Instrument Choice Theory

It is important to give a definition of public policy instruments first: "these are a set of techniques by which governmental authorities wield their power in attempting to ensure support and effect social change" (Bemelmans-Videc *et al.*, 1998). An important step in crafting a thoughtful policy is the choice of appropriate instruments (Rist, 1998). Theories of policy instrument choice have gone through several generations (Goggin *et al.*, 1990) as theorists moved from the analysis of individual instruments (Salamon, 1981) to comparative studies of instrument selection (Bemelmans-Vic *et al.*, 1998; Howlett, 1991) and the development of theories of instrument choice (Hood, 1986; Linder & Peeters, 1989). Later on, theorists addressed a series of concerns involved in designing and adapting optimal mixes of instruments in complex decision-making and implementation contexts (Bressers & O'Toole, 2005; Eliadis *et al.*, 2005). Thus, the new theory on policy instruments, "Smart Regulation," centers on the questions of the "optimality" (Gunningham & Grabosky, 1998; Howlett & Rayner, 2004) or "coherence" of instruments (Bressers & O'Toole, 2005) within the mixes of tools that comprise governance strategies. The smart regulations principles were already discussed in a comprehensive way in §6.3.

Therefore, only the smart regulation principles, which were restricted to the policy-internal principles, will be repeated in this chapter:

- prefer policy mixes incorporating a broad range of instruments (including NEPI's);
- prefer a broad range of institutions;

- prefer less interventionist measures;
- invoke motivational and informative instruments;
- ascend a dynamic instrumental pyramid; and
- maximize opportunities for win-win outcomes.

7.2.2 Policy transfer

Starting in the nineties, there has been growing interest in the study of policy convergence (Coleman, 1994), policy diffusion (Majone, 1991), policy learning (Haas, 1992) and lesson drawing (Rose, 1991, 1993). All refer to different forms of policy transfer: "a process in which knowledge about policies, institutions and ideas developed in one time or place is used in the development of policies, institutions, etc. in another time or place" (Dolowitz & Marsh, 1996; Dolowitz *et al.*, 2000). Policy transfer analysts refer to three different processes of transfer: voluntary transfer or lesson-drawing, negotiated transfer and direct coercive transfer (Evans, 2006). This research focus on the first, being a rational, action-oriented approach to dealing with public policy problems that emerged from one of more of the following:

- the identification of public or professional dissatisfaction with existing policy as a consequence of poor performance;
- a new policy agenda that is introduced due to a change in government, minister or the management of a public organization; and
- a political strategy aimed at legitimizing conclusions that have already been reached or an attempt by a political manager to upgrade items of the policy agenda to promote political allies and neutralize political enemies (Evans, 2004).

Governments borrow policies, institutions, etc. with the expectation that this transfer will lead to policy success rather than policy failure. Of course, the underlying assumption is that policies that have been successful in one country will be successful in another. Dolowitz & Marsh (2000) suggest that at least three factors have a significant effect on policy failure. First, the borrowing country may have insufficient information about the policy or institution and how it operates in the country from which it is transferred (uninformed transfer). Second, although transfer has occurred, crucial elements of what made the policy or institutional structure a success in the originating country may not be transferred (incomplete transfer). Third, insufficient attention may be paid to the differences between the economic, social,

political and ideological contexts in the originating and borrowing countries (inappropriate transfer).

Mostly, policies are transferred and properly implemented only insofar as they fit with existing institutional arrangements (Knill & Lenschow 1998). Moreover, cultural similarity plays an important role in facilitating cross-national policy transfer. In their search for relevant policy models, decision-makers are expected to look for experiences of those countries with a high level of cultural similarity (Strang & Meyer, 1993). Also, similarity in socio-economic structures and developments has been identified as a factor that facilitates the transfer of policies across countries (Jänicke, 1988). Finally, ideological and resource similarities are necessary preconditions for policy learning (Dolowitz & Marsh, 1996).

7.2.3 Policy acceptability analysis

Legitimacy refers to the degree of actual support a government may realize for its choices because the actors involved perceive them as in correspondence with their own views, feelings or objectives (Bemelmans-Videc *et al.*, 1998). This support can be passive or active (Hoogerwerf *et al.*, 2003; Bogaert, 2004). Legitimacy also represents a political criterion that stresses that acceptance is crucial for actual effectiveness of a policy or program (Bemelmans-Videc *et al.*, 1998). In our research, this definition of legitimacy will be used. Legitimacy or acceptability is also a necessity for any system of democratic government to allow the exercise of power without coercion (Schmitter, 2001; Connelly *et al.*, 2006). However, legitimacy is not a given in any system, but is rather a construct that has to be maintained and reproduced by the power structures it in turn legitimizes (Beetham, 1991). Legitimacy is also created in a multi-actor and multi-level environment and therefore it is important to distinguish the support of different actors on different levels (Bogaert, 2004). Bogaert (2004) and de Molenaar (1998) divided legitimacy into public and managerial acceptability. Public acceptability is further divided into social acceptability (individual citizens) and policy acceptability of the civil society (non-governmental organizations, trade unions). Managerial acceptability is further divided into official acceptability (public servants of municipalities, regions, federal and country levels) and political acceptability (democratic elected representatives). The acceptability levels of the different actors also influence each other, for example, social acceptability will influence political acceptability (Bogaert, 2004).

7.3 Material and Methods

7.3.1 Description of the socio-economic and political context in Flanders

The Flemish forest expansion policy (including policy instruments) has been developed in a particular socio-economic and political context, which will be described in the next section.

Belgium is a federal state, divided into three regions (Flanders, the Wallonia and Brussels Capital region) and three communities (Flemish, French and German). Forestry, nature conservation and spatial planning were regionalized in 1980, and agriculture only in 2001. Before 1980, the forestry (including nature conservation) division was part of the Ministry of Agriculture. The regionalization created a separate Flemish administration for nature in addition to the new Flemish forest administration.

Flanders, especially the central part between the major cities of Antwerp, Brussels and Ghent (Flemish Diamond), is very densely populated and has a high concentration of economic activities. This concentration expresses itself spatially in a very dense infrastructural network and an omnipresent urban sprawl. In addition, the regions bordering the Flemish Diamond and more remote areas around one or more smaller cities are often urbanized or still urbanizing (Leinfelder, 2004). Flanders is best described as an urban network of many relatively small urban centers (Kesteloot, 2003). Only 10 to 12% of the Flemish population lives in urban centers, while the majority lives in a suburban environment (Leinfelder, 2004). The overwhelming urbanization of the countryside or expansion of urban functions all over the countryside is considered to be the common enemy of agriculture, nature conservation and forestry, or the three open space sectors (Leinfelder, 2004). This open space is safeguarded against new developments, and agriculture, nature and forest areas in this open space are endowed with extensive development possibilities (Leinfelder & Van den Abeele, 2007). This is a common strategy of Northwestern European countries, where the countryside is highly valued as space for production and consumption, and city and urbanization are perceived in a more negative way (Overbeek, 2006). The Flemish policy has generally considered agriculture a priori as an economic activity that ought to be provided with maximal spatial development possibilities, in contrast with the shift toward a broader countryside policy at the European level (Leinfelder, 2007). Nature spatial planning policy is based on (potential) ecological value, inspired by European as well as national/regional legislative initiatives protecting and strengthening networks of areas with outstanding natural values (Leinfelder, 2007). Despite this protective attitude, the urbanization of the Flemish

countryside continues (Leinfelder, 2004). In addition, there are many conflicts between the three countryside sectors (agriculture, nature conservation and forests). Also, their influence on the political process differs and decreases from agriculture to nature conservation to forestry. The agriculture sector had and still has a strong link with the Christian Democratic Party (CD&V). This party is usually in power, with the exception of the periods of 1999-2004 (Flemish level) and 1999-2007 (federal level). In 1995, there was a fierce border conflict between the nature and agricultural sectors resulting in the disappearance of the Green Core Structure (GHS), an ecological network idea contained within the political agenda (Bogaert & Gersie 2006). All new policy developments from this date forward must thus be made in compromise with the stronger agricultural sector. Also, forest policy (including forest expansion policy) holds a secondary position relative to agriculture policy. Finally, there are also conflicts between the nature conservation and forest sectors, with the first of these focusing more on "open" types of vegetation and less on woodlands (Van Herzele, 2006).

Thus, Flemish forest expansion policy has developed in a difficult socio-economic and political context. Throughout the 1990s, the forest expansion aim was used continuously in forest policy documents to advance the cause of forest expansion, a prime example being the "Long-term Forestry Plan" (1993). In 1997, this resulted in the legal recognition of this aim via the inclusion of a forest expansion target in the Spatial Structure Plan Flanders. However, this recognition hardly resulted in an effective implementation. The main policy failures are (1) the local resistance of farmers, (2) the influence of the relevant constituency groups (i.e., farmers) on the political leaders (upper-level and local), (3) imperfect communication, (4) inconsistencies with the agricultural and nature legislation and (5) insufficient financial support of farmers. Many of the failures are a result of the secondary position that forest policy holds relative to agriculture policy and the use of separate sectoral visions instead of an integrated rural vision (Van Gossum *et al.*, 2008).

7.3.2 Data collection

Data were collected by conducting 26 in-depth interviews and 4 expert interviews[63], analyzing 28 documents and executing a web-based search to find possible transferable instruments for

[63] The four interviewees are the head of the forest expansion team of the Nature and Forest Agency, a juridical expert on Forest and Nature Policy and two members of the Flemish Forest Organisation involved in private-

forest expansion in Flanders. The in-depth interviews were held with key actors from political parties, the Flemish Parliament, cabinet (advisors) of the Minister of Environment, administrations, interest groups, experts, environmental non-governmental organizations and other stakeholders (see Table 2.1). The expert interviews were conducted with Flemish experts on forest expansion policy instruments. Because of the high specificity of the data that was needed in this phase, the number of possible expert respondents was low. All interviews were tape-recorded and transcribed. The analyzed documents were policy plans (n=5), legislation (n=11), policy evaluations (n=3), doctoral dissertations (n=2), policy documents and letters (n=7) (see Appendix 2.1). The web-based search was based on countries with a high similarity in culture, socio-economic structure and development, population density and forest cover to improve the policy transfer success. England, Denmark and the Netherlands satisfy these requirements. The collection of multiple data types makes data triangulation possible and will increase the validity of the findings (Yin, 2003).

7.3.3 Data analysis

During our data analysis phase, the qualitative data analysis software NVivo was used. For each research phase, the coding was based on the theoretical framework already described. In the first phase, the six requirements of smart regulation (§7.3.1) were used to check the current state of policy instruments for forest expansion in Flanders and to identify the most important instrument gaps in the Flemish forest expansion policy. In the second phase, the selected instruments were investigated with regard to (1) the smart regulation gaps they could fill and (2) their transferability by comparing the context, the current policy process status in Flanders and the essential juridical adjustments needed to implement them in Flanders. Finally, the policy acceptability of the new instruments at the political, official and civil society levels was checked in the third phase. Without adequate policy acceptability, the instruments will never reach their targets.

private partnerships, i.e. cooperation between two or more different private organizations, with a forest expansion aim.

7.4 Results and discussion

7.4.1 Smart regulation: current state and gaps

According to the first requirement of smart regulation, it is important to incorporate a broad range of instruments and institutions into the policy mix. The instruments used in Flanders are:

- grants: for land purchase by municipalities and provinces and for afforestations by public and private actors,
- income compensation for private actors (higher for farmers),
- direct land purchase by the government,
- designating of forest expansion areas (rural planning): currently almost no forest expansion areas exist, and
- restriction of deforestation as a regulative instrument: deforestation is only allowed under certain circumstances and must be compensated (in cash or in kind). At the moment most compensations are made in kind. The consequence of this is that the Nature and Forest Agency must find additional land to realize the deforestation compensations.

The Nature and Forest Agency (ANB) is in fact the only involved institute, but some other organizations have roles, mostly on an ad hoc basis, voluntarily and for small projects:

- the Flemish forest organization (VBV) works together with different organizations, like Regional Environmental Care[64] (RMZ), the forest service (ANB) and a cancer fund raising organization[65] (KOTK), the Peace movement[66] and the White Children

[64] RMZ is responsible for the waste processing and waste incineration of the Flemish province "Limburg". To compensate for their CO_2-emission, they give the Flemish Forest Organization a budget to buy land to afforest.

[65] KOTK sell trees to get funding for cancer research. ANB provide land to afforest and the young trees. The VBV organises the public event (quiz with Flemish famous persons, child animation, etc). Because of the link with cancer, the new forests are more publicly acceptable.

[66] A peace forest is based on the former tradition to plant trees after ending a conflict.

movement[67], to realize their own organization aim of forest expansion (resulting already in a total afforestation of 190 ha);

- Natuurpunt (a nature organization) with a labor union, an insurance company and all companies of the industrial park of Oostende grouped together in a cooperative partnership, "Buitengoed," to realize the urban forest of Oostende; and
- the Chamber of Commerce of the province "Vlaams Brabant" with the Move for Climate project: this project promotes Climate Neutral Driving in cooperation with the Dutch Climate Neutral Group (www.moveforclimate.be 14/09/2006).

Thus, at this time, traditional instruments are mostly used (regulations, grants, purchase and compensation). New environmental policy instruments (NEPIs) are only used on an ad hoc basis and institutional pluralism, i.e., the presence of regulators other than the government, is non-existent. This instrument gap is a first point of attention for the transfer analysis.

The second requirement of smart regulation is that less interventionist measures are preferred. Thus, the best sequence of the used instruments will be afforestation grants and income compensation, purchase grants and direct purchase. At this time, the government wants to realize 55% of the forest expansion goal through direct purchase and only 24% through granted afforestation by private partners. Thus, a possible solution is to increase the involvement of the private sector in the forest expansion policy.

The third requirement of smart regulation is that informational and motivational instruments be available. The current situation is that other public actors can ask for advice concerning their afforestations from the forest expansion team of the Nature and Forest Agency (ANB) and the forest expansion support team (TOBU) of the Nature and Forest Research Institute (INBO). At the moment, there is no structural support for private actors who want to afforest their land. Ad hoc advice is given by private forest officials, forest group coordinators and some forest expert companies. Thus, there is a need for more information on structural afforestation for private actors.

[67] The White Children movement is founded as a reaction to the failure of Justice to end child disappearance, especially in the case of paedophilia. The new forest has more a symbolic meaning as a way to remember the disappeared children.

According to the fourth requirement of smart regulation, it is necessary to have a gradual escalation from less coercive instruments to very coercive instruments. The forest expansion team already uses this idea. The focus is on the voluntary land market (less coercive). After buying land to afforest, they work with a compromise model to reduce the negative impacts for the farming tenants (less coercive). When the tenants disagree with the proposed model, the legislation (Tenure Law) makes it possible to afforest after legal notice (more coercive). When the targets are not reached on a voluntary basis, the government has the legal power of expropriation (very coercive). In this sense, this requirement is fulfilled. However, expropriation will be not used for forest expansion. Furthermore, each purchase requires endorsement by Inspection of Finance. This retards governmental purchases on the voluntarily market and results in limited use of the combined budget of government land purchase and compensations. The current instrument mix can be improved upon by changing the policy implementer from the government to a more flexible private partner in order to buy land to afforest without the restrictive purchasing procedure.

The fifth and final requirement of smart regulation is to maximize opportunities for win-win outcomes for all partners. Farmers are key actors in realizing the forest expansion strategy. When farmers afforest their land, the government does not have to purchase it, and in general the forest expansion will be cheaper (win for the government). The farmers, on the other hand, must gain some advantage as well. At this time, the financial support of the Flemish government is too low to convince farmers and other private landowners to afforest their land (Meiresonne, 2001). Income support is only paid for five years for afforestations with poplars, conifers and non-indigenous broad-leaved species. For farmers, this period is too short to guarantee income security. In addition, agricultural grants are too competitive. Furthermore, Flemish farmers are rather opposed to afforestation (even classic poplar cultivation); only 13% of Flemish farmers are interested in this opportunity. Possible explanations for this are: insecurity concerning "land designation," fear of a decreasing value of the land, strong beliefs that a reconversion to agricultural land will be legally impossible with time, fear of game damage to their agricultural crops and the "long" rotation time (15 to 20 years for poplar) (Meiresonne, 2001). On the other hand, they seem interested in short rotation forestry for energy purposes. Furthermore, farmers give the following reasons for not getting involved in agri-environmental measures in the Netherlands: untrustworthy government, insufficient compensations, lack of continuity, rules are unclear, not flexible, vagueness concerning

payments and bureaucracy (Groeneveld *et al.*, 2004). New instruments that address these shortcomings are thus needed.

Summarizing the most important gaps in Flanders' forest expansion policy, according to the "smart regulation conditions":

- new environmental policy instruments are only used on an ad hoc basis;
- institutional pluralism is non-existent;
- insufficient involvement of the private sector;
- no structural afforestation information supply for private actors;
- a lack of a flexible partner to buy land to afforest; and
- no opportunities for win-win outcomes for farmers.

7.4.2 Policy transfer: new instruments

A two-step procedure will be used for the policy transfer analysis. First, a description of the forest expansion approaches in Denmark, England and the Netherlands will be given. Second, the suitability to solve the current smart regulation gaps and the transferability of potential new instruments will be examined.

The Danish program aims to double its forest area within the next 80-100 years; this requires a yearly increase of 5000 ha of forest (Helles &Linddal, 1996). Half of this increase is planned to come from private woodlands, mainly on former agricultural land and supported by an afforestation scheme providing grants for field afforestation. The other half is planned to be state afforestation (Madson, 2002). However, the planned afforestation was not realized for the period 1989-1998; only 17,686 ha were afforested instead of the planned 40,000 to 50,000 ha (Kirkebæk & Thorman, 2000). The grant for field afforestation supported only 2,293 ha (Kirkebæk & Thorman, 2000) and is quite similar to the Flemish grant. However, there is one important difference: the Danish political system (national, regional and local levels) used a zoning system to prioritize certain areas for afforestation and discourage and even prohibit it for other areas (Madson, 2002). In theory, the possibility of a zoning system (forest expansion areas) also exists in Flanders but is not used. Thus, the Danish case does not result in new potential instruments for Flanders and was for this reason not further investigated.

The strategy for England's trees, woods and forests emphasizes the importance of successful approaches like the National Forest as inspiration for others to improve the places where people live (DEFRA, 2007). The National Forest is set to transform some 200 square miles of

the Midlands of England with a mosaic of woodland, open country, farmland and settlements. The tree cover will increase from 6% to 33% of the land area, resulting in a forest expansion of 13.500 ha of new planting with around 70% of this in the first 15 years (Williams, 2006). At this moment, 5900 ha are already realized, resulting in a current tree cover of 18% (www.nationalforest.org 08/08/08). This program, implemented by the National Forest Company (NFC), is quite successful and used a diverse mix of policy instruments including financial instruments (one acre wood scheme[68], 500-2000 trees scheme[69] and the changing landscape scheme[70]), communicative instruments for land owners (information and expert advice by planning and effective realization of the project) and for the general public (website, book, different forest related events, education especially for schools, volunteer opportunities) and sponsorship (image building for companies and plant a tree[71] for individuals). Some of these instruments are already in use in Flanders, such as 'plant a tree' for special occasions and special afforestation events (e.g. Peace, White Children and KOTK forests). Potential useful ideas and instruments for Flanders are expert advice, image-building and a flexible grant scheme.

The Dutch aim is to increase forest area to 400,000 ha in 2020 (LNV 2000). The forest area increased from 334,000 ha in 1983 to 360,000 in 2001, indicating that the planned increase to 400,000 ha in 2020 will be very difficult. However, it is still more successful than the Flemish case. In the Netherlands, a more diverse mixture of policy instruments is used. These include grants, expert advice, carbon benefits, image-building, Red for Green[72], new rural estates[73]

---

[68] The National Forest Company (NFC) provides 420 trees with canes and guards absolutely free and provides a guide to planting and maintenance.

[69] The NFC will help to design and plan the woodland and will supply the trees, arrange to have them planted, and maintain them for 18 months – free of charge.

[70] This is a flexible scheme for the creation of new woodlands and associated habitats with at least 50% woodland creation and a minimal area of 1 ha. The costs for woodland and habitat creation and management are 100% covered.

[71] Plant a tree is a program in which individuals can buy a tree in celebration of a special occasion, such as a wedding, the birth of a baby, a gift for a friend, an anniversary or in memory of a loved one.

[72] Red for Green is a policy instrument which allows a profit-generating activity like real estate development on a place where it is normally legal impossible because the spatial designation (agriculture) do not allow this possibility. This authorization results in a substantial benefit for the developer because the spatial designation is changed from agriculture to residential area. The government gives this authorization only when the project

and Farmers for Nature[74]. Most instruments, with the exception of grants, are not used in Flanders and have the potential to be useful for Flanders.

In the next part of this section, we will discuss to what extent these potential new instruments fulfill the current smart regulation gaps (Table 7.1) and to what extent these instruments are transferable to Flanders. All potential new instruments fulfill some of the current gaps and thus have potential to improve the current Flemish situation.

In Flanders, expert support can be given by the forest expansion team (BUT)[75] or by the forest group[76]. Neither requires legislative changes. However, when the support includes field afforestation by the government, a change in article 37 of the Forest Decree will be needed. Currently, afforestation of private land by the government is forbidden by this article. It is also recommendable that forest expansion be added as a target in the statutes of the forest group. Currently, one forest group, 'Vlaamse Ardennen,' explicitly states the forest expansion target in its statutes. Therefore, the transferability of expert support seems to be high.

Image-building or funding of afforestation by companies needs no legislative changes. However, in Flanders, nature conservation and forest NGOs evaluate this support as more project-dependent, and some are against it. In any case, a deontological code will be useful to

developer spends a large part of this benefit in the simultaneous realization of a new forest or nature area close to the place where the real estate is developed (Evers *et al.*, 2004).

[73] New Real Estate is the permission for the development of a limited number of housing units in the rural area in exchange for a considerable amount of new, publicly accessible, nature. The minimum area is 5 ha, and 90% of the area must be 'new', public accessible nature (http://www.brabant.nl/Wonen/ 14/09/2006). The most important difference between Red for Green and New Rural Estates is the scale, the former consisting of larger projects.

[74] Farmers-for-Nature is an improved version of the current agri-environmental measures that creates a compromise addressing the higher mentioned complaints of farmers. It is an agreement between the government, the landowner and the farmer. The main characteristics of the instrument are: (1) the farmer remains an independent entrepreneur; (2) an important part of his income is generated through the production of nature and landscape; (3) the agreement is (in theory) everlasting and (4) the agreement is established in an easement, coupled with the land (Stortelder *et al.*, 2001).

[75] BUT is the forest expansion team of the government and their aim is to realise a large part of the forest expansion aim by buying agriculture land to create new forests. This team is very experienced and a good source for afforestation information.

[76] The forest groups are the main actors for management advice and support for private forest owners.

anticipate potential green-washing practices of companies. Currently, some companies, like Electrabel, already sponsor Natuurpunt, the largest Flemish NGO. Thus, the transferability of image-building seems to be high.

Table 7.1 Fulfilled smart regulation gaps for the potential transferable Dutch and English instruments

Instrument	Smart regulation requirements
Expert advice (England and the Netherlands)	a NEPI institutional pluralism: possible involvement of a private partner (this is the case in the Netherlands, but not in England) structural afforestation information support
Image building (England and the Netherlands)	win-win outcome: decrease of government expenditures and an increased support base through the involvement of companies in the project
Flexible grant scheme (England)	involvement of private sector win-win outcome
Farmers for Nature (the Netherlands)	a NEPI involvement of the private sector opportunities for win-win outcome for farmers
Red for Green (the Netherlands)	a NEPI involvement of the private sector a flexible partner to buy land to afforest win-win outcome
New rural estates (the Netherlands)	a NEPI involvement of the private sector a flexible partner to buy land to afforest win-win outcome
Carbon benefits (the Netherlands)	a NEPI institutional pluralism: involvement of certifiers involvement of the private sector flexible partner to buy land to afforest (in many cases) win-win outcome: cheaper realization for the government of the forest expansion targets and for the companies of their Kyoto targets

The changing landscape scheme of the National Forest is more difficult to transfer. This grant scheme covers the cost of new woodlands and associated habitats in one grant request. In Flanders, this will be not possible because the grant requests for associated habitats (nature) and forests must be made separately. This is a consequence of the fact that the integration between the nature conservation and forest sectors has only recently started and the legislation (including grant schemes) is still separate. In adopted form, only funding afforestation, the transferability is higher. However, it still requires an important change in the current grant scheme, which is based not on a tender system, but on a tree-species-dependent funding of afforestation projects. A possible way to create this scheme in Flanders is to set up

a forest fund that is financed by public and private money. This fund could finance afforestation projects under certain conditions. However, to be successful, it is important that the known inconsistencies of agricultural and nature legislation be resolved.

The Dutch instrument Farmers for Nature is an improved version of the current Flemish agri-environmental measures. The Dutch instrument is also accepted by Europe; this is important because a government check support[77] is obligatory for all agriculture grant schemes. An advantage for transferability is that agriculture policy is almost the same in most EU countries (common agriculture policy). An obstacle to transferability is a difference in strength of the agriculture sector, namely that it is stronger in Flanders than the Netherlands (Bogaert & Gersie, 2006). This difference is important because in Flanders the resistance against new instruments is sometimes dictated by strategic considerations. The farmers' organizations adopt this protective attitude because the agricultural sector is subject to increasing environmental pressure and decreasing financial support. Thus, they will not participate in instruments proposed by their opponents, even if those instruments are very attractive. To accept this instrument, the farmer must also change his mentality. According to some respondents (NP, ANB, exsp, exf) a slow but certain evolution is ongoing in Flanders: the new generation of farmers is sensible to combining forest, landscape and nature management into operational farm management. Farmers acknowledge that this change can create some new economic opportunities. Thus, in these circumstances, there are some opportunities for a successful transfer of this instrument to Flanders.

The instruments Red for Green and new rural estates are both spatial planning instruments. The transferability of the above instruments dependents on the similarity of spatial planning in the Netherlands and Flanders. Spatial planning was less strict in Flanders than in the Netherlands, resulting in more houses scattered across the open space and ribbon-building in Flanders. Therefore, the fear is high that these new instruments will further increase the fragmentation of open space. Even in the Netherlands this fear exists. However, through a clear description of the concept and the preconditions, the support of, for example, new rural estates increased (www.noorderbreedte.nl, 18/09/2006). These preconditions are (1) at least 30% of the estate must consist of new sustainable forest, (2) 90% of the estate should be

[77] The government support check is a consequence of article 87 of the EU-treaty: farming companies can only be granted under conditions. In July 2006 the EU accepted the two first pilots of the instrument Farming for Nature in the Netherlands (www.boerenvoornatuur.nl, 19/10/2006).

publicly accessible, (3) the new estate is not an impediment to the existing agriculture and (4) the new estate may not lead to new restrictions (Loonstra, 2002). In the Netherlands, only a small number of the submitted proposals have been accepted (Loonstra, 2002). Currently, one political party mentioned that they investigate the possibility to introduce "Red for Green" in Flanders. However, it was not possible to check this statement. Nonetheless, many of the elements included in Red for Green are already in use in Flanders, such as the compulsory measures to be realized when parceling an area and the plan profit and plan losses-regulation[78]. Thus, the transfer of Red for Green will be easier when these elements are incorporated.

Some companies, like Regional Environmental Care, already compensated their carbon emissions on the voluntary market. However, this was only made possible by the fact that this company contacted the Flemish Forest Organization to find land to afforest. To transfer the Dutch system, it will be necessary to allow an additional grant for carbon benefits besides the existing afforestation grant and to assign or establish an organization that links supply and demand of carbon credits. For the obligatory market under the Kyoto protocol, a subscription by Flanders of the afforestation/reforestation option[79] is also needed. This option requires a measurement of the verifiable change in carbon stocks due to forest creation in each commitment period. The costs to measure this for the strong fragmented Flemish forest area is much higher than the expected gains. Because of this high transaction cost, Flanders will not subscribe to this option (De Schepper, oral communication). Thus, the transferability of carbon benefits is only high for the voluntary market.

[78] Through 'plan losses regulation,' the individual owner will be compensated by the government when the land designation of his/her ground changes from a high value (like residential area) to a low value (like nature, forest or agriculture). The 'plan profit regulation' acts the other way round.

