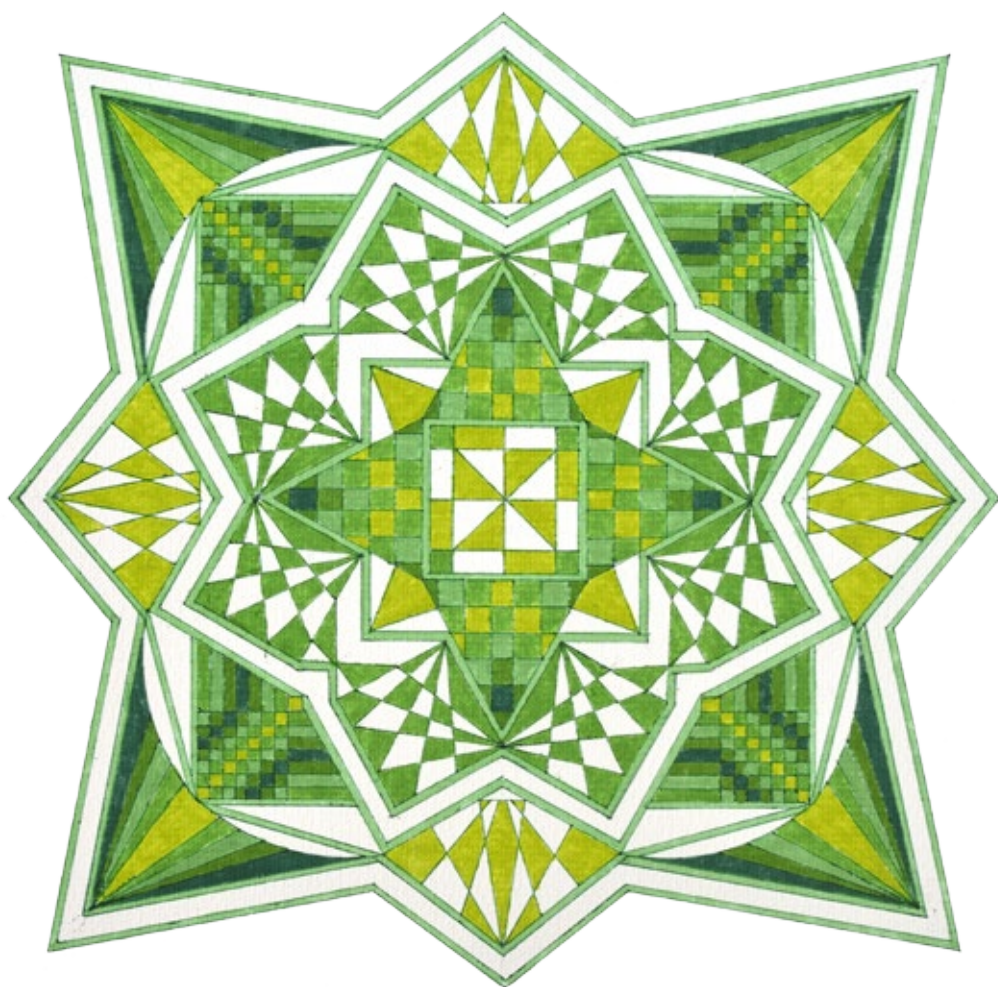


Making a Difference

Boundary Management in Spatial Governance



ALTERRA

WAGENINGEN **UR**

**Making a Difference:
Boundary Management
in Spatial Governance**

Judith Westerink-Petersen

Thesis committee

Promotors

Prof. Dr A. van den Brink

Professor of Landscape Architecture

Wageningen University

Prof. Dr C.J.A.M. Termeer

Professor of Public Administration and Policy

Wageningen University

Other members

Prof. Dr D.M. Peel, University of Dundee, Scotland

Prof. Dr P.H. Feindt, Wageningen University

Prof. Dr H.A.C. Runhaar, Wageningen University

Prof. Dr T.J.M. Spit, Utrecht University

This research was conducted under the auspices of the Wageningen School of Social Sciences

Making a Difference: Boundary Management in Spatial Governance

Judith Westerink-Petersen

Thesis

submitted in fulfilment of the requirements for the degree of doctor

at Wageningen University

by the authority of the Rector Magnificus,

Prof. Dr A.P.J. Mol,

in presence of the

Thesis Committee appointed by the Academic Board

to be defended in public

on Wednesday 26 October 2016

at 4 p.m. in the Aula.

Judith Westerink-Petersen

Making a Difference:

Boundary Management in Spatial Governance

216 pages.

PhD thesis, Wageningen University, Wageningen, NL (2016)

With references, with summary in English

ISBN 978-94-6257-868-5

DOI <http://dx.doi.org/10.18174/386527>

Contents

1	Introduction	10
1.1	A story of contested differences	10
1.2	Why study boundaries in spatial governance?	11
1.3	Theoretical concepts	12
1.3.1	Spatial governance	12
1.3.2	Boundaries in spatial governance: institutional, social and physical boundaries	13
1.3.3	Boundary management: actions by means of arrangements	15
1.4	Research questions and aims	20
1.5	Research design	21
1.6	Structure of this thesis	24
2	Dealing with Sustainability Trade-Offs of the Compact City in Peri-Urban Planning Across European City Regions	30
2.1	Introduction	30
2.2	Compact city concepts	31
2.3	Why or why not opt for the compact city? Pros and cons of the compact city and the assumption of sustainability	33
2.4	Research approach	36
2.5	Results: expressions of the compact city paradigm per case study	38
2.5.1	Montpellier city region	38
2.5.2	Leipzig-Halle	40
2.5.3	Greater Manchester	42
2.5.4	The Hague Region	45
2.6	Discussion	47
2.7	Conclusions	49
3	Contested Spaces? The Use of Place Concepts to Communicate Visions for Peri-Urban Areas	52
3.1	Introduction	52
3.2	Changes in the Dutch planning culture and practice	53
3.3	Conceptualising the role of place concepts in spatial planning	57
3.4	The use of spatial concepts in contested peri-urban spaces: 'Land van Wijk en Wouden' and 'Duin, Horst en Weide'	60
3.4.1	Land van Wijk en Wouden	60
3.4.2	Duin, Horst en Weide	63
3.5	Analysis and discussion	66
3.6	Conclusions	69
4	The Participating Government: Shifting Boundaries in Collaborative Spatial Planning of Urban Regions	74
4.1	Introduction	74
4.2	Conceptual framework	75
4.2.1	Shifting boundaries in collaborative planning	75
4.2.2	Collaborative planning discourses	76
4.3	Research methods	77

4.4	Introduction of the cases	78
4.4.1	Eindhoven Region	79
4.4.2	Parkstad Limburg.....	80
4.5	Results: regional collaborative planning discourses.....	82
4.5.1	Issues and actors in Eindhoven Region and Parkstad Limburg.....	82
4.5.2	Alternative boundaries: leading or participating government	83
4.5.3	Planning examples.....	86
4.6	Discussion	89
4.7	Conclusions.....	90
5	Scale and Self-Governance in Agri-Environment Schemes. Experiences with Two Alternative Approaches in the Netherlands	94
5.1	Introduction	94
5.2	Keys to more effective meadow bird protection: three problems of scale.....	95
5.3	Three scale dimensions.....	97
5.3.1	The spatial dimension.....	97
5.3.2	The farm management dimension	98
5.3.3	The governance dimension.....	99
5.4	Moving along the spatial scale: the case of Collective Management Plans	103
5.5	Moving along the farm management scale: the case of Farming for Nature	105
5.6	Discussion	107
5.7	Conclusion.....	109
6	Landscape Services as Boundary Concept in Landscape Governance: Building Social Capital in Collaboration and Adapting the Landscape	114
6.1	Introduction	114
6.2	Conceptual approach.....	116
6.2.1	Collaborative landscape governance.....	116
6.2.2	Landscape services.....	116
6.2.3	Social capital.....	117
6.2.4	Boundary management	118
6.3	Methods.....	120
6.4	Case study	123
6.4.1	Introduction to the area	123
6.4.2	Landscape services and role frames.....	124
6.4.3	Self-governance.....	125
6.4.4	Social capital: trust and social learning.....	126
6.4.5	Adapting the biophysical landscape conditions.....	127
6.5	Discussion and conclusions.....	128
7	The Role and Evolution of Boundary Concepts in Transdisciplinary Landscape Planning.....	134
7.1	Introduction	134
7.2	Approach	135
7.2.1	Landscape concepts as boundary concepts	135
7.2.2	Method	137

7.3	Analysis of cases	138
7.3.1	Hoeksche Waard.....	138
7.3.2	Biesland polder	140
7.3.3	Future cities: Arnhem.....	142
7.4	Discussion and conclusions.....	144
8	Conclusions and Discussion	150
8.1	Introduction	150
8.2	Answering the research question	151
8.2.1	Identified boundary arrangements.....	151
8.2.2	Choice and functioning of boundary arrangements.....	158
8.2.3	Conditions for boundary arrangements to support spatial governance	161
8.2.4	The role of boundary arrangements in spatial governance.....	163
8.3	Contribution to scientific debate.....	164
8.4	Suggestions for further research	166
8.5	Reflections.....	167
8.5.1	Usefulness of theoretical lens.....	167
8.5.2	Research design	168
8.5.3	The role of the researcher	169
8.6	Societal relevance and policy implications.....	170
9	References.....	174
	Summary.....	202
	Acknowledgements.....	210
	Completed Training and Supervision Plan	214

1

Introduction

1 Introduction

1.1 A story of contested differences

Just south of Rotterdam, between the Oude Maas river and the towns of Barendrecht and Rhoon, one finds one of the most contested areas in the Netherlands. The Buijtenland van Rhoon, which is now primarily used for arable farming, consists of clay polders that were claimed from the river delta in the 15th century. In 2001, as part of a larger plan for the region of Rotterdam, it was decided at the national level, that the Buijtenland van Rhoon had to be converted into a nature and recreation area. In the North, the landscape had to be made more attractive for city dwellers by means of footpaths and small-scale landscape elements, and in the South a natural area was to be created. To this end, farmland in the area had to be purchased by the government and managed by a professional nature organisation. The plans left little room for agriculture and food production: for the southern part of the area, according to text of the 2006 decision, only a high nature value type of land use was acceptable (Vogelzang et al., 2009). What a high nature value comprised, was not defined. However, the government plans translated high nature value into a wet nature type, which would involve removing soil and part of the dike. This plan evoked major protests from citizens in the area, led by a number of farmers. They objected to the compulsory sale of their farms as well as to the wetland type of nature envisioned in the plan. That the area had flooded at the end of WWII, and again in 1953, had been a traumatic experience. They were proud of their landscape and its cultural-historic features. In addition, the farmers were proud of their role in producing food, and felt that it would be a waste to turn rich productive land into nature. With a top-down decree and plans for compulsory purchase, the government seemed arrogant, distant and inaccessible to the people in the Buijtenland van Rhoon. However, in their strive to preserve the cultural landscape, the farmers managed to gain support from the municipality of Albrandswaard, as well as from many city dwellers from Rotterdam, and a number of national politicians and celebrities.

In 2014, after many years of protests, petitions, court procedures, counterproposals, advise reports and even civil servants being chased away from the area, the province asked former Minister of Agriculture Veerman to advise on the matter. In the same period, the farmers asked Vereniging Nederlands Cultuurlandschap (VNC) to make a plan using a landscape design that included arable fields with biodiverse margins, but excluded wetlands. Veerman proposed to investigate whether the farmers' proposal would yield sufficient nature value as an alternative to the wetlands. In addition, he proposed that a governance structure be designed that would include a high degree of collaboration in the area as well as a raised level of farmers' autonomy in the form of self-organised management.