[79] Article 3 of the Kyoto protocol is important for forest expansion: 'The net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period, can be used to meet the commitments under this Article of each Party included in Annex I".

7.4.3 Policy acceptability of new instruments

In Table 7.2, the acceptability of the instruments discussed as rated by the interviewees is given. The most accepted instruments are expert advice, the flexible grant scheme and carbon benefits. The other instruments are less accepted. In the next paragraphs, we will focus on the acceptance of each instrument in more detail.

Table 7.2 Political acceptability of the potential transferable instruments as rated by the respondents (see Table 1 for the full names of the different organizations' acronyms); a sign was only given when the respondent had a clear opinion concerning the investigated instrument)

	Expert advice		Image Building	Flexible grant scheme	Farmers for Nature	Red for Green	New rural estates	Carbon benefits
	BUT	Forest group						
ANB	-	+	±	+	±	±	±	±
ARP	+	+		±	±	-		
BB	+	+	-	±	±	-	±	±
BL1	-			+	±	±	±	+
BL2	-				±	±		
BUT		+	±	+	±	±	±	±
CD&V	+	+	-	+	±	-	±	+
CE	+	+		+	±		±	+
EFN	-	+	±	+	±	±		+
Exf	-	+		+	±		+	+
Exl		+	±	+	±		±	±
Exps	+	+	±	+	±	±	-	±
Exsp	+	+		+	±	±	+	+
FG	-	+		+				
Groen!	+	+		+	±	±	±	±
LV	-	+	±	+	±	±	+	+
MINA	+	+	±	+	±	-		±
NARA	+	+	+	+	+	-	-	
NP		+	±	±	±	-	-	±
NVA	+	+	+	+	±	-	±	+
SP.a	+	+		+	±	±		
VB	+	+	±			-	-	±
VBV		+	±	+	±	±	±	+
VHB		+	+	+	+	±	±	±
VLD	+	+		+	±	+	+	+
VLM	-	+	+	+	±	±	-	+
Pro	13	24	4	21	2	1	4	11
Contra	8		2			8	5	
Conditional			10	3	22	13	11	10

Expert support is considered a good instrument because training or education increases the effects of the other forest expansion instruments. The interviewees also emphasized that the forest group, an independent association of private forest owners who give management

advice to its members, is the most appropriate organization (Table 7.2). The independence of the forest group is important because private owners show a large aversion to the administration in general. Another advantage of the forest group is that the forest owner would only have one contact point for forest management and forest expansion topics. However, the BUT-team, a specific team for forest expansion at the Flemish Forest service, remains important as a forest ambassador with a lot of expertise. The task of the BUT-team and the Forest service in general is setting up conditions for and facilitating forest expansion. The importance of expert knowledge to support the implementation of other instruments is confirmed by many authors (Jones *et al.*, 1995; Barden *et al.*, 1996; Van Gossum *et al.*, 2005). Forest groups are suitable for this job because (1) they enhance the motivation of private owners regarding afforestation and reforestation (Kittredge, 2005), (2) they share knowledge and experience with the owners (Van Gossum *et al.*, 2005) and (3) they distribute information to and educate private owners (Barden *et al.*, 1996).

Almost all interviewees supported the forest fund (flexible grant scheme). For the spatial planning administration, it is very important that the location of the forest correspond with the spatial executive plan, a planning document that defines the future designation of land in Flanders.

The additional financing of forests through carbon benefits is also considered an appropriate instrument by many interviewees (Table 7.2). The farmers' union can agree on its suitability when agricultural production is also taken into account for carbon benefits. However, the idea of afforestion to compensate for carbon emissions is not fully supported by environmental organizations because the climate problem is not effectively solved after the fact, but should be solved at the source by energy-saving measures. The environmental organizations will not promote this instrument and can only accept it under certain conditions. These are:

- no negative effect for nature (thus not on biodiversity-rich grassland),
- do not have lower costs than other carbon measures, and
- the forests are sustainably managed.

Most interviewees (Exps, LV, NVA, CD&V, BB, VHB, EFN, ARP, MINA, CE, NARA, BL, VLD, VBV, Exl)[80] find Farmers for Nature a solid instrument with many possibilities. However, most of them also expect that the feasibility will be low. Some respondents (BB,

[80] Between parentheses, the interview source(s) will be referred to by their acronym. In Table 1, the full names of the organisations are given.

Exsp, BL, VBV) emphasize that the instrument Farmers for Nature is a bridge too far for most farmers. Only some individuals, such as hobby-farmers, farmers without successors and farmers with low productivity land, will be interested (BB, Exsp, BL, VBV). The acceptance of the instrument requires at least one generation of farmers (BB, BL). In addition, the farmers as a group and the farmers' organizations will be against this concept because of the already mentioned strategic considerations. Furthermore, to convince individual farmers, the compensation must be sufficient because farmers, as much as anyone, do not like the prescription of easements on their land. However, the most important problem of successful use of the instrument Farmers for Nature is that farmers think that forestry and agriculture are antagonistic and that afforestation is a sign of incompetence. This is confirmed by Kassioumis *et al.* (2004) for Kolindros, an agricultural area with a low forest index in Greece.

More controversial instruments are Red for Green, new rural estates and image building. The idea of Red for Green is a debatable and good principle (LV, EFN, Groen!, CD&V, ANB, SP.a, BL, VHB, VBV, VLD). It has a number of advantages:

- the simultaneous creation of new space both for housing and industry and for nature and forest (SP.a);
- an effective realization of new 'green' space (BL).

However, the instrument carries also some risks:

- In Flanders, Red for Green will be connected quickly with allotment[81] and land speculation[82] (LV, Exps), which will increase the parceling of the open space (LV).
- In the Netherlands, Red for Green is used as an excuse to build up the open space (ARP). The government should absolutely prevent new residential areas or industry in the open space for a small new green area (ARP, NARA, EFN, Exsp).

Because of these risks, some interviewees are resolutely against this instrument (BB, ARP, NARA, Exsp). An important aspect is the scale size: the instrument Red for Green is only appropriate for large development projects, industrial projects or companies (CD&V, VHB, VLM, Exf, Exl).

[81] Allotment is a possibility in the urban development law of 1962, which gives the buyer certainty to build a house on his/her purchased parcel.

[82] Land speculation takes place when there is a belief that cheap ground (forest, nature, agriculture) will become much more expensive (housing, industry) through a change of its planning designation.

Also, new rural estates can be a good concept if large land areas would be available in the future and with an obliged public accessibility of the main area of the estate (Exf, ANB, BUT, VLD, Groen!, LV). Moreover, the quality of life of the surrounding area may not decrease, and the realization of the new estate must be spatially feasible (BUT, CD&V, NV-A, VHB, VB, ANB, CE). Some interviewees (BB, ANB, CE) wanted to await further evolution before they make a decision on their position. In any case, this instrument must be controlled via good spatial planning and appropriate policy (ANB, CE, Exl).

Additional financing through companies' image building is judged differently. The Christian Democratic Party (CD&V) and the Farmers Union (BB) are contra. For Natuurpunt (NP, the largest nature organization in Flanders), image building is only possible on a project basis. On the other side, the forestry expert and NV-A support the idea; the VBV and Vlaams Belang (VB) believe that this type of fund will increase public support of afforestation and, according to ANB and NARA, a demand already exists. The expectations are that the acceptance of image-building will increase in the future and will be used to realize forest expansion. This expectation is very recently confirmed by the uptake of image building option in the million tree campaign of the Flemish forest organization (VBV). This campaign is supported by the Flemish forest service (ANB).

7.5 Conclusion

Instrument choice theory gives a good idea of which new policy instruments are needed for a better instrument mix. The existing Flemish instruments are mainly classical instruments, and their coerciveness is also high. New environmental policy instruments are only used on an ad hoc basis for small projects. In order to increase forest policy effectiveness, efficiency and legitimacy, the need exists to extend the current mix with instruments and especially new environmental policy instruments (NEPIs) oriented to private actors that inform them or create win-win situations. The return for the government can be, among other things, a cheaper realization of their target or a flexible land purchase. Special attention must be given to instruments for farmers, who are important key actors in the realization of this policy. Possible transferable instruments are expert advice, image building, flexible grant scheme, Farmers for Nature, Red for Green, new rural estates and carbon benefits.

However, not all of the suggested instruments are acceptable to politicians, officials and civil society. Instruments with high acceptability are the carbon fund, flexible grant scheme and

expert support (especially by forest groups). Farmers for Nature is a promising instrument, but farmers (the target group) will probably not be interested because farmers think that forestry and agriculture are antagonistic and that afforestation is a sign of incompetence. Regarding the instruments Red for Green, new rural estates and image building, no conformity exists between the interviewees. Hence, the smart regulation requirements of need for information (expert advice), the involvement of other institutional actors (certifiers through the carbon fund and forest groups through the expert advice) and insufficient involvement of the private sector (carbon fund, flexible grant scheme and expert support) can largely be solved. There exists, however, no practical solution for the other smart regulation requirements. In our case, there is the win-win requirement for farmers and a need for a flexible partner to buy land to afforest. Thus, forest expansion in agricultural areas will still take place through land purchase and not through cooperation with farmers. This land purchase process will still mainly take place with the government as the main actor and not in cooperation with private actors (like real estate agents).

Thus, at this moment, it is only possible to partially improve the instrument mix. However, this does not mean that the suggested changes will be not possible in the future. Continuity or incremental change is characteristic of most public policy (Meijerink, 2002). A possible trigger for this policy change is the gradually changing character of the rural area from a productive to a consumptive area or a change from an agri-ruralist discourse (focus on primary production) to a hedonist discourse (rural area as garden of citizens) (Elands & Wiersum, 2001). In the hedonist discourse new forests areas should be created and incorporated into the rural areas as a mean to provide both experience of nature and tranquility for urban people (Mormont, 1987; Elands & Wiersum, 2001). This hedonist discourse corresponds completely with the Flemish governmental motives to expand the forest area (recreation and biodiversity conservation) and will therefore probably strengthen the policy implementation of this aim. Nevertheless, also when the hedonist discourse predominated, it stays important to create a win-win situation for farmers. Possibilities are product diversification with bed & breakfasts and farmyard campsites (income from recreation activities) and the policy instruments new rural estates and red-for-green. These instruments create new forests and nature and increase thus the rural attractiveness (win for the general public and the government) and it gives farmers the possibility to transform their farm to a rural estate and/or generates income because the government allows additional real estate development (win for the farmer). The

expectation is that also the support for these instruments will increase, when the rural discourse change and that this will result in the desired forest expansion.

Our approach to use the instrument choice theory, the policy transfer theory and the legitimacy theory in sequence was very fruitful for our analysis. Using this approach, it was possible not only to indicate regulation gaps, but also to give design options which are or seem political acceptable. However, this research has also demonstrated that the smart regulation approach is *vulnerable* because it heavily depends on the willingness of private actors to constructively contribute to the entire regulation pyramid. With that, private actors have high 'veto power'. In our case, it turned out that one interest group, the farmers, could block the entire policy under consideration. Of course, a government can overcome this with power interventions, forcing a certain interest group to obey. However, this strategy is, of course, in opposition with the smart regulation approach.

This research also confirms the importance to take difference in *context* between the originating and borrowing country into account when a policy instrument is transferred (Dolowitz & Marsh, 2000). This difference in context can explain the Flemish resistance against the Dutch instruments 'new rural estates' and 'Red for Green'. Flanders is characterized by poor spatial planning characteristics, which resulted in ribbon building and a fragmentation of the open space, and result in a general belief that these NEPIs will further enhance this fragmentation process. In contrast, the Dutch spatial planning was and is taken place in rather strict way and this result in less fragmented open space and a higher acceptance of these instruments. Nevertheless, context differences do not necessarily means that Red-for-Green cannot be adapted to the Flemish context. It can be worthwhile to investigate the acceptability of a Flemish Red-for-Green which offers development perspectives to the thousand of isolated dwellings in the countryside in exchange for a contribution of the owner of the dwelling to forest or nature creation.

8 From Smart Regulation to Regulatory Arrangements

After: Van Gossum, P., Arts, B., Verheyen, K., 2009. From Smart Regulation to Regulatory Arrangements. Policy Science, submitted September 2009

8.1 Introduction

Choosing the appropriate instruments is an important step in crafting thoughtful policy (Rist, 1998). This paper will present the regulatory arrangement approach (RAA), which aims to offer regulators more assistance in addressing the practical challenges they face than current policy instrument choice theories, such as the "smart regulation" of Gunningham & Grabosky (1998). Scholars are increasingly coming to recognize that instrument choice theories like "smart regulation" over-simplify actual political practices (Böcher & Toller, 2003; Baldwin & Black, 2008). Real life attributes like power, competence and prevailing regulatory perspectives reduce the toolkit of instruments available to regulators (Majone, 1976, 1989; Richardson *et al.*, 1982; Linder & Peters, 1989, 1998; Böcher & Toller, 2003; Baldwin & Black, 2008; Böcher, forthcom.). In addition, smart regulation is not performance-sensitive and neglects the adaptability of the "smartly" formulated regulatory design when the institutional environment changes (Baldwin & Black, 2008). The aims of this paper are (1) to critically examine critiques of "smart regulation" and (2) to contribute to the development of instrument choice theory by developing a preliminary version of a new approach that compensates for the shortcomings of smart regulation.

The paper will be divided in six sections. First, smart regulation theory will be introduced. Second, the reasons underlying critiques of smart regulation will be provided. Third, the smart regulation critiques will critically be re-examined. Fourth, the regulatory arrangement approach (RAA) will be developed by merging current smart regulation theory with the policy arrangement approach (PAA) and the policy learning concept. Fifth, the RAA will be illustrated by secondary analysis of a Flemish case study on sustainable forest management that has been investigated as part of a larger project (see Chapters 4 and 7). Finally, conclusions and suggestions for further research needs will be given.

8.2 Smart regulation theory

For an extended discussion of Smart Regulation Theory, we refer to §6.3. In this section, we only restate the eight principles:

1. Avoid negative effects of adjoining policies (Gunningham & Young, 1997);
2. Prefer policy mixes incorporating a broad range of instruments (Gunningham & Grabosky, 1998);
3. Prefer policy mixes incorporating a broad range of institutions (Gunningham & Grabosky, 1998);
4. Develop or use new environmental policy instruments (NEPIs) when "traditional" instruments fail (Howlett & Rayner, 2004);
5. Invoke motivational and informative instruments (Gunningham & Young, 1997) so that the policy (including the reason motivating it) is known by the regulatees;
6. Prefer less-interventionist[83] measures, though it is important that these measures are still capable to deliver the identified policy outcome (Gunningham & Sinclair, 1999);
7. Use instrument-sequencing, except in situations that involve a serious risk of irreversible loss or catastrophic damage (Gunningham & Grabosky, 1998); and
8. Maximize opportunities for win-win outcomes (Gunningham & Gabrasky, 1998).

8.3 Reason for critic on smart regulation

As mentioned before, smart regulation is criticized because it neglects institutional issues, type-specific compliance response, performance-sensitivity and adaptability to regulatory regime change. In the next sections, all these critiques will be discussed in more detail.

Institutional issues reduce the regulatory options available to bureaucrats and politicians (Böcher & Toller, 2003; Böcher, forthcom.). More precisely, when institutional issues are present, the regulator does not have enough competence (Böcher & Toller, 2003; Böcher,

[83] The term 'intervention' has two principal components: prescription and coercion. Prescription refers to the extent to which external parties determine the level, type and method of the improvement. Coercion refers to the extent to which external parties or instruments place negative pressure on a firm to improve its performance. Both components have their influence on the interventional level.

forthcom.) and/or power (i.e., formal authority) (Baldwin & Black, 2008) to choose some regulatory options, and is restricted in its choice by the prevailing regulatory perspectives of the state, the regulators and the regulatees. The first of these problems, a lack of competence, will be illustrated by an example: When the Dutch Ministry of Agriculture, Nature and Food Quality (LNV) wants to introduce land value compensation to stimulate afforestation of agricultural land, LNV needs to negotiate with the European Union to check if this form of state aid is allowed, and with the Ministry of Finance, to check if this source of income is tax free. The second issue, power, determines a regulator's strategic dependence on other regulators and regulatees to achieve its goals (Meyer & Baltes, 2004; Liefferink, 2006). This strategic dependency implies that the regulator, who is dependent on other actors, will need to negotiate regulatory options acceptable to those other actors. The third issue, prevailing regulatory perspectives, can be split into two categories: the national regulatory perspective and the regulatory perspectives of different actors. The national regulatory perspective or policy style can be described as the "standard operating procedure" of a country based on the *"*deep-rooted values*"* that national political systems have developed for making and implementing policies (Richardson *et al.*, 1982, p.2). The national policy style depends on the degree of insulation of the subsystems of state, market and civil society (Van Tatenhove & Leroy, 2003). For example, a country with a clear distinction between state, market, and civil society will have predominantly a state-oriented rationale. The actors' regulatory perspectives can be described as the governance style (e.g., authoritative, cooperative) preferred to produce the desired societal outcomes, and depends on:

- the governance discourse adhered to; for example, discourse on deregulation, effectiveness and efficiency promotes the use of market-based policy instruments (Böcher & Toller, 2003, Liefferink, 2006, Böcher, forthcom.),
- the actor's interpretation of the context-specific nature of the policy problem; for example, problems that are easily repaired (e.g., cleaning of rivers) can be solved by coercive instruments like legislation, but other regulatory approaches will be needed to handle complex and long-term problems like climate change (Böcher & Töller, 2003),
- the instrument culture the actor is a part of, for example, anti-authoritarian tradition and the actor's expected gains (such as competitive advantage, discretion, flexibility, votes) (Linder & Peters, 1989; Sinclair, 1997; Kichgässner & Schneider, 2002; Howlett, 2004; Barrett, 2006; Böcher, forthcom.).

Smart regulation can also be improved by making the "smartly" formulated instrument mix **performance sensitive**. Performance-sensitivity requires that the regulator is able to assess the performance of the regulation in light of its objectives and to modify its tools and strategies when necessary to improve performance (Baldwin & Black, 2008).

Another improvement can come from **adaptable regulation**, as regulatory priorities, circumstances and objectives can be changed by factors internal to the regulator or imposed on to the regulator from outside (Baldwin & Black, 2008). The set of regulatory tools and strategies that is optimal will vary according to differences in institutional environment.

8.4 Critical reflection of smart regulation criticism

In this section, the question of the extent to which the above mentioned criticisms of smart regulation theory are indeed valid will be answered. The critiques will be tackled by classifying them in two groups: valid and partially valid.

Valid critiques include smart regulation's lack of "adaptability of regulation when the regulatory regime changes," as well as the institutional issues of "competence" and "national policy style". Neither of the first two items were discussed in the smart regulation literature (Gunningham & Young, 1997; Gunningham & Grabosky, 1998; Gunningham & Sinclair, 1999; Howlett & Rayner, 2004), such that it was not possible to find any paper in a google scholar search that included both the terms "smart regulation" and the first two themes (using search terms "adaptability of regulation", "regulator's competence" or "competence* regulator*"[84]). The third item, national policy style, is only mentioned as an illustration of instrumental incompatibility in Gunningham & Grabosky's (1998, p.443) paper on smart regulation, or as a description of the Canadian smart regulation policy style in a number of other papers (e.g., Eliadis & Lemaire, 2006; Valiante, 2007). However, the influence of policy style on smart regulation is neither comprehensively discussed nor reflected on as a smart regulation principle in any of these papers.

The partially valid critiques include the institutional issues of "power," "actors' regulatory perspectives" and "performance sensitivity".

---

84 There was one record but smart regulation was only mentioned in the reference list

First, power-related discussions in smart regulation focus on state-market dependence and the interplay between policy fields (Gunningham & Young, 1997; Gunningham & Grabosky, 1998); for example, the state needs the cooperation of industry to obtain desired information. Though such discussions do exist in the literature, the issue is not addressed in a smart regulation principle. Instead, the interplay between policy fields is reflected in the first principle, which states that "perverse effects or negative influence of other policies need to be avoided." The likelihood of negative influences from other policies will increase when the investigated policy is seen as secondary, and thus less important. The political power of a secondary policy is generally lower than that of a primary policy; e.g., the political power of the forest sector is lower than that of the economic sector in most countries.

Second, several of the factors determining actors' regulatory perspectives are indeed included in the smart regulation theory. The theory notes the influence of discourse on regulatory perspectives because the theory is presented as a solution for the intellectual stalemate between strong state regulation discourse and the deregulation discourse (Ayres & Braithwaite, 1992; Grabosky, 1994; Gunningham & Young, 1997; Gunningham & Grabosky, 1998). In addition, the theory also takes the dependence of instrument design on the context-specific nature of the problem; for example, the principle of "less interventionist measure" is inappropriate in situations involving a serious risk of irreversible loss or catastrophic damage (Gunningham & Sinclair, 1999). Furthermore, the theory acknowledges that many regulatees will prefer less interventionist policy instruments because they do not like command-and-control and prefer flexibility and discretion (Sinclair, 1997; Gunningham & Grabosky, 1998). However, it takes the less interventionist preference of regulatees as a given, which is not always the case. For example, according to Pregernig (2001), in forest policy, instrument preferences are dependent on the forest owner type: environmentalists prefer informative instruments, forestry entrepreneurs prefer financial incentives and traditionalists prefer legislation.

Third, smart regulation measures performance. Performance measures are implicitly included in the "win-win" principle because, without explicit benchmarks and monitoring, there is no guarantee that there will be a "win" for the regulator (Merenlender *et al.*, 2004; Saterson *et al.*, 2004; Mayer & Tikka, 2006). In addition, the adaptability of the instrument mix is included in the "instrument sequencing" principle, which states that more-interventionist instruments will be needed when the performance of the preferred less-interventionist instrument is much lower than expected and insufficient to achieve the desired policy outcome. However,

"instrument sequencing" will not always solve the performance problem. Sometimes, more substantial changes in the instrument mix will be necessary. This possibility is not included in the current smart regulation theory.

8.5 Towards an improved version of smart regulation theory

8.5.1 Method

This attempt to revise the smart regulation theory begins from the assumption that the theory is worthwhile, even when it does result in a reduced toolkit of instruments. However, there will be situations in which a "smartly" formulated instrument mix will not be possible because influences of national policy style, adjoining policies, actors' regulatory perspectives, regulatees' compliance behaviors, powers or competences have resulted in an excessive reduction in the available instrument mix. This situation also means that these variables will determine the extent to which the desired policy outcome will be achieved.

The improved version of the smart regulation theory can be developed in many different ways: (1) the existing smart regulation theory can be extended, (2) a complete new theory can be developed or (3) the smart regulation theory can be integrated or merged with other theories, approaches or concepts. We have chosen the third option because, considering the characteristics of the policy arrangement approach (PAA) (Van Tatenhove *et al.*, 2000; Van Tatenhove & Leroy, 2003; Arts & Van Tatenhove, 2004; Arts & Leroy, 2006; Arts & Goverde, 2006) and the policy learning concept (Argyris, 1976; Argyris & Schön, 1978; Sabatier, 1993; Kemp & Weehuizen, 2005), it is possible to expect that a merging of these two theories with smart regulation theory will solve the problems with smart regulation.

In the next section, we will introduce the policy arrangement approach and the policy learning concept. Thereafter, we will describe the regulatory arrangement approach (RAA). Finally, we illustrate the RAA by a secondary analysis of a Flemish case study on sustainable forest management policy that has been investigated as part of a larger project (see Chapters 4 and 7).

8.5.2 Policy arrangement approach and policy learning

The PAA has three central concepts: political modernization, policy arrangement and governance capacity. First, political modernization refers to the shifting relations between the state, market and civil society in the political domains of the society – within countries and beyond – as a manifestation of globalization, Europeanization and individualization, which can result in changes in the national policy style (Arts & Van Tatenhove, 2006) and tends to result in a plurality of co-existing traditional and innovative policy arrangements (Van Tatenhove & Leroy, 2003). Second, policy arrangement is defined as "the temporary stabilizations of the substance and organization of a particular policy domain" (Van Tatenhove *et al.*, 2000, p 54). The stabilization is assumed to be temporary because the arrangements are in a context change (Arts and Van Tatenhove, 2004). The policy arrangement can be analyzed along the following four dimensions: (1) actors and their coalitions involved in the policy domain (organization); (2) division of resources between these actors (organization); (3) rules of the game (organization and substance); and (4) current policy discourses (substance) (Van Tatenhove *et al.*, 2000, Arts *et al.*, 2006). These four dimensions of a policy arrangement are inextricably interwoven. Thus, the policy arrangement concept is appropriate to address the critique that power, competence, actors' regulatory perspectives, actors' compliance and institutional changes are neglected in the smart regulation theory.

However, we have not yet answered this question: is it still possible to design smart regulation under the current institutional context? This question can be answered by the third concept, the governance capacity of the arrangement (Arts and Goverde, 2006). Governance capacity is the extent to which new forms of governance are able to successfully mitigate or solve societal and administrative problems, which are legitimately recognized by the stakeholders (Nelissen *et al.*, 2000). In order to measure this capacity, Arts and Goverde (2006) borrowed the concept of "congruence" from Boonstra (2004). The capacity is high when there is sufficient coherence among (1) the policy views of the different actors (strategic congruence), (2) the dimensions of a policy arrangement (internal structural congruence) and (3) the investigated policy arrangement and the adjoining policy arrangements (external structural congruence).

The concept "policy learning" is defined as a relatively enduring alteration of thought or behavioral intentions that is concerned with the attainment (or revision) of the precepts of a policy system (Sabatier, 1993). Three policy learning types are distinguished: technical learning

(about instruments), conceptual learning (about goals and strategies), and social learning (about societal values, responsibilities, appropriate ways of interacting, and policy approaches) (Kemp & Weehuizen, 2005). Technical learning is an example of single-loop learning, learning that does not question the fundamental design, goals, and activities of the organization (Argyris, 1976). Conceptual and social learning are instances of double-loop learning. Double-loop learning usually requires a crisis or revolution because organizational actors (e.g., administrations and agencies) are acculturated to be primarily single-loop learners (Argyris & Schön, 1978). Thus, it is important to take into account that some policy changes will be difficult.

8.5.3 Regulatory arrangement approach

In this section, we will describe the regulatory arrangement approach, which is also illustrated in Fig. 8.1.

The central idea of the RAA is that the almost infinite "smart" regulatory options will be reduced or filtered by the national policy style (Filter 1), by "negative effects" of adjoining policies on policy arrangements (Filter 2), by the structure of the policy arrangement of the investigated policy (Filter 3) and by competence dependencies of other institutions (Filter 4). The filters are symbolized by trapezoids in Fig. 8.1. After each pass of a filter, there will be a check if the potential governance capacity of the investigated policy is still high enough. The measurement of the governance capacity is symbolized with an oval, and the governance capacity check is symbolized with a rhombus and the words "go" and "no go" in Fig. 8.1. A "smartly" formulated regulatory arrangement will only be possible when there is still a "go" after passing all filters. A "no go" means that there are no "smart" regulatory options left because the potential governance capacity is too low. The thresholds for governance capacity that lead to a "no go" are the following:

- for national policy style: government does not allow the co-existence of innovative policy arrangements;
- for adjoining policies: the mutual influence of the adjoining policy instruments does not inhibit the development of the investigated policy, which means that the negative effects can be solved by the introduction of policy instruments by the actors arranging the investigated policy;

- for the structure of the policy arrangement: the policy arrangement actors can agree on the choice of the policy instruments that will be used to reach the desired policy outcome; and
- for competence dependencies: The policy agency in charge of the investigated policy has enough instrument choice freedom left to choose an appropriate instrument mix, including policy instruments, for which it obtains the permission of the agencies in charge of these instruments.

The implication of "no go" is filter-dependent. "No go" after the first filter, national policy style, means that there are no "smart" regulatory arrangements possible, unless the national policy style changes through the political modernization process. "No go" after the second, third and fourth filter means that social, conceptual and technical learning will be required, respectively. It is important to mention that learning is included in the policy arrangement to address competence dependency, allowing agents to develop new policy instruments that do not have competence dependency problems, or to obtain permission from organizations to employ their policy instruments.

Political modernization and policy learning are symbolized by rounded rectangles in Fig. 8.1. Depending on the filtering and learning, the end result can be the design of a "smart" regulatory arrangement. It is therefore also important to measure the performance of this regulatory arrangement (dotted oval) and to evaluate whether the desired outcome can be reached (dotted rhombus). A positive evaluation (+ outcome) means that there is no need to change the regulatory arrangement. A negative evaluation (- outcome) means that there is a need to change the regulatory arrangement and the type of policy learning will be dependent on the magnitude of the change. Finally, it is important to take into account that competence and policy arrangements can also change by external effects. These changes are symbolized with the lightning symbol in Fig. 8.1. The implication of such external changes is that the search for a smart regulatory arrangement must begin again from the place where the external change occurs.

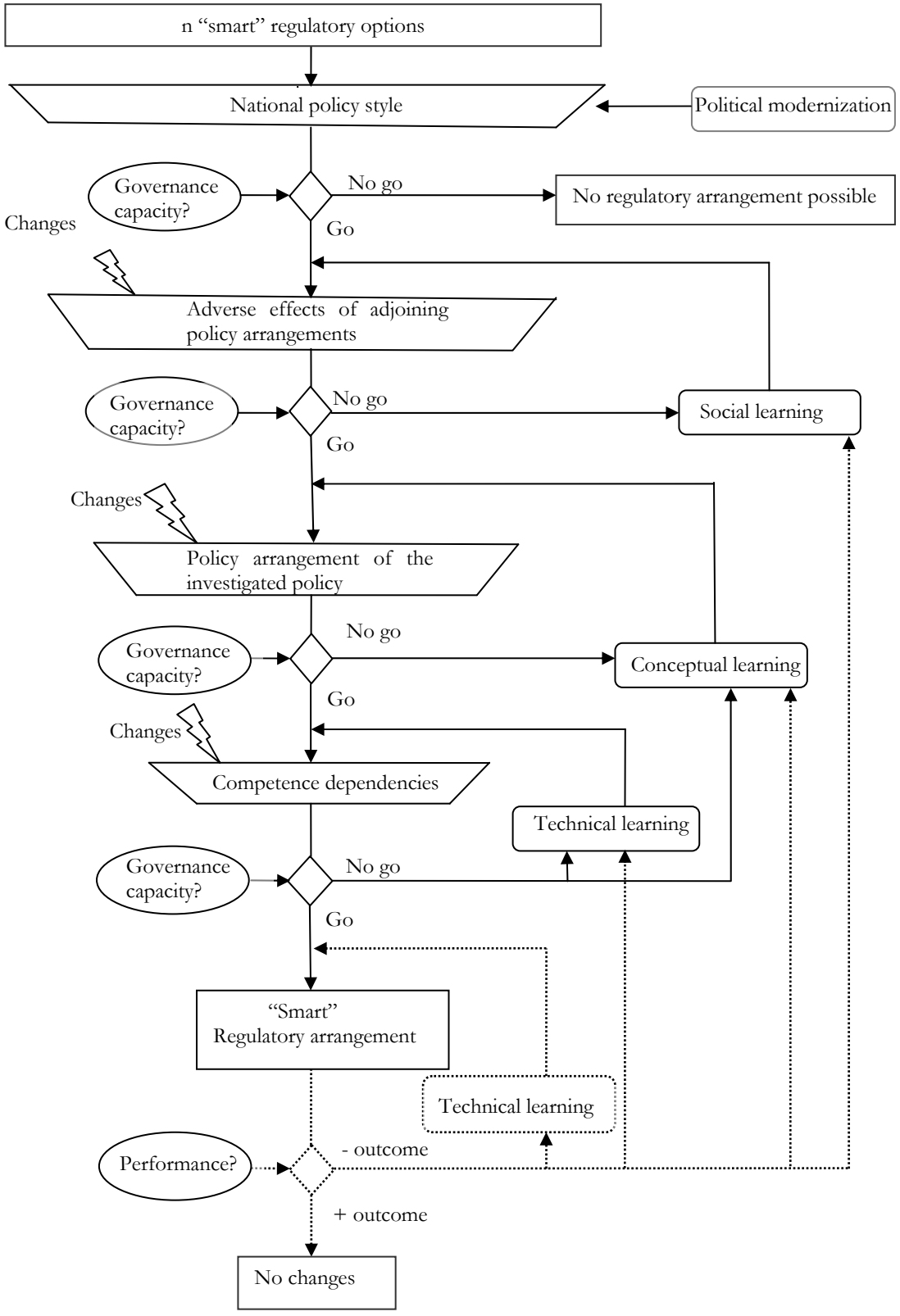

Figure 8.1 Regulatory arrangement approach (see §8.5.3 for explanation of the legend)

8.5.4 Flemish SFM policy

Now that we have established the Regulatory Arrangement Approach to smart regulation, we can apply that approach to the case study of Flemish sustainable forest management (SFM) policy. Policymakers can design many different smart regulations in order to achieve SFM. However, the institutional context will reduce the number of theoretical possibilities. In the following sections, we will discuss the instrument choice reductions that result from (1) the Flemish policy style, (2) the interactions with the policy arrangements of adjoining policies, (3) the structure of the SFM policy arrangement, and (4) the competence dependencies of other institutions.

Policy style

The number of smart regulatory options for SFM is reduced by the prevailing Flemish policy style, which is a corporatist policy style. A corporatist policy style is characterized by limited cooperation between the different corporatist arrangements on the governmental level, though contemporary problems, such as SFM, tend to require inter-sectoral cooperation (Howlett & Ramesh, 2002; Verbij, 2008). This means that it will be difficult to include instruments that require an agreement with other governmental departments, especially when these departments are more powerful. Nevertheless, the corporatist style of government does not exclude cooperation between civil society and market members of different corporatist arrangements. For example, there is a harbor agreement between the harbor companies of Ghent and Antwerp (economic corporatist arrangement) and the non-governmental nature organization "Natuurpunt" (nature corporatist arrangement). Furthermore, the political modernization process has also resulted in the co-existence of some innovative arrangements (see also Verbeeck & Leroy, 2006). There are a growing number of co-existing innovative arrangements, such as private-public partnerships (e.g., for building schools or large infrastructure projects), and diverse forms of network management (e.g., of regional landscapes, forest groups). Thus, the Flemish policy style allows innovative ideas and innovative policy arrangements; therefore, we conclude that the potential governance capacity is still high enough to design a "smart" regulatory arrangement.

Adjoining policies

The nature policy and the SFM policy have contradictory aims for the homogenous coniferous monocultures. The nature policy is mainly aimed toward a conversion to heath, open sand and fens, while the SFM policy is aimed toward conversion to a sustainable managed forest. Both arrangements work to realize their goals. However, only the nature policy advocates have the ability to use legal tools to reach their goal. This is because the habitat directive requires that the protected habitats, which are in the Flemish coniferous monocultures that are generally in heath, fen, and open sand habitats, are in good ecological condition. This "good condition" will only be reached when some of the forests are converted. This possibility for legal coercion means that the nature advocates are able to impede SFM policy action, and thus impede the "smartness" of the SFM instrument mix as well. Fortunately, the nature policy actors cooperate with the forest policy actors, and this cooperation is reflected in the integration of nature and forest policy at the governmental level (including institutions such as administration, research institutes and consulting bodies). Therefore, the nature arrangement only has a minor influence on SFM policy. It is also important to mention that this conflict does not occur for indigenous broadleaf forests. In this forest type, nature policy and SFM policy aims coincide. To summarize the foregoing discussion, the influence of nature policy on SFM policy does not inhibit the development of a "smart" regulatory arrangement

SFM policy arrangement

The next step is to investigate the policy arrangement filter. Power resources are mainly scattered across three dependent discourse coalitions, the SFM, the nature-oriented coalition and the economic-oriented coalition, which are distinguished on the basis of their SFM perspectives. This means that the government needs to overrule (which is not "smart") or to cooperate with these three coalitions if the government wants to achieve its desired policy outcome. Thus, the government will need to strive for an acceptable "smart" regulatory arrangement based on the regulatory perspectives of these coalitions. The economic coalition generally prefers communicative and economic instruments but it can accept some legislation, though it would prefer that legislation be secondary and addressed to non-compliers. The economic coalition prefers a cooperative and stimulating government that pays for delivered public goods. The nature coalition prefers to have a guarantee that nature targets are not

neglected. They believe that legislation is the best guarantee. The SFM coalition does not have a clear preference.

At the time of the primary study, the government had taken actions to realize SFM. The first was legislation (e.g., legislation mandating that all forests within the Flemish Ecological Network must be managed according governmental SFM criteria) and direct governmental intervention (e.g. buying forests), in line with the approach preferred by the nature coalition. The second was direct compensation of owners for these management restrictions through grants and fiscal exemption from inheritance taxes, and indirect compensation through the financial support of forest groups. Nevertheless, the legislative instruments were clearly the primary instruments. This interventionist approach was in conflict with the economic coalition perspective of a stimulating government. Because the nature and economic coalitions held contradictory perspectives that kept them from agreeing on the choice of policy instruments, the government was not in a position to choose a "smart" regulatory arrangement.

Thus, conceptual learning was required to solve this problem. This learning was initiated by a large demonstration organized by a coalition of anglers, hunters, property owners and farmers against the nature, forest and environmental policy of the government (Bogaert & Gersie, 2006; Bogaert & Leroy, 2008). The demonstration resulted in an intention to change policy style from "an active and demonstrative government intervention to a private stimulating policy," which was stated explicitly in a policy letter by the Flemish Minister of Nature, Environment and Energy (Peeters, 2004). In addition, as reflected in the harbor agreement, the nature NGO changed also its style from a legislative approach (e.g., Deurgangdok[85]) to a cooperative approach (e.g., harbor agreement). This means that under the new institutional setting of the SFM policy arrangement it was possible to develop a "smart" regulatory arrangement.

---

85 Deurgangdok was a new dock planned for the harbour of Antwerp, but the area was also designated as a European Natura 2000 area. In the first plans there was no compensation for the planned Natura 2000 area , though such compensation is mandatory for a European protected area. Natuurpunt, a Flemish nature NGO, went to court, and after several years of judicial battle Natuurpunt won the court case. However, they found that the judicial approach was not ideal because their image was damaged as they were fighting against the economic sector.

Competence dependencies

The next step is to investigate the competence filter. Of the preferred instrument mix, only fiscal exemption fell under the competence of another policy department, the Ministry of Finance. This Ministry agreed with the fiscal exemption. Thus there was no instrument choice reduction.

Smart regulatory arrangement

The resulting Flemish SFM regulatory arrangement is not yet smart, notwithstanding the fact that policymakers did have the potential to develop a smart regulatory arrangement. For example, a smart regulatory arrangement can be a combination of forest cooperatives (network, communication), compensation for ecosystem services like carbon, biodiversity and recreation, grants for non-economic management measures for wood quality (first thinning, pruning), forest certification, monitoring and laws (including enforcement when necessitated by non-compliance). In the next section, we describe the Flemish SFM regulatory arrangement and its limitations.

The spearhead of the Flemish SFM regulatory arrangement is the forest group. The Flemish forest group, an organization with voluntarily membership that supports owners through management, is a reflection of the recently more cooperative style of the government. The forest group is also a new environmental policy instrument that is not interventionist and mainly acts as an informative instrument. Other instruments include grants for the ecological and social functions, government-sponsored forest certification, grants to create a forest management plan and more coercive legislation. Currently, the government will only use the more coercive instruments necessitated by non-compliance.

However, there are still two bottlenecks remaining from the former interventionist style of the government. First, the legal document "SFM criteria and indicators" gives a very detailed codification of only one SFM perspective, while other SFM perspectives exist in Flanders. Therefore, it is better to have a more "open" definition of SFM so that the definition covers at least the three main SFM perspectives (nature-oriented, economic-oriented and governmental). It is also advisable that the government makes use of the strengths of the different discourse coalitions. For example, the realization of the most ambitious ecological aims can be appointed to the nature coalition, while the economic coalition can ensure wood production. Second, the grant schemes focus only on the ecological (biodiversity) and social

(recreation) functions and not on the economic function. This is despite the fact that support for the economic function would be appropriate due to the low profitability of the forestry industry in Flanders (Dienstencentrum voor Bosbouw, 2000), and that necessary management measures for quality wood production are delayed (e.g., late first thinning) or not performed at all (e.g., pruning of young trees) (Callens, 2008).

The next step, performance evaluation, cannot be illustrated using this example because SFM policy was introduced too recently.

8.6 Conclusions

This paper demonstrates theoretically that the problems of smart regulation could be solved by merging smart regulation theory with the policy arrangement approach and the policy learning concept. In addition, the usefulness of the so-called regulatory arrangement approach was illustrated with an empirical example. The value that RAA adds to smart regulation is that this approach (1) makes it possible to investigate instrumental changes over time and (2) helps to focus on the main explanatory factors of policy success or failure (sometimes this is regulation, in other circumstances the institutional context will be the most important factor).

9 Conclusions and policy recommendations

The aim of this concluding section is to give the conclusions of this research (§9.1), to give policy recommendations (§9.2), to give a theoretical reflection (§9.3) and to give further research needs (§9.4).

9.1 Conclusions

In this section we will give an answer to each of the six research questions that were formulated in §1.4. These research questions were as follows:

- How successful is SFM and forest expansion in Flanders and the Netherlands?
- What are the policy failure and success factors in the Flemish and Dutch SFM and forest expansion cases?
- To what extent is the instrument mix "smartly" formulated in the Flemish and Dutch SFM and forest expansion cases?
- To what extent can policy success be explained by the "smartness" of the regulatory strategy?
- To what extent can the regulatory performance be improved by adding selected and accepted policy instruments? (only for the case with lowest performance)
- To what extent can the "smart regulation" theory be improved?

9.1.1 Policy success

Goal attainment of forest expansion policy

In Flanders, the desired change for the policy target was a forest expansion of 10,000 ha within the period of 1994 to 2007. From 1994 to 2000, the forest area declined by about 3,700 ha (www.bosengroen.be 09/28/2006). In the subsequent time period (2000-2005), further decrease in forest area was reversed, amounting to a small yearly increase of 79 ha (Dumortier *et al.*, 2005). Thus, the net result is that the Flemish forest area decreased from 1994 to 2005.

The expectations are that it will be very difficult to achieve an increase in the Flemish forest area in the near future.

In the Netherlands, the target was to increase the forest area to 400,000 ha in 2020. The Dutch forest area was increased by 26,000 ha during the period from 1983 to 2001, or by 81% of the targeted growth for that period. However, in the subsequent period of 2001 to 2007, respondents believe that the forest area did not change. Thus, if this estimation is correct, the policy success was just 61% over the investigated period. In addition, the expected trend is that it will remain difficult to further expand the forest area in the Netherlands, meaning a further decrease of the policy success.

SFM governance capacity

The governance capacity[86] of the Flemish SFM case is rather low. There is neither a general understanding of what SFM means nor an acceptance of the different SFM understandings. In addition, the acceptance of the regulative instruments is low. Nevertheless, there is some governance capacity: the government's vision for SFM coincides with those of the Forest service and the forest group. The Forest service and the forest group are key actors in the realization of SFM policy. These two actors are the most powerful and trusted actors. In addition, the forest groups have nearly a communication monopoly with the private forest owners, and these communicative instruments in particular have a high acceptance.

The governance capacity for the Dutch SFM case is high. Most actors understand SFM in a similar way while accepting that different actors may emphasize different aspects of it. Some focus more on the economic functions of SFM while others focus on the nature conservation function. Another success factor is that the regulatees know and accept the SFM policy instruments, with exception of the rather strict monitoring of the obliged grant scheme targets. In addition, the forest owners want to continue with SFM management, even without financial stimuli. A possible weak point is that the distribution of power resources is scattered across many actors. However, most actors' relations are solid, resulting in cooperation between them. Moreover, all actors, who have a similar SFM understanding to that of the government, control together with the government almost two thirds of the power resources.

[86] Governance capacity is the extent to which new forms of governance are able to successfully diminish or solve societal and administrative problems (Nelissen et al., 2000).

9.1.2 Failure and success factors

Forest expansion

The main failure factors for the Flemish forest expansion policy are the following: (1) strategic behavior of farmers and local politicians, (2) the influence of farmers' organizations on Flemish politicians, (3) the farmers' perspective that forestry is a sign of incompetence and (4) inconsistencies with the agricultural and nature legislation. All failures are a result of the secondary position that forest policy holds relative to agriculture policy. Forest expansion, as determined by the agriculture policy arrangement, is only possible when there is a complete designation of 750,000 ha of agriculture land and when there are no negative effects on the agriculture production. These conditions of the agriculture policy arrangement make forest expansion almost impossible; because of the scarcity of land in Flanders most forest expansion can only be realized on (former) agricultural land. Moreover, the rurality discourse in Flanders is still the productive space discourse, while forest expansion will be much easier under the multifunctional space discourse. The only success factor is the broad public support for forest expansion in Flanders. Without this support it could be questioned if any forest expansion project could be achieved in Flanders.

The main failure factors for the Dutch forest expansion policy are insufficient central guidance, strategic behavior of farmers and local politicians and the legislative complexity. The main success factors are good internal and external communication, an effective but closed network and the innovative transferable development rights method, which is implemented in Limburg.

SFM

The main failure factors for the Flemish SFM policy are the following: (1) the detailed codification of the governmental SFM vision into law, (2) the command-and-control character of the nature and forest policy, (3) the lack of intersectoral cooperation to achieve forest and nature policy targets (e.g., two planning processes) and (4) high distrust between the different discourse coalitions. The main success factors are the shift to a cooperative policy style and the trusted and powerful forest group with free and voluntarily membership.

The main failure factors for the Dutch SFM policy are the strict procedure for monitoring and the low policy stability. The main success factors are the following: (1) the absence of a

codification of the governmental SFM vision into law, (2) the cooperative policy style, (3) the acceptance among most actors of the different SFM perspectives and (4) the actors' willingness to cooperate.

9.1.3 "Smartness" of instrument mix

Forest expansion

The "smartness" of Flemish instrument design for forest expansion is low. Less "smart" elements are the preference for interventionist instruments, the absence of a gradual escalation, the absence of NEPIs and surrogate regulators, the low diversity of the instrument mix and the rather limited use of informative and motivational instruments. In addition, there is a large negative influence of other land-based policies like agriculture.

The "smartness" of the Dutch instrument design for forest expansion is neither low nor high. On the one hand, the perverse effects of other policies are large, and there are no clear advantages for farmers who want to afforest their land. On the other hand, policy-makers use a broad range of instruments, including many new environmental policy instruments and informative and motivational instruments. In addition, less interventionist measures are preferred.

SFM

In Flanders, the "smartness" of the instrument design for SFM is neither low nor high. One positive is the rather large diversity of the instrument mix, including one new environmental policy instrument (forest group as intermediary organization for the capacity-building task) and a large diversity of informative and motivational instruments. Some negatives include the opposite gradual escalation (especially not preferable when the trust in the government is low), the absence of a clear monitoring system, the traces of a (former) interventionist approach and the perverse effects of nature policy.

In the Netherlands, the "smartness" of the instrument design for SFM is high. The positives are the large diversity of the instrument mix, including many new environmental policy instruments and informative and motivational instruments, the less interventionist approach and the use of surrogate regulators for the capacity-building and certification task. However, the win-win requirement is not completely fulfilled. This is especially because of the high

interventionist character of the current monitoring. Another less "smart" element is the short duration of some of the policy instruments.

9.1.4 Relation policy success and instrument mix

The Flemish and Dutch cases confirm that policy success, measured as goal attainment or governance capacity, can be improved by a "smartly" formulated instrument design. The effect of this design will be higher when the policy stability is high and the institutional context is supportive.

The institutional context will reduce the smart regulation options for policy-makers. Nevertheless, within this reduced set of options policy-makers can still choose the "smartest" one. However, having the possibility to choose does not mean that this will be done because policy-makers are also restricted by their organizational and personal instrument perspectives. This is reflected in the absence of surrogate regulators for interventionist instruments.

9.1.5 Improving regulatory performance

The "smartness" of the instrument mix of the Flemish forest expansion case could only partly be improved and it can be questioned if this improvement will result in a higher policy success. The most important change, the reduction of perverse effects of other policies, is not possible because two coalitions with contradictory core beliefs exist and the most powerful one is continuity-oriented. Acceptable new policy instruments to improve the regulatory performance are the carbon fund (additional financial means), the flexible grant scheme, higher afforestation grants for farmers (increasing attractiveness) and afforestation capacity-building by the forest group. The acceptance of these instruments is also reflected in the very recent regulatory changes. The Million Tree Campaign is a new environmental policy instrument combination which includes the following components: sponsoring of afforestation projects by companies (image-building), capacity-building, additional grants for afforestation projects and public relations. However, all of these new instruments can only be implemented in an optimal way when there is land to afforest. This is not the case under the current Flemish conditions. Therefore, the regulatory performance will probably only improve a little bit when these accepted instruments are added to the already existing instrument mix.

9.1.6 Improving smart regulation theory

The smart regulation theory is criticized because it neglects institutional issues, performance-sensitivity and adaptability of the regulatory regime. The criticism could be conclusively solved through a merging of the smart regulation theory with the policy arrangement approach and the policy learning concept. The resulting approach was named regulatory arrangement approach (RAA). The central idea of the RAA is that the almost infinite "smart" regulatory options will be reduced or filtered by the national policy style, by "negative effects" of policy arrangements of adjoining policies, by the structure of the policy arrangement of the investigated policy and by competence dependencies of other institutions. The reduction can be so large that the potential governance capacity falls below the "smart regulation" threshold. This means that under the current institutional context no smart regulatory arrangement can be developed, unless when there is policy learning. Contrary, when the governance capacity is still high enough after passing all filters, a "smart" regulatory arrangement can be developed. A "smart" regulatory arrangement is not a guarantee for policy success. Therefore, the performance of the regulatory arrangement will be measured and evaluated. A too low performance indicates that the regulatory arrangement needs to be adapted, which will result in policy learning. Finally, external effects can change one of the above filters. The implications will be that the "smartness" of the current regulatory arrangement will be checked from the place where there was a change.

9.2 Policy recommendations

Forest expansion

The Flemish forest expansion targets will only be achieved when the agriculture policy arrangement allows for forest expansion zones to be designated, by including the afforestation possibility for forest expansion designations in the Tenure Law and when the Field Decree is abolished. This requires a social learning process because it questions the preferred rural space by society. Currently, the dominant rurality discourse in Flanders is still the productive space discourse. Thus, no agricultural land can be lost and the politicians of the agriculture arrangement use their power to avoid production-impeding factors, like the nitrate directive. Forest expansion would be enhanced by a change to a multifunctional space rurality discourse.

In a multifunctional rural area, farmers will still be the main producers but of a much larger diversity of ecosystem services. Besides food production, farmers will also be providers of recreation and biodiversity.

The Dutch forest expansion target will only be achieved when the informative and financial instruments are backed up by more coercive instruments and when the decentralized implementation of the policy is backed up by the higher government. In addition, it will be important to reduce the legislative complexity of forest expansion projects and to stabilize the very fast changing regulatory context because complexity and instability increase the investment risk and thus the attractiveness of forest expansion projects. On the other hand, it is important to promote policy innovation so that new policy instruments can be developed, which solve the financial imbalance of benefits for real estate companies and land owners, and the costs for the government. A good example is the transferable development rights method of the province of Limburg. Finally, it would be important to activate forest expansion policy at the national and provincial level because without the exemption of some provinces the forest expansion policy is forgotten.

SFM

The likelihood that the Flemish SFM policy can be achieved will increase when:

- there is a less strict statutory definition of SFM,
- the economic function is granted,
- the ecological, social and economic targets are discussed on the local level (the forest management unit) in only one process (the nature target plan is only a vision document, the forest management plan is the resulting implementation of nature, forest and recreation targets),
- the actors accept that there are different SFM understandings,
- the cooperative policy style of the Forest and Nature service is in the foreground and the interventionist instruments in the background, and
- the strengths of the different organizations are optimally used by the government.

It is expected that the Dutch SFM policy will achieve the desired SFM targets. Nevertheless, it can be improved by opting for self-control or enforced control of the grant requirements instead of control by the government and by including forest owners with a small forest property and timber merchants as target groups of the SFM policy. In addition, it is advisable

that the provincial SFM grant will be activated again, especially also for forest owners with a property size of less than 25 ha.

9.3 Theoretical reflections

The multiplicity of analytical frameworks and concepts is a consequence of the research process and of the nature of the doctoral thesis. During the research process my theoretical knowledge increased through the discussion with my promoters, through the review process of international publications, through participation in the "Policy Theory Working group[87]" and through the reading of many publications and books, which is reflected in the comprehensive reference list. In addition, I also made the evolution from theory-using or theory-testing (Chapters 2-7) to theory-building (Chapter 8). It was also decided from the beginning that the doctoral thesis would consist of a coherent combination of individual publications. The analytical frameworks were chosen on the level of individual publications. The resulting multiple analytical frameworks for this doctoral thesis are in terms of a pragmatic philosophy (see Tashakkori & Teddlie, 1998). In a pragmatic philosophy, analytical frameworks are selected depending on their appropriateness to answer the research (sub)questions (Knox, 2004). In addition, pragmatists deny that incompatibility exists between results coming from different theoretical or analytical frameworks (Morgan, 2007). This does not advocate an integration of analytical frameworks. It means that, e.g., the results from the policy arrangement approach can be compared with the results of the smart regulation approach, which was done in Chapter 6. In addition, the frameworks can also be used in sequence, e.g., smart regulation, policy transfer and legitimacy in Chapter 7.

In a pragmatist research approach, it is especially important to explain why specific frameworks were selected for answering a research question. In the next paragraph, I will give an overview of our choices, our own evaluation of the frameworks (what were the strong and weak points encountered during the research) and the contribution of this doctoral thesis to the selected frameworks.

[87] The aim of the Political Working Group (PTWe) was to make a special issue of Forest Policy and Economics on political theories within forest policy. All papers were comprehensively discussed in the 5 different group meetings.

Smart regulation was chosen to investigate the extent to which the instrument mixes of the four cases were smartly formulated. This analytical framework was chosen because (1) it focuses on instrument combinations, (2) it gives a list of principles that can be used to check the "smartness" of the instrument mix and (3) it recognizes that the market, the civil society and the government are important as regulators. The framework is especially appropriate to check the "smartness" of an instrument mix (Chapter 6-7), but not for explaining instrument choice. For the later the framework is too "naive", e.g., by not taking the institutional context into account. To cope with this criticism and others, the thesis discusses an embryonic version of a new approach, which was named the regulatory arrangement approach.

The policy arrangement approach (PAA) was chosen to evaluate the institutional aspects of the SFM policy. This analysis also gives an understanding of the failure and success factors. The PAA was selected because it attaches the same importance to the dimensions of actor, power, rules and discourse. In addition, PAA in an actor perspective is an appropriate way to get to an overview around a given issue. Both aspects are important for an investigation of SFM. I found that the strongest point of this framework is the mutual analysis of the four dimensions. I encounter difficulties with the absence of guidelines regarding how strategic and structural congruence can be measured. This research contributes to the framework with a further operationalization of evaluation of governance capacity by indicators (including ordination methods to delineate the different coalitions on a more objective basis).

Matland's implementation type-specific model was chosen to get an understanding of the failure and success factors of the forest expansion policy. This model was selected because it explains which approach (bottom up and/or top down) is the most appropriate one for the investigated case. In addition, for each of the four resulting implementation types it gives a set of explanatory variables that more likely than other variables explain the investigated policy. This manageable list of possible explanatory variables was, in my opinion, a very strong point of this framework. However, I also found that it remains difficult to determine the implementation type of a policy. This research also contributed to this framework by giving a well organized and more complete table of explanatory variables for the four implementation types.

The policy learning concept was selected to investigate the possibility to adjust the current instrument mix. This concept was selected because it gives a list of possible obstacles for

policy learning and makes a distinction between different policy learning types (single and double loop learning). During investigation, I did not encounter difficulties and the framework was very appropriate to answer my research question.

Advocacy coalition framework (ACF) was chosen to investigate why second order policy learning was not possible in the Flemish forest expansion case. ACF was selected because it is especially suitable to analyze policy conflicts and it gives the possibility to test hypotheses. ACF was very appropriate for my research; however, it was not so easy to make a distinction between deep core beliefs and policy core beliefs. This research contributed to this framework by adding ordination methods to delineate the different discourse coalitions.