The story of the Buijtenland van Rhoon is about 'making differences'. The different meanings attributed to the area, the 'us' and 'them' as defined by the stakeholders, and different perceptions of legitimacy of government intervention had significant consequences: they evolved into conflict. In this thesis I am interested in the making of differences, in the sense of boundaries distinguishing between categories in processes of spatial governance. In the story, multiple boundaries are apparent. I highlight the boundaries between 'urban' and 'rural', between different kinds of people, between 'agriculture' and 'nature' and between 'government' and 'citizens'. The boundary between 'urban' and 'rural' is a fuzzy one in the peri-urban

Buijtenland van Rhoon. Agricultural land use may be prevailing, but the influence of 'the city' is unavoidable. Not only has urbanisation increasingly isolated the Buijtenland from the vaster agricultural areas, the vicinity of the city has led to city dwellers being increasingly interested in visiting the area, as well as to policy claims for improving it for recreation. The peri-urban area is shared by urban and rural users. Because they are from different backgrounds, they may appreciate the Buijtenland van Rhoon in different ways and envision its future accordingly. The difference between urban and rural users does not necessarily lead to conflict; the story shows it can also create an opening for collaboration. Several city dwellers supported the farmers in their struggle to preserve the cultural landscape by means of their influence and network.

The conflict centred around the boundary between 'agriculture' and 'nature'. Linking nature to water in the government plan hardened the boundary between agriculture and nature. It seemed insurmountable, until the farmers and VNC found an integrative concept in arable fields with biodiverse margins (Westerink et al., 2015b). Linking nature to cultural landscape and food blurred the nature-agriculture boundary. However, this blurring was not readily accepted by the government: it was questioned whether the proposed nature value was high enough. The boundary between agriculture and nature was reinforced because of the boundary between the government and the inhabitants of the area. The government firmly delineated this boundary by on the one hand the plan for compulsory land purchase (implying the current land owners were considered unable and unwilling to deliver the desired qualities), and on the other hand by not organising a collaborative process with stakeholders in the area. In repeated interactions between farmers and the national and provincial government, this boundary was hardened rather than bridged. It also deepened the conflict, because the demarcation of the domain of government was not accepted by the farmers. However, the Veerman proposal includes ideas about making this boundary more permeable, and even to shift it by giving the farmers and inhabitants a larger share in the responsibility for managing the area.

1.2 Why study boundaries in spatial governance?

In spatial governance, dealing with boundaries is daily practice. The story of the "Buijtenland van Rhoon" is just one example in which governmental as well as non-governmental actors create, contest and change boundaries. These boundaries include differences between sorts of areas and land use types, between groups of people, and between government and citizens. In many cases, boundaries are part of struggle and conflict, because of the different meanings they separate, but equally because of the consequences of those meanings. 'Making a difference' matters. The difference between 'agricultural' and 'natural' areas is contested not only because of the meaning conferred to each, but also because of economic and institutional consequences such as land price and land use rights (Boonstra and Van Den Brink, 2007; Kuindersma et al., 2012). Likewise, the distinction between 'government' and 'society' has consequences for what is expected from either of them and thus for the functioning of society. In addition, differences between groups of people may lead to misunderstanding and prejudice and stand in the way of collaboration. However, boundaries do have a use in helping to make sense of and to organise situations. In collaborations, tasks can be assigned to various partners based on the differences between them (Schut et al., 2013).

The role of such boundaries in spatial governance is still poorly understood. In literature in the field of spatial governance, boundaries addressed are generally jurisdictional, administrative or geographical (Christiansen and Jorgensen, 2000; Gregory, 2002; Jacquez et al., 2000). Newman and Paasi (1998) as well as Jones (2009) made pleas to study a wider range of boundaries in geography than merely 'political borders'. Van Broekhoven et al. (2014) are among the first to publish on boundaries in spatial governance other than 'borders on a map'. They studied boundary actions in a multifunctional land-use development in Rotterdam. A number of articles have been devoted to the role of boundary spanners and boundary concepts in spatial planning deliberations, for instance about integrated water management, or industrial farming (Metze and Van Zuydam, 2013; Warner et al., 2010). A number of boundary articles cover the field of agri-environmental management. Jeremy Franks (2010) used the concept of boundary organisation to describe how environmental cooperatives bridge the boundary between agriculture and nature as well as the boundary between farmers and nature volunteers. Carol Morris (2006) conceptualised a boundary between agrarian and policy 'knowledge cultures' in relation to agri-environment schemes. Tamara Metze (2011) showed how a number of boundary concepts, including 'stewardship', influenced deliberations on agri-environmental management, leading to collaboration between farmers, citizens, and governments.

The field of spatial governance is rarely viewed from the angle of boundary management, but there is a growing body of literature on boundary management in other disciplines. Most literature that operationalises boundary management stems from science and technology studies. This literature focuses on managing the interface between science and politics or science and practice (e.g. Gieryn, 1983). Other sources of boundary literature are organisational studies, looking at the multifaceted and often permeable boundaries of organisations (e.g. Dumez and Jeunemaitre, 2010; Halley, 1998; Hernes, 2004) and anthropology, studying constructed differences between ethnic and cultural groups and their effects (e.g. Barth, 2000; Lamont and Molnár, 2002). Theories and concepts from those disciplines can yield new insights into the functioning and management of boundaries in spatial governance. By applying these concepts in the analysis of spatial governance practices, I aim to understand what people do with boundaries in processes of spatial governance, for what reason, and by what means.

In the next section, I will introduce and elaborate the concepts that are important in this thesis: spatial governance, boundaries and boundary management. After that, I will explain my research questions and aims, followed by the research approach. This chapter is concluded by an introduction to the other chapters of this thesis.

1.3 Theoretical concepts

1.3.1 Spatial governance

The term spatial governance is gaining importance in literature (e.g. Fricke, 2015; Heley, 2013; Tewdwr-Jones and Allmendinger, 2006). The more widely used term spatial planning is a subcategory of spatial governance (cf. Emerson et al., 2012). Spatial planning is concerned with the process of deliberately adapting the physical spatial organisation to meet society's needs (Van der Valk and Van Dijk, 2009). The word 'planning' implies a dominant role for the

government in spatial planning practices, even if 'the process' includes consultation of, or collaboration with stakeholders. Governance as a concept, however, includes the possibility of major roles for private actors in the complex interplay in the network that shapes development (De Vries and Priemus, 2003; Kooiman, 2003; Rhodes, 1996; Van Kersbergen and Van Waarden, 2004). The need for a 'spatial governance' concept in literature illustrates two things. First, related to high uncertainty and complexity and the involvement of a wide range of actors, processes of spatial development decreasingly have a character of planning and control (De Vries and Priemus, 2003; Healey, 1997). Second, the range of issues, fields of expertise and strategies involved in spatial development has become wider than the planning profession and traditional planning instruments (De Vries and Priemus, 2003). This thesis for instance, in addition to spatial planning, pays attention to another subcategory of spatial governance: agri-environmental governance.

I define spatial governance as *the process that steers the appreciation, organisation and use of space, in interplay of various private and public actors, through combinations of formal and informal approaches*. By definition, spatial governance is not a matter of governments alone, but of networks of governmental and non-governmental actors (Hajer and Zonneveld, 2000; Rhodes, 1996). Governments collaborating with other actors implies working across the boundaries of the own governmental organisation (Emerson et al., 2012). Governance implies interdependence between those actors, with interactions based on trust and negotiation, in networks that can only indirectly and imperfectly be steered by the state (Rhodes, 1996). Multilevel governance includes collaboration and coordination between various tiers of government (Cash et al., 2006). What is more, the boundary between government and non-government is under constant construction in processes such as collaboration and privatisation, and often contested in situations of political conflict (Rhodes, 1996; Van der Steen et al., 2013). In addition, dealing with boundaries between various stakeholder groups – across value systems, power differences, knowledge systems and discourses – is a major challenge in spatial governance (Healey, 1997). The *spatial* dimension of spatial governance adds to this, evoking discussions on differences between areas and types of land use and their meaning.

1.3.2 Boundaries in spatial governance: institutional, social and physical boundaries

Boundary theory is the theoretical lens through which I look at spatial governance practices. Because of the use of the boundary concept in various social science disciplines, Halley (1998) speaks of 'interdisciplinary boundary theory'. Within the social sciences, there is general agreement on what boundaries are and on their formation being a social process. Boundaries can be understood as *demarcations around categories* (Jones, 2009; Yanow, 2000). Categorisations are necessary in order to understand the world around us and to find words for what we perceive. While meant to represent reality, as simplifications they simultaneously create and limit our perception of reality (Jones, 2009). As such, both categories and boundaries are social constructs (Foucault, 1972; Jones, 2009). Alternative terms for boundary include interface, demarcation, delineation and divide (Ostrom, 1996; Schut et al., 2013; Westerink et al., 2015a).

In spatial governance, a wide range of categories are used to make sense of the world, to organise and to exercise power (Newman and Paasi, 1998), such as scale, state, citizen,

watershed, stakeholder, region, eligible, allowed, partner, and credible knowledge. Every day, implicit or explicit decisions are made on who or what is inside or outside these categories, and this way boundaries between them are constructed, reproduced and contested. I will not take material boundaries such as fences or walls into consideration, but will focus on metaphorical/symbolic boundaries (Sternlieb et al., 2013). Rather than studying the management of all types of boundaries thinkable in spatial governance, in this thesis I will focus on three particular types of boundaries: institutional, social and physical boundaries (Pasqui and Bozzuto, 2011). As with all categorisations, this distinction can be disputed. Other authors have used other categorisations of boundaries and even defined those categorisations differently (see Abraham and Maney, 2012; Hernes, 2004; Jones, 2009; Van Broekhoven et al., 2014). My own interpretation of physical boundaries, for instance, differs from those of Hernes (2004), Abraham and Maney (2012), Sternlieb et al. (2013) and Van Broekhoven et al. (2014).

In this thesis, *physical boundaries* refer to the fuzzy boundaries of 'areas' and categories of land use (Allmendinger and Haughton, 2009; Franks, 2010), such as 'urban' and 'rural', 'nature' and 'agriculture'. Physical boundaries distinguish the meanings appointed to different spatial entities, defining what they are and what they are not. Negotiations and conflicts about these boundaries are at the heart of spatial planning and governance. A complicating matter is that 'areas' and categories of land use, when delineated spatially, may not match the administrative and ownership boundaries (Boonstra and Van Den Brink, 2007; Cash et al., 2006; Heley, 2013; Padt and Westerink, 2012). Administrative and ownership boundaries have received wide attention in literature. I will focus on the less 'fixed' physical boundaries.

Social boundaries are related to notions of identity of oneself and others, and of who belongs to which group (Lamont and Molnár, 2002; Tilly, 2004). Social groups may be simple categorisations of people but they may also be communities or social networks with strong internal bonding ties, cultures and identities (Bodin and Crona, 2009; Lamont and Molnár, 2002). Generally, because of the wide range of stakeholders involved, multiple social boundaries are apparent in processes of spatial governance. Social boundaries often become apparent in value and language barriers in communication between the various social groups, including disciplinary backgrounds (Hoppe, 2010; Keulartz, 2009; Kueffer and Hirsch Hadorn, 2008; Lamont and Molnár, 2002; Metze, 2011; Mollinga, 2010; Werkman et al., 2011). Collaboration in spatial governance processes may require the development of social capital in the sense of bridging and linking ties across social boundaries: both between distinct groups and between groups at different levels of authority (Putnam et al., 2004).

Institutional boundaries define the role and meaning of social institutions such as politics, the government, society, the market, civil society, science, art, the press, business sectors and scientific or professional disciplines (Gieryn, 1983; Healey, 2012; Madanipour, 2006; Nickolai et al., 2012; Ostrom, 1990, 1996; Owen et al., 2007). They are not synonymous to organisational boundaries, although in spatial governance, institutional boundaries may become especially evident when organisations from various institutional categories need to collaborate or meet in policy arenas. In spatial governance, the boundary of government is not clear-cut and subject to continuous 'bounding processes' (Rhodes, 1996). This boundary is relevant also for the functioning of self-governance, which is enabled as well as constrained by it. Governmental intervention, which is never completely absent, limits self-governance. At the same time,

according to Ostrom (1999), government protection of the right of groups to self-organise is a prerequisite for self-governance to function well.

The physical, social and institutional dimensions are interrelated. The meaning of areas and land use categories may shape the notions of identity of people using them, and vice versa. Social boundaries in interactions may be a result of institutional boundaries that have shaped notions of identity of people participating in those interactions. And notions of the role of institutions may be related to – for instance public or private – meaning of land use categories.

1.3.3 Boundary management: actions by means of arrangements

Rather than boundaries themselves, the ‘inchoate process of bounding’ is more interesting to study (Jones, 2009). Due to social and cognitive processes, boundaries are never finished or fixed (*ibid*). Boundaries are defined, contested, shifted, taken down and changed. The reason for the creation as well as for the contestation of boundaries is that power is exercised by creating order and defining who and what are ‘in’ or ‘out’ (Jones, 2009). By defining differences, boundaries both enable and constrain (Barth, 2000; see also Giddens, 1984). They support ordering and sense-making, but also exclude options and possibilities (Hernes, 2004). Actors constantly try to shape boundaries to influence their enabling and constraining properties. These interventions (Jones, 2009) have been described as boundary actions. Van Broekhoven et al. (2014) define boundary actions as *a recurring set of articulations, actions and interactions that shape a demarcation*. Such boundary actions include delineation, bridging, contestation, coordination, shifting, blurring and deconstruction (Miller, 2001; Van Broekhoven et al., 2014).

Boundary actions may require the use of boundary arrangements that enable the actors to ‘do things with boundaries’. Schut et al. (2013, p. 92) follow Hoppe (2005) in their definition of boundary arrangements as “describing the relationships, formal and informal agreements and expectations regarding the division of tasks and responsibilities between different actors or organisations in policy, decision-making or other negotiation processes”. This definition is too narrow to suit my purpose, because it limits boundary arrangements to merely one type of action towards only one boundary: coordination across the science-practice boundary. I aim to understand how a wider range of boundary actions are arranged in practices of spatial governance, which generally involve multiple boundaries. Therefore, in this thesis, boundary arrangements are considered a wide range of *tools and strategies that enable boundary actions*, such as boundary objects, boundary concepts, frames, boundary organisations, contracts, processes, boundary workers, boundary spanners, and combinations thereof.

The need to manage boundaries in governance processes has been stressed by many authors (Emerson et al., 2012; Sternlieb et al., 2013; Tippet et al., 2005). By management I mean the dealing with, the trying to influence or manipulate, without the suggestion that ‘management’ means ‘control’. Attempts to manage boundaries are not always successful. In addition, although power is exercised in boundary management, boundaries are managed by all actors, including the less powerful. In this thesis, boundary management is *taking actions towards boundaries by means of boundary arrangements in order to influence a governance process*. Hence, boundary management is composed of boundary actions and accompanying boundary arrangements. Boundary management may change the boundary and the way it enables some and constrains

other actors in spatial governance in pursuit of their goals. In reaction, they may take new boundary actions and devise additional or different boundary arrangements. Figure 1.1 illustrates how boundaries are formed in spatial governance, enabling as well as constraining spatial governance, evoking boundary management, which changes the boundary, with an impact on spatial governance. This framework suggests boundary actions and the choice of boundary arrangement are related to the enabling and constraining properties of boundaries.

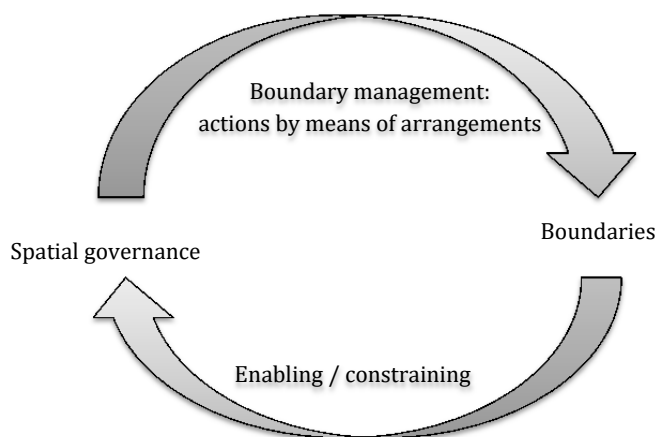


Figure 1.1: Dual relationship between spatial governance and boundaries

The framework of Figure 1.1 aligns with the ‘duality of structure’ as proposed by Anthony Giddens (1984), in which agency and structure constitute each other. In his theory of structuration, structures both enable and constrain agency, and are produced and reproduced by agents in interaction. Giddens stresses the reflexivity and knowledgeability of agents when in their actions they both draw on the rules and resources that make up structure, and produce and reproduce structure. In my view, boundaries can be regarded to be among the structural properties of social systems that enable and constrain agency in spatial governance. Boundary actions by actors in spatial governance, in reaction to enabling and constraining properties of boundaries, reflect reflexivity and knowledgeability.

Below, a number of boundary arrangements are introduced that I encountered in literature. In the concluding chapter I will supplement these boundary arrangements with boundary arrangements I found in the case studies. Combining literature and findings from the case studies will result into a typology of boundary arrangements. In literature in the field of science and technology studies, some boundary arrangements have been conceptualised and studied in-depth, especially boundary objects, boundary concepts and boundary organisations. In addition, the field of communication studies has yielded theory of frames and framing, which is conceptually related to boundary theory. In the following I will argue that frames can be seen as

boundary arrangements as well. After that, I will introduce boundary objects and boundary concepts, social learning and boundary workers, and boundary organisations.

Frames

In the strictest sense of the word, a frame is a delineation of scope, as commonly referred to in the word *framework*. Frames of meaning have become important objects of study in a broad range of social science disciplines, including policy and communication studies. Through frames of meaning, people select and name features and relations of interest in a situation (Schön and Rein, 1994). Because frames offer a selective view, they help people to make sense of complex and problematic situations. In addition, frames set the direction for finding solutions. The selectivity of these views and the relation with the solutions that seem obvious from that point of view, are often implicit, however. Diverging frames held by different groups of people can be at the root of conflict. In the context of policy controversies, frames have been defined as *“underlying structures of belief, perception, and appreciation, which determine what counts as a fact and what arguments are taken to be relevant and compelling”* (Schön and Rein, 1994, p. 23). Schön and Rein (1994) make a plea for (in action) reflection on frames in policy controversies, and deliberate design by policy makers of ways out, based on retrieved insights.

In the story at the beginning of this chapter, I made a selection of events and issues. That way, I framed the situation in the Buijtenland van Rhoon as ‘a conflict’ and the government’s approach as ‘top-down’. I could also have presented a story on threatened biodiversity of deltas in north-western Europe and on an opportunity to restore part of the ecosystem in the Rotterdam region, a small victory in the context of massive urbanisation and harbour development. Or, I could equally have drawn up a picture of farmers turning their backs on the city, with unrealistic dreams of large-scale agriculture in a small and isolated area, and a government that takes responsibility in providing a decent quality of life for the inhabitants of Rotterdam. In addition, I could have focussed on the power play between the central government, the province and the municipality, to prove a point on strategic issue coalitions in multi-level governance. I did not, because I wanted to illustrate the importance of boundaries and boundary management in spatial governance, and to introduce a number of boundaries that are relevant in the remainder of this thesis.

In conflict situations, Dewulf et al. (2009) distinguish issue frames, process frames and identity and relation frames. Issue frames tell stories of the substance of the problem at hand, its causes and its consequences. ‘Ecosystem restoration’, for instance, implies making amendments to counteract damage inflicted to the integrity of a coherently functioning, location-based (and vulnerable?) group of organisms. Process frames describe the quality of interaction between people in a conflict, for instance labelling it as a ‘misunderstanding’ or as a ‘fight’. In addition, they describe desirable ways of dealing with such situations, for example whether or not to aim for consensus. Identity and relation frames refer to the understanding of the self and the other, as well as the relationship between them. Such frames may for instance relate to power and trust, or to characteristics distinguishing one group from another. All three types of frames can be studied as cognitive representations ‘in the heads’ of actors involved, and as interactional co-constructions that evolve in the course of interactions (Dewulf et al., 2009). Feindt and Kleinschmit (2011) introduce responsibility frames to analyse which roles were attributed in the media to politicians, farmers and consumers in the BSE crisis.

The activity of constructing a frame is called framing. Framing is often done unconsciously, but can also be done intentionally to influence deliberations. Actors can try to win their cause through framing, but conflict resolution can also be sought through frame alignment (Snow et al., 1986). A hybrid frame can be jointly developed in interactions, or be introduced by a mediator as a deliberate intervention (Dewulf et al., 2009).

In terms of boundaries, a frame can operate both as category full of meaning as well as as the boundary around it (cf. Pahl-Wostl et al., 2007). Framing can be considered as a boundary action in the sense of delineation. Frame alignment can be seen as a boundary action in the sense of bridging or blurring. Reframing could be considered as boundary shifting or as a bridging action (Runhaar and Van Nieuwaal, 2010). These boundary actions are taken by means of (sometimes deliberately constructed) frames. Frames therefore can be interpreted not only as categories or boundaries, but also as boundary arrangements. From here on, I drop frames as categories or boundaries, and framing as boundary action. Frames are of interest in this thesis particularly as boundary arrangements. In this thesis, spatial frames (cf. issue frames) and role frames (cf. identity, relation and responsibility frames) turn up.

Boundary objects and boundary concepts

The boundary between science and other social systems is probably the best theorised socially constructed demarcation, as illustrated by the body of literature that developed after the influential publication of Gieryn (1983). The boundary between science and practice (or politics) is sometimes approached as an institutional boundary between social systems. In other literature, it is treated as a social boundary between scientists and practitioners. Managing this science-practice boundary is referred to as boundary work (Hoppe, 2010; Miller, 2001). Boundary work is conceptually related to action research, trans-disciplinary research and collaborative research (Hoppe, 2010; Mollinga, 2010; Werkman et al., 2011), which are all performed in collaboration with non-scientists.

In interactions between scientists and practitioners, boundary objects can be useful (Star, 2010). Boundary objects are *“plastic enough to adapt to the needs and constraints of the several parties that employ them, yet robust enough to maintain their identity [...] They have different meanings in different social worlds, but their structure is common enough to more than one world to make them recognisable.”* (Star and Griesemer, 1989, p. 393). More than 20 years later, Star (2010) characterised boundary objects as material and at the same time affecting a process; their meaning is open to various interpretations, they are based in action, subject to reflection and local tailoring, and their meaning may develop while being used. Libraries, standardised forms, ideal types (‘species’), indicators, models and maps were interpreted as boundary objects (Cash et al., 2003; Harvey and Chrisman, 1998; Star and Griesemer, 1989; Turnhout, 2009). Such boundary objects facilitate the exchange of knowledge between scientists and practitioners by giving ample scope to interaction and translation. Not only material, multiple-meaning objects are able to perform this facilitating role in interaction and translation; non-material concepts are equally suited. Boundary concepts are also plastic, with different meanings in different social worlds, while remaining recognisable. Similar to boundary objects, boundary concepts allow communication and social learning about multidimensional issues between representatives of different scientific disciplines and between scientists and practitioners (Mollinga, 2010; Opdam et al., 2015b).

Social learning and boundary workers

Social learning emphasises the learning of individuals through exchange in a social environment as well as the development of mutual understanding and shared values that provide a basis for joint action (Paassen et al., 2011b; Pahl-Wostl et al., 2007). Because people learn from each other, social learning processes benefit from differences between people (Sandström and Rova, 2010; Schusler et al., 2003). In addition, social learning happens in action and interaction and results in joint practices and collective action (Pahl-Wostl, 2006). Social learning processes are often ‘codified’ in boundary objects and boundary concepts (Pahl-Wostl, 2006). In themselves, especially when deliberately organised to bridge differences, social learning processes can also be considered a boundary arrangement (Pahl-Wostl et al., 2007; Tippet et al., 2005). In many bridging actions, boundary workers or boundary spanners have a role (Sol et al., 2011; Termeeer and Bruinsma, 2016; Warner et al., 2010). Such boundary workers have a role in mediating between organisations or between social groups and in facilitating exchange, learning and collaboration (Meijerink and Stiller, 2013). In many cases, representatives of different organisations in a partnership can be considered to be boundary workers (Warner et al., 2010).