The concept policy transfer was chosen to investigate the possibility to transfer policy instruments from England, Denmark and the Netherlands to Flanders. This framework is a logical choice for this type of analysis. I found it very helpful that it gives a list of parameters to investigate the context difference between the transferring and borrowing country. Nevertheless, it remains difficult to decide if the context is similar enough to transfer the policy instrument.

Finally, the concept legitimacy was chosen to investigate the acceptability of the selected transferable instruments. This framework is a logical choice for this type of analysis. I did not encounter any difficulties when I used this concept.

9.4 Further research needs

The present study has increased our understanding of the relationship between policy success and regulation. However, the study also results in many new research questions:

- What will be the effectiveness of the Dutch SFM policy? We expect that this will be high, given the high governance capacity. Nevertheless, we cannot take this as a given because many other factors (like the environmental condition of the forests) will also have an influence.
- What will be the further evolution of the four investigated cases? Will policy learning take place in the Flemish forest expansion case? What will be the impact of the Million tree campaign in the Flemish forest expansion case? What will be the impact of the transferable development rights in the Dutch SFM case? Can the Flemish forest

groups convince forest owners to manage their forests sustainably? What will be the influence of the new monitoring method (province of Gelderland) in the Dutch SFM case? Policy success was only evaluated for a specific time period. It would be interesting to do the same investigation after five or ten years. It would also be interesting to do an in depth analysis of one of the recently introduced policy instruments, like the Million tree campaign or the transferable development rights.

- Which policy instruments are possible under which institutional context? Or which instruments are possible in weak states like many developing countries? Or what are the institutional preconditions for the different policy instruments? Answering these questions will further operationalize our regulatory arrangement approach to a useful tool for policy-makers.
- Why are surrogate regulators absent for interventionist instruments? Especially, because governance does not exclude that other actors can become surrogate regulators for interventionist instruments.

Summary

The aim of this study was threefold. First, the study investigated the relation between the governmental regulatory strategy and the extent of policy success in the forest domain. Second, the study investigated the extent to which the regulatory performance could be improved by selected and accepted instruments. Third, the study investigated how the smart regulation theory could be improved. The most appropriate way to tackle these research aims was a multiple case study. The investigated cases can be theoretical or literal replications. Theoretical replication predicts contrasting results but for predictable reasons (i.e., difference in regulatory strategy), while literal replication predicts similar results. Flemish and Dutch forest policies were selected as theoretical replication and the currently two most important forest policy themes within Flanders and the Netherlands, namely "forest expansion" and "sustainable forest management (SFM)", as literal replication. Policy success of forest expansion was ex post estimated as goal attainment, i.e., the measured change in forest area against the desired policy objective of the state for the investigated policy period. In addition, implementation theory was used to investigate policy failure and success factors. It was not possible to measure SFM in the same way (ex post) because the policy was introduced too recently to have measurable outputs in the forest. Therefore, it was chosen to measure the governance capacity, i.e., the extent to which new forms of governance are potentially able to successfully diminish or solve societal and administrative problems in the near future, in this case of the SFM policy arrangement. This is an ex ante evaluation.

The goal attainment of Flemish forest expansion is negative, which means that there was a forest area decrease during the investigated period (1994-2005). This policy failure can be explained by the non-implementation of the already agreed-upon forest expansion policy. The non-implementation is a result of the interplay with agricultural policy, which has the power to block forest expansion policy and wants to keep the agricultural area under agricultural production.

The goal attainment of Dutch forest expansion was 81% during the period of 1983-2001. However, in the subsequent period (2002-2007) this expansion was slowed down or even

stopped. Failure factors are the insufficient central guidance, the complex and unstable legislation, strategic behavior of farmers and local politicians, and the lack of regulatory responsiveness, which turns the policy implementation voluntary. Moreover, supporting conditions for policy innovations are mostly missing, except in one province where a Dutch version of the concept of transferable development rights has been introduced. Good internal and external communication between project partners that really want to realize the negotiated project aims nonetheless leads to successfully realized projects. However, in the Netherlands, the overall policy goal will only be reached when most of the above-mentioned shortcomings are solved.

The governance capacity of the Flemish SFM case is low. The introduction of sustainable forest management is hampered by different perspectives on SFM and a fragmented network of many different forest owners with a clear asymmetrical distribution of trust and power. However, SFM in Flanders is enabled by the fact that the most powerful and trusted actors in the network - the forest group and the forest service - share the SFM perspective with the government. In addition, the forest groups have nearly a communication monopoly with the private forest owners, and these communicative instruments in particular have a high acceptance. Therefore, we expect that SFM in Flanders can be achieved in the near future, although it remains a vulnerable situation.

In contrast to Flanders, the governance capacity of the Dutch SFM case is high. Most actors understand SFM in a similar way while accepting that different actors may emphasize different aspects of it. Some focus more on the economic functions of SFM while others focus on the nature conservation function. The SFM rules in the Netherlands are well known and not coercive, and are accepted by the respondents, likely resulting in enduring behavior change. The government and the actors who support the governmental SFM vision are powerful. Furthermore, the relationships between actors are positive and with a high trustworthiness. Given this high governance capacity, it is likely that the policy will be able to effectively realize its goals of sustainably combining the ecological, social and economic functions in most Dutch forests.

The "smartness" of the instrument mix was estimated by the extent to which the smart regulation principles were fulfilled. Combined with the above policy estimates, it was possible to conclude that the regulatory strategy matters. The Flemish interventionist approach, which focuses more on traditional instruments, was not as effective as the Dutch stimulating

approach, which uses a broad pallet of social and economic instruments, including many new environmental policy instruments.

It was only possible to suggest an incomplete improvement of the Flemish forest expansion policy because not all suggested policy changes and transferable instruments were acceptable by the politicians, higher officials and members of the civil society. The most important suggested policy change, the reduction of perverse effects of other policies, is not possible because two coalitions with contradictory core beliefs exist and the most powerful one is continuity-oriented. Transferable and acceptable new policy instruments are the carbon fund (additional financial means), the flexible grant scheme, higher afforestation grants for farmers (increasing attractiveness), and afforestation capacity-building by the forest group. However, all of these new instruments can only be implemented in an optimal way when there is land to afforest. Under the current Flemish conditions this is not the case. Therefore, we expect that the improvement in regulatory performance will be small.

Smart regulation theory can be improved by merging this theory with the policy arrangement approach and policy learning concept. The central idea of the so-called regulatory arrangement approach (RAA) is that the almost infinite "smart" regulatory options will be reduced or filtered by the national policy style, by negative effects of policy arrangements of adjoining policies, by the structure of the policy arrangement of the investigated policy and by competence dependencies of other institutions. Competence dependency means that a policy instrument (e.g., fiscal exemption) can only be used when another ministry (e.g., Ministry of Finances) or another policy level (e.g., Europe) agrees. The instrument choice reduction can be so large that the potential governance capacity falls below the "smart regulation" threshold. When this is the case, no smart regulatory arrangement can be developed, unless there is policy learning. Contrary, when the governance capacity is still high enough after passing all filters a "smart" regulatory arrangement can be developed. However, a "smart" regulatory arrangement does not guarantee policy success. Therefore, the performance of the regulatory arrangement should be regularly monitored by policy-makers. An extremely low performance indicates that the regulatory arrangement needs to be adapted.

We conclude that the likelihood to have a successful policy will be higher when the regulation is "smart". However, "smart regulation" is not a guarantee for a successful policy because the institutional context also matters.

Samenvatting

Dit onderzoek had een drieledige doelstelling. Ten eerste, de relatie nagaan tussen de regulatieve strategie van de overheid en de mate dat het beleid succesvol is binnen het bosbeleiddomein. Ten tweede, de mogelijkheid nagaan om met op voorhand geselecteerde en geaccepteerde beleidsinstrumenten de regulatieve prestatie te verbeteren. Ten derde, de mogelijkheid nagaan om de gebruikte "slimme regulatietheorie" te verbeteren. Een geschikte onderzoeksmethodologie voor een dergelijk onderzoek is de meervoudige case studie. De onderzochte cases kunnen theoretische of letterlijke herhalingen zijn. Theoretische herhalingen voorspellen een verschil in beleidsucces omwille van voorspelbare redenen (zijnde verschil in regulatieve strategie) en letterlijke herhalingen voorspellen een gelijk resultaat. Het Vlaamse en het Nederlandse bosbeleid werden geselecteerd als theoretische herhaling en de twee belangrijkste bosbeleidthema's binnen Vlaanderen en Nederland, namelijk duurzaam/ geïntegreerd bosbeheer en bosuitbreiding, als letterlijke herhaling. Beleidssucces van bosuitbreiding werd *ex post* beoordeeld als doelbereiking, d.w.z. de verandering in bosoppervlakte ten opzichte van de door de overheid vooropgestelde binnen de onderzochte tijdsperiode. Daarnaast werd de beleidsuitvoeringstheorie gebruikt om de faal- en succesfactoren van het bosuitbreidingsbeleid te onderzoeken. Het was niet mogelijk om duurzaam bosbeheer op dezelfde *ex post* manier te evalueren omdat het te recent geïntroduceerd werd. Daarom werd er gekozen om duurzaam bosbeheer *ex ante* te evalueren als de bestuurskundige capaciteit, d.w.z. de mate dat de nieuwe bestuurskundige vormen de potentie hebben om maatschappelijke en bestuurskundige problemen op te lossen of te verkleinen in de nabije toekomst.

De doelbereiking van het Vlaamse bosuitbreidingsbeleid is negatief, dus de bosoppervlakte verminderde tijdens de onderzochte periode (1994-2005). De faling van het beleids kan verklaard worden doordat het afgesproken bosbeleid zeer beperkt uitgevoerd werd. De bijna niet uitvoering is een resultaat van de wisselwerking met het landbouwbeleid. Het landbouwbeleid heeft de mogelijkheid om het bosuitbreidingsbeleid te blokkeren, wat ze ook doet. De actoren van het landbouwarrangement proberen immers te voorkomen dat het huidige landbouwareaal vermindert.

De doelbereiking van het Nederlandse bosuibreidingsbeleid was 81% gedurende de beleidperiode 1983-2001. Maar in de daaropvolgende periode (2002-2007) was er nauwelijks bosuitbreiding. Faalfactoren zijn de onvoldoende centrale aansturing, de complexiteit en instabiliteit van de wetgeving, strategisch gedrag van landbouwers en van lokale politiekers, en het gebrek aan regulerende responsiviteit, die er toe leidt dat het beleid enkel op een vrijwillige manier geïmplementeerd wordt. Daarnaast wordt beleidsinnovatie onvoldoende aangemoedigd, met uitzondering van de provincie Limburg waar recent de Nederlandse versie van de verhandelbare ontwikkelingsrechtenmethode werd ontwikkeld en geïmplementeerd. De huidige succesvolle projecten zijn het resultaat van een goede interne en externe communicatie tussen projectpartners die hun gezamenlijke afgesproken doelstellingen, waarvan bosuitbreiding er één is, willen realiseren. Maar de Nederlandse bosuitbreidingsdoelstellingen zullen enkel bereikt worden wanneer de vermeldde faalfactoren opgelost worden.

De bestuurskundige capaciteit van het Vlaamse duurzaam bosbeheer (DB) is laag. De invoering van DB is bemoeilijkt doordat er geen overeenstemming is in de betekenis of de betekenissen van duurzaam bosbeheer. Bovendien is het DB actor netwerk sterk gefragmenteerd, is het vertrouwen tussen de verschillende actoren laag en controleren de DB coalitie actoren minder dan de helft van de machtsmiddelen. De DB coalitie actoren, waaronder de vertrouwde en machtige actoren Bos & Groen en de bosgroep, interpreteren DB op een gelijkaardige manier als de overheid. Daarnaast heeft de bosgroep ook bijna een communicatiemonopolie met privé-eigenaar en juist deze communicatieve instrumenten hebben een hoge acceptatie. Hierdoor verwachten we dat duurzaam bosbeheer in de nabije toekomst kan bereikt worden, hoewel het een zeer kwetsbare situatie blijft.

De bestuurskundige capaciteit van het Nederlandse geïntegreerd bosbeheer (GB) is hoog. De meeste GB actoren hebben een gelijkaardige interpretatie van geïntegreerd bosbeheer, bovendien accepteren de verschillende actoren dat andere actoren andere accenten kunnen leggen. Sommige van hen benadrukken de economische functie, terwijl andere de natuurbehoudfunctie benadrukken. De GB regelgeving is eveneens zeer goed gekend, niet dwangmatig toegepast en is aanvaard door de verschillende actoren. Bovendien resulteerde het beleid zelfs in een blijvende positieve gedragsverandering bij de boseigenaars. Tevens controleren de overheid en de GB coalitie actoren meer dan de helft van de machtsmiddelen. Daarnaast worden de meeste actorrelaties positief gewaardeerd en vertrouwen de actoren

elkaar. De verwachting is dan ook dat het beleid in een effectieve realisatie van de geïntegreerd bosbeheerdoelstellingen zal resulteren.

De "slimheid" van de instrumentencombinatie werd geschat door de mate dat de slimme regulatieve principes ingevuld werden. Gecombineerd met de hierboven vermeldde inschatting van het beleidsucces was het mogelijk om te concluderen dat de keuze van de regulatieve strategie wel degelijk belangrijk is voor de mate dat het beleid succesvol is. De Vlaamse benadering met een hoog interventiekarakter, die bovendien vooral focust op de traditionele beleidsinstrumenten, is minder succesvol dan the Nederlandse stimulerende benadering, die bovendien een zeer diverse pallet gebruikt van sociale en economische instrumenten, waaronder verschillende meer geavenceerde beleidsinstrumenten zoals de verhandelbare ontwikkelingsrechten.

Het was enkel mogelijk om aanbevelingen te geven voor een gedeeltelijke verbetering van het Vlaamse bosuitbreidingsbeleid. Dit was zo omdat het politiek, ambtelijk en middenvelddraagvlak onvoldoende groot was voor sommige van de voorgestelde beleidsverandering en eveneens voor sommige van de mogelijk overdraagbare beleidsinstrumenten. De meest noodzakelijke verandering, de vermindering van negatieve effecten van het landbouwbeleid, was niet mogelijk omdat er twee coalities bestonden die tegenstrijdige kerngedachten hadden en de machtigste coalitie de huidige situatie wil behouden. Geaccepteerde en overdraagbare nieuwe instrumenten om de regulatieve prestatie te verbeteren zijn het koolstoffonds (bijkomende middelen), een flexibel subsidiesysteem, hogere bebossingsubsidies voor landbouwers (verhoogt aantrekkelijkheid) en capacity-building van de bebossers door de bosgroep. Maar deze nieuwe instrumenten kunnen enkel op een optimale manier ingezet worden wanneer er grond beschikbaar is om te bebossen. Dit is momenteel in Vlaanderen niet het geval en daarom verwachten we dat de verbetering van de regulatieve prestatie slechts zeer beperkt zal zijn.

De "slimme" regulatietheorie kan verbeterd worden door deze theorie samen te voegen met de beleidsarrangementenbenadering en het beleidsleren concept. Het centrale idee van de resulterende regulatieve arrangementenbenadering is dat het bijna oneindig aantal 'slimme' regulatieve opties verminderd of gefilterd worden door achtereenvolgens de nationale beleidsstijl, de negatieve effecten van de beleidsarrangementen van aangrenzende beleidsvelden, het beleidsarrangement van het onderzochte beleidsveld en bevoegdheidsafhankelijkheden. Deze vermindering kan zelfs zodanig groot zijn dat de potentiële bestuurskundige capaciteit beneden de "slimme" regulatiegrenswaarde valt. In dit

geval kan er enkel een "slim" regulatieve arrangement ontwikkeld worden wanneer er beleidsleren plaatsvindt. In het andere geval, wanneer de bestuurskundige capaciteit voldoende hoog blijft na het passeren van alle filters, bestaat de mogelijkheid om een "slim" regulatief arrangement te ontwikkelen. Een "slim" regulatief arrangement is op zich onvoldoende om beleidssucces te garanderen. Daarom is het ook belangrijk om de beleidsprestaties met een zeker regelmaat te meten en te evalueren. Wanneer de beleidsprestatie te laag is, betekent dit dat het bestaande beleidsarrangement veranderd zal moeten worden naar een meer "slimme" variant.

De algemene conclusie van dit onderzoek is dus dat een aangepaste regulatieve beleidsstrategie een noodzakelijke maar niet voldoende vereiste is voor een succesvol beleid rond bosuitbreiding en duurzaam bosbeheer.

Appendix

Appendix 1.1. Self-evaluation of research quality

Appendix 2.1. Document list of Flemish forest expansion case

Appendix 3.1. Document list of Dutch forest expansion case

Appendix 4.1. Document list of Flemish SFM case

Appendix 5.1. Document list of Dutch SFM case

Appendix 1.1. Self-evaluation of research quality

Introduction

The aim of this section is on the one hand to do a self-evaluation of the rigor of this research and on the other hand to give the reader enough information to do his own judgment.

Strategies to verify rigor will be different for qualitative, quantitative and mixed research (Onwuegbuzie & Johnson, 2006). Because this research was mainly qualitative with some quantitative translation of qualitative elements (by ordination and counting) the focus will be on the rigor strategies for qualitative research. However, a rigor strategy for all qualitative research does not exist, at least not in a way that is generally agreed upon (Sandelowski & Baroso, 2002; Flick, 2007). This varies on a continuum from endorsing positivist notions of reliability, validity and generalizability to a minimalist approach (Walsh & Downe, 2006). In fact this continuum is not so uncommon. Qualitative research is an umbrella term for a heterogeneous group of methodologies with different theoretical underpinnings and different ways of thinking about knowledge and thus a need to be appraised in different ways (Barbour, 2001; Kuper *et al.*, 2008). Therefore there will be no easy solutions to limit the likelihood that there will be errors in qualitative research (Mays & Pope, 2000). Each qualitative approach needs to be evaluated in a manner that is congruent with its methodological origins (Caelli *et al.*, 2003). For example, the evaluation of a participatory action research will be based on the degree to which collaboration was achieved, and change facilitated among participants and researchers (Mill & Ogilvie, 2003). In contrast, evaluation of a critical phenomenological study will be based on the degree which competing interpretations were drawn out and the degree that participants could critique their own accounts (Caelli *et al.*, 2003). Finally, it is also important to use strategies to establish rigor into every step of the research to construct a solid product and not only at the end of the study (Creswell, 1997; Morse *et al.*, 2002).

Rigor strategies for case studies

The methodological origin of this research is a case study, 'an *empirical enquiry that investigates a contemporary phenomenon within its real-life context*' and '*it relies on multiple source of evidence*' (Yin, 2003). Possible rigor strategies for case studies are (1) member and peer checks, (2) triangulation, (3) a chain of evidence, (4) case study protocol, (5) case study database (Yin, 2003), (6) reflexivity, (7) reporting careful how data collection and analysis was done (Walsham, 1995), (8) analytic generalizations (Yin, 2003) and (9) conversion legitimation (Onwuegbuzie & Johnson, 2006).

Member and peer Checking is a procedure to review the draft report respectively by participants and informants in the case and by peers, a panel of experts or an experienced colleague (Yin, 2003). There is some discussion in the literature about the appropriateness of member and peer checking. Some authors find it '*the single most critical technique for establishing quality*' (Guba & Lincoln, 1989, p. 239), while others do not believe in its usefulness (Sandelowski, 1993). The difference between both viewpoints reflect the discussion if either expert researchers or respondents can arrive at the same themes and categories as the researcher (Rolfe, 2006). The first believe that this is more-or-less possible, the second believe that reality is '*multiple and constructed*' and emphasizes therefore that *repeatability is not an essential property of things themselves*' (Sandelowski, 1993, p 3). Notwithstanding this discussion, member checking is mostly appropriate because it can also produce further evidence, as the informants and participants may remember new materials that they have forgotten during the initial data collection period (Yin, 2003). In addition, peer checking can give evidence for the generalizability. Therefore, it is better to think of member and peer checking as a part of the process of error reduction which also generates further original data, which in turn requires interpretation (Bloor, 1997).

Triangulation looks in the strict sense for patterns of convergence in data collected by different methods (Mays & Pope, 2000). However, the absence of similar findings does not provide grounds for refutation, because different methods used in qualitative research furnish parallel datasets, each affording only a partial view of the whole picture (Barbour, 2001). Triangulation can lead to "*a fuller picture, but not a more 'objective' one"* and triangulation *"can add range and depth but not accuracy"* (Fielding & Fielding, 1986, p33). Therefore triangulation can be better seen as a way of ensuring comprehensiveness and encouraging a more reflexive analysis of the data than a pure test of validity (Mays & Pope, 2000). Nevertheless, this strategy stays important because the weakness of the separate data collection methods can be compensated by the strengths of the other methods (Baarda *et al*., 1997; Bressers, 2003, Yin, 2004).

A **chain of evidence** explicit links between the questions asked, the data collected and the conclusions drawn, like in criminal investigations (Kyburz-Graber, 2004; Yin, 2003). Thus in order to establish a high research quality the researcher must describe in detail how the research results were arrived at, must present a coherent, persuasively argued point of view (Walsham, 1995) and must give sufficient evidence for the conclusions (Darke *et al*., 1998). The principle is to allow an external observer –in this situation, the reader of the case study- to follow the derivation of any evidence, ranging from initial research questions to ultimately case study conclusions. Moreover, this external observer should be able to trace the steps in either direction (Yin, 2003).

A **case study protocol** is a way to increase the rigor of the case study and it's intended to guide the investigator in carrying out the data collection from a single case study (Yin, 2003). The design of a case study protocol requires a comprehensive literature analysis to be undertaken in order to understand the existing body of research literature within the research area and the position the

research question(s) within the context of that literature (Darke *et al.,* 1998). The major research question informed the selection of the level and scope of unit of analysis, suggesting 'where one goes to get answers, with whom one talks, what one observes' (Miles & Huberman, 1984, p. 143). A case study protocol should have the following sections: (1) an overview of the case study project, (2) field procedures, (3) case study research questions, and (4) a guide for the case study report (Yin, 2003).

A **case study database** is a well-organized and categorical set of case data which will facilitate the task of analyzing the study evidence in order to address the researcher questions which are the focus of the study (Darke *et al*., 1998). It consists of a complete set of all the data collected, as well as a treatment of that data during the research process (Kyburz-Graber, 2004). This database will give other investigators the possibility to review the evidence or raw data directly and gives also the possibility to reanalyze the data when new information will become available (Yin, 2003). Computerized tools may be used to assist in indexing and storage of case study materials (Darke *et al*., 1998). However, the existence of a case study database does not preclude the need to present sufficient evidence within the case study report itself (Yin, 2003).

Reflexivity is a research technique to enhance researchers' recognition of their own influence on their research (Kuper *et al*., 2008). Four potential influencing sources are discussed in the literature. The first is researcher's preconceptions which are previous personal and professional experiences, research qualifications and motivations and prestudy beliefs about how things are and what is to be investigated (Malterud, 2001). These preconceptions have also an influence on the choice of the methods which will be used to explore the topic (Caelli *et al*., 2003). For example, researchers with a pragmatic preconception tries to select the most appropriate method for each research (sub)question (Tashakkori & Teddlie, 1998; Knox, 2004), while discourse-oriented researchers select mostly discursive methods. The second is personal characteristics such as age, sex, social class, and professional status (Mays & Pope, 2000). The third is the research role which can be outside observer or involved researcher (Walsham, 1995). Both roles have their advantages and disadvantages. The advantage of outside observer is that the researcher is seen as not having a direct personal stake and thus respondents will be often be relatively frank in expressing their views. The disadvantage is that the researcher may sometimes be debarred from access to certain data and issues which are regarded as too confidential or sensitive to be shared with outsiders. For the involved researcher this is the outer way round (Walsham, 1995). Finally, it is essential that the investigator remain open, use sensitivity, creativity and insight, and be willing to relinquish any ideas that are poorly supported regardless of the excitement and potential that they first appear to provide (Morse *et al.* 2002).

In case studies different kind of data like documents, archival records, interviews and direct observation can be collected (Yin, 2003). Interviews are an essential source because through interviews researchers can best access case participants' views and interpretation of actions and events (Walsham, 1995). Therefore, **reporting on data collection** should include minimal details of the research sites

chosen, the reason for this choice, the number of people who were interviewed, what hierarchical or professional positions they occupied, sampling method, the number of interviewers, what other data sources were used, and over what period the research was conducted. In the ideal situation the number of interviewers is two for each interview, where one focuses on the interviewee and the conservation and the other takes notes and prompts where necessary (Darke *et al.*, 1998). With respect to **data analysis**, reporting should include how the field data and other data were recorded, how they were analyzed and how the iterative process between field data and theory took place and evolved over time (Walsham, 1995). The recording of the interview can by extensive notes during an interview and write them up in full within 24 hours or by tape-recording (Walsham, 1995). It stays important by tape-recording to listen carefully and to participate fully in the interview process (Darke *et al.*, 1998). Finally, for data analysis a theoretical basis as point of reference is needed (Kyburz-Graber, 2004).

In **analytic generalizations** the investigator is striving to generalize a particular set of results to some broader theory. This will be done by using theory in single cases and by using replication logic in multiple-case studies. In multiple case studies each case must be carefully selected so that it either (a) predicts similar results (a *literal replication*) or (b) predicts contrasting results but for predictable reasons (a *theoretical replication*) (Yin, 2003). Another important point is to develop thick descriptions of the context in order to make judgments about fittingness with other contexts possible (Guba, 1981).

Conversion legitimation is the extent to which data conversion techniques like quantitative translation lead to interpretable data and high inference quality (Onwuegbuzie & Johnson, 2006). A popularized way of quantitative translation of data is by counting. Advantages are that (1) it prevents researchers from over-weighting or under-weighting emergent themes (Sandelowski, 2001) and (2) it can enrich the qualitative descriptions with additional useful information about how often or how many or how much (Onwuegbuzie & Leech, 2004; Sandelowski, 2001).

Self-evaluation of research quality

The rigor strategy **"reflexivity"** will be first evaluated and then the other rigor strategies, because the first can only be done for the whole research and the others also for the different chapters. Reflexivity means that the researcher recognizes that he/she has an influence on his/her research. In the next section the influence of the following topics will be discussed:

(1) my main motivations for this research and,
(2) my position as researcher.

My main motivations for doing this research were a preference for multidisciplinary studies and an interest in forest and nature policy, which is reflected in my membership of the Flemish forest council (*Vlaams Hoge Bosraad, VHB*) and of the board of directors and of the policy council of the Flemish

forest organization (*Vereniging voor Bos in Vlaanderen, VBV).* The consequence of the multidisciplinary motivation is that it was appropriate to have different promoters. When the research started the research was supervised by two promoters, one active in the field of forest ecology and management and one active in the field of forest management planning. During the field work of the first case and especially during the writing of the first draft case report there was a clear need to have also supervision by an expert on policy theory. This promoter was actively searched and after 9 months this aim was reached. This policy theory supervision resulted in a much better insight in the pros and cons of the different policy theories and in a better connection between the theory and the results in the case study reports. The motivation to have policy influence result in a proactive dissemination of the research results to members of the parliament and the civil society. There was already one parliamentary question (Vlaams parlement nr 557, 2007-2008) based on the research finding of the Flemish SFM case.

Finally, also my position as researcher can influence the research. Firstly, there was a positive influence of professional status. It was an advantage that the investigation was done as university researcher, because the university is a "neutral" organization. Forest owners, members of the civil society and politicians are mostly more willing to answer the question in a way that is closer to reality when the question is asked by a neutral person. The answer on the same question will probably different when this question would be asked by a member of the Forest and Nature service, because the respondents take into account that this organization gives also the desired permits and grants. Secondly, it was important for this research to have no personal stake therefore it was chosen to be an outside observer.

In the next section, we will describe first how the other rigor strategies were used in the different chapters. Thereafter, a self-evaluation on a 7-point Likert scale will be given.