Boundary organisations

To “mediate between the institutions of ‘science’ and the institutions of ‘politics’”, boundary organisations may be established (Miller, 2001, p. 482). The existence of boundary organisations illustrates that the production of knowledge is not value-free, and that in politics science is increasingly used in power play (Hoppe, 2010; Miller, 2001). Boundary organisations therefore need to combine and balance the legitimacy of politics with the credibility of science, and to combine but also to distinguish between facts and values (Cash et al., 2003). They need to be able to perform hybridisation as well as deconstruction of scientific and political elements, demarcation and negotiation of the boundaries in addition to cross-domain orchestration of activities (Miller, 2001; Parker and Crona, 2012). Thus, they provide a mechanism for different actors to collaborate through building a bridge between divergent worlds, that allows them to preserve their competing interests (O’Mahony and Bechky, 2008). Boundary organisations have definite responsibility and accountability to both sides of the boundary (Carr and Wilkinson, 2005). As a result, this in-between position and hybrid identity can be accompanied by a number of tensions which require adaptive boundary management (Miller, 2001; Parker and Crona, 2012). Such adaptive and innovative institutional arrangements are needed in complex multi-boundary environments (Sternlieb et al., 2013). Boundary organisations at the science-policy-practice nexus are established to ensure a balance between the credibility, legitimacy and saliency of research (Cash et al., 2003; Runhaar et al., 2016).

Some authors have ventured to broaden the conceptions of boundary objects, concepts and organisations to other boundaries than the one between science and practice (Cash et al., 2006; Keulartz, 2009; Leino, 2012; Metze, 2011; Sternlieb et al., 2013; Van Broekhoven et al., 2014). In addition, concepts have evolved that stress a particular boundary action, such as bridging, resulting in various studies of bridging concepts and bridging organisations (e.g. Deppisch and Hasibovic, 2013; Prager, 2015a).

Table 1.1 and Table 1.2 summarise the above: types of boundaries in spatial governance (physical, social and institutional) and their enabling and constraining effects, and boundary management as actions by means of arrangements. At this point, I do not yet connect specific

arrangements to specific actions, nor their composition to enabling and constraining boundary properties. I will do so in the concluding chapter.

Table 1.1: Boundaries in this thesis and their enabling and constraining effects (inspired on Hernes, 2004; Jones, 2009; Van Broekhoven et al., 2014)

Types of boundaries	Physical	Social	Institutional
Differentiate between categories of	Land use, areas	Groups of people	Social institutions
These boundaries -enable	Complexity reduction, efficiency, ordering	Identification, internal bonding, social learning	Definition of roles/tasks, authority, self-governance
-constrain	Integration, multi-functional land use	Mutual understanding, collaboration	Self-governance

Table 1.2: Boundary management: actions and arrangements (inspired on Miller, 2001; Schut et al, 2013; Van Broekhoven et al., 2014)

Boundary management	
Actions	Arrangements
<ul style="list-style-type: none"> – drawing (delineating, creating, demarcating), – challenging (contesting, negotiating), – changing (shifting, blurring, making fuzzy, reshaping, integrating, deconstructing), – maintaining (defending, stabilising, reproducing, coordinating across) and – bridging (crossing, spanning). 	Frames, boundary objects, boundary concepts, social learning, boundary workers and boundary organisations.

1.4 Research questions and aims

In my research I aim to understand *what people do with boundaries in processes of spatial governance, for what reason, and by what means* (section 1.2). Below, this focus is translated into a research question with a number of sub-questions.

The research question of this thesis is: *What is the role of boundary arrangements in the management of physical, social and institutional boundaries in spatial governance?*

- *Which arrangements are used by actors to take actions towards boundaries in practices of spatial governance?*

This question refers to what people do with which boundaries and by what means.

- *How can the choice and functioning of boundary arrangements be understood?*

This question investigates how boundary arrangements relate to and influence the

enabling and/or constraining effects of boundaries in spatial governance. It refers to the reasons for taking boundary actions and choosing boundary arrangements.

- *What are conditions for boundary arrangements to support spatial governance?*

This question leads to recommendations on application of boundary arrangements.

I aim to contribute to the scientific debate in a number of ways. First, I develop a framework bringing together types of boundaries relevant in spatial governance, and boundary arrangements for dealing with them. Second, boundary theory in the social sciences has mainly addressed institutional and social boundaries. Physical boundaries have rarely been considered alongside institutional and social boundaries, but it is the combination of the three that makes up spatial governance. By combining them, I propose an integrated way of looking at spatial governance processes. Third, the lens of boundary management opens possibilities of exchanging insights across boundaries of scholarly disciplines and schools of thought within the field spatial governance. In this thesis, boundary arrangements are studied and compared in spatial planning as well as in agri-environmental management.

In addition, I aim to arrive at recommendations on the use of boundary arrangements in practices of spatial governance. I will evaluate their performance according to criteria of effectiveness, fairness and democratic legitimacy (Hartmann and Spit, 2015).

1.5 Research design

Epistemology

By labelling boundaries as ‘social constructions’, I take a social constructivist perspective to the pursuit of knowledge. Social constructivism departs from the idea that people give meaning to the world around them in interaction with each other (Creswell, 2009). These meanings matter, because they shape choices and behaviours and materialise for instance in landscapes and farming practices. Some social constructivists will go as far as relativism, denying the existence of truth and reality altogether, claiming there is no reality independent of our construction. That is not my position, however: I prefer to avoid the ‘relativist trap’ (Schön and Rein, 1994, p. 41-43). My own position is closer to critical realism, which combines an ontological realism (there is a real world that exists independently of our perceptions, theories, and constructions) with a form of epistemological constructivism (it is inevitable that our understanding of the world is constructed from our own perspectives) (Maxwell, 2012). Because of the limitations of the human mind, and our existence in place and time, the same reality is understood in different ways by different people. The notions of differences in perception between people, and meaning-making as a social process, are core to a social constructivist epistemology (Creswell, 2009). Interpretative methods suit this epistemological perspective; they are based on the presupposition that we live in a social world characterised by the possibilities of multiple interpretations (Yanow, 2000).

Interpretative approach

Interpretative research approaches not only explore what things mean, but also how they mean: through what processes meanings are communicated, who their audiences are and how they make use of them (Yanow, 2000, p. 8). With interpretative, qualitative methods, a social

constructivist researcher aims to understand social processes, at a much more thorough and in-depth level than quantitative methods would allow. Qualitative methods can deliver rich results and insights that enhance understanding of social complexity (Miles and Huberman, 2013). Although interpretative, qualitative methods yield contextual rather than universal and eternal knowledge, the accumulation of that contextual knowledge supports development of theory (Silverman, 2006; Yanow, 2000).

Empowerment

Part of the research was conducted as action research. The philosophical starting point of action research is that knowledge empowers and that research can contribute to change processes (Creswell, 2009; Huntjens et al., 2015). Not only should researchers be aware of their role in empowerment (often of the powerful through research funding mechanisms); they can also contribute to a fairer world by means of engaging with stakeholders in change processes. In action research, researchers collaborate with stakeholders in three ways (Huntjens et al., 2015; Paassen et al., 2011a). Stakeholders participate in research activities such as the formulation of research questions, data collection, analysis and the drawing of conclusions. Researchers participate in the action of social processes to get information from the inside. In addition, researchers can have a reflexive role in that action, contributing to evaluation and learning within the collaborating network. The intertwining of a social process with research is often organised as a learning process (Sol et al., 2011). Action research may increase salience and legitimacy of the research findings (Cash et al., 2003). However, credibility is a sensitive issue because of the involved position of the researcher. Action researchers therefore aim for reflexivity and transparency with regard to their position and personal preferences (Huntjens et al., 2015; Pleijte et al., 2011).

Case studies

The research question is answered through a case study approach. Case studies are, due to their rich narratives, especially helpful in learning about complex and emerging social phenomena (Flyvbjerg, 2006). Yin (2009, p. 18) defines a case study as *an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*. In such a situation, because the phenomenon cannot be isolated from its context (e.g. in laboratory settings), case studies are a suitable research approach (ibid). I chose case studies as research strategy because of the focus in the research question on practices of spatial governance. I based the case study selection on the following criteria. They had to:

- Concern practices of spatial governance,
- Be located in 'urban' as well as 'rural' and 'peri-urban' areas,
- Concern cases in which at least one, and preferably more boundaries are addressed,
- Address boundaries including physical, social and/or institutional boundaries,

and:

- Be managed by actors involved in the spatial governance practices.

The empirical chapters in this thesis include case studies from the fields of urban and peri-urban spatial planning and from agri-environmental governance (see Table 1.3), that are examples of topical boundary discussions. Those discussions include development of the peri-urban area, improvement of on-farm nature, the role of government *versus* the role of societal actors in

spatial governance, and the inclusion of a variety of stakeholders in governance processes. Although all case studies are examples of boundary management in spatial governance, the chapters were written from their own conceptual framework and research objective, as previously conducted, independent studies (Yin, 2009). However, in the concluding chapter, a cross-case analysis is conducted (see Yin, 2009) by means of a configuring synthesis of the chapters (Gough et al., 2013), based on the framework presented in this introduction. The arrangements used in boundary management in the various cases described in the articles will be compared and analysed through argumentative interpretation (Yin, 2009). This way, the research question will be answered.

Data collection and analysis

In the case studies, qualitative, interpretative methods were used, such as coding and looking for patterns (Flyvbjerg, 2006; Miles and Huberman, 2013; Silverman, 2006). Data collection was done through the conducting of semi-structured interviews, observation of and participation in meetings and activities, keeping a logbook and collecting policy documents, minutes of meetings and other project documentation. The variety of cases and research questions in the individual research projects resulted in a vast amount and variety of data. Documents I deemed most important, were coded, such as transcriptions of meetings in Green Blue Links and interviews in AESUS. Qualitative content analysis was the basic method for analysis of the data. In addition, the work of chapter 3 had elements of metaphor analysis and frame analysis and chapter 4 was based on discourse analysis.

Validity

A great richness in data has advantages and disadvantages. I did not have enough time and resources to systematically code all the available material. However, for all projects I kept organised archives that I consulted whenever questions arose during analysis. Those data are recoverable, which is an important criterion to judge action research according to Huntjens et al. (2015). However, because not all data could be coded, the interpretative steps I took are only partly verifiable by others. Nevertheless, to enhance validity of the research findings, the following strategies were applied: triangulation, prolonged time in the field, member checking and self-reflection (Creswell, 2009). In all case studies, triangulation was applied by using multiple sources of information. Action research included prolonged time in the field in which an in-depth understanding was achieved of the specific issue and network. In all case studies, member checking was performed in meetings with respondents, participants and other stakeholders, to make sure the interpretation of the researcher did not diverge too much from the stakeholders' perception. Self-reflection, clarifying the bias of the researcher, is carried out in section 8.5.3.

Stakeholder involvement

Stakeholders were involved in all research projects that were the basis of this study, through action research or in other ways. In two of the projects in which data were gathered for the empirical chapters in this thesis, principles of action research were applied. The Farming for Nature project involved stakeholders – farmers, citizens and government officials – in the choice of research questions, the gathering of data, the exchange of lessons learnt and analysis. In addition, the researchers were actively involved in the collaborative governance process (chapters 5 and 7) (Buizer et al., 2015; Westerink, 2016). The project Green Blue Links was

carried out in a partnership with regional governments and agri-environmental cooperatives in the Gouwe Wiericke area. Also this project was organised as a learning process as well as as a change process (chapter 6). In both projects, the researchers combined multiple roles: those of a process facilitator, a knowledge broker, an observer and a participant (Turnhout et al., 2013). In the action research projects, the researchers had a central role in creating room for reflection in the collaboration with the stakeholders (Huntjens et al., 2015). In the partner meetings of Green Blue Links we regularly built in time for reflection on the joint goals, our progress and lessons learnt. Likewise, the 'Evenings' with farmers, volunteers, citizens, public officials and researchers in Farming for Nature were moments for reflection on goals, questions for joint learning, results and effects.

Chapters 2 and 3 are based on the European 6th Framework research project PLUREL (Peri-urban land use relations) (see also Aalbers and Van Dijk, 2007; Padt and Westerink, 2012; Westerink - Petersen and Aalbers, 2013). Especially the case study of The Hague Region is relevant to this study. Although the work in this project cannot be characterised as action research, this project was carried out in collaboration with stakeholders. The project had a stakeholder board in addition to a scientific board, and stakeholders were involved in the choice of research questions and the approach of the case studies. Collaborative techniques were used such as scenario workshops and discussions of results with stakeholders. In a similar way, stakeholders were involved in the AESUS project. Stakeholders at the national level had the opportunity to respond to the research approach, and research findings were discussed with respondents in the case regions Eindhoven and Parkstad Limburg (chapter 4).

1.6 Structure of this thesis

The following chapters present case studies of boundary management in spatial governance. In a single case study, multiple boundaries may be managed, with multiple actions and arrangements. The chapters are therefore not structured to answer individual research sub-questions: the research question is answered in the concluding chapter. Instead, the chapters are clustered according to their spatial governance domains. The chapters 2-4 are examples of urban and peri-urban planning. The three chapters thereafter (5-7) describe examples of rural and peri-urban agri-environmental management (except for the urban Arnhem case in chapter 7). Table 1.3 summarises the chapters and the cases.

Chapter 2 analyses how the compact city concept is applied in four urban regions across Europe, how this concept yields trade-offs among dimensions of sustainability. In addition, it analyses strategies that have been developed by planners in the four regions to deal with those trade-offs. The urban – rural boundary is important in this chapter. Chapter 3 compares and analyses two overlapping and competing place concepts for peri-urban areas in The Hague Region, the Netherlands. The urban - rural boundary is central. Chapter 4 reveals discourses of collaborative planning in an urban region characterised by population growth and in a region characterised by population decline, both in the south of the Netherlands. One alternative discourse envisions a leading role for governmental actors in spatial planning, while another discourse envisions a leading role for societal actors. This chapter is mainly concerned with the boundary between government and non-government.

Table 1.3: Chapters and case studies

Chapter	Title	Authors	Journal, status	Cases, field of spatial governance
2	Dealing with Sustainability Trade-Offs of the Compact City in Peri-Urban Planning Across European City Regions.	Westerink, Haase, Bauer, Ravetz, Jarrige & Aalbers	European Planning Studies, published 2013	4 urban-peri urban regions (Montpellier, The Hague, Manchester, Leipzig-Halle); spatial planning
3	Contested Spaces? The Use of Place Concepts to Communicate Visions for Peri-Urban Areas.	Westerink, Lagendijk, Dühr, Van der Jagt & Kempenaar	European Planning Studies, published 2013	2 peri-urban areas in The Hague Region; spatial planning
4	The participating government: searching for actors and strategies in regional spatial planning	Westerink, Kempenaar, van Lierop, Vd Valk, Vd Brink	Environment and Planning C, published 2016	2 urban regions (Eindhoven and Parkstad Limburg); spatial planning
5	Scale and self-governance in agri-environment schemes: Experiences with two alternative approaches in the Netherlands.	Westerink, Melman & Schrijver	Journal of Environmental Planning and Management, published 2015	1 rural, 1 peri-urban case (collective management plan, Farming for Nature); agri-environment
6	Landscape services as boundary concept in landscape governance: building social capital in collaboration and adapting the landscape	Westerink, Opdam, van Rooij, Steingröver	Submitted	1 rural area (Gouwe Wiericke); agri-environment
7	The role and evolution of boundary concepts in transdisciplinary landscape planning.	Opdam, Westerink, Vos, de Vries	Planning Theory and Practice, published 2015	1 urban, 1 peri-urban, 1 rural case (Arnhem, Biesland, Hoekse Waard); spatial planning and agri-environment

Chapter 5 analyses two Dutch approaches to more effective agri-environmental management: one landscape approach and one farming system approach, both with increased self-governance by farmers. This chapter is about the nature – agriculture boundary as well as the boundary between government and non-government. Chapter 6 tells the story of a collaborative project with farmers' organisations and regional governments for a rural landscape with more landscape services. Social boundaries among different groups are important, as are the boundary between government and non-government, and the one between nature and agriculture. Chapter 7 analyses three cases in which a landscape concept supported mutual understanding and learning leading to collective action. Dealing with social boundaries in transdisciplinary landscape planning is the main issue.

Boundary management is addressed in boundary terms in the chapters 4, 6 and 7, while the term boundary rarely appears in the chapters 2, 3 and 5. Nevertheless, in those cases of spatial governance, boundaries are managed as well. In chapter 8, I will synthesise the empirical chapters through the lens of boundary management. I will analyse how boundaries are managed in the case-studies and how the boundary arrangements function. Based on those observations, I will draw lessons for spatial governance practices in general, and agri-environmental governance and spatial planning in particular. In addition, I will identify opportunities for future research.

Abstract

The compact city has become a leading concept in the planning of peri-urban areas. The compact city concept is often advocated as 'sustainable' because of claims that include lower emissions and conservation of the countryside. The literature shows, however, that there are certain trade-offs in striving for compaction, especially between environmental and social aspects of sustainability. In this article, we describe expressions of the compact city concept in the planning practice of several European urban sample regions, as well as policies and developments that contradict the compact city. We look at examples of positive and negative impacts of the compact city that were observed in the sample regions. Further, we discuss attempts by planners to deal with sustainability trade-offs. Being aware that developments in the peri-urban areas are closely connected to those in the inner city, we compare the sample regions in order to learn how the compact city concept has been used in planning peri-urban areas across different contexts in Europe: in Western, Central and Mediterranean Europe, and with growing, stable or declining populations. We conclude with recommendations with respect to balance in applying the compact city concept.

2

Dealing with Sustainability Trade-Offs of the Compact City in Peri-Urban Planning Across European City Regions

This chapter was first published as: Westerink, J., Haase, D., Bauer, A., Ravetz, J., Jarrige F. and Aalbers, C.B.E.M., 2013, *European Planning Studies*, 21 (4) pp 473-497. ©Taylor & Francis, available online: <http://dx.doi.org/10.1080/09654313.2012.722927>

2 Dealing with Sustainability Trade-Offs of the Compact City in Peri-Urban Planning Across European City Regions

2.1 Introduction

C.S. Lewis's allegory *The Great Divorce* (1945) starts in *The Grey Town*, a depressing place. The city centre is dead and depopulated due to migration to the fringe, as people cannot live in peace with their neighbours. They keep moving away from each other and as a result the city is ever-expanding. In *The Great Divorce*, *The Grey Town* stands for hell.

This negative association is probably recognizable for many planners and geographers when they think of urban sprawl. Massive suburbanisation after World War II triggered the emergence of the Compact City ideal, just as the Garden City was a reaction to the overcrowded cities of the nineteenth century (Breheny, 1996). Today, the compact city is a leading concept in urban (and regional) planning (Calthorpe, 1993; Duany et al., 2000). The question that is of interest here, is the applicability of this ideal to real-life, existing city regions. How do planners put the concept into practice and what unwanted implications do they encounter when they do so? For this, we will look at some of the city regions that were case studies in PLUREL, a Sixth Framework European integrated research project that studied peri-urban land use relations. Peri-urban landscapes are greatly influenced by urban planning policies - or their absence. Protection of the peri-urban landscape, the transition zone between 'urban' and 'rural' areas, is one of the often-used arguments for the compact city. The sample regions in this paper are Western, (post-socialist) Central and Southern European city regions. They represent different landscapes, city region typologies and planning cultures. We analyse similarities and differences in terms of dealing with the normative concepts of compactness and sustainability. We are convinced that this enables us to draw a general line in the final conclusions of the paper that will be of value in the debate about sustainable urban and peri-urban development. To our best knowledge, an international comparison of compaction strategies in city regions has not yet been made.

First, we introduce several aspects and variants of the compact city concept. This is needed to be able to recognise compact city thinking in planning practice. Then we ask ourselves whether it is justified for the compact city to be a 'self-evident' planning objective: is it truly the most sustainable option? This will help us to understand why many governments strive for urban containment, and to look for measures in planning practice for dealing with unwanted implications of the compact city. Having examined the sustainability of the compact city, we present our research question and our research methods. Then we look at some contrasting sample regions: shrinking, growing, all polycentric, but with different population densities and planning histories: Leipzig-Halle, Greater Manchester, Montpellier Agglomération and the Hague Region. The results obtained from these sample regions are compared and analysed. We conclude this paper with recommendations for the application of the compact city concept.

2.2 Compact city concepts

The compact city paradigm is based not only on concepts of efficient land-use and urban containment, but also includes a number of goals and parameters (Williams, 1999):

- Urban containment, separation of settlements, efficiency of land use,
- Viability of public transport, lower car dependency, lower travel costs and climate change emissions, public health benefits of non-motorized travel,
- Protection of the countryside, land for agriculture, ecological diversity,
- Densification of urban neighbourhoods: together with indirect effects such as social mixing, social cohesion, economic diversity, etc.

The containment agenda is a reaction to 'land consumption' by spread-out suburban city expansions, which were in turn both a deliberate reaction to the unhealthy and crowded cities of the industrial age, and a natural effect of a growing car ownership (Breheny, 1996; Ravetz, 2000). In the 1970s, Dantzig and Saaty published their 'Plan for a Liveable Urban Environment' (Dantzig and Saaty, 1973). Since then, the compact city has been a leading concept in urban planning, especially in Europe (Häußermann and Haila, 2004). The compact city leaves space for countryside, for agriculture, nature and recreation. It includes a clear distinction between the city and the countryside in physical appearance and land use functions: the countryside as 'counterbalance' for the city. It is a **spatial concept**, which is – although based on historical urban forms – hardly ever fully reflected in the appearance of today's cities. Spatial concepts express, in a condensed and synthesised form, through words and images how people would look at the intended spatial organisation of an area (Zonneveld, 2005). As a concept the compact city is related to a range of concepts about urban form, traffic and liveability. We briefly summarise them here, because they should be borne in mind when evaluating expressions of compact city thinking in planning practice in city regions. The summary shows among other things that spatial concepts are not stable over time (Hajer and Zonneveld, 2000) and that the compact city as a form concept was translated into economic and social concepts. Over the past decades, a wide field of interpretations and reflections has developed that for our purpose we call the compact city paradigm.

We start our summary with the range of concepts representing the **green side** of the urban frontier. The idea behind these concepts is to establish and preserve nearby landscape quality and recreational space for the city dweller. Concepts vary from Green Belts (UK, Poland, Russia, around cities), Buffers (the Netherlands, between two cities) and Green Wedges (Copenhagen, Amsterdam, between urban districts from the outside in) to a Green Heart (the Netherlands, Pennines (UK), surrounded by cities). They all represent a clear distinction between urban and rural (or at least 'green') land use and are designed to stimulate or enforce urban containment and therefore complement the compact city.

The standard image of the compact city is that of a single city. However, not all cities are **monocentric**; **polycentric** cities or urban regions exist and polycentrism has even been advocated as a sustainable urban form. For instance in the Netherlands, 'clustered deconcentration' (*gebundelde deconcentratie*) was an official concept in Dutch planning in the 1970s (Zonneveld and Verwest, 2005), aiming at 'a designed development of towns in the direct sphere of influence of urban areas' in order to combine preservation of the countryside with the

demand for suburban living. Owens and Rickaby (1992) call this concept 'decentralised concentration'. Related is the concept of satellite cities (Thomas and Cousins, 1996). The idea of satellite cities is connected to the discussion of the **optimal city size** (Capello and Camagni, 2000). A compact city loses many advantages if the distance between the core and the fringe becomes too great. The interrelationships between towns in polycentric regions, or even between urban regions, is considered in the concept of 'urban networks' (Zonneveld and Verwest, 2005).