In almost all situations **member checking** was done by e-mailing the draft report to all respondents. The respondents were asked to review the report and send their recommendations to the researcher. Only, in the case of SFM in Flanders a more active member checking was done, as the draft report was presented in the study area to the respondents. The reason why this was done is twofold, first only in this case many respondents did not have an e-mail account and second only in this case the respondents live close to each other so that the travel time to the presentation place was short. Regardless of the way of member checking, there was only a minority of the respondents that reviewed the draft report. This does not mean that the member checking was usefulness. Thanks to this method the research error was reduced and it also generates some new data. For example, in the SFM case of Flanders there was a disagreement with the estimation method of the power resources. After a fruitful discussion this method was improved and accepted by the respondents

Different **experts** (mostly also co-authors) reviewed all research papers. Some were experts in the research topic (e.g. sustainable forest management, policy instruments, forest expansion), some did know the case study quite well and some were experts in the theoretical frame (e.g. policy arrangement approach, policy implementation). Important to notice is that some papers were reviewed by the author of the used theoretical frame. This was so for both SFM-papers. In addition, all research papers were submitted to international peer-reviewed journals. Their insights enhance the completeness and quality of the research.

In all situations **triangulation** was done by semi structured in-depth interviews and by analysis of documents. In both SFM cases, it was tried, when possible for the respondent, to combine the interview with a field visit of the owner's forest. The reflection of this field visit was immediately written down after the visit (field document). The analyzed documents include policy plans, legislation, policy documents and letters, policy evaluations, doctoral and master dissertations, forest management plans, (internal) organization documents, websites and one video tape of a news flash on the forest management plan on the local television (only in SFM case Flanders). Triangulation resulted in a confirmation of some findings and also for a more complete picture. Thus, triangulation was a very useful strategy to enhance the research quality.

In all situations a **chain of evidence** was used. All statements were linked to a code system which was based on theory on the one hand, and which emerged from data material on the other. To illustrate this, one example will be given:

- Case: Sustainable Forest Management Flanders
- Research question (abstract): Is the strategically congruence of the actors high, do they have similar discourse
- Research question (operational) similarity in actors' perspectives of 'sustainable forest management'
- Literature:
    - for rather abstract concepts like SFM, because (private) forest owners might display a relatively favorable attitude towards abstract concepts such as ecosystem management or SFM, but frequently oppose the specific elements of an actual plan (Brunson *et al.*, 1997)
    - ecological objectives can be divided into three categories, based on their perceived importance by experts and private forest owners (Van Gossum *et al.*, 2005)
- Revisited research question: similarity in actors' perspective of SFM, wood production, recreation, indigenous tree species, dead wood and open spaces
- Interview question: e.g. what is your opinion to leave more dead wood in the forest?
- Coding system (interviews and documents): the themes dead wood, exotics-indigenous trees, open space, recreation, wood production and SFM

- Data analysis:
  - deduction of different SFM perceptions (e.g. 'dead wood makes other trees sick') based on a content analysis of each code text
  - verification which perceptions each respondent did use, sometimes it was needed to search for additional documents
  - a table of 27 actors and 26 perceptions was made in excel (quantizing of qualitative data), which was used as input for the ordination method 'Non-Linear Multidimensional Scaling' (Clarke, 1993).
- Data interpretation: the resulting ordination diagram was interpreted. The validity of this solution was tested (solution with final stress of 13.89, this value was lower than would be expected by chance with a p-value < 0.05). It was also checked if it was possible to explain the position of each actor. This was possible.
- Answer on research question: in this study area the different stakeholders do not share the same discourse, resulting in a low strategic congruence. It is possible to distinguish five different discourse coalitions. Only the SFM group shows a high similarity with the governmental SFM perspective.

The **case study protocol** idea was used. However, it was not written down in a separate document. The first section, overview of case study project, was made operational as follows. The research questions, which were based on the used theoretical framework and/or a literature review, were kept in mind during the whole research process. The case was selected, based on predefined criteria. To get familiar with the cases all documents which were related with this case and the research subject were investigated. The second section, field procedure, was planned as follows. A first attention point was to get access to the case. This was done by contacting one or more key persons. This resulted in a first list of possible respondents. Next, a topic list based on the research questions was developed and this list was reviewed by some experts. Appointments were made (mostly by telephone). Before each interview, information relating to the respondents' organization was searched. Immediately before the interview permission was asked to record the interview, this was mostly allowed. The interview was done and transcribed as fast as possible. Interviewees could give new respondents with the same or different view (snowball sampling). Finally, data collection and analysis was done at the same time and when no new themes emerged data collection was stopped (data saturation). The third section, case study questions, consists of the thematic topics based on the theoretical frame. The aim is to saturate these themes. However it is important to remain open for new themes or ideas which were not covered by the theoretical frame. Finally, the fourth section, guide for case study report, was made, but his was revisited many times during the process.

In each case a **case study database** was developed, which consists of two parts. Most data were kept in a Nvivo 7 project file, i.e. software for qualitative data analyze. This project file consists of the

interview topic list, verbatim transcription, coding tree, a version of interview findings which were analyzed by a coding system, memos, a document list and the relevant literature. The second part consists of the documents which were mainly kept in hard copy. This division in two parts is not ideal, but this was the only possibility because some data was not digital available.

Data collection and analysis was reported in each chapter. It starts with a description of the case and it explains the reason why this case was chosen. Next, the number of respondents is mentioned and the analyzed documents are given in an appendix. In addition, the selection process of the respondents and the professional position of these respondents are given. For two cases (SFM Netherlands, forest expansion Flanders) the number of interviewers was two, because the research could be combined with a master thesis. The research took place during 2005-2009 and the interviews were done in October – December 2005 (Flemish forest expansion case), October – December 2006 (Flemish SFM case) and October – December 2007 (Dutch SFM case and Dutch forest expansion case). Furthermore, all interviews were recorded and verbatim transcribed. Finally, the analysis method was described.

The research findings were **generalized** by using theories. Sometimes the appropriateness of these generalizations is also discussed. This is done for example in the Flemish forest expansion paper:
Given the specific federal structure of the state of Belgium, the question is whether it is possible to generalize the tug-of-war that goes on between multiple levels of government. We do think that generalizations can be made because, through the ongoing decentralization process, most unitary states have municipalities as decentralized units (Work, 2002). The consequence of this decentralization process is that, in practice, the line between federalism, unitary states, and centralized systems becomes blurred (Work, 2002). This decentralization can also lead to increased political conflict and dispute between all levels of government (Giordano & Roller, 2003). Thus, the tug-of-war that goes on between multiple levels of government, as was found in this research, will be not unique for this case.
The **context** was in all cases also described so that other investigators could estimate the transferability of the results to their situation.

Finally, **conversion legitimation** was realized by using quantitative translation methods only as a method to make the qualitative results more objective. A very useful method, besides counting is ordination. This needs mostly the following three-step procedure. First the different perceptions of SFM or forest expansion are deduced from the qualitative data. Second, for each actor the presence of each perception is verified, resulting in a binary table of respondents and perceptions (e.g. 'dead wood makes other trees sick'). This table will be used as input for an ordination method. Finally, the resulting ordination graph will be interpreted with the qualitative data.

The self-evaluation of the research quality is given in Table A.1. A positive sign means that the rigor strategy was used in a way that corresponds with the described rigor strategy and a negative one that it is not. The number of signs will give an indication of the extent that this fulfillment approaches the

desired situation. Table A.1 and the above discussion indicate for me that all conditions were met to guarantee high research quality. Of course, it is up to the peers to evaluate the research quality!

Table A.1. Self-evaluation of research rigor

Strategy	FE		SFM		SR	NEPI's
	Fl.	Nl.	Fl.	Nl.		
Member checking	++	++	+++	++	++	++
Peer checking	++	++	+++	+++	++	++
Triangulation	++	++	++	++	++	++
Chain of evidence	++	++	++	++	++	++
Case study protocol	+	+	+	+	+	+
Case study database	+	+	+	+	+	+
Reporting on data collection	++	++	++	++	++	++
Reporting on data analysis	++	++	++	++	++	++
Generalizations						
Based on theory	+++	+++	+++	+++	+++	+++
Tick description of context	++	++	++	++	++	+++
Conversion legitimation	+++	++	+++	+++	++	Not used

Legend:

- FE: forest expansion, SFM: sustainable forest management, SR: smart regulation, NEPI's: new environmental policy instruments, Fl: Flanders, Nl: the Netherlands
- The rigor strategy is implemented: +: with some limitations, ++: according the common accepted guidelines, +++: more in depth than guidelines.

Appendix 2.1. Document list of Flemish forest expansion case

Policy plans (n=5)

- Long-term Forestry plan (1998-2017) (AMINAL afdeling Bos & Groen, 1998a)
- Forestry Action plan (1998-2003) (AMINAL afdeling Bos & Groen, 1998b)
- Spatial structure plan Flanders (1997) (Ministerie van de Vlaamse Gemeenschap, 1998)
- Environment policy plans (1997-2001; 2003-2007) (Ministerie van de Vlaamse Gemeenschap, 1997, 2004)

Legislation (n=5)

- Forest Decree (including implementation orders) (1990)
- Nature Decree (1997)
- Landscape Decree (1996)
- Field code (1886)
- Tenure law (1969)

Policy evaluations (n=3)

- Nature evaluation report (Dumortier *et al.*, 2003, 2005)
- Unpublished documents of the ad hoc working group on forest expansion of the Flemish Forest Council

Doctoral dissertations (n=2)

- Bogaert (2004) and Van Herzele (2005)

EU-regulations (n=2)

- EG regulations 2080/92 and 1257/99 on community aid scheme for forestry measures in agriculture regulation and on support for rural development from the European
- Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations.

Policy documents and letters (n=3)

- documents of the co-operation agreements between the Flemish and local governments (http://www.lne.be/doelgroepen/lokale-overheden/)
- unpublished documents of the forest expansion team of the Flemish Forest Agency
- policy documents and policy letters of the Flemish ministers responsible for forest policy (1999-2004; 2004-2009) (Dua, 2000; Peeters, 2004)

Appendix 3.1. Document list of Dutch forest expansion case

Policy documents and plans (including those of organizations) (n=14)

- Long Term Plan on Forestry (L&V, 1986)
- Advice of the commission forest expansion (Goos & Prins, 1993; Zakee, 1993)
- Forest Policy Plan (LNV, 1993)
- Nature for people – people for nature (LNV, 2000)
- The importance of forests. The Dutch Forest Policy (LNV, 2004a)
- Agenda for a vital rural area (LNV, 2004b)
- Forest policy document Limburg (Provincie Limburg, 1998)
- Provincial spatial plan Limburg (Provincie Limburg, 2005)
- Province of Drenthe: plan of the rural area 2007-2013 (Provincie Drenthe, 2007)
- Green and the city (Nationaal Groenfonds, 2004)
- Investment-fund of the rural area (Noordanus *et al.*, 2002)
- Forest policy of Natuurmonumenten (Natuurmonumenten, 2006a)
- Forest policy of Geldersch Landschap (Gelders Landschap 2006)

Evaluation Studies of forest and nature policy (n=10)

- Evaluation forest policy (Paasman *et al*, 1997)
- Implementation of nature policy (van Vliet *et al.*, 2001)
- Effectiveness of LNV policies: case studies (Selnes, 2003)
- Policy evaluation nature and landscape (Bredenoord *et al.*, 2004)
- Nature policy evaluation (RIVM, 2002; 2003; 2004; 2005; 2006; 2007)

Evaluation studies on Forest expansion policy (n=13)

- Ex post evaluation of forest expansion policy for the period 1990-1995 (Edelenbosch, 1996)
- Ex post evaluation of forest expansion policy in North-Netherlands for the period 1985-1996 (van der Staak, 1996)
- Evaluation forest policy of the province Limburg for the period 1998-2002 (Verhart *et al*, 2004; Buiting Bosontwikkeling, 2006)
- Evaluation of the Randstad green structure policy (LNV, 2001; Farjon *et al.* 2004)
- Evaluation of the state steering in three Randstad green projects (van der Wielen & Bezemer, 2004)
- Randstad green projects. From stagnation to realization (Farjon & van der Wielen, 2004)

- Evaluation of forest expansion by municipalities (Doppenberg & Landman, 1996; Maas, 1997; van Doremaele, 1998)
- Ex-ante evaluation of forest expansion by farmers (Edelenbosch & Schrijver, 1997)
  Qualitative evaluation of forest expansion by farmers (de Heer *et al.*, 1998)

Policy instrument descriptions (n=12)

- Possibilities for forest expansion are better than ever (Jansen, 2000)
- Red for Green (Jókövi & Luttik, 2003; Evers *et al.*, 2004, van der Ham, 2005)
- Financial incentive: land use change from agriculture to nature (Leneman *et al.*, 2004)
- Fiscal incentives for nature policy (Boers & Konings, 2005)
- Single golf (InnovatieNetwerk, 2006)
- Transferable development rights method (Knowhouse, 2006; provincie Limburg, 2007)
- New rural estates (Bosch, 1997)
- Rural estates (http://www.landgoederen.net/)
- Carbon credits (http://www.nationaalgroenfonds.nl/)

Documents on decentralization (n=3)

- Decentralization in nature policy (Selnes & Kuindersma, 2006)
- A critical perspective on the provincial level (Peters, 2007)
- Realization of the Ecological main structure: provincial steering (Ligthart, 2005)

Public support (n=1)

- Public support for the Dutch forest (Wiersum & van Vliet, 2002)

Land acquisition (n=2)

- Land acquisition for nature: the role of provinces (Kuidersma & Zweegman, 1997)
- Strategic behaviour of landowners: an important factor in the achievement of nature conservation targets (Luijt, 2007)

Forest expansion analysis (n=1)

- From temporary forest to permanent forest (Jansen, 2003)

Appendix 4.1. Document list of Flemish SFM case

Legislation (n=3)

- Forest Decree (including implementation orders) (1990)
- Nature Decree (including implementation orders) (1997)
- Landscape Decree (1996)

Policy plans and documents (n=5)

- Long-term Forestry plan (1998-2017) (AMINAL afdeling Bos & Groen, 1998a)
- Forestry Action plan (1998-2003) (AMINAL afdeling Bos & Groen, 1998b)
- SFM Management vision on public forests (AMINAL afdeling Bos & Groen, 2001)
- Manual extended forest management plan (AMINAL afdeling Bos & Groen, 2003a)
- Manual limited forest management plan (AMINAL afdeling Bos & Groen, 2003b)

Local plans (n=3)

- Nature target plan of "Heuvelrug-Benedenstrooms" (including documents of steering committee) (unpublished documents)
- Forest management plan "Kempense Heuvelrug" (including documents of steering committee) (unpublished documents)
- Final recognization of the forest group "Kempense Heuvelrug" (including advices of the Forest service and the Flemish foest council) (unpublished documents)

Case descriptions (n=1)

- Description of the landscape development of the "Kempense Heuvelrug" (Meesters, 1992)

Studies (n=2)

- Comparative forest profitability study in economic-oriented multifunctional forests and nature-oriented multifunctional forests (Dienstencentrum voor Bosbouw, 2000)
- Evaluation of (re)afforestation grant (Clint, 2008)

Appendix 5.1. Document list of Dutch SFM case

Regulation (n=7)

- Forest Act (1961)
- Flora and Fauna Act (1998)
- Nature Conservation Act (1998)
- Estate Act (1928)
- provincial Scheme Integrated Forest Management (1998-2006)
- Grant scheme Nature Management 2000 (2000)
- behavior code Careful Forest Management (2004)

Policy documents (including organizations) (n=8):

- Long Term Plan on Forestry (L&V, 1986)
- Forest Policy Plan (LNV, 1993)
- Nature for people – people for nature (LNV, 2000)
- The importance of forests. The Dutch Forest Policy (LNV, 2004)
- Policy vision integrated forest management of province Noord-Brabant (Hagedoorn, 1998)
- Defense in nature and landscape (Ministerie van Defensie, 2002)
- Forest policy of Natuurmonumenten (Natuurmonumenten, 2006a)
- Policy document nature and landscape in Noord-Brabant 2002-2012 (Provincie Noord Brabant, 2002)

Others (n=14)

- Effectiveness of communication project Integrated Forest (Schulting & Wolf, 2006)
- Integrated forest management: the different opinions (Van der Jagt *et al.*, 1996)
- Evaluation of the implementation of integrated forest management in the Netherlands (Van Blitterswijk *et al.*, 2001)
- The future of the Forest board (Van der Mark *et al.*, 2005)
- Fifth Dutch Forest statistic (LNV, 2006)
- View on the Dutch forests (Probos, 2000)
- Main data on forest and wood in the Netherlands (Probos, 2006)
- Integrated forest management (Klingen & Sevenster, 1991, Van der Jagt *et al.*, 2000, Van Raffe *et al.*, 2006)
- Website: www.natuurbeheer.nu
- Annual report 2006 State Forest service (Staatsbosbeheer, 2006), Natuurmonumenten (Natuurmonumenten, 2006b) and Brabants Landschap (Brabants Landschap, 2007)

References

Abrams, L.C., Cross, R., Lesser, E., Levin, D.Z., 2003. Nurturing interpersonal trust in knowledge-sharing networks. Academy of Management executive, 17(4), 64-76.

Ackerman, B.A., Stewart, R.B., 1985. Reforming environmental law. Stanford Law Review, 37(5), 1333-1365.

Adger W.N., 2003. Social capital, collective action and adaption to climate change. Economic Geography 70(4), 387-404.

AMINAL afdeling Bos & Groen, 1998a. Lange termijnplan bosbouw. AMINAL afdeling Bos & Groen, Brussels, 75 pp. (in Dutch)

AMINAL Afdeling Bos & Groen, 1998b. Actieplan Bosbouw. AMINAL afdeling Bos & Groen, Brussels, 67 pp. (in Dutch)

AMINAL Afdeling Bos & Groen, 2001. De beheervisie: een leidraad voor duurzaam bosbeheer, 27 pp. (in Dutch)

AMINAL Afdeling Bos & Groen, 2003a. Inhoudelijke richtlijnen voor het opmaken van een uitgebreid bosbeheerplan. AMINAL afdeling Bos & Groen, Brussels, 83 pp.

AMINAL Afdeling Bos & Groen, 2003b. Het beperkt beheerplan. Leidraad voor privé-bosbeheerders, AMINAL afdeling Bos & Groen, Brussels, 28 pp.

Andeweg, R.B., Irwin, G.A., 2002. Governance and politics of the Netherlands. Palgrave, Macmillan, New York, 272 pp.

Argyris, C., 1976. Single-loop and double-loop models in research on decision making. Administrative Science Quarterly, 21(3), 363-375.

Argyris, C., 1982. Reasoning, learning and action: individual and organizational. Josey Bass, San Francisco, 499 pp.

Argyris, C., Schön, D., 1978. Organizational learning: a theory of action perspective. Addison-Wesley. Reading, MA, 356 pp.

Arts, B., Goverde, H., 2006. The governance capacity of (new) policy arrangements: a reflexive approach. In: Arts, B. and Leroy, P. (eds.). Institutional dynamics in environmental governance. Environment & Policy 47, Springer, Dordrecht, pp. 69-92.

Arts, B, Leroy, P., van Tatenhove, J., 2006. Political modernisation and policy arrangements: a framework for understanding environmental policy change. Public Organizational Review, 6, 93-106.

Arts, B., Van Tatenhove, J., 2004. Policy and Power. A conceptual framework between the "old" and "new" paradigm. Policy Science, 37(3-4), 339-356.

Arts, B., Van Tatenhove, J., 2006. Political modernisation. In: Arts B., Leroy P. (eds). Institutional dynamics in environmental governance. Environment & Policy, 47. Springer, Dordrecht, pp. 21-43.

Ayres, I., Braithwaite, J., 1992. Responsive regulation. Transcending the deregulation debate. Oxford socio-legal studies. Oxford University Press, Oxford, 205 pp.

Baarda, D.B., De Goede, M.P.M, Teunissen, J., 1997. Basisboek kwalitatief onderzoek. Handleiding voor het opzetten en uitvoeren van kwalitatief onderzoek. Stenfert Kroese, Houten, 255pp.

Baker, K.K., 1995. Consorting with forests: rethinking our relationships to natural resources and how we should value their loss. Ecology Law Quarterly, 22, 677-728.

Baldwin, R., Black, J., 2008. Really responsive regulation. The Modern Law Review Limited, 71(1), 59-94.

Baldwin, R., Cave, M., 1999. Understanding regulation. Theory, Strategy and Practice. Oxford University Press, Oxford, 363 pp.

Baldwin, R, Scott, C., Hood, C., 1998. Introduction. In: Baldwin, R., Scott, C., Hood, C. (Eds). A reader on regulation. Oxford University Press, Oxford, pp. 1-55.

Barbour, R.S., 2001. Checklist for improving rigour in qualitative research: a case of the tail wagging the dog? British Medical Journal, 322, 115-117.

Bardach, E., Kagan, R.A., 1982. Going by the book: The problem of regulatory unreasonableness. Temple University Press, Philadelphia, 375 pp.

Barden, C.J., Jones, S.B., Biles, L.E., 1996. Extension forestry education: reaching the people who make decisions. Journal of Forestry, 94(3), 31-35.

Barr, N., Cary, J., 2000. Influencing improved natural resource management on farms: a guide to understanding factors influencing the adaptation of sustainable resource practices. Social Science Center, Bureau of Resource Sciences, Canberra. 44 pp.

Barrett, S., 2006. Environmental regulation for competitive advantage. Business Strategy Review, 2(1), 1-15.

Barten, P.K., Damery, D., Catanzaro, P., Fish, J., Campbell, S., Fabos, A., Fish, L., 2001. Massachusetts family forest: birth of a landowner cooperative. Journal of Forestry, 99 (3), 23–30.

Baumal, W.J., Oates, W.E., 1988. The theory of environmental policy. Cambridge University Press, Cambridge, 314 pp.

Behera, B., Engel, S., 2006. Institutional analysis of evolution of joint forest management in India: a new institutional economics approach. Forest Policy and Economics, 8, 350-362.

Beetham, D., 1993. The Legitimation of Power. Palgrave Macmillan, Basingstoke, 280 pp.

Bemelmans-Videc, M.-L., Rist, R.C., Vedung, E. (Eds.), 1998. Carrots, sticks and sermons. Policy instruments and their evaluation. Transaction, New Brunswick, 280 pp.

Bengston, D.N., 1994. Changing forest values and ecosystem management. Society and Natural Resources, 7, 515-533.

Berman, P., 1978. The study of macro- and micro- implementation. Public Policy, 26(2), 157-184.

Bertaux D., 1981. From the life-history approach to the transformation of sociological practice. In: Bertaux, D. (ed.). Biography and society: the life history approach in the social science. Sage, London, pp. 29-45.

Black, J., 2002. Critical reflections on regulation. London School of Economic and Political science, London, 27 pp.

Blomquist, W., 1992. Dividing the waters: governing groundwater in Southern California. Institute for Contemporary Studies, San Francisco, California, 415 pp.

Bloor, M., 1997. Techniques of validation in qualitative research: a critical commentary. In: Miller, G., Dingwall, R. (Eds.). Context and method in qualitative research. Sage Publications, London, pp. 37-50.

Böcher, M., forthcoming. Developing a theoretical framework by the example of choice of instruments in environmental policy. Special issue. Forest Policy and Economics.

Böcher, M., Töller, A.E., 2003. Conditions for the emergence of alternative environmental policy instruments. Paper presented at the 2nd ECPR-conference, 18-21 September 2003, Marburg.

Boers, A., Koning, M.J., 2005. Belastinguitgaven door fiscale faciliteiten voor natuurbeleid. Rapport 6.05.16. LEI, Den Haag, 80 pp. (in Dutch)

Bogaert, D., 2004. Natuurbeleid in Vlaanderen. Natuurontwikkeling en draagvlak als vernieuwingen? Instituut voor Natuurbehoud, Brussels, 377 pp. (in Dutch)

Bogaert, D., Gersie, J., 2006. High noon in the low countries: recent nature policy dynamics in the Netherlands and Flanders. In: Arts, B., Leroy, P. (Ed.). Institutional dynamics in environmental governance, Environment & Policy 47, Springer, Dordrecht, pp. 115-138.

Bogaert, D., Leroy, P. 2008. Endangered Legitimacy. Nature policy in Flanders: the sloppy management of participation. In: Keulartz, J., Leistra, G. (Eds.). Legitimacy in European nature conservation policy: case studies in multilevel governance. Springer, Dordrecht, pp. 185-204.

Boonstra, F., 2004. Laveren tussen regio's en regels. Verankering van beleidsarrangementen rond plattelandsontwikkeling in Noordwest Friesland, de Graafschap en Zuidwest Salland. Koninklijke Van Gorcum, Assen, 291 pp. (in Dutch)

Bosch, P.P., 1997. Van boerenbos naar landgoed? De relatie tussen ontwikkeling van bos en nieuwe landgoederen in Noord-Nederland. Nederlands Bosbouwtijdschrift, 69(2), 51-57. (in Dutch)

Bowen, G.A., 2008. Naturalistic inquiry and the saturation concept: a research note. Qualitatieve research, 8, 137-152.

Boyle, M, Kay, J., Pond, B., 2001. Monitoring in support of policy: an adaptive ecosystem approach. In: Munn, T. (Ed.). Encyclopedia of Global Environment Change. Vol. 4. Wiley, New York, pp 116-137.

Brabants Landschap, 2007. Stichting het Noordbrabants Landschap. Jaarverslag. Brabants Landschap, Haaren, 57 pp. (in Dutch)

Braddach, J.L., Eccles, R.G., 1989. Price, authority and trust: from ideal types to plural forms. Annual review Sociology, 15, 97-118.

Braithwaite, J., Makkai, T., 1994. Trust and compliance. Policing and Society, 4, 1-12.

Braithwaite, V., 2003. Dancing with tax authorities: Motivational postures and noncompliant actions. In: Braithwaite, V. (Ed.). Taxing democracy: understanding tax avoidance and evasion. Ashgate, Hampshire, pp. 15-39.

Bredenoord, H.W.B., Dirkx, G.H.P., van Esbroek, M.L.P., Koomen, A.J.M., Weijschedé, T.J., 2004. Beleidsevaluatie natuur en landschap. Achtergronddocument bij natuurbalans 2004. Natuurplanbureau, Wageningen, 110 pp. (in Dutch)

Bressers, H., 2004. Implementing sustainable development: how to know what Works, where, when and how. In: Lafferty, W.M. (Eds.). Governance for sustainable development: the challenge of adapting form to function. Edward Elgar, Cheltenham, pp. 284-318.

Bressers, H., O'Toole, L.J., 2005. Instrument selection and implementation in a network context. In: Eliadis, P., Hill, M., Howlett, M. (Eds.). Designing government: from instruments to governance. McGill-Queen's university Press, Montreal, pp. 132-153.

Bressers, J.T.H.A., 2003. Evaluatie van beleid. In: Hoogerwerf, A., Herweijer, M. (Eds.). Overheidsbeleid. Kluwer, Alphen aan den Rijn, 173-195.

Briassoulis, H., 2005. Analysis of policy integration: conceptual and methodological considerations. In: Briassoulis, H. (Ed.), Policy integration for complex environmental problems. Ashgate, Aldershot, UK, pp. 50 -80

Brunson, M.W., Yarrow, D.T., Roberts, S.D., Guynn, D.C., Kuhns, M.R., 1997. Nonindustrial private forest owners and ecosystem management: can they work together? Journal of Forestry, 94(6), 14-21

Buiting Bosontwikkeling, 2006. Evaluatie bosbeleid provincie Limburg 1998-2002. Provincie Limburg, Maastricht, 66 pp. (in Dutch)

Buizer, M., 2008. Worlds apart. Interaction between local iniatives and established policy. Wageningen University and Alterra, Wageningen, 242 pp.

BuCaelli, K., Ray, L., Mill, J., 2003. 'Clear as mud': toward greater clarity in generic qualitative research. International Journal of Qualitative Methods, 2(2), 1-24.

Caldectt, J., Lutz, E., 1996. Conclusions. In: Lutz, E., Caldecott, J. (Eds.). Decentralization and biodiversity conservation. A world bank symposium. The World Bank, Washington, DC, pp. 155-163.

Callens, C., 2008. Ecologische en bosbouwkundige evaluatie van de subsidieregeling voor herbebossing. Master thesis, Gent University, Gent, 182 pp.

Chapman, J., 2002. Systeme failure. Why governments must learn to think differently. DEMOS, London, 84 pp.

Charnley, S., Fisher, A.P., Jones, E.T., 2007. Integrating traditional and local ecological knowledge into forest biodiversity conservation in the Pacific Northwest. Forest Ecology and Management, 246, 14-28.