The compact city concept in its original form was based on the idea of **proximity**. In compact cities, the daily needs of residents and workers should be within walking or easy cycling distance. The focus on proximity has gradually been replaced by a focus on **accessibility** (Zonneveld, 2005). The accessibility idea leaves room for a polycentric interpretation of the compact city in which travelling time has become more important than distance. One of the most influential traffic concepts that evolved in the compact city family is Transit Oriented Development (TOD, Calthorpe, 1993). This concept promotes integrating transport into urban planning and concentrating development around accessible locations. As we see, the compact city concept is closely related to **mobility**. There is no compact city concept without emphasis on public transport or, more specifically, a reduced need for transportation by car. Some even advocate a 'car-free city' (e.g. the World Carfree Network). However, commuting behaviour and patterns are changing, since work locations are suburbanizing just as residential areas did earlier (Aguilera and Mignot, 2004). Sub-centres are of growing importance for employment in addition to 'the' city centre.

From an **economic** point of view, connection and accessibility are key ideas, leading to concepts such as 'concentration', 'corridors' and 'metropolitan networks' (Zonneveld and Verwest, 2005). Urban forms based on these economic spatial concepts may differ from the 'classic' compact city. However, they also reflect a tendency to concentrate. A clear example is the Central Places concept as it was introduced in Germany (see the Leipzig-Halle case study in section 2.5.2).

The compact city is inseparable from **density** and/ or intensity, since it strives for concentration of buildings, people and activities. Density is used as a measure for defining urbanity gradients (Loibl and Köstl, 2010): the denser, the more urban. Density can be defined in different ways: in the number of people per hectare, in the number of addresses per hectare, in square meters per hectare, or, as advocated by Koomen et al. (2009), urban volume. Density trends can vary according to these different parameters. In many regions, household sizes are decreasing and housing preferences lead to increasing floor space. This means that the number of people in an area may decrease, while the built area remains the same or even increases. Another reason for caution with measuring and comparing densities, is that density and compactness are matters of scale (Neuman, 2005) and of framing the area of study.

High densities do not always mean a condemnation to **high-rise**, as was shown by Uytengaak and Mensink (2008), Scoffham and Vale (1996) and Sonne (2009), among others. High-rise may not even be efficient, because it limits the access of light to the lower storeys and therefore demands slender buildings or much space in between. Uytengaak and Mensink show various design principles that may add to the quality of compact cities.

Where density is a quantitative measure, **intensity** addresses the *use* of space and therefore is a qualitative measure of urbanity. However, density and intensity are often used as synonyms. Intensification was defined by Williams et al. (1996) as related to both built form and activity. In their view, built form intensification includes redevelopment of existing buildings or previously developed sites, and development on previously undeveloped urban land. Activity intensification is defined as the increased use of existing buildings or sites. The principle of high intensity implies **multilevel and multifunctional urban land use**. Haccou et al. (2007) mention four types of multifunctional land use: interweaving, intensifying, layering and timing. Interweaving combines functions on the same piece of land; intensifying increases the effectiveness and efficiency of a certain land use; layering mixes functions in the vertical dimension; and timing uses the same building or space for different functions at different moments.

Finally, we would like to address the concept of the **social city**. The Social City Region (Breheny, 1993; Ravetz, 2000) is an attempt to deal with the complexity of reshaping existing cities, aiming for varying standards (e.g. densities) to suit differing but complementary conditions. In Germany, the Social City Programme was worked out, which supports integrated local concepts for revitalising city quarters, combining community work and urban planning (Evers et al., 2006). The social city aims to create an attractive and liveable urban environment and community that will attract people into the city instead of pushing them towards the suburbs due to lack of quality of houses, public space and facilities.

2.3 Why or why not opt for the compact city? Pros and cons of the compact city and the assumption of sustainability

Many planners and policy makers use the compact city concept because of its aim of sustainable development: lower energy use, less land consumption and more liveable cities. Among researchers there are strong advocates of the compact city as well (EEA, 2006), although there are also many critics. Among other things, the compact city is stated to be unfeasible, its environmental benefits unlikely, its social costs undesirable and some greenfield development inevitable (summarized in Breheny, 1996).

The theoretical compact city and, its opposite, the theoretical dispersed city, have certain characteristics, which are summarised in Table 2.1. This overview aims to summarise the discussion rather than to prove or disprove any of the theories involved. Solid scientific proof of the sustainability of the compact city may even be unfeasible because both concepts (compact city and sustainability) have not been sufficiently defined for that purpose (their character as 'empty signifiers' may even explain their success). However, the literature was obviously used as a starting point (Adolphson, 2010; Bogunovich, 2009; Bramley et al., 2009; Breheny, 1996, 1997; Burton, 2001; Gordon and Richardson, 1997; Häußermann and Haila, 2004; Hillman, 1996; Holden, 2004; Howley, 2009, 2010; Howley et al., 2009; Jenks and Burton, 1996; Lin and Yang, 2006; Stretton, 1996; Van der Waals, 2000).

Table 2.1: Overview of characteristics and sustainability claims of the compact and the dispersed city

Sustainability aspect	Indicator	Compact city	Dispersed city
Social	Housing type	High density, multi-storey housing. Mostly apartments. Less private ownership. Lack of affordable housing (Burton, 2001).	Urban sprawl, single houses. Mainly private house ownership.
	Quality of life	Vicinity of services, education, cultural activities, work, countryside. Less travelling time (Howley, 2009).	Sense of freedom, ownership, quietness, suburbia, security/safety is important. People are happier at lower densities (Bramley et al., 2009).
	Social justice (equity)	Houses with gardens are expensive. High-density areas generally have low-income population. However, buying a car is not needed.	House with a garden feasible for many. Most people prefer to live low-density (Burton, 2001; Gordon and Richardson, 1997). However, a car is indispensable (Burton, 2001).
	Home grown food	Community allotment gardens.	Opportunities in one's own garden (Troy, 1996).
	Sense of community	More sense of community, if shared facilities can be achieved (Johnson, 1996; Ravetz, 1999). Reduced social segregation (Burton, 2001).	Low sense of community (Bramley et al., 2009); individualism and isolation. However, gardens are source of interaction (Bramley et al., 2009)
	Safety	More violence (Burton, 2001).	Low sense of community may lead to feelings of unsafety (building fences).
	Children's play	Public playgrounds.	In the garden and on the street. Larger public playgrounds.
	Recreation and leisure	(Small to large) urban parks, sports grounds, cemeteries, allotments and countryside.	Private garden and for that reason less travel for leisure (Holden and Norland, 2005), (large) urban parks are not always provided for, sports grounds, cemeteries.
	Countryside	Close for more urbanites (Aalbers et al., 2009).	Far away for many urbanites.
	Urban-rural relations	City depends on countryside for recreational space.	Rural communities are annexed by the city.
Environment	Exhaust emissions	Lower total emission levels (Martins et al., 2008), but higher concentration of fine dust and more people exposed (Schweitzer and Zhou, 2010).	Higher total emission levels, but lower concentration of fine dust (De Ridder et al., 2008).
	Noise	More nuisance (Van der Waals, 2000)	Less nuisance

Sustainability aspect	Indicator	Compact city	Dispersed city
	Energy	Lower energy use per household (Holden, 2004).	Higher energy use per household (Ewing and Rong, 2008), but more possibilities for solar energy (Owens, 1986).
	Urban heat island effect	High density has lower urban heat island effect in warm climates (Elnahas, 2003; Emmanuel and Fernando, 2007)	Higher (Brian and Rodgers, 2001), but vegetation can mitigate.
	Water management	More complex because of high proportion of sealed surface (Troy, 1996) and higher concentration of pollutants.	More space for water storage and infiltration, higher water consumption (irrigation of gardens).
	Green space	Emphasis on public green space.	Emphasis on private green space.
	Green space at risk	Urban green space at risk from construction.	Peri-urban green space at risk from urbanisation and commercial use of the area.
Economic	Infrastructure	Efficient in roads, sewage system and other services.	More infrastructure needed. Suburb to suburb transportation through highways (Gordon and Richardson, 1997).
	Transport	Emphasis on public transport (Burton, 2001), cycling and walking, but cars congest streets (Williams et al., 1996).	Emphasis on private car use. 'A car is freedom' (e.g. Knight, 1996)
	Solution to traffic jams	Efficient and finely mazed public transport system.	Extensive road network. Suburbanisation shifts traffic away from core areas (Gordon and Richardson, 1997).
	Construction costs and house prices	High (Howley, 2009).	Lower.
	Economic activity	High densities foster urban production and enterprise investment (Lin and Yang, 2006).	More space for initiative.
Resilience	Land consumption	Efficient. More emphasis on multi-functional and efficient land use.	Consuming.
	Flood risk management	High vulnerability due to concentration.	Lower vulnerability.
	Shrinkage	Easier to adapt to shrinkage.	More difficult to adapt to shrinkage.
	Future options	More flexibility with respect to land use pattern (Van der Waals, 2000).	Less flexibility.

Table 2.1 suggests that the claim that 'the compact city is more sustainable' is too simple, in line with Jenks et al. (1996), Williams (1999) and Van der Waals (2000). Both concepts have weaknesses and strengths with respect to sustainability. Compact urban forms may be more sustainable for some issues, but less so for other. We call this 'sustainability trade-offs': a gain in one sustainability dimension may be accompanied by a loss in another dimension. Overall, the compact city seems favourable with respect to many of the environmental criteria (except for urban air quality and urban heat), but it comes with social constraints and higher construction costs. Strategies for dealing with these social and the few environmental constraints include urban renewal, limitations on car use, mixed land use and life cycle residential strategies. In the case studies, we will look for strategies such as these to see if planners are aware of the sustainability trade-offs in the compact city concept and how they tackle them. This leads to the following research question: *In what ways is the compact city paradigm expressed in peri-urban planning in European city regions and how are sustainability trade-offs dealt with?*

2.4 Research approach

In this paper, we use case studies to get an insight into the complexity of applying a general concept such as the compact city to real-life cities. The empirical material was produced in the PLUREL case studies between 2007 and 2010. In these sample regions, the way that regional governments and other actors steer land use in the urban fringe is studied by analysing their strategies. Strategies are designed successions of decisions and actions of an actor to achieve objectives (Aalbers and Van Dijk, 2007). Primary data collection in the case studies included interviews and discussions with preselected stakeholders in land use development and planning. In the interviews, the stakeholders were asked about their perceptions of the peri-urban area, their objectives with this area and their strategies for achieving these objectives. In some of the case studies, action research was done to get an even deeper insight into the actors' way of working, by attending meetings, participating in events, following policy development and in one case even co-developing a strategy.

The secondary sources of information drawn on for this paper were policy documents, maps, statistical data and scientific literature. Further information on the research methods for the sample regions can be found in Aalbers and Van Dijk (2007). For this paper, the case study material was reviewed again from the perspective of the use of the compact city concept. The different compact city concepts of chapter 2, the sustainability trade-offs of chapter 3 and the strategies applied were used as 'probes' for the cross-case study comparison.