Clarke, K. R., 1993. Non-parametric multivariate analyses of changes in community structure. Australian Journal of Ecology, 18, 117-143.

Creswell, J.W., 1997. Qualitative inquiry and research design: choosing among five traditions. Sage Publications, London, 393 pp.

Coleman, E.A., 2009. Institutional factors affecting biophysical outcomes in forest management. Journal of Policy Analysis and Management, 28(1), 122-146.

Coleman, W.D., 1994. Policy convergence in banking: a comparative study. Political Studies, 42, 274–292.

Connelly, S., Richardson, T., Miles, T., 2006. Situated legitimacy: deliberative arenas and the new rural governance. Journal of Rural Studies, 22, 267–277.

Cornes, R., Sandler, T., 1996. The Theory of Externalities, Public Goods and Club Goods (Second Edition). Cambridge University Press, Cambridge, 590 pp.

Cortner, H.J., Shannon, M.A., Wallace, M.G., Burke, S., Moote, M.A., 1996. Institutional barriers and incentives for ecosystem management: a problem analysis. General Technical report PNW-GTR-354. Department of Agriculture, Forest Service, Pacific Northwest Station, Portland, Oregon, 35 pp.

Cortner, H.J., Wallace, M.G., Burke, S., Moote, M.A., 1998. Institutions matter: the need to address the institutional challenges of ecosystem management. Landscape and Urban Planning, 40, 159-166.

Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R.V., Paruelo, J., Raskin, R.G., Sutton, P., van den Belt, M., 1997. The value of the World's Ecosystem services and Natural Capital. Nature, 387, 253-260.

Cresswell, J., 1998. Qualitative inquiry and research design: choosing among five traditions. Sage, Thousand Oaks, 402 pp.

Cubbage, F., Harou, P. Sills, E., 2007. Policy instruments to enhance multifunctional management. Forest Policy and Economics, 9, 833-851.

Darke, P., Shanks, G., Broadbent, M., 1998. Successfully completing case study research: combining rigour, relevance and pragmatism. Info Systems Journal, 8, 273-289.

Dasgupta, P., 1988. Trust as a commodity. In: Gambetta, D. (Ed.). Trust: Making and breaking cooperative relations, Oxford University Press, Oxford, pp. 49-72.

de Bruijn, H.A., ten Heuvelhof, E.F., 1998. A contextual approach to policy instruments. In: Peters, B.G., van Nispen, F.K.M. (Eds.). Public Policy Instruments. Evaluating the tools of public administration. Edward Elgar, Cheltenham, pp. 69-84.

DEFRA, 2007. A Strategy for England's trees, woods and forests. Department for environment, Food and Rural Affairs. London, 42 pp.

De Heer, B., Hufen, H., Koolhaas, E., Rekkers, P., 1998. Eindadvies kwalitatieve evaluatie bosuitbreiding. Directie Kennis, Den Haag, 69 pp. (in Dutch)

de Molenaar, J.G., 1998. Een verkennende beschouwing over grondhoudingen, natuurbeelden en natuurvisies in relatie tot draagvlak voor natuur, IBN-rapport 345, IBN-DLO, Wageningen, 111 pp. (in Dutch)

Deketelaere, K., 1998. New environmental policy instruments in Belgium. In: Golub, J. (Ed.), New instruments for environmental policy in the EU. EUI Environmental Policy Series, Routledge, London, pp. 107-124.

Dienstencentrum voor Bosbouw, 2000. Vergelijkende studie met betrekking tot de bosrentabiliteit in productiegerichte multifunctionele bossen en natuurgerichte multifunctionele bossen. Dienstencentrum voor Bosbouw, Vilvoorde, pp 53 + appendices

Dietz, T., Ostrom, E., Stern, P.C., 2003. The struggle to govern the commons. Science, 302(5652): 1907-1912

Dinica, V., 2004. The evolution of national policy implementation structures under the Europeanization of policy-making. Conference of the European Political Science Network, 18-19 June 2004, Prague.

Dolowitz, D. with Hulme, R., Nellis, M., O'Neal, F., 2000. Policy transfer and British Social Policy: Learning from the USA? Open University Press, Buckingham, 146 pp.

Dolowitz, D., Marsh, D., 1996. Who learns what from whom?: A review of the policy transfer literature. Political studies, 44(2), 343–357.

Dolowitz, D., Marsh, D., 2000. Learning from Abroad: The Role of Policy Transfer in Contemporary Policy Making. Governance, 13(1), 5-24.

Doppenberg, M.H., Landman, A.J., 1996. Evaluatie van bosuitbreiding van gemeenten. Afstudeerproject, Wageningen University, Wageningen, 120 pp. (in Dutch)

Douglas, M., Wildavsky, A., 1983. Risk and Culture: An Essay on the Selection of Technical and Environmental Dangers. University of California Press, 224 pp.

Berkeley.

Drever, C.R., Peterson, G., Messier, C., Bergeron, Y., Flannigon, M., 2006. Can forest management based on natural disturbances maintain ecological resilience? Canadian Journal of Forest Research, 36, 2285-2299.

Dua, V., 2000. Beleidsnota leefmilieu 1999-2004 ingediend door mevrouw Vera Dua, Vlaams minister van Leefmilieu en Landbouw. Vlaams parlement, Brussel, stuk 141(1).

Dubbink, W., 2008. Vindicating arrogant ecologists. In: Keulartz, J., Leistra, G. (Eds.). Legitimacy in European Nature Conservation Policy. Case Studies in Multilevel Governance. The International Library of Environmental, Agricultural and Food Ethics, Vol. 14 Springer, Dordrecht, pp. 47-53.

Dumortier, M., De Bruyn, L., Peymen, J., Schneiders, A., Van Daele, T., Van Reeth, W., Weyembergh, G., Kuijken, E. (Eds.). Natuurrapport 2005. Toestand van de natuur in Vlaanderen: cijfers voor het beleid. Instituut voor Natuurbehoud, Brussel, 496 pp.

Dumortier, M., De Bruyn, L., Peymen, J., Schneiders, A., Van Daele, T., Weyembergh, G., Van Straaten, D., Kuijken, E. (Eds.). Natuurrapport 2003. Toestand van de natuur in Vlaanderen: cijfers voor het beleid. Instituut voor Natuurbehoud, Brussel, 352 pp.

Dumortier, M. , De Bruyn, L., Wils, C., Paelinckx, D., Vander Mijnsbrugge, K., Cox, K., Sioen, G., Roskams, P. Vandekerkhove, K., Hens. M., 2005. Bossen en struwelen. In: Dumortier, M., De Bruyn, L., Peymen, J., Schneiders, A., Van Daele, T., Van Reeth, W., Weyembergh, G., Kuijken, E. (Eds.). Natuurrapport 2005. Toestand van de natuur in Vlaanderen: cijfers voor het beleid. Instituut voor Natuurbehoud, Brussel, 115-128. (in Dutch).

Edelenbos, J., Klijn, E.-H., 2007. Trust in complex decision-making networks: a theoretical and empirical exploration. Administration and Society, 39(1), 25-50.

Edelenbosch, N.H., 1996. Ex-post evaluation of forest expansion policy in the Netherlands during the period 1990-1995. IBN-rapport 230, IBN-DLO, Wageningen, 62 pp. (in Dutch)

Edelenbosch, N.H., Schrijver, R.A.M., 1997. Ex-ante-evaluatie van bosuitbreiding door agrariërs: de haalbaarheid van het bebossingsbeleid op landbouwbedrijven. IBN-rapport 268, IBN-DLO, Wageningen, 125 pp. (in Dutch)

Elands, B.H.M., O'Leary, T.N., 2002. The myth of forests: a reflexion on the variety of rural identies in Europe and the role of forests in it. In: Wiersum, K.F., Elands, B.H.M. (Eds.). The changing role of forestry in Europe: perspectives for rural development. Proceeding 2002-02. Forest and Nature Conservation Policy group, Wageningen University, Wageningen, pp. 25-50.

Elands, B.H.M., Wiersum, K.F., 2001. Forestry and rural development in Europe: an exploration of socio-political discourses. Forest Policy and Economics, 3, 5-16.

Eliadis, P., Hill, M., Howlett, M. (Eds.), 2005. Designing government: from instruments to governance. McGill-Queen's university Press, Montreal, 454 pp.

Eliadis, P., Lemaire, D., 2006. Evaluating knowledge about the instruments of government: the Canadian federal experience. In: Rist, R.C., Stame, N. (Eds.). From studies to streams. Managing evaluative systems. Comparative Policy Evaluation, Volume XII, Transaction Publishers, London, pp. 129-146.

Elliott, C., Schlaepfer, R., 2001. Understanding forest certification using the Advocacy Coalition Framework. Forest Policy and Economics, 2, 257-266.

Elmore, R.F., 1979. Backward mapping: implementation research and policy decision. Political Science Quarterly, 94(4), 601-616.

Elmore, R.F., 1985. Forward and backward mapping: reversible logic in the analysis of public policy. In: Hanf, K., Toonen, T.A.J. (Eds.). Policy implementation in federal and unitary systems: questions of analysis and design. Martinus Nijhof, Dordrecht, pp. 33-70.

Erickson, D.L., Ryan, R.L, De Young, R., 2002. Woodlots in the rural landscape: landowner motivations and management attitudes in a Michigan (USA) case study. Landscape and Urban Planning, 58(2-4), 101-112.

Ernst, L., 1995. Integrating state government for improved coastal water quality: analysis of the Rhode Island Salt Pond region. Coastal Management, 23(1-2), 315-326.

Evans, M., 2006. At the interface between theory and practice - policy transfer and lesson drawing. Public Administration, 84(2), 479-489.

Evers, F.W.R., Beckers, T.A.M., Winsemius, P., 2004. Rood voor Groen. Van filosofie naar resultaat. Globus en Amstelland MDC, 82 pp. (in Dutch)

Farjon, J.M.J., Bezemer, V., Blok, S., Goossen, C.M., Nieuwenhuizen, W., de Regt, W.J., de Vries, S., 2004. Groene ruimte in de Randstad: een evaluatie van het rijksbeleid van bufferzones en de Randstadgroenstructuur. Planbureaurapporten 6. Natuurplanbureau, Wageningen, 156 pp. (in Dutch)

Farjon, H., van der Wielen, P., 2004. Randstad in het groen. Van stagnatie naar realisatie. Natuurplanbureau, Bilthoven, the Netherlands, 47 pp. (in Dutch)

Farrier, D., 1995. Conserving biodiversity on private land: incentives for management or compensation for lost expectations. Harvard Environmental Law Review, 19(2), 303-408.

Feld, L.P., Frey, B.S., 2002. Trust breeds trust: how taxpayers are treated. Economics of Governance, 3, 87-99.

Fleishman, F., 2008. Bureaucracy, collaboration and coproduction: a case study of the implementation of adaptive management in the USDA Forest service. http://www.indiana.edu/~workshop/publications/

Flicke, U., 2007. Managing Quality in Qualitative Research. The Sage Qualitative research kit. Sage, London, 156 pp.

Finkelstein, S., 1992. Power in top management teams: dimensions, measurement and validation. The Academy of Management Journal 35(3), 505-538.

Fitzsimmons, A.K., 1996a. Sound policy or smoke and mirrors: does ecosystem management make sense. Water resource bulletin, 32, 217-227.

Fitzsimmons, A.K., 1996b. Stop the parade. BioScience, 46, 78-79.

Folke, C., Hahn, T., Olsson, P., Norberg, J., 2005. Adaptive governance of social-ecological systems. Annual Review of Environmental Resources, 30, 441-473.

Fulton, W., Mazurek, J., Pruetz, R., Williamsom, C., 2004. TDRs and other market-based land mechanisms: how they work and their role in shaping metropolitan growth. Brookings Institution Center on Urban and Metropolitan Studies, http://www.brookings.edu/reports/2004/06metropolitanpolicy_fulton.aspx

Garrod, G., Willis, K., 1992. Valuing Goods' Characteristics: An Application of the Hedonic Price Method to Environmental Attributes, Journal of Environmental Management, 34(1), 59-76.

Geldersch Landschap, 2006. Nota Bosbeleid. Geldersch Landschap, Arnhem, 32 pp. (in Dutch)

Gibson, C.C., Lehoucq, F.E., Williams, J.T., 2002. Does privatization protect natural resources? Property rights and forests in Guatemala. Social Science Quarterly, 83(1), 206-225.

Gibson, C.C., 2005. Local enforcement and better forests. World Development, 33(2), 273-284.

Giordano, B., Roller, E., 2003. A comparison of city region dynamics in the UK, Spain and Italy: more similarities than differences? Regional Studies, 37(9), 911-927.

Gluck, P., Rayner, J., Cashore, B., 2005. Change in the Governance of Forest Resources. In: Mery, G., Alfaro, R., Kanninen, M., Labovikov, M. (Eds.). Forest in the Global Balance – Changing Paradigms, World Series, Volume 17, International Union of Forest Research Organizations (IUFRO), Helsinki, pp. 51-74.

Goggin, M.L., Bowman, A.O'M., Lester, J.P., O'Toole, L.J. Jr., 1990. Implementation theory and practice: toward a third generation. Scott, Foresman & Co, Glenview, 230 pp.

Goos, J., Prins, G.A.H., 1993. Advies van de commissie bosuitbreiding: geode gronden voor nieuw bos. Nederlands Bosbouwtijdschrift, 65(1), 2-7 (in Dutch)

Goverde, H., Hinssen, J.P.P., 1994. Machtsbalansanalyse. In: Huberts, L.W.J.C., Kleinnijenhuis, J. (Eds.). Methoden van invloedsanalyse. Boom, Amsterdam/Meppel, pp. 98-119. (in Dutch)

Gotzen, R., 1997. Belgische pachtwetgeving. Kluwer, Mechelen, 245 pp. (in Dutch)

Gouldson, A., Murphy, J., 1996. Ecological modernisation and the European Union. GeoForum, 27(1), 11-21.

Grabosky, P., 1994. Green markets: environmental regulation by the private sector. Law and Policy, 16(4), 419-448.

Grabosky, P., 1995. Regulation by reward: on the use of incentives as regulatory instruments. Law & Policy, 17(3), 257-282.

Grasmick, H.G., Bursik, R.J. Jr., 1990. Conscience, significant others, and rational choice: Extending the deterrence model. Law and Society Review, 24, 837–861.

Groeneveld, R., van Rheenen, T., Brouwer, F., 2004. Bio-diversity Enhancing Programs: are they knowledge driven? BIOfACT, Policy analysis, Wageningen, 58 pp.

Grumbine, R.E., 1994. What is ecosystem management? Conservation Biology, 8, 1-12.

Guba, E.G., 1984. Criteria for assessing the trustworthiness of naturalistic inquiries. ERIC/EJTC Annual Review Report, 29(2), 75-91.

Guba, E.G., Lincoln, Y.S., 1989. Fourth generation evaluation. Sage Publications, London, 298 pp.

Guest, G., Bunce, A., Johnson, L., 2006. How many interviews are enough?: an experiment with data saturation and variability. Field methods 18(1), 59 DOI: 10.1177/1525822X05279903

Gullison, R.E., 2003. Does forest certification conserve biodiversity? Oryx, 37(2), 153-165.

Gunningham, N., 1997. Toward optimal environmental policy: the case of biodiversity conservation. Ecology Law Quartely, 24(2), 243-298.

Gunningham, N., Grabosky, P., 1998. Smart regulation. Designing environmental policy. Oxford Legal studies. Oxford University Press, New York, 494 pp.

Gunningham, N., Phillipson, M., Grabosky, P. 1999. Harnessing third parties as surrogate regulators: achieving environmental outcomes by alternative means. Business Strategy and the Environment, 8, 211-224.

Gunningham, N., Rees, J., 1997. Industry self-regulation: an institutional perspective. Law and Policy, 19(4), 363-413.

Gunningham, N., Sinclair, D., 1999. Designing smart regulation. http://www.oecd.org/dataoecd/18/39/33947759.pdf

Gunningham, N., Young, M.D., 1997. Toward optimal environmental policy: the case of biodiversity conservation. Ecology Law Quartely, 24(2), 243-298

Haas, P.M., 1992. Introduction: Epistemic communities and international policy coordination. International Organization, 46(1), 1-35.

Haeuber, R., 1996. Setting the environmental policy agenda: the case of ecosystem management. Natural Resource Journal, 36, 1-28.

Hagedoorn, T., 1998. Beleidsvisie en stimuleringskader voor de Brabantse bossen. Provincie Noord Brabant, 's Hertogenbosch, 67 pp (in Dutch)

Hahn, R., Stavins, R.N., 1991 Incentive-based environmental regulation: a new era from an old idea? Ecology Law Quarterly, 18(1), 1-42.

Hanf, K., 1978. Introduction. In: Hanf, K., Scharpf, F.W. (Eds.). Interorganizational policy making: limits to coordination and central control. Sage Publications, London, pp. 1-15.

Hanf, K., 1982. Regulatory structures: Enforcement as implementation. European Journal of Policy Research, 10, 159-172.

Hardin, R., 1991. Trusting persons, trusting institutions, in: Zeckhauser, R.J. (Ed.). Strategy and choice. Cambridge University Press, Cambridge, pp. 185-209.

Hardy, C., Phillips, N., Lawrence, T., 1998. Distinguishing trust and power in interorganizational relations: Forms and facades of trust. In: Lane, C., Bachmann, R. (Eds.). Trust within and between organizations: Conceptual issues and empirical applications. Oxford University Press, Oxford. pp. 64-87.

Hartig, T., Evans, J., Jamner, L.D., Davis, D.S., Gärling, T., 2003. Tracking restoration in natural and urban field settings. Journal of Environmental Psychology, 23, 109-123.

Hasenfeld, Y., Brock, T., 1991. Implementation of social policy revised. Administration and Society, 22(4), 451-479.

Hees, E., 2000. Trekkers naast de trap : een zoektocht naar de dynamiek in de relatie tussen boer en overheid. Proefschrift. Wageningen University, Wageningen, 181 pp.

Helles, F., Linddal, M., 1996. Afforestation experiences in Nordic countries. Nordik Ministerråd, Kbh. Nord, 15 pp.

Hemerijck, A., Unger, B., Visser, J. 2000. How small countries negotiate change. Twenty-five years of policy adjustment in Austria, the Netherlands, and Belgium. In: Scharpf, F.W., Schmidt, V.A. (Eds.). Welfare and work in the open economy. Volume II. Diverse response to common challenges. Oxford University Press, Oxford, pp. 175-263.

Hetherington, M.J., 1998. The political relevance of political trust. American Political Science Review, 92(4), 791-808.

Hickey, G.M., 2008. Evaluating sustainable forest management. Ecological Indicators, 8(2), 109-114.

Hill, M.O., Gauch, H.G., 1980. Detrended correspondence analysis, an improved ordination technique. Vegetatio, 42, 47-58.

Hilson, G., 2002. An overview of land use conflicts in mining communities. Land Use Policy, 19, 65-73.

Hjern, B., Porter, D.O., 1981. Implementation structures: a new unit of administrative analysis. Organizational Studies, 2, 211-227.

Holvoet, B., Muys, B., 2004. Sustainable forest management worldwide: a comparative assessment of standards. International Forestry Review, 6(2), 99–122.

Hood, C., 1986. The tools of government. Chatham house, Chatham, 192 pp.

Hood, C., Margetts, H.Z., 2007. The tools of government in digital age. Public Policy and Politics. Palgrave Macmillan, Basingstoke, 218 pp

Hoogerwerf, A., Arentsen, M.J., Klok, P.J., 1993. Om een aanvaardbaar beleid. Een studie over de maatschappelijke acceptatie van overheidsbeleid, Centrum voor bestuurskundig onderzoek en onderwijs, Enschede. (in Dutch)

Howlett, M., 1991. Policy instruments, policy styles and policy implementation: national approaches to theories of instrument choice. Policy studies journal, 19(2), 1-21.

Howlett, M., 2004. Beyond good and evil in policy implementation: instrument mixes, implementation styles, and second generation theories of policy instrument choice. Policy and Society, 23(2), 1-17.

Howlett, M., Ramesh, M. 2002. The policy effects of internationalization: a subsystem adjustment analysis of policy change. Journal of Comparative Policy Analysis, 4(1), 31-50.

Howlett, M., Rayner, J., 2004. (Not so) "smart regulation"? Canadian shellfish aquaculture policy and the evolution of instrument choice for industrial development. Marine Policy, 28(2), 171-184.

Hull, R.B., Robertson, D.P., Buhyoff, G.J., 2004. Boutique forestry – New forest practices in urbanizing landscapes. Journal of Forestry, 102(1), 14-19.

Humphreys, D., 2003. The United Nations Forum on Forests: Anatomy of a stalled international process. Global Environmental Change, 13(4), 319-323.

Humphreys, D., 2005. The Elusive Quest for a Global Forests Convention. Review of European Community and International Environmental Law (RECIEL), 14(1), 1-10.

Imperial, M.T., 1998. Intergovernmental policy implementation: examining interorganizational networks and measuring network performance. Academy of Management Meeting. August 9 – 12, San Diego, California, 33 pp.

Imperial, M.T., 1999a. Institutional analysis and ecosystem-based management: the institutional analysis and development framework. Environmental Management, 24(4), 449-465.

Imperial, M.T., 1999b. Analyzing institutional arrangements for ecosystem-based management: lessons from the Rhode Island Salt Ponds SAM Plan. Coastal management, 27(1), 31-56.

InnovatieNetwerk, 2006. Singelgolf. Een nieuwe economische basis voor de landbouw en voor gebiedsontwikkeling door middel van golf. InnovatieNetwerk, Utrecht, 72 pp

Jänicke, M., 1988. Structural change and environmental impact: empirical evidence on thirty-one countries in East and West. Environmental Monitoring and Assessment, 12, 99–114.

Jansen, P., 2002. Mogelijkheden bosaanleg beter dan ooit. De Landeigenaar, 48(5), 4-6. (in Dutch)

Jansen, P.A.G., 2003. Van tijdelijk naar permanent bos. Stichting Bos en Hout, Wageningen, 22 pp. (in Dutch)

Jennings, P.D., Zandbergen, P.A., 1995. Ecologically sustainable organizations: an institutional approach. The Academy of Management Review, 20(4), 1015-1052.

Jókövi, E.M., Luttik, J., 2003. Rood en groen: het combineren van verstedelijking en natuur in de praktijk. Werkdocument 2003/12. Alterra, Wageningen, 35 pp. (in Dutch)

Jones, S.B., Luloff, A.E. & Finley, J.C., 1995. Another look at NIPF's: facing our myths. Journal of Forestry, 93(9), 41-44.

Jordan, A., Wurzel, R.K.W., Zito, A., 2005. The rise of new policy instruments in comparative perspective: has governance eclipsed government? Political Studies, 53, 477-496.

Jordan, A., Wurzel, R., Zito, A., Brückner, L., 2003. European governance and the transfer of new environmental policy instruments (NEPI's) in the European Union. Public administration, 81(3), 555-574.

Jordana, J., Levi-Faur, D. 2004. The politics of regulation in the age of governance. In: Jordana, J., Levi-Faur, D. (Eds.). The politics of regulation. Institutions and regulatory reforms for the age of governance. The CRC series on competition, regulation and development. Edward Elgar, Cheltenham, pp. 1-28.

Jovan, S., McCune, B., 2006. Using epiphytic macrolichen communities for biomonitoring ammonia in forests of the Greater Sierra Nevada, California. Water, Air and Soil Pollution, 170, 69-93.

Kaimowitz, D., 2003. From Rio to Johannesburg and beyond: forest conservation and rural livelihoods in the global South. In: Congress Proceedings, Volume A. Proceedings of the 12th Word Forestry Congress, Quebec, Canada, September 21 to 28, pp. 10-15.

Kaplan, R., 2001. The nature of the view from home: psychological benefits. Environment and Behavior, 33, 507-542.

Kassioumis, K., Papageorgiou, K., Christodoulou, A., Blioumis, V., Stamou, N., Karameris, A. 2004., Rural development by afforestation in predominantly agricultural areas: issues and challenges from two areas in Greece. Forest Policy and Economics, 6, 483-496.

Kaufmann, D., Kraay, A. and Mastruzzi, M., 2008. Governance Matters VII: Aggregate and Individual Governance Indicators, 1996-2007(June 24, 2008). World Bank Policy Research Working Paper No. 4654. http://ssrn.com/abstract=1148386

Kemp, R., Weehuizen, R., 2005. Policy learning, what does it mean and how can we study it? Publin Report 6. NIFU Step, Oslo, 23 pp.

Keough, H.L., Dale, J.B., 2006. Achieving integrative, collaborative ecosystem management. Conservation Biology, 20(5), 1373-1382.

Kesteloot, C., 2003. Verstedelijking in Vlaanderen: problemen, kansen en uitdagingen voor het beleid van de 21ste eeuw. In: Schets, L. (Ed.) De eeuw van de stad, over stadsrepublieken en rastersteden, voorstudies. Ministerie van de Vlaamse Gemeenschap – Project Stedenbeleid, Brussel, pp. 15-39. (In Dutch)

Kichgässner, G., Schneider, F., 2003. On the political economy of environmental policy. Public Choice, 115(3), 369-396.

Kirkebæk, M., Thormann, A. 2000. Evaluering af den gennemførte skovrejsning 1989-1998. Skov- og Naturstyrelsen, http://www.sns.dk/skov/netpub/evaluering

Kittredge, D.B. 2005. The cooperation of private forest owners on scales larger than one individual property: international examples and potential application in the United States. Forest Policy and Economics, 7(4), 671-688.

Kline, J.D., Alig, R.L., Johnson, R.J., 2000. Fostering the production of nontimber services among forest owners with heterogeneous objectives. Forest Science 46, 302– 311.

Klingen, S., Sevenster, J., 1991. Geïntegreerd bosbeheer. Natuur en Milieu, Zwolle, 23 pp (in Dutch)

Knierim, A., Siebert, R., Brouwer, F., Fernandez-Sañudo, P., Garcia-Montero, G., Gil, T., Graveland, C., de Lucas, C., Manzanera, J.-A., Mnatsakanian, R., Nieminen, M., Pascual, C., van Rheenen, T, Szekér, K.S., Toogood, M., Urbano, J., 2003. An assessment of factors affecting farmers' willingness and ability to cooperate with biodiversity policies. Report of the BIOfACT WP 2, Wageningen, 121 pp.

Knill, C., Lenschow A., 1998. Coping with Europe: the impact of British and German administrations on the implementation of EU environmental policy. Journal of European Public Policy, 5(4), 595–614.

KnowHouse, 2006. Tussenrapportage VORm. LEI, Wageningen, 88 pp. (in Dutch)

Knox, K., 2004. A researcher's dilemaa – philosophical and methodological pluralism. Electronic Journal of Business Methods, 2(2), 119-128.

Konijnendijk, C.C., 1999. Urban forestry: comparative analysis of policies and concepts in Europe - Contemporary urban forest policy-making in selected cities and countries of Europe. EFI Working Paper 20. European Forest Institute, Joensuu, pp. 266.

Konijnendijk, C.C., van Laar, J.N., 1996. Boerenbosbouw is zo gek nog niet. Noordelijke agrariërs stappen over op bosbouw. Nederlands Bosbouwtijdschrift, 68, 7-11. (in Dutch)

Koontz, T.M., 2001. Money talks – But to whom? Financial versus nonmonetary motivations in land use decisions. Society and Natural Resources, 14(1), 51-65.

Kramer, R. M., Brewer, M. B., Hanna, B. A., 1996. Collective trust and collective action. In: Kramer, R. M., Tyler, T. R. (Eds.). Trust in organizations: Frontiers of theory and research, Sage Publications, Thousand Oaks, pp. 23-42.

Kuindersma, W., Zweegman, G.J., 1997. Grondverwerving voor natuur: het rijk van provincies? IBN Rapport 322. IBN-DLO, Wageningen, 89 pp. (in Dutch)

Kuper, A., Reeves, S., Levinson, W., 2008. An introduction to reading and appraising qualitative research. British Medical Journal, 337, 404-407.

Kyburz-Graber, R., 2004. Does case study methodology lack rigour? The need for quality criteria for sound case-study research, as illustrated by a recent case in secondary and higher education. Environmental Education Research, 10(1), 53-65.

Landell-Mills, N., Porras, I.T., 2002. Silver bullet or fools' gold? A global review of markets for forest environmental services and their impact on the poor. International Institute for Environmental and Development, London, 249 pp.

Langpap, C., 2006. Conservation of endangered species: can incentives work for private landowners? Ecol. Econ., 57, 558-572.

Lane, C., Bachmann, R. (Eds.), 1998. Trust within and between organizations: Conceptual issues and empirical applications. Oxford University Press, Oxford, 354 pp.

Leach, M., Mearns, R., Scoones, I., 1999. Environmental entitlements: dynamics and institutions in community-based natural resource management. World Development 27(2), 225-247.

Lebel, L., Anderies, J.M., Cambell, B., Folke, C., Hatfield-Dodds, S., Hughes, T.P., Wilson, J., 2006. Governance and the capacity to manage resilience in regional social-ecological systems. Ecology and Society, 11(1), 19. [online] URL:http://www.ecologyandsociety.org/vol11/iss1/art19/

Leinfelder, H., 2004. Switch of scope on spatial development perspectives for agriculture in urbanised and urbanising regions. Abstract in book of abstracts van XI World Congress of Rural Sociology "Globalisation, risks and resistance in rural economies and societies" (Trondheim, 25-30 juli 2004), pp. 44.

Leinfelder, H., 2007. Dominante en alternatieve planningsdiscoursen ten aanzien van open ruimte en landbouw in een (Vlaamse) verstedelijkte context. Doctoraatsverhandeling. Universiteit Gent, Gent. (in Dutch)

Leinfelder, H., Van Den Abeele, P., 2007. Strategic zoning plan for open space. http://www.ifhp2007copenhagen.dk/, 51st IFHP World Congress "Futures of cities" (Kopenhagen, 23-26 September 2007). International Federation for Housing and Planning, 12 pp.

Leneman, H., van Bavel, M., van Blitterswijk, H., van Wijk, M., Venema, G., 2004. Functieverandering van landbouw naar natuur. Naar een grotere deelnamebereidheid van particulieren. Rapport 7.04.07. Den Haag, LEI, 51 pp. (in Dutch)

Leroy, P., Arts, B. 2006. Institutional dynamics in environmental governance. In: Arts, B., Leroy, P. (Eds.). Institutional dynamics in environmental governance. Environment and Policy, 47, Springer, Dordrecht, pp. 1-19.

Levi, M., 1997. Consent, dissent, and patriotism. Cambridge University Press, Cambridge, 255 pp.

Levin, D.Z., Cross, R., Abrams, L.C., Lesser, E.L., 2002. Trust and knowledge sharing: a critical combination. IBM Institute for Knowledge-Based Organizations. http://www-935.ibm.com/services/in/igs/pdf/g510-1693-00-cpov-trust-and-knowledge-sharing.pdf

Leyman, A., Vandekerkhove, K., 2003). Beleidsondersteunend onderzoek rond 'zonevreemde' bossen, bosuitbreiding en A-locaties : deelrapport luik 1 : opstellen van een rangorde voor gewestplanwijzigingen van 'zonevreemde' bossen.[INBO.R.2003.7]. Rapporten van het instituut voor bosbouw en wildbeheer - sectie bosbouw, 2003(007). Instituut voor Bosbouw en Wildbeheer: Geraardsbergen, 33 pp.

Liefferink, D., 2006 The dynamics of policy arrangements: turning round the tetrahedron.In: Arts, B., Leroy, P. (Eds.). Institutional dynamics in environmental governance, Environment & Policy 47, Springer, Dordrecht, pp. 45-68.

Lieshout, R.H., Westerheijden, D.F., 1994. De rook van reputatie: het waarnemen van machtsreputatie, in: Huberts, L.W.J.C., Kleinnijenhuis, J. (Eds.), Methoden van invloedsanalyse. Boom, Amsterdam/Meppel, pp. 141-164. (in Dutch)

Lighthart, S.S.H., 2005. Realisatie EHS: provincies aan het stuur? Achtergrond bij de Natuurbalans 2005. Milieu- en Natuurplanbureau, Bilthoven, 53 pp. (in Dutch)

Likert, R., 1932. A Technique for the Measurement of Attitudes. Archives of Psychology**,** 140, 1–55

Lincoln, Y.S., Guba, E.G., 1985. Naturalistic inquiry. Sage publications, Newbury Park, 422 pp.

Lind, E.A., Tyler, T.R., 1988. The Social Psychology of Procedural Justice. Critical issues in social justice. Springer, New York, 286 pp.

Linder, S.H., Peters, B.G., 1987. A design perspective on policy implementation: the fallacies of misplaced prescription. Policy studies Review, 6(3), 459-475.

Linder, S.H., Peters, B.G., 1989. Instruments of government: perceptions and context. Journal of Public Policy, 9(1), 35-58.

Linder, S. H., Peters, B.G., 1998. The study of policy instruments: four schools of thought. In: Peters, B.G., van Nipsen, F.K.M. (Ed.). Public policy instruments. Evaluating the tools of public administration. Edward Elgar, Cheltenham, pp. 33-45.

Lipsky, M., 1978. Standing the study of policy implementation on its head. In: Burnham, W.D., Weinburg, M.W. (Eds.). American Politics and Public Policy. MIT Press, Cambridge, pp. 391-402.

Lipsky, M., 1980. Street-level bureaucrats. Russell Sage Foundation, New York, 276 pp.

L&V, 1969. Nota bosbouw en bosbouwbeleid in Nederland. Ministerie van Landbouw en Visserij, 's Gravenhage. (in Dutch)

L&V, 1977. Structuurvisie op bos en de bosbouw. Ministerie van Landbouw en Visserij, 's Gravenhage. (in Dutch)

L&V, 1986. Meerjarenplan bosbouw – Regeringsbeslissing. Ministerie van Landbouw en Visserij, Den Haag, 162 pp (in Dutch)

LNV, 1992. Evaluatie Meerjarenplan bosbouw 1986-1991. Ministerie van Landbouw en Visserij. Den Haag, 147 pp. (in Dutch)

LNV, 1993. Bosbeleidsplan – Regeringsbeslissing. Ministerie van Landbouw, Natuur en Visserij. Den Haag, 104 pp (in Dutch)

LNV, 2000. Natuur voor mensen, mensen voor natuur. Nota natuur, bos en landschap in de 21ste eeuw. Ministerie van Landbouw, Natuur en Voedselveiligheid, Den Haag, 98 pp. (in Dutch)

LNV, 2001. Evaluatie Strategische groenprojecten. Ministerie van Landbouw, Natuur en Voedselveiligheid. Den Haag, 33 pp. (in Dutch)

LNV, 2004a. Het belang van bos. Over het Nederlandse bosbeleid. Ministerie van Landbouw, Natuur en Voedselkwaliteit, Den Haag, 13 pp (in Dutch)

LNV, 2004b. Agenda voor een vitaal platteland. Visie. Ministerie van Landbouw, Natuur en Voedselkwaliteit, Den Haag, 32 pp. (in Dutch)

LNV, 2006. Meetnet functievervulling bos 2001-2005. Directie Kennis, Ministerie van Landbouw, Natuur en Voedselkwaliteit, Ede, 95 pp. (in Dutch)

LNV, VROM, 1993. Structuurschema Groene Ruimte. deel 3: Kabinetsstandpunt. Ministerie van Landbouw, Natuur en Visserij & Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, Den Haag. (in Dutch)

Loonstra, J., 2002. Op weg naar nieuwe landgoederen in de provincie Overijsel. Waanders Drukkers, Zwolle, 36 pp. (in Dutch)

Luckert, M.K., Williamson, T., 2005. Should sustained yield be part of sustainable forest management? Canadian Journal of Forest Research, 35(2), 356-364.

Luijt, J., 2007. Strategisch gedrag grondeigenaren; Van belang voor de realisatie van natuurdoelen. WOt-rapport 38. Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen, 58 pp. (in Dutch)

Maarleveld, M., Dangbégon, C., 1999. Managing natural resources: a social learning perspective. Agriculture and Human Values, 16, 267-280.

Maas, J.R.C. 1997. Stuitbos niet te stuiten. Afstudeervak Urban Forestry. Landbouwuniversiteit Wageningen, Wageningen, 88 pp. (in Dutch)

Madson, L.M., 2002. The Danish afforestation program and spatial planning: new challenges. Landscape and Urban Planning, 58, 241-254.

Majone, G., 1976. Choice among policy instruments for policy control. Policy analysis, 2(4), 589-613.

Majone, G., 1989. Evidence, argument and persuasion in the policy process. Yale University, New Haven, 190 pp.

Majone, G., 1991. Cross-National Sources of Regulatory Policy Making in Europe and the United States. Journal of Public Policy,11, 179-106.

Marsh, D., Rhodes, R.A.W. (Eds.), 1992. Policy networks in British government. Clarendon Press, Oxford, 320 pp.

Matland, R.E., 1995. Synthesizing the implementation literature: the ambiguity-conflict model of policy implementation. Journal of Public Administration Research and Theory, 5(2), 145-174.

Mayer, A.L., Tikka, P.M., 2006. Biodiversity conservation incentive programs for privately owned forests. Environmental Science & Policy, 9, 614-625.

Mays, N., Pope, C., 2008. Qualitative research in health care: assessing quality in qualitative research. British Medical Journal, 320, 50-52.

Mazmanian, D.A., Sabatier, P.A., 1983. Implementation and Public Policy. Scott Foresman & Co, Chicago.

Mazmanian, D., Sabatier, P.A., 1989. Implementation and public policy, with a new postscript. University Press of America, Latham, 348 pp.

McCune, B., Mefford M.J., 1999. PC-ORD. Multivariate analysis of ecological data, Version 4. MjM Software Design, Gleneden Beach, Oregon, 237 pp.

McDonald, G.T., Lane, M.B., 2004. Converging global indicators for sustainable forest management. Forest Policy and Economics 6, 63-70.

McNeely, J.A., 1988. Economics and Biological Diversity: Developing and Using Economic Incentives to Conserve Biological Resources. International Union for Conservation of Nature, Gland, 256 pp.

Meesters, L., 1992. De Heuvelrug tussen Herentals en Kasterlee. Monumenten en Landschappen, 11(2), 25-40.

Meijerink, S., 2005. Understanding policy stability and change. The interplay of advocacy coalitions and epistemic communities, windows of opportunity, and Dutch coastal flooding policy 1945-2003, Journal of European Public Policy, 1060-1077.

Meiresonne, L., 2001. Bebossing van landbouwgronden met populier. Wat denken de Vlaamse boeren daarover? Hebben zij een zelfde mening als andere Europese boeren? (Resultaten van een enquête). Silva Belgica, 5, 18 - 22. (in Dutch)

Mendes, A.M.S.C., 2006. Implementation analysis of forest programmes: Some theoretical notes and an example. Forest Policy and Economics, 8, 512-528.

Merenlender, A.M., Huntsinger, L., Guthey, G., Fairfax, S.K., 2004. Land trusts and conservation easements: who is conserving what for whom? Conservation Biology, 18, 65-75.

Merlo, M., Briales, E.R., 2000. Public goods and externalities linked to Mediterranean forests: economic nature and policy. Land Use Policy, 17, 197-208.

Meyer, W., Baltes, K. 2004. Network Failures – How realistic is durable cooperation in global governance? In: Klaus, J., Binder, M., Wieczorek, A. (Eds.). Governance for industrial transformation. Proceedings of the 2003 Berlin Conference on the human dimension of global environmental change. Environmental Policy Group, Berlin, pp. 31-51.

Miles, M.B., Huberman, A.M., 1984. Qualitative data analysis: a source book of new methods. Sage Publications, Newbury Park, 256 pp.

Mill, J.E., Ogilvie, L.D., 2003. Establishing methodological rigor in international qualitative research: a case study from Ghana. Journal of Advanced Nursing, 41, 80-88.

Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC.

Ministerie van Defensie, 2002. Defensie in natuur en Landschap. Natuur, aardkunde, cultuurhistorie en recreatie op militaire terreinen. Ministerie van Defensie, Den Haag, 48 pp. (in Dutch)

Ministerie van de Vlaamse Gemeenschap, 1997. Vlaams Milieubeleidsplan 1997-2001. Ministerie van de Vlaamse Gemeenschap, Brussel? 256 pp.

Ministerie van de Vlaamse Gemeenschap, 1998. Ruimtelijk Stuctuurplan Vlaanderen. Integrale versie. Ministerie van de Vlaamse Gemeenschap, Brussel, 594 pp.

Ministerie van de Vlaamse Gemeenschap, 2004. Vlaams Milieubeleidsplan 2003-2007. Ministerie van de Vlaamse Gemeenschap, Brussel, 378 pp.

Morancho, A.B., 2003. A hedonic valuation of urban green areas. Landscape and Urban Planning, 66, 35-41.

Morgan, D.L., 2007. Paradigms lost and pragmatism regained. Methodological implications of combining qualitative and quantitative methods. Journal of Mixed Method Research, 1(1), 48-76.

Mormont, M., 1987. Rural nature and urban natures. Sociologia ruralis, 27, 3-20.

Morse, J.M., Barrett, M., Mayan, M., Olson, K., Spiers, J., 2002. Verification strategies for establishing reliability and validity in qualitative research. International Journal of Qualitative methods, 1(2), 1-18.

Naeem, S., Chapin III, F.S., Costanza, R., Ehrlich, P.R., Golley, F.B, Hooper, D.U., Lawton, J.H., O'Neill, R.V., Mooney, H.A., Sala, O.E., Symstad, A.J., Tilman, D., 1999. Biodiversity and ecosystem functioning: maintaining natural life support processes. Issues in Ecology, No 4. Ecology Society of America, Washington, DC, 11 pp.

Najam, A., 1995. Learning from the literature on policy implementation: a synthesis perspective (Working paper WP-95-61). International Institute for Applied Systems analysis, Laxenburg, 70 pp.

Nationaal Groenfonds, 2004. Jaarverslag 2004. Thema Groen en de stad. Nationaal Groenfonds, Hoevelaken, 52 pp. (in Dutch)

Natuurmonumenten, 2006a. Bosbeleid van Natuurmonumenten. Natuurmonumenten, Den Haag, 36 pp (in Dutch)

Natuurmonumenten, 2006b. Natuurmonumenten. Als je van Nederland houdt. Jaarverslag 2006. Natuurmonumenten, Den Haag, 96 pp (in Dutch)

Nayak, P.K., Berkes, F., 2008. Politics of co-optation: community forest management versus joint forest management in Orissa, India. Environmental Management, 41, 707-718.

Nelissen, N., Goverde, H., van Gestel, N. (Eds.), 2000. Bestuurlijk Vermogen. Analyse en beoordeling van nieuwe vormen van besturen. Coutinho, Bussum, 452 pp. (in Dutch)

Newsom, D., Cashore, B., Auld, G., Granskog, J.E., 2003. Forest certification in the heart of Dixie: a survey of Alabama landowners. In: Teeter, L., Cashore, B., Zhang, D. (Eds.). Forest policy for private forestry: global and regional challenges. CAB International, Wallingford, pp. 291-300.

Newsom, D., Bahm, V., Cashore, B., 2006. Does forest certification matter? An analysis of operational-level changes required during the SmartWood certification process in the United States. Forest Policy and Economics, 9(3), 197-2008

Noordanus, P.G.A., Montfrans-Hartman, G.W., Cardoso Ribeiro, T.A., 2002. Vereenvoudiging en verbetering sturingsmodel gebiedsgerichte inrichting landelijk gebied: naar een investeringsbudget landelijk gebied. Boer & Coens Process Managers, 48 pp. (in Dutch)

Nooteboom, B., 2002. Trust: Forms, foundations, functions, failures and figures. Edgar Elgar, Cheltenham, 231 pp.

North, D., 1990. Institutions, institutional change and economic performance. Cambridge University Press, Cambridge, 152 pp.

North, D., 1992. Institutionen, institutioneller Wandel und Wirtschaftsleistung. Mohr, Tübingen, 180 pp.

Notman, E., Langer, E., Crow, T., Mercer, E., Calizon, T., Haines, T., Greene, J., Brown, T., Bergstrom, J., Loomis, J., Hayes, J., Call, J. 2006. State of Knowledge: Ecosystem Service from Forests pp. 56 http://www.fs.fed.us/ecosystemservices/pdf/state-of-knowledge.pdf

OECD, 1996. Saving biological diversity: economic incentives. Organisation for Economic Co-operation and Development Publishing, Paris, 156 pp.

Olsen, S., Lee, V., 1991. A management plan for a coastal ecosystem: Rhode Island's Salt Pond Region. In: Needham, B. (ed). Case studies of coastal management: experience from the United States. Coastal Resources Center, University of Rhode Island, Kingston, pp 57-69.

Olsson, P., Folke, C., Hahn, T., 2004. Social-ecological transformation for ecosystem management: the development of adaptive co-management of a wetland landscape in southern Sweden. Ecology and Society, 9(4), 2. http://www.ecologyandsociety.org/vol9/iss4/art2

Onwuegbuzie, A.J., Leech, N.L., 2004. Enhancing the interpretation of "significant" findings: The role of mixed methods research. The Qualitative Report, 9(4), 770-792. Retrieved October 19, 2008, from http://www.nova.edu/ssss/QR/QR9-4/onwuegbuzie.pdf

Onwuegbuzie, A.J., Johnson, R.B., 2006. The validity issue in mixed research. Research in the Schools, 13(1), 48-63.

Orts, E.W., 1995. Reflexive environmental law. Northwestern University Law Review, 89(4), 1227–1340.

Ostrom, E., Gardner, R., Walker, J., 1994. Rules, games & common-pool resources. The University of Michigan Press, Ann Arbor, 392 pp.

Ostrom, V., 1989. The intellectual crises in American public administration, 2nd ed. The University of Alabama Press, Tuscaloosa, Alabama, 206 pp.

Ostrom, V., 1994. The meaning of American federalism: constituting a self-governing society. Institute for contemporary Studies, San Francisco, California, 299 pp.

Overbeek, G. 2006. Theoretical and methodological framework. In: Overbeek, G. & Terluin, I. (Eds.). Rural areas under urban pressure, case studies of rural-urban relationships across Europe. Rapport 7.06.01, LEI, Wageningen, pp. 27-46.

Paasman, J.M., Custers, H.J.L., Grimberg, G.T.M.., van der Jagt, J.L., Jans, M.F.F.W., Reuver, P.J.H.M., Schaap, W., 1997. Natuurverkenning 97. Achtergronddocument evaluatie bos. Informatie- en kenniscentrum Natuurbeheer, Wageningen, 87 pp. (in Dutch)

Pagdee, A., Kim, Y.-S., Daugherty, P.J., 2006. What makes community forest management successful: a meta-study from community forests throughout the world. Society and Natural Resources, 19, 33-52.

Patton, M., 1990. Qualitative evaluation and research methods. 2nd edition. Sage Publications, Newbury Park, 532 pp.

Parker, W.C., Colombo, S.J., Cherry, M.L., Flannigan, M.D., Greifenhagen, S., McAlpine, R.S., Paradopol, C., Scarr, T., 2000. Third millennium forestry: What climate change mean to forests and forest management in Ontoria. Forest chronicle, 76(3), 445-463.

Parsons, W., 1995. Public policy. An introduction to the theory and practice of policy analysis. Edward Elgar, London, 704 pp.

Peeters, K., 2004. Beleidsnota Leefmilieu en Natuur 2004-2009. Beleidsnota neergelegd door Kris Peeters, Vlaams Minister van Openbare Werken, Energie, Leefmilieu en Natuur. http://docs.vlaanderen.be/portaal/beleidsnotas2004/peeters/leefmilieu.pdf (In Dutch)

Penley L.E., Hawkins, B., 1985. Studying interpersonal communication in organizations: a leadership application. Academy of Management Journal, 28(2), 309-326.

Penning-Rowsell, E., 1997. A general model for promoting the integration of natural resources management. GeoJournal, 43(3), 247-262.

Perrings, C., Pearce, D., 1994. Threshold effect and incentive for the conservation of biodiversity. Environment and Resource Economics, 4, 13-28.

Peters, K., 2007. Het opgeblazen bestuur. Een kritische kijk op de provincie. Boom, Amsterdam, 195 pp.

Plantinga, A.J., 1996. The effect of agricultural policies on land use and environmental quality. American Journal of Agricultural Economics, 78 (4), 1082-1091.

Poteete, A., Ostrom, E., in press. An Institutional Approach to the Study of Forest Resources. In: Nasi, R., Sassen, M. (Eds.). Impact of Human Activities on Conservation of Biodiversity and Genetic Resources: A Synthesis of Current Knowledge and Impacts. CABI Publishing, New York.

Pregernig, M., 2001. Values of forestry professionals and their implications for the acceptability of policy instruments. Scandinavian Journal of Forestry, 16, 278-288.

Pretty, J., Ward, H., 2001. Social capital and the environment. World Development 29(2), 209-227.

Probos, 2000. Nederlands bos in beeld. Stichting Probos, Zeist, 48 pp. (in Dutch)

Probos, 2006. Kerngegevens bos en hout in Nederland. Stichting Probos, Wageningen, 16 pp. (in Dutch)

Provincie Drenthe, 2007. Provinciaal Meerjarenprogramma Drenthe. Landelijk Gebied. Provincie Drenthe, Assen, 116 pp. (in Dutch)

Provincie Limburg, 1998. Bosnota Limburg. Provinciale Staten van Limburg, Maastricht, 116 pp. (in Dutch)

Provincie Limburg, 2005. Provinciaal Omgevingsplan Limburg (POL). POL-herzieningen op onderdelen Countourenbeleid in Limburg. Provincie Limburg, Maastricht, 52 pp. (in Dutch)

Provincie Limburg, 2007. VORm: monitor en evaluatie. Twee jaar werken met de Verhandelbare Ontwikkelingsrechtenmethode. Provincie Limburg, Maastricht, 31 pp. (in Dutch)

Provincie Noord-Brabant, 2002. Natuur- en landschapsoffensief Brabant. Beleidsnota natuur en landschap in Noord-Brabant 2002-2012. Provincie Noord-Brabant, 's Hertogenbosch, 92 pp (in Dutch)

Przeworski, A., Teune, H., 1982. Logic of comparative social inquiry. Krieger Publishing company, Malabar, Florida, 153 pp.

Püzl, H., Treib, O., 2007. Implementing public policy. In: Fischer, F., Miller, G.J., Sidney, M.S. (Eds.). Handbook of public policy analysis: theory, politics and methods. Public administration and public policy 125. CRC Press, Taylor & Francis Group, Boca Ran, pp. 89-107.

Rametsteiner, E., Simula, M., 2003. Forest certification – an instrument to promote sustainable forest management? Journal of Environmental Management, 67, 87-98.

Reitze, A.W. Jr., 1991. A century of pollution control: What's worked?; What's Failed?; What might work? Environmental Law, 21, 1549-1946.

Rhodes, R., 1997. Understanding governance: policy networks, governance, reflexivity and accountability. Open University Press, Buckingham, 235 pp.

Ribot, J., 2002. Democratic decentralization of natural resources. Institutionalizing popular participation. World Resource Institute, Washington, DC, 30 pp.

Richardson, J.G., Gustaffson, G., Jordan, G., 1982. The concept of policy style. In: Richardson, J.G. (Ed.). Policy style in Western Europe. George Allen & Unwin, London, pp. 1-16.

Rientjes, S., 2002. Making nature conservation modern: an analysis of developments in nature conservation policy in relation to macro-social changes – the Netherlands as case study. Journal of Environmental Policy and Planning, 4, 1-21.

Rist, R.C., 1998. Choosing the right policy instrument at the right time: the contextual challenges of selection and implementation. In: Bemelmans-Videc, M.-L., Rist, R.C., Vedung, E. (Eds.). Carrots, sticks and sermons. Policy instruments and their evaluation. Transaction, New Brunswick, pp. 149-163.

Rist, R.C., Joyce, K., 1995. Qualitative research and implementation evaluation: a path to organizational learning. International Journal of Educational Research, 23(2), 127-136.

Rist, S., Chidambaranathan, M., Escobar, C., Wiesmann, U., Zimmerman, A., 2007. Moving from sustainable management to sustainable governance of natural resources: the role of social learning process in rural India, Bolivia and Mali. Journal of Rural Studies, 23(1), 23-37.

RIVM, 2002. Natuurbalans 2002. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 172 pp. (in Dutch)

RIVM, 2003. Natuurbalans 2003. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 211 pp. (in Dutch)

RIVM, 2004. Natuurbalans 2004. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 194 pp. (in Dutch)

RIVM, 2005. Natuurbalans 2005. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 197 pp. (in Dutch)

RIVM, 2006. Natuurbalans 2006. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 141 pp. (in Dutch)

RIVM, 2007. Natuurbalans 2007. Natuurplanbureau. Kluwer, Alpen aan den Rijn, 151 pp. (in Dutch)

Rolfe, G., 2006. Validity, trustworthiness and rigour: quality and the idea of qualitative research. Methodological issues in nursing research. Journal of Advanced Nursing, 53(3), 304-310.

Rose, R., 1991. What is lesson-drawing? Journal of Public Policy, 11(1), 3-30.

Rose, R., 1993. Lesson drawing in public policy: a guide to learning across time and space. Chatman House, Chatman, 190 pp.

Rousseau, D., Sitkin, S., Burt, R. S., Camerer, C., 1998. Not so different after all: A cross discipline view of trust. Academy of Management Review, 23, 393-404.

Sabatier, P.A., 1986. Top-down and bottom-up approaches to implementation research: a critical analysis and suggested synthesis. Journal of Public Policy, 6(1), 21-48.

Sabatier, P.A., 1993. Policy change over a decade or More. In: Sabatier, P.A., Jenkins-Smith, H.C. (Eds.). Policy change and learning: an advocacy coalition approach. Westview Press, Boulder, pp. 13-39.

Sabatier, P.A., 1998. The advocacy coalition framework: revisions and relevance for Europe. Journal of European Public Policy, 5(1), 98-130.

Sabatier, P.A., Jenkins-Smith, H.C. (Eds.), 1993. Policy change and learning: an advocacy coalition approach. Westview Press, Boulder, 304 pp.

Salamon, L.M., 1981. Rethinking public management: third-party government and the changing forms of government action. Public policy, 29(3), 255-275.

Salwasser, H., 1994. Ecosystem management: can it sustain diversity and productivity? Journal of forestry, 92(8), 6-10.

Sampson, N., DeCoster, L., 2000. Forest fragmentation: implications for sustainable private forests. Journal of Forestry, 98(3), 4-8.

Sandelowski, M., 1993. Rigor or rigor mortis: the problem of rigor in qualitative research revisited. Advances in Nursing Science, 16(2), 1-8.

Sandelowski, M., Barroso, J., 2002. Reading qualitative studies. International Journal of Qualitative Methods, 1(1), article 5. http://www.ualberta.ca/~ijqm/

Sandelowski, M., 2001. Real qualitative researchers don't count: The use of numbers in qualitative research. Research in Nursing and Health, 24, 230-240.

Saterson, K.A., Christensen, N.L., Jackson, R.B., Kramer, R.A., Pimm, S.L., Smith, M.D., Wiener, J.B., 2004. Disconnects in evaluating the relative effectiveness of conservation strategies. Conservation Biology, 18, 597-599.

Schaaf, K.A., Broussard, S.R., 2006. Private forest policy tools: A national survey exploring the American public's perceptions and support. Forest Policy and Economics, 9(4), 316-334.

Schneider, A., Ingram, H., 1990. Behavioral assumptions of policy tools. Journal of Politics, 52(2), 510–529.

Schanz, H., 1998. Sustainable forest management. On the meanings and functions of a central theme in forestry. http://www.ulb.ac.be/assoc/iff/section1/otherlinks/sfm.PDF

Scharpf, F.W., 1993. Coordination in hierarchies and networks. In: Scharpf, F.W. (Ed.). Games in hierarchies in networks: analytical and empirical. Westview Press, Boulder, Colorada, pp. 125-166.

Scharpf, F.W., 1997. Games real actors play. Actor-centered institutionalism in policy research. Westview Press, Boulder, Colorada 318 pp.

Scharpf, F.W., Schmidt, V.A. (Eds.), 2001. Welfare and work in the open economy. Volume II. Diverse response to common challenges. Oxford University Press, Oxford, 656 pp.