Table 2.2: Shape indices and ranks (of 375 European regions, highest value rank = 1, lowest = 375) of the sample regions according to Loibl et al. (2008) (cf. Table 2.4), adjusted by the authors. Density values are from Loibl and Köstl (2010)

Urban region name	The Hague Region	Leipzig-Halle	Greater Manchester	Montpellier Agglomération
Country	Netherlands	Germany	United Kingdom	France
RUR* name	Rotterdam-Haaglanden	Leipzig-Halle	Manchester-Liverpool	Montpellier
RUR type	Urban polycentric	Urban polycentric	Urban polycentric	Monocentric large
Number of urban polygons	36	22	82	11
Conurbation area 2000 [ha]	56,700	37,600	228,400	14,700
Urban fabric area 2000 [ha]	23,801	20,320	131,350	8,443
Growth urban fabric area 1990-2000 [ha]	4,131	2,470	2,122	1,020
Rank (1 to 375)	8	17	20	62
Total core area index TCAI **	44.6	43.2	45.6	30.9
Rank (1 to 375)	42	47	41	147
Urban fabric land consumption per capita	188	371	289	287
Urban density RUR (people per ha urban)	46.75	26.53	35.18	33.65
Total density RUR (people per ha)	12.00	2.98	8.73	1.69
GDP 2000	27,216.8	17,931.7	23,971.9	19,471.6

The four cases (Montpellier Agglomération, Leipzig-Halle, Greater Manchester and The Hague Region) are suitable for this kind of analysis because they are both contrasting and similar. They are all EU city regions of considerable size, facing peri-urbanisation and making policy aimed at sustainable urban development. They are different, however, in urban dynamics, landscape and planning culture. In Table 2.2 some figures are presented related to urban growth and density based on Loibl et al. (2008) and Loibl et al. (2010). The delineation of the regions in these studies is slightly different from the case studies described below, but the figures give a general impression of the differences between the regions. In the Rotterdam-Haaglanden region, the urban fabric area had the largest growth between 1990 and 2000, but the region still has the lowest urban land consumption per capita. Manchester-Liverpool has the highest total core area index (TCAI), however, indicating a high level of compactness. Montpellier is the most sprawled city, but has the lowest urban extension between 1990 and 2000. Among the case study regions, land consumption per capita is the highest in Leipzig-Halle and the value for urban densities in the region the lowest, as a result of the considerable residential vacancy in Leipzig and Halle (see section 2.5.2).

These different characteristics of the sample regions have a story of urban development and government policies. In the next section, some of this context is told and the ways in which the compact city idea is applied are described, as well as strategies to deal with sustainability trade-offs.

2.5 Results: expressions of the compact city paradigm per case study

2.5.1 Montpellier city region

Montpellier is the main city of Montpellier city region, a large monocentric region (Loibl et al., 2008) at the French Mediterranean coast. The city and its surrounding towns and villages have associated in 2001 into a large inter-communal corporation of 31 municipalities - Montpellier Agglomération - with 320,760 people (2007). In the narrow coastal plain, not much agriculture is left. Farmland decreased with 20% between 1979 and 2000. With 11,500 ha left, farmland represents 38% of the whole surface of Montpellier Agglomération in 2000 (Montpellier-Agglomération, 2006). The vineyards in the hills around Montpellier used to be part of the largest area of vine in France. However, crisis in the vine sector since the 1970s led to a massive conversion of vineyards to other land uses. For four decades, Montpellier was a rapidly growing city with technology and tourism as drivers of economic growth (see Table 2.3). Development was not coordinated and land was cheap, resulting in urban sprawl and high space consumption by individual housing and individual transport. The creation of Montpellier Agglomération brought more coordination in urban development. Montpellier Agglomération was the contracting authority of the 'SCoT' (completed in 2006), the first inter-municipal spatial planning document. The SCoT (*Schema de Coherence Territoriale*) draws the main development orientations from the 31 participating municipalities of Montpellier Agglomération for a period of 15 years. The SCoT was made with input of much professional expertise and little citizen involvement.

Table 2.3: Population growth in Montpellier Agglomération

Montpellier city region Population (INSEE, 2010)	1881	1954	1975	1990	1999	2006
Montpellier city	56,005	97,501	191,354	208,103	225,511	251,634
Montpellier Agglomération 31 municipalities 438 km ²	78,921	128,880	250,000	318,00	367,000	406,139
Aire urbaine de Montpellier 93 municipalities 1,438 km ²	91,324	148,472	284,541	388,747	459,916	509,835

Traditional Languedocian villages presented a compact housing morphology for centuries. In the light of the recent development of urban sprawl, the concept of 'compact city' was presented in the SCoT as a 'renewed vision': "*traditional compact housing has to be revisited with modern architecture concepts*". Compact city thinking is at the heart of the SCoT. There is no political will to stop demographic growth, which is the driver of residential economy (economy of services) and the major source of wealth for the city region, but there is a consensus on the necessity to decrease space consumption in order to achieve a more sustainable urban development. Politicians are increasingly aware of the decreasing land stock on the limited littoral plain, with the negative example of the neighbouring city region of Nice (Cote d'Azur) in mind.

The SCoT introduces the following concepts to defend a number of values:

- '*a natural city*' (environment): preserving natural assets, agriculture, outdoor leisure and landscapes;
- '*a shared city*' (social value: a "city of proximities"): housing, economy (employment), transport/mobility, (car)parking;
- '*an efficient city*' (economic value): intensifying development (increasing housing density, improving public transport), sparing space.

For a spatial implementation of this philosophy, the SCoT is designed on the basis of the framework of green spaces (farmland, nature), a framework of public urban transport and delineation of limits and density of urban development (Buyck et al., 2008). For example, an area can be allowed to have three development levels of housing density (> 50, >30 and >20 dwelling units/ha) depending on the local context and access to public transport services.

Special attention is paid in the SCoT to farm buildings, since the number of buildings in agricultural areas has grown considerably. In the recent past, it was common practice among land owners to use the argument of farming necessity to obtain a farm-building license. These farm buildings were built to be converted into pure housing soon afterwards. To protect open spaces and landscapes, in the SCoT development rights in agricultural areas are strictly limited. To enable 'true' farm development, the model of 'agricultural hamlet' is promoted: a special area dedicated to farm buildings in spatial planning, next to existing developed areas. The agricultural hamlet is supposed to aggregate all new farm buildings in the municipalities of Montpellier Agglomeration. Farm buildings in the agricultural hamlet can be either professional buildings or farm houses. This model was also supposed to put an end to growing neighbour problems between farmers and (new) residents in rural villages due to the traditional location of farm buildings in the heart of the village. Until now, only one agricultural hamlet has been built in Montpellier Agglomeration, with public technical and financial support. It was built in a grape growing village with all farmers being grape growers belonging to a unique wine cooperative. The project raised unexpected difficulties: non farmers demanded more equity in housing opportunities. In a reaction to this, the mayor developed a social housing project "to compensate" for the agricultural hamlet. Although it was social housing, housing costs were still higher for non-farmers than for farmers. Inequities rose between farmers of the hamlet and other farmers and relationships between some farmers and the mayor became tense. When some problems were solved, others emerged, with new annoyances and discomfort for neighbours of the agricultural hamlet. No other agricultural hamlet has been constructed in Montpellier Agglomeration since, because of the lack of local consensus in rural villages. The agricultural crisis can also be considered as a limiting factor (Jarrige et al., 2008; Nougariès, 2008).

In the example of the agricultural hamlets, a compact city strategy aiming for a higher landscape quality failed because the social impacts and context were not sufficiently taken into account. The technocratic model was imposed on the community without local consultation and without understanding of the local people's situation and needs or their capacities for building their own "socio-political arrangements". During previous decades, "local arrangements" between farmers and local politicians were made in a reaction to the wine crisis in the region. These arrangements had their legitimacy in that context, but have become largely unsustainable in the

current situation, because they have increased the massive pulling out of vineyards to develop individual housing in villages around Montpellier, resulting in widespread urban sprawl.

Summarizing, the absence of urban containment policies in Montpellier enabled urban sprawl and the loss of valuable landscape. However, since the creation of Montpellier Agglomeration and the compilation of a regional planning strategy (SCoT), local governments are more committed to and better equipped for sustainable urban development. The first experiences with planning agricultural hamlets – aimed at preventing sprawl in the peri-urban landscape – illustrate that technocratic or ‘top-down’ solutions might not be the way to achieve sustainable development at local scale and in real-life communities. Theory does not arbitrate between sustainability trade-offs in practice. Local arrangements cannot be considered as the panacea to rely on either, because arbitration among local private interests does not always lead to achieving collective interest. The drawing of the SCoT of Montpellier Agglomeration has been useful to improve cooperation between the region’s municipalities, and to build capacities of the local planners. In that way it can be considered as a useful tool, a first step in opening consciousness and designing practical solutions for a change towards more sustainable ways of life in Montpellier city region.

2.5.2 Leipzig-Halle

With a population of 1,073,000 in the year 2008, the city region of Leipzig-Halle is an important agglomeration in Central Germany (SAS, 2010). It is located in the federal states Saxony and Saxony-Anhalt and covers a total of 4,390 km². Its main urban cores, Leipzig and Halle, are encircled by small towns and rural areas. The Leipzig-Halle region is characterised by strong interrelations in terms of the labour market, the regional economy, housing, consumption and leisure (Sinn et al., 2008).

The Leipzig-Halle region already faced population loss since the 1970s, which reached its peak right after the political change in 1990 and continues until pre-sent-day (Nuissl and Rink, 2005). This had a considerable impact on land use change in the region (Haase and Nuissl, 2007). Between 1990 and 2006, the study region’s inhabitants fell from 1.357.806 to 1.217.264 (-10.4%) (SAOS, 2010; SAS, 2010). However, the peri-urban and rural areas show a different pattern than the core cities (Table 2.4). Overall, the impression is that of a stagnating region. In economic terms, the region shows a decline in investment rates and public finances. Unemployment rates are high: currently (2010) about 20% (SAS, 2010).

Table 2.4: Differentiated growth and decline in urban and peri-urban areas in percent (SAS, 2010).

	1990-2000	2000-2006
Leipzig District (around Leipzig)	+0.3	-4.8
Leipzig (core city)	-11.5	+2.4
Saale District (around Halle)	+4.2	-5.2
Halle (core city)	-24	

The city of Leipzig is a case that highlights the East German 'story of shrinkage and urban comeback'. Since the late 1960s, the city experienced a continuous loss of its population, which underwent an acceleration with the onset of the post-socialist transition in 1989. Due to out-migration to western Germany and (strongly subsidised) suburbanisation the population decreased from 530,000 (1989) to 437,000 (1998). Population losses brought about an increase in residential vacancies up to 62,500 vacant flats (20% of the total stock in Leipzig) in 2000. In late 2005, vacancies decreased to 45,000 flats (14% of the total stock, MoL, 2006) due to demolition, a further rise in household numbers and a stabilisation of the population. Demolition produces new spatial patterns. For this, the term 'perforation' was introduced by Leipzig urban planners (Lütke-Daldrup, 2001) and is still being discussed since that time (Haase, 2008).

Today (2010), Leipzig's number of inhabitants stands at 513,000 (MoL, 2009) and is expected to grow further. According to the urban cyclical model of Van den Berg et al. (1981), Leipzig has entered the phase of reurbanisation. The old built-up areas in the inner city are affected most, since from 2000 to 2005 88% of all in-migrants have moved to these areas. At the same time, out-migration from the city has almost stopped. Reurbanisation, in this sense, refers also to a rising city-mindedness or willingness of people to stay in the city (Haase et al., 2005). Reurbanisation is sustained mainly by younger age groups, including students, apprentices and young professionals (aged 18-35).

Strengthening urban centres is supported by the central places concept in spatial planning. The central places found entry into the spatial development plans of the federal states of Saxony and Saxony-Anhalt, where the cities of Leipzig and Halle are located, as well as into the relevant regional plans (Region of Western Saxony and Halle Region). Such central places, mentioned in the German Regional Planning Act (BdJ, 2010), are to be developed as nodal points of the economy, public utilities and transportation and are the designated focal points of settlement development (LPSA, 2003; LPSAH, 1999). They consist of a hierarchy of centres, ranging from first-order centres with a variety of functions for their surroundings to basic centres supplying a limited range of goods and services to the local population. The clustering of urban activity in 'central places' has economic origins but is now presented as an efficient spatial pattern to provide (public) goods and services (Regional Planning Act section 2.2). Even though the central places concept was introduced to spatial planning in Saxony and Saxony-Anhalt in a time of expected economic growth, it was not dismissed when these expectations were not fulfilled. Rather, it was attempted to adapt the concept to a situation of economic decline and population shrinkage by simplifying the hierarchy of centres and emphasising the roles of central places in economic development (LPSA, 2003). Notably, the central places concept is justified without explicit reference to sustainable urban form or to the compact city concept. However, because it promotes the settlement of public utilities and private sector investments in centres and restrict them elsewhere, the central places concept *de facto* contributes to urban compaction. Thus, we think it is valid to interpret it as a prominent expression of compact city thinking in spatial planning in the Leipzig-Halle case study.