Schmitter, P., 2001. What is there to legitimize in the European Union … and how might this be accomplished? In Symposium: Mountain or Molehill? A critical appraisal of the Commission White Paper on Governance, Jean Monnet Working Paper No. 6/01, NY University School of Law, New York.

Schulting R., Wolf R.J.A.M., 2006. Effectmeting communicatieproject geïntegreerd bosbeheer, gebaseerd op een vergelijking van enquêteresultaten van voor en na uitvoering van het project. Ministerie van Landbouw, Natuur en Voedselkwaliteit, Goor, 34 pp (in Dutch)

Seabright, P., 1996. Accountability and Decentralization in government: an incomplete contrast model. European Economic Review, 40, 61-89.

Selnes, T.A., 2003. LNV – effectief op gebiedsniveau? Hoofdrapport van het project 'LNV effectief op gebiedsniveau". LEI, Den Haag, 74 pp.

Selnes, T.A., Kuindersma, W., 2006. Ruimte voor elkaar. Een essay over decentralisatie in het natuurbeleid. LEI, Den Haag, 41 pp.

Serbruyns, I., Mertens, F., Lust, N., Mortier, F., 2001. De perceptie van de ecologische functie van bossen: attitudes van privéboseigenaars in Vlaanderen. Rapport Vlina 98/04. Universiteit Gent in opdracht van de Vlaamse gemeenschap in het kader van het Vlaams Impulsprogramma voor Natuurontwikkeling, Gent. (in Dutch)

Serbruyns, I. Luyssaert, S., 2006. Acceptance of sticks, carrots and sermons as policy instruments for directing private forest management. Forest Policy and Economics, 9(3), 285-296.

Sewell, G.C., 1996. Conflicting beliefs: national implementation of the United Nations framework convention on climate change. Environmental impact assessment review, 16, 137-150.

Shannon, M.A., 1990. Building trust: the formation of a social contact. In: Lee, R.G., Field, D.R., Burch Jr., W.R. (Eds.). Community and Forestry: continuities in the sociology of natural resources. Westview, Boulder, pp. 229-240.

Shin, W.S., 2007. The influence of forest view through a window on job satisfaction and job stress. Scandinavian Journal of Forest Research, 22(3), 248-253.

Shogren, J.F., Parkhurst, G.M., Settle, C., 2003. Integrating economics and ecology to protect nature on private lands: models, methods and mindsets. Environmental Science Policy, 6, 233-242.

Shvidenko, A., Barber, C.V., Persson, R., 2005. Forest and Woodland Systems. In: Hassan, R., Scholes, R., Ash, N. (Eds.). Ecosystems and human well-being : current state and trends : findings of the Condition and Trends Working Group of the Millennium Ecosystem Assessment Group. Island Press, Washington, pp. 585-621.

Sieber, S.D., 1973. The integration of fieldwork and survey methods. American Journal of Sociology, 78, 1335-1359.

Sin, M.Y., Miah, M.D., Lee, K.H., 2007. Potential contribution of forestry sector in Bangladesh to carbon sequestration. Journal of Environmental Management, 82(2), 260-276.

Sinclair, D., 1997. Self-regulation versus command and control? Beyond false dichotomies. Law and Policy, 19(4), 529-559.

Siry, J., Cubbage, F.W., Ahmed, M.R., 2005. Sustainable forest management: global trends and opportunities. Forest Policy and Economics, 7, 551-561.

Sparks, R.E., 1995. Need for ecosystem management of large rivers and their floodplains. BioScience, 45, 168-182.

Sparrow, M.K., 2000. The regulatory craft. Controlling risks, solving problems and managing compliance. Washington, DC, Council for excellence in government, Brooking Institution Press, 346 pp.

Staatsbosbeheer, 2006. Staatsbosbeheer jaarverslag 2006. Staatsbosbeheer, Driebergen, 100 pp (in Dutch)

Stortelder, A.F.H., Schrijver, R.A.M., van den Top, I.M., Alberts, H., 2001. Boeren voor natuur. Scenario's voor het landelijk gebied. Alterra-rapport 279, Alterra, Research Instituut voor de Groene Ruimte, Wageningen, 32 pp. (in Dutch)

Strang, D., Meyer, J., 1993. Institutional conditions for diffusion. Theory and Society, 22, 487–511.

Sullivan, K.A., Napier, T.L., 2005. Anticipated socio-environmental impacts of the proposed Little Darby National Wildlife Refuge in Ohio. Journal of Environmental Management, 74, 53-64.

Tashakkori, A., Teddlie, C., 1998. Mixed methodology: Combining qualitative and quantitative approaches. Sage, Thousand Oaks, 204 pp.

Tashakkori, A., Teddlie, C., 2003. Handbook of Mixed Methods in Social and Behavioral Research. Sage, Thousand Oaks, 792 pp.

Tenbücken, M.., Schneider, V., 2004. Divergent convergence: structures and functions of national regulatory authorities in telecommunication sector. In: Jordana, J., Levi-Faur, D. (Eds.). The politics of regulation. Institutions and regulatory reform for the age of governance. Edward Elgar, Chelthenham, pp. 245-272.

Termeer, C.J.A.M., 1993. Dynamiek en inertie rondom mestbeleid; een studie naar veranderingsprocessen in het varkenshouderijnetwerk, dissertatie, Vuga, Den Haag.

Toman, M.A., Ashton, P.M.S., 1996. Sustainable forest ecosystems and management: a review article. Forest Science, 42(3), 366-377.

Tranter, R., Costa, L., Knapp, T., Little, J., Sottomayor, M., 2004. Asking farmers about their response to the proposed bound scheme. In: Swinbank, A., Tranter, R. (Eds.). A bond scheme for common agricultural policy reform. CABI Publishing, Oxfordshire, pp. 127-148.

Tyrväinen, L., Miettinen, A., 2000. Property prices and urban forest amenities. Journal of Environmental Economics and Management, 39, 205-223.

Tyson, C.B., Broderick, S.H., Snyder, L.B., 1998. A social marketing approach to landowner education. Journal of Forestry, 96, 34-40.

Ulrich, R.S., 1984. View through a window may influence recovery from surgery. Science, 224, 420-421.

USDA (United States Department of agriculture), 2002. The process predicament: how statutory, regulatory, and administrative factors affect National Forest management. USDA, Washington DC, 40 pp.

Valiante, M., 2007. Interdependence and coordination in the Canadian environment policy process. In: Breton, A., Brosio, G., Dalmazzone, S., Garrone, G. (Eds.). Environment governance and decentralisation. Edward Elgar, Cheltenham, pp. 77-110.

Van Blitterswijk, H., Van Vliet, C.J.M., Schulting, R., 2001. Analyse uitvoering geïntegreerd bosbeheer. Resultaten van een onderzoek naar de praktijk van geïntegreerd bosbeheer in Nederland. Alterra, Wageningen, 90 pp. (in Dutch)

Van der Jagt, J.L., Jans, M.F.F., Paasman, J.M., 1996. Geïntegreerd bosbeheer ingekleurd: een pallet van meningen en ideeën. IKC Natuurbeheer, Wageningen, 23 pp. (in Dutch)

Van der Jagt, J.L., Paasman, J.M., Klingen, L.A.S., 2000. Geïntegreerd bosbeheer. Praktijk, voorbeelden en achtergronden. Expertisecentrum LNV, Wageningen, 215 pp. (in Dutch)

Van der Mark, R., Beemer, F., Jonkers, R., 2005. Eindrapport draagvlak toekomstverkenning Bosschap, Berenschot, Utrecht, 55 pp. (in Dutch)

Van der Staak, E., 1996. Ex-post evaluatie bosuitbreiding in Noord-Nederland 1985-1996. Bosuitbreiding door niet rijksoverheid: kwantitatief. Ministerie van Landbouw, Natuur en Visserij. Den Haag, 16 pp.

Van der Wielen, P., Bezemer, V., 2004. Een zoektocht naar bestuurlijke regie in drie Randstadgroenprojecten. Alterra-rapport 993. Alterra, Wageningen, 57 pp. (in Dutch)

Van der Ham, T., 2005. Rood voor Groen. Dossier Quick-scan grondbeleidinstrumentarium. Regio Randstad, Brussel, 16 pp. (in Dutch)

Van Doremaele, M., 1998. Gemeenten kiezen voor bos!: kansen voor bosuitbreiding op lokaal niveau: waar liggen ze en hoe zijn ze te benutten? Werkdocument IKC Natuurbeheer nr W-167. Informatie- en kenniscentrum Natuurbeheer, Wageningen, 79 pp. (in Dutch)

Van Gossum, P., Luyssaert, S., Serbruyns, I., Mortier, F. 2005. Forest groups as support to private owners in developing close-to-nature management. Forest Policy and Economics, 7(4), 589-601.

Van Gossum, P., De Maeyer, W., 2006, Performance of forest groups in achieving multifunctional forestry in Flanders, Small-scale Forestry, 5(1), 19−36.

Van Gossum, P., Ledene, L., De Vreese, R., Verheyen, K., 2008. Implementation failure and ability of policy learning of the forest expansion policy in Flanders (Northern Belgium). Forest Policy and Economics, 10, 515–522

Van Herzele, A., 2005. A tree on your doorstep, a forest in your mind: greenspace planning at the interplay between discourse, physical conditions, and practice. Wageningen University, Wageningen, 156 pp.

Van Herzele, A., 2006. A forest for each city and town: story lines in the policy debate for urban forests in Flanders. Urban Studies, 43(3), 673-696.

Van Herzele A., Collins K., Tyrväinen L., 2005. Involving people in urban forestry: a discussion of participatory practices throughout Europe. In: Konijnendijk C.C., Nilsson K., Randrup T.B., Schipperijn J. (Eds.). Urban forests and trees. Springer, Heidelberg, pp. 207-228.

Van Herzele, A, Van Gossum, P. 2008. Explaining forest owners' decisions about conversion management in secondary pine plantations. Landscape and Urban Planning, 87, 201–209

Van Laar, J.N., 1994. Herbebossing in de 19de eeuw in Nederland. In: Billen, C., Vanrie, A. (Eds.). Bronnen voor de bosgeschiedenis in België. Archief- en Bibliotheekwezen in België, Brussel, pp. 277-291. (in Dutch)

Van Meter, D.S., Van Horn, C.E., 1975. The policy implementation process. Administration and Society, 6(4), 445-488.

Van Raffe, J., De Jong, J.J., Olsthoorn, A.F.M., Oosterbaan, A., Wijdeven, S.M.J., 2006. Geïntegreerd bosbeheer, het onderzoek van 2002-2005. Alterra, Wageningen, 56 pp. (in Dutch)

Van Tatenhove, J., Arts, B., Leroy, P., 2000. Political modernisation and the environment. The renewal of environmental policy arrangements. Kluwer, Dordrecht, 219 pp.

Van Tatenhove, J.P.M., Leroy, P., 2003. Environment and participation in a context of political modernisation. Environmental Values, 12, 155-174.

Van Vliet, C.J.M., van Blitterswijk, H., Hoogstra, M.A., Balduk, C.A., Henkens, R.J.H.G., 2002. Natuurbeleid in de beleidspraktijk. Een onderzoek naar kansen en knelpunten in de sturingsrelaties tussen overheden en beheerders ten behoeve van de natuurbalans van 2001. Alterra, Research Instituut voor de Groene Ruimte, Wageningen, 63 pp.

van Zadelhoff, E., 2008. Nature policy in Flanders. Messy participation strategies or unfavourable circumstances. In: Keulartz, J., Leistra, G. (Eds.). Legitimacy in European nature conservation policy: case studies in multilevel governance. Springer, Dordrecht, pp. 205-207.

Varma, V.K., Ferguson, I., Wild, I., 1999. Decision support system for the sustainable forest management. Forest Ecology and Management, 128, 49-55.

Vedung, E., 1998. Policy Instruments: typologies and theories. In Bemelmand-Videc, M.L., Rist, M.L.R.C., Vedung, E. (Eds.). Carrots, sticks, and sermons: policy instruments and their evaluation. Transaction Publisher, London, pp. 21-58.

Veenman, S., Liefferink, D., Arts, B., 2009. A short history of Dutch forest policy: the 'de-institutionalization' of a policy arrangement. Forest Policy and Economics, 11(3), 202-208.

Verbeeck, B., Leroy, P., 2006. A target group approach in Flemish environmental policy: establishing new government-industry relations. In: Arts, B., Leroy, P. (Eds.), Institutional dynamics in environmental governance. Springer, Dordrecht, pp. 245-266.

Verbij, E., 2008. Inter-sectoral coordination in forest policy. A frame analysis of forest sectorization processes in Austria and the Netherlands. Wageningen University, Wageningen, 244 pp.

Verhart, F., Hoefnagels, L., Janssen, L., 2004. Vijf jaar bosuitbreidingsbeleid in Limburg: "Wordt de 'Resolutie van Rolduc' ook een revolutie?" Nederlands Bosbouwtijdschrift, 75(6), 41-46. (in Dutch)

Vernhout, H., 1988. De sociale geschiedenis van de bosarbeid. Doctoraal scriptie. Landbouwuniversiteit Wageningen, Wageningen, 156 pp. (in Dutch)

Vitse, T., 2004. Bosuitbreiding in Vlaanderen: plannen en uitvoeren. Op de Studiedag Natuurontwikkeling Tips voor de toekomst. 26 maart 2004, Brussel. (in Dutch)

Vlaamse Hoge Bosraad, 2003. Bossenverklaring. Vlaamse Hoge Bosraad, Brussels, 179 pp.

Vlosky, R.P., 2000. Certification: perceptions of non-industrial private forestland owners in Louisiana. Working Paper, 41. Louisana State University Agricultural Center, Baton Rouge, 12 pp.

Walsh, D., Downe, S., 2006. Appraising the quality of qualitative research. Midwifery, 22, 108-119.

Walsham, G., 1995. Interpretative case studies in IS research: nature and method. European Journal of Information Systems, 4, 74-81.

Walshe, K., 2002. The rise of regulation in the NHS. British Medical Journal, 324, 967-970.

Wang, S., 2001. Towards an international convention on forests: building blocks versus stumbling blocks. International Forestry Review, 3(4), 251-264.

Wang, S., 2002. Wicked problems and metaforestry: is the era of management over? The Forestry Chronicle, 78(4), 505-510.

Ward, J.H.Jr., 1963. Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association, 58(301), 236-244.

Wasserman, S., Faust, K., 1994. Social network analysis: methods and applications. Cambridge University Press, New York, 852 pp.

Waterinckx, M., Roelandt, B., 2001. Bosinventarisatie van het Vlaamse Gewest. Ministerie van de Vlaamse Gemeenschap. Afdeling Bos & Groen, Brussel. (in Dutch)

Wiering, M., Arts, B.J.M., 2006. Discursive shift in Dutch river management: 'deep' institutional change or adoption strategy? Hydrobiologia 565, 327-338.

Wiersum, K.F., 1996. Particuliere bosbouw in Nederland: Een nieuwe toekomst? Nederlands Bosbouwtijdschrift, 68(1), 7-11. (in Dutch)

Wiersum, K.F., van Vliet, C.J.M., 2002. Maatschappelijk draagvlak voor het Nederlandse bos. Nederlands Bosbouwtijdschrift, 74(5-6), 2-6.

Wijdeveen, S., Verbij, E., Borgman, G., Luisman, H., Smit, H., 2008. De agenda voor het Nederlandse bos tot 2020. Wing, Wageningen, 55 pp. (in Dutch)

Wilcove, D.S., Lee, J., 2003. Using economic and regulatory incentives to restore endangered species: lessons learned from three new programs. Conservation Biology, 18, 639-645.

Williams, H.V., 2006. Creating a sustainable forest – The National forest. In: Wall. S. (Ed.). Small-scale forestry and rural development. The intersection of ecosystems, economics and society. Proceedings of IUFRO 3.08 Conference, Galway-Mayo Institute of Technology. Galway, pp. 538-544.

Winkel, G., Memmler, M., 2004. Political Science on a tightrope walk? Analysing and deliberating on the formulation of a new German federal forest act. The evaluation of forest policies and programmes. 27 June – 3 July, Epinal, France.

Winter, S., 1990. Integrating implementation research. In: Palumbo, D.J., Calista, D.J. (Eds.). Implementation and the policy process: opening up the Black box. Greenwood Press, New York, pp. 19-38.

Woods, M., 1998. Advocating rurality? The repositioning of rural local government. Journal of Rural Studies, 14(1), 13-26.

Work, R. 2002. Overview of decentralisation worldwide: a stepping stone to improved governance and human development. 2nd International Conference on Decentralisation. Federalism: the future of decentralizing States?, 25-27 July 2002, Manilla, Philippines.

Yaffee, S., 1999. Three faces of ecosystem management. Conservation Biology, 13(4), 713-725.

Yin, R.K., 1982. Studying phenomenon and content across sites. American Behavioral Scientist, 26, 84-100.

Yin, R.K., 2003. Case study research: design and methods. Third edition. Applied social research method series. Volume 5. Sage publications, California. 200 pp.

Young, J. Watt, A., Nowicki, P., Alard, D., Clitherow, J., Henle, K., Johnson, R., Lackzo, E., McCracken, D., Matouch, S., Niemela, J., Richards, C., 2005. Towards sustainable land use: identifying and managing the conflicts between human activities and biodiversity conservation in Europe. Biodiversity and Conservation, 14, 1641-1661.

Zahariadis, N., 1999. Ambiguity, time and multiple streams. In: Sabatier, P.A. (Ed.) Theories of the policy process. Westview Press, Boulder, pp. 73-93.

Zakee, R.A., 1993. Reacties op het rapport van de commissie bosuitbreiding. Nederlands Bosbouwtijdschrift, 65, 180-182. (in Dutch)

Zeide, B., 1998. Another look at Leopold's land ethic. Journal of Forestry, 98(1) 13-19

Zevenbergen, M.P., 2002. Bosbeleid en autarkie in Nederland. Wageningen University, Wageningen. (in Dutch)

Curriculum vitae

Personal data

Name	Peter Van Gossum
Date of Birth	24 March 1977
Place of Birth	Berchem (Antwerp)
Nationality	Belgian
Adress	Goudensterstraat 36, 9000 Gent, Belgium
Phone	+32 498 62 09 11
E-mail	pvgossum@yahoo.com

Education

1995-2000	M.Sc in Bioscience engineering, Faculty of Bioscience Engineering, Ghent University

Professional experience

January 2006 – July 2009	Ph.D. research at the Laboratory of Forestry, Faculty of Bioscience Engineering, Ghent University
January 2005 – September 2005	Teaching assistance at the Laboratory of Forestry
March 2004 – November 2004	Scientific worker at the Laboratory of Forestry
Augustis 2001 – December 2003	Scientific worker at the Laboratory of Forestry

Scientific publications

Publications in international journals with peer review cited in the Science Citation Index

- Van Gossum, P., Arts, B., Verheyen, K. "Smart regulation": can policy instrument design solve forest policy aims of forest expansion and sustainability in Flanders and the Netherlands. Forest Policy and Economics, doi:10.1016/j.forpol.2009.08.010.
- Van Herzele, A., Van Gossum, P. 2009. Owner-specific factors associated with conversion management in secondary pine plantations. Forest Ecology and Management, in press.
- Van Gossum, P., Ledene, L., Arts, B., De Vreese, R., Van Langenhove, G., Verheyen, K. 2009. New environmental policy instruments to realize forest expansion in Flanders (northern Belgium): a base for smart regulation? Land Use Policy, 26(4), 935-946.

- Van Gossum, P., Ledene, L., Arts, B., De Vreese, R. & Verheyen, K. 2008. Implementation failure of the forest expansion policy in Flanders (Northern Belgium) and the ability of policy learning. Forest Policy and Economics, 10, 515–522
- Van Herzele, A, Van Gossum, P. 2008. Explaining forest owners' decisions about conversion management in secondary pine plantations. Landscape and Urban Planning, 87, 201–209
- Van Gossum, P., Luyssaert, S., Serbruyns, I. & Mortier, F., 2005. Forest groups as support to private forest owners in developing close-to-nature management. Forest policy and Economics, 7(4), 589-601.

Publications in international journals with peer review cited in the Science Citation Index (submitted or accepted)

- Van Gossum, P., Arts, B., De Wulf R., Verheyen, K. An institutional evaluation of sustainable forest management in Flanders (northern Belgium). Land Use Policy, accepted with major revision November 2009
- Van Gossum, P., Arts, B., Van Laar, J., Verheyen, K. (submitted). Implementation of the forest expansion policy in the Netherlands in the period 1986-2007: decline in success? Land Use Policy, accepted with major revision, November 2009
- Van Gossum, P., Arts, B., Baert, S., De Wulf R., Verheyen, K. An institutional evaluation of sustainable forest management in the Netherlands. Society and Natural Reources, submitted August 2009
- Van Gossum, P., Arts, B., Verheyen, K., From Smart regulation to Regulatory arrangements. Policy science, submitted September 2009

Publications in international journals with peer review not cited in the Science Citation Index

- Van Gossum, P., De Maeyer, W., 2006 Performance of Forest Groups in Achieving Multifunctional Forestry in Flanders. Small-scale Forest Economics, Management and Policy, 5(1), 19-36.

Publications in proceedings of scientific congresses

- Van Gossum, P., Arts, B., Baert, S., De Wulf, R., Verheyen, K., 2009. Evaluation of the institutional structure of sustainable forest management in the Netherlands. In: de Jong, W. (Ed.). Forest policies for a sustainable humanospere. CIAS Discussion paper. Center for Integrated Area Studies, Kyoto University, Kyoto, pp. 49-56.
- Van Herzele, A., Van Gossum, P., 2007. The need of owner-specific policies and Communications to advance forest conversion in small pine plantations. In: Harrison, S., Bosch, A. (Eds.). Improving the triple bottom line returns from small-scale forestry. Proceedings of IUFRO 3.08 Confernce held at Ormoc City, the Philippines, 18-21 June. The University of Queensland, Brisbane, pp. 375-382.
- Van Gossum, P., Ledene, L., Verheyen, K., 2006. Public support of private-public co-operation to realise forest area enlargement in Flanders. Wall, S. (Ed). Small-scale forestry and rural development. The intersection of ecosystems and society. Proceedings of IUFRO 3.08 Conference held at Galway-Mayo Institute of Technology, 18-23 June. COFORD & GMT, Galway, 514-525.
- Van Gossum, P., De Maeyer, W., 2005. Forest groups as policy mean to reach multifunctional forest management in a highly fragmented landscape: the Flemish case (northern Belgium). In: Mizaras, S.

(Ed.). Small-scale forestry in changing environment. Proceedings of IUFRO 3.08 Conference held at Vilnius, 30 May – 4 June. Lithuanian Forest Research Institute, Vilnius, pp. 37-46.

- Van Gossum, P. 2005., Implementation analysis of forest area enlargement in Flanders (North Belgium). In: Pajuoja, H., Sisak, L., Kaczmarek, K. (Eds.). Evaluating Forestry Incentive and Assistance Programmes in Europe – Challenging To Improve Policy Effectiveness. EFI Proceedings, 54, European Forest Institute, Joensuu, pp. 195-205.

Abstracts of presentations in proceedings of scientific congresses

- Van Gossum, P., Arts, B., De Wulf, R., Verheyen, K., 2008. Sustainable forest management of a multi-owner forest complex in Flanders (northern Belgium). In: Buttoud, G. (Ed.). Small-scale rural forest use and management: global policies versus local knowledge. Proceedings of IUFR 3.08 Conference held at Géradmer. AgroParisTech, Nancy, pp. 268-269.
- Van Gossum, P., Luyssaert, S., Serbruyns, I., Mortier, F., 2004. Forest groups as support to private forest owners in developing close-to-nature management. In: Baumgartner, D. (Ed.). Human dimensions of family, farm and community forestry. Proceedings of IUFRO 3.08 Conference held at Pullman, 29 March – 1 April. Washington State University, Pullman, pp. 219.
- Serbruyns, I, Luyssaert, S., Van Gossum, P., 2004. Does close-to-nature management have a future in regions with highly fragmented ownership. In: Baumgartner, D. (Ed.). Human dimensions of family, farm and community forestry. Proceedings of IUFRO 3.08 Conference held at Pullman, 29 March – 1 April. Washington State University, Pullman, pp. 63.

Book chapters

- Lust, N., Serbruyns, I., Van Gossum, P., 2004. Flanders: a free standing regional forest programme in Belgium. In: Humpreys, D. (Ed). Cost Action E19 Forest for the future. National forest programmes in Europe, pp. 319-329.

Parliamentary questions (based on research)

- Martens, B, 2007-2008. Daily practices of forest groups. Flemish parlement, number 557.

Scientific activities

Participation in international congresses, symposia or workshops

Participation with oral presentation

- 19 – 20 February 2009. Is smart regulation smart enough to solve forest policy aims in Flanders and the Netherlands, Political Theory Workgroup Meeting, Kyoto, Japan.
- 17-18 February 2009. An institutional evaluation of sustainable forest management in the Netherlands. International Symposium "Forest Policies for a Sustainable Humanosphere", Kyoto, Japan.

- 23-27 July 2008. Institutional evaluation of sustainable forest management in Flanders. International Symposium "Small-scale Rural Forest Use and Management: Global Policies versus Local Knowledge", Gerardmer, France.
- 2-4 April 2008. Sustainable forest management in Flanders: an institutional evaluation. Forstpolitikkertreffen, Dresden, Germany.
- 17-21 July 2007. The need of owner-specific policies and communications to advance forest conversion in small pine plantations. International Symposium "Improving the triple bottom line returns from small-scale forestry", Ormoc city, Leyte, Philippines.
- 19-23 June 2006. Public support of private-public co-operation to realise forest area enlargement in Flanders. International symposium "Small-scale Forestry and Rural Development The intersection of ecosystems, economics and society", Galway, Ireland.
- 30 May – 4 June 2005. Forest groups as policy mean to reach multifunctional forest management in a highly fragmented landscape: the Flemish case (Northern Belgium), International symposium "Small-scale Forestry in a Changing Environment", Vilnius, Litouwen
- 10-12 October 2004. Implementation analysis of forest area enlargement in Flanders. International symposium "Evaluating Forestry Incentive and Assistance Programmes in Europe –challenges to improve policy effectiveness", Warsaw, Poland.
- 29 March – 3 April 2004. Forest groups as support to private forest owners in developing close-to-nature management. International symposium "Human dimensions of family, farm and community forest", Pullman, Washington State, USA.

Participation with poster presentation

- 25 November 2002. Policy-relevant potentials of private forest owners to provide societal services (POPPOF-project), FP6-workshop, Paris, France.
- 25-27 June 2003. Effectiveness of Forest Policy in Flanders with special attention for the private forest owner. International symposium "Towards the sustainable use of Europe's forests", Tours, France.
- 27 June – 3 July 2004. Acceptance of stick, carrots and sermons as policy instruments to direct private forest management. International symposium "The evaluation of forest policies and programmes", Epinal, France.

Participation without presentation

- 28-29 August 2008. Political Theory Workgroup Meeting, Hinterzarten, Germany.
- 17-18 December 2007. Political Theory Workgroup Meeting, Wageningen, the Netherlands.
- 12-13 July 2007. Political Theory Workgroup Meeting, Gottingen, Germany.

Participation in national conferences and workshops (translated in English)

Partcipation with oral presentation

- 23 October. 2007. The forest owners: who is he, what are his aims and what are his motives? Private forest management conference of forest group "Vlaamse Ardennen" Ronse.
- 23 November 2006. Economic aspects: costs and revenues during forest conversion. Forest conversion conference. Hasselt.
- February 2002. Forest co-ops: potential contribution to sustainable forest management, Anual meeting of Flemish Forest Organization, Brussel.

Supervision of M.Sc. thesis students

2007-2008	Sophie Baert. Beleidsevaluatie van geïntegreerd bosbeheer in de zandstreek van Noord-Brabant: een case studie
2005-2006	Liselot Ledene. Het draagvlak voor privaat-publieke samenwerking om bosuitbreiding te realiseren
2001-2002	Dieter Cuypers. Invloed van habitatkwaliteit in oud Kempisch bos en Karakterisering van oud zuurminnend eikenbos.

Co-organizer of international meetings

2003	Forstpolitikertreffen

Academic Teaching

2005-2009	Forest and Nature Policy (5 ECTS)