Besides the central places, further spatial planning aims contribute to compaction. The spatial development plans of Saxony and Saxony-Anhalt, for example, encourage inner-city development or development in the vicinity of existent settlements prior to development in more remote locations, protect unsealed land and prevent urban sprawl (LPSA, 2003; LPSAH,

1999). Both the regional plans for Western Saxony and the Halle Region emphasise the prudent use of greenfield land as a societal resource. This is to be achieved through directing residential development towards central places and axes between them, a focus on inner city development and redevelopment of brownfields (RPH, 2009; RPWS, 2008). An investigation of the perspectives of spatial planners in the Leipzig-Halle region on the development of their region indicates that civil servants from the core cities in particular support the compact city idea (Sinn et al., 2008). As planners from the core cities have limited control on the urban development beyond their jurisdiction, consensus-based strategies for urban containment are sought. A prominent example is the Green Ring of Leipzig initiative, aimed at the preservation and development of the peri-urban landscape. The Green Ring covers diverse landscapes, including forests, urban and fringe green spaces, brownfields, farmland, rivers and floodplains (Bauer, 2010). As spatial concept, it differs from the Green Belts in the UK, because it does not have a zoning status to prevent its urbanization. Rather, it is a program for the promotion of the area, for enhancing the landscape and improving recreational infrastructure. Initiated in 1996 by Leipzig planning officials, the Green Ring focused on the restoration of fallow open-cast mines and industrial estates at first. Further areas of responsibility were the management of the remaining cultural landscapes and educational activities. These tasks proved a strong incentive for inter-municipal cooperation (Sinning, 2002). The Green Ring's members are composed of fourteen municipalities with Leipzig, two rural districts, civil society organisations, private firms and individual citizens. Currently, 26 key projects are implemented ranging from afforestation to the signposting of footpaths (GRL, 2010).

The compact city is supported through formal spatial planning in the Leipzig-Halle region, e.g. the central places concept, as well as through informal strategies for the peri-urban and urban areas, such as the Green Ring of Leipzig initiative, urban renewal and the construction of town houses (single houses in villa style). Thus, even though other forms of spatial development, such as perforated cities, were observed and discussed, the idea of the compact city maintained credit among planners. After a period of suburbanization combined with population decline, leading to high urban vacancy, urban renewal in form of renovation and the construction of town houses is currently contributing to reurbanisation. This can without doubt be understood as a strategy of the cities of Leipzig and Halle to strengthen the compact character of their urban cores.

2.5.3 Greater Manchester

The Manchester sample region is a topical example of compact city spatial planning in action: from a long history of experiments, it shows both planning processes and results on the ground (Ravetz, 2008). This unique city region was one of the birthplaces of the industrial revolution between 1750 and 1850. Later, following the export of most of its heavy industry, it has spent the last 50 years on restructuring and reclamation of large areas of 'DUN' land ('Derelict, Under-used and Neglected'). The regional economic performance is below the national average, but there is a basic level of affluence and organization of public services, with a mostly well-established planning system.

The Manchester city region has a complex geography. There is an inner core of 1.2 million people in a mainly continuous urban area. There are another 1.3 million people in a ring of satellite towns and small cities. Each of these together makes up the 'Greater Manchester'

political unit of 10 municipalities. There are a further 1.5 million people in a wider 'rural-urban-region' (RUR, the wider functional urban region: the commuting ring and areas providing agricultural produce, nature and recreation to the urban centres) which does not have a single agreed definition. This RUR is adjacent and overlapping with other RURs of Merseyside, West Yorkshire and East Lancashire. The overall density is 1970 persons/km² for the inner urban core, and half that in the outer ring: the overall rate of urbanization (i.e. additional to the existing urban area), is 0.2% per year. On current trends, 30 km² of rural land would be developed in 2000-2020, and the entire current stock of urban and fringe DUN land would be used up; however, there is a continuous flow of land use change at a variety of scales, with new forms of DUN land coming up.

In principle, the UK spatial planning system is focused on containing urban growth, recycling urban land and encouraging 'sustainable communities' (Roberts, 2008). This is done with several main pieces of planning law and practice. The Green Belt policy was established in 1946, and now Green Belts surround all larger cities and conurbations in the UK (Elson et al., 1993; NE and CPRE, 2009). Other designations, such as 'Area of Landscape Value', have similar effects, although not with such a strong legal basis. Although the Green Belt is seen to be generally successful in its main objective of urban containment, there are many exceptions made in its implementation: these include new roads, infrastructure, business parks, health and education campuses and in certain cases larger housing developments. Another important instrument is the Planning Policy Statements (PPS), giving national guidelines for interpretation of planning law. The most relevant here is PPS3, which sets a target of 60% of all new development to be on 'brownfield' (DUN) land (CLG, 2010).

In Greater Manchester, urban containment and densification are not the only policies shaping the urban and peri-urban settlement structure. We can see a range of spatial strategy 'agendas' at a range of scales: from urban and rural orientation, and from a growth or a conservation focus. This range of policy agendas helps to identify problems and opportunities, and where current policies are working, in conflict or missing. Overarching these is the agenda for sustainable development: often fuzzy and complex in practice, and often ignored or misused by stakeholders, but still a powerful influence on policy (Ravetz, 2000). Below we look at the application of the compact city principle through these different layers of policy: from the regional level to the urban housing level, from landscape and transport issues to social and community issues.

At the regional level, the North West Spatial Strategy prioritizes the re-use of urban land and containment of urban growth through Green Belt and similar policies (GONW, 2008). Peri-urban areas are mainly seen as 'spaces between' settlements, and hence not on the priority list of development agendas. However, in terms of development, these may be seen as 'problem' areas, in that any form of development may detract from open land and landscape. At the urban level there are similar priorities for recycling of urban land, higher densities in existing settlements and for social housing to be included with private developments. But the pressures for commercial services and industrial development are very strong, so that many out-of-town developments continue to be built. At the landscape level, there is recognition that Green Belt, Areas of Landscape Value and similar policies generally serve their purpose of containment, but there is an apparent lack of positive benefits for land or landscape quality and diversity, a

problem which has to be picked up by other policy areas (Wood and Ravetz, 2000). And for transport, there is a general policy direction in favour of public transport, but in practice there are institutional problems and barriers with a mainly privatized rail and bus system, and road building still claims the majority of transport funding.

Much of the conurbation land use is former industrial or infrastructure, now in open space, which is not quite urban or rural; in fact such land is not exactly urban fringe or 'peri-urban'. This can cause planning problems and conflicts. For instance the largest shopping mall in the region, the Trafford Centre, was built on such DUN land where its status was disputed. The planning question for a major Public Inquiry in 1995-1996 was whether this was 'urban regeneration' or 'out-of-town' shopping development; in the end it was decided as 'urban', and its construction went ahead.

These and many more examples highlight some of the questions underlying the compact city principle, as put into practice. Will compact towns and cities simply displace their low density infrastructure (retail, leisure, distribution, manufacturing) to outside or to other settlements, and what would be the effects of that? The agenda for economic development often pushes in the opposite direction, in order to satisfy investors and entrepreneurs looking for large greenfield sites with easy road access. This was seen in the area southwest of Manchester, where the regional Economic Strategy proposed a growth zone in the Green Belt of Cheshire, an area where housing is strictly prohibited (NWDA, 2009). In addition, many settlements particularly in declining industrial areas are trying to maintain a social mix and bring in more affluent residents. To do this requires larger houses and gardens, with links to fast roads, and so again the compact city objective can be diluted. Another social question is the relationship of residential density to urban 'liveability', or the capacity of communities for social interaction, inclusion and quality of life. The housing market shows that for the affluent, high density is a trade-off for style and proximity, as in the new 'loft apartments' now surrounding the Manchester Central Business District, or the fashionable 'lifestyle-suburbs' in South Manchester (Ward et al., 2010). Otherwise, if lower income people are forced into high density living with few social or economic opportunities, there is potential for a spiral of deprivation, exclusion and anti-social activity; as seen in many public estates around the periphery of the conurbation.

Overall, the Manchester case shows some of the problems in applying the compact city principle in a diverse, complex and problematic conurbation (Ravetz, 1999). Much of the urban area is relatively dense, compact, but at the same time sprawling; much of the land area is urban and at the same time fringe or peri-urban. It is difficult to put precise boundaries to the 'unit of analysis', difficult to define the compactness and difficult to identify exactly the effects of spatial forms, in combination with many other influences. Such difficulties are shown by the new UK statistical definition of urban and rural; rather than fixed density bands at any one location, this is now based on 'cones' of decreasing density with a range of gradients.

The general finding from the Manchester case study is that spatial development policy, and its interpretation of compact city principles, needs to be more closely linked to other social and economic policies, if it is to make a real contribution to 'sustainable communities'. Overall, the compact city agenda in the UK case seems to be a channel for much wider issues in society – not only 'where' to live, but 'how' and with 'how much?' and not only 'with whom', but especially 'near to whom'?

2.5.4 The Hague Region

The Hague Region (*Haaglanden*) as a city regional authority is a cooperation of nine municipalities, located in the urbanised West of the Netherlands. It is an urban polycentric region (Loibl et al., 2008), with three cities (The Hague, Zoetermeer and Delft) and a number of towns and villages, with in total almost 1 million inhabitants in an area of 410 km². The Hague is the most densely populated city of the four main cities in the Netherlands with 11,310 inhabitants per km² built-up area (CBS, 2005). The region is 27,7% urbanised (2004), including the extensive greenhouse areas. The Hague Region borders the urban regions of Leiden and Rotterdam. Being situated at the North Sea coast, there is little space for expansion. Urban fringe areas in this 'cornered' polycentric region are green peri-urban enclaves rather than fringe areas with a transition to rural areas. The most important planning challenges of the region are quality of life, traffic, availability of open space and protection against excess water both from the sea and from the rivers (Aalbers et al., 2009). Large parts of the region are below sea level. Traditionally, towns were built on higher ground, but the more recent urban expansions and the whole city of Zoetermeer were built in the lower polders due to lack of space and aided by improved construction technology.

As early as the 1960s, large parts of the peri-urban area in the region were protected through the buffer zone policy. Buffer zones, meant to prevent cities from growing together, were integrated into municipal zoning plans and were very successful in keeping urbanisation at bay (Van Rij et al., 2008). This philosophy of clearly demarcated, compact cities surrounded by countryside posed The Hague with a problem: how to grow? In 1962, the village of Zoetermeer (10,000 inhabitants), some 13 km from The Hague, was designated by the National government as 'growth centre': a satellite city of The Hague, but also a full city in its own right. In 1991, it had 100,000 inhabitants.

Discourses about desirable urban development change, however, and in the 1980s 'clustered deconcentration' was replaced in national policy development by a traditional conception of compact cities (Zonneveld and Verwest, 2005). City and countryside needed to be separate worlds and recognizable landscapes. According to the Fourth Spatial Development Plan Extra (1993), urban expansion should take place at the edge of existing urban areas, and a large share of construction should be realised inside urban fabric. So, large but concentrated new housing sites were developed adjacent to the larger cities, including The Hague, to meet the demand for affordable houses as well as to prevent uncontrolled suburbanisation of the countryside.

As a result of decentralisation of planning, since 2005 a number of city regions such as The Hague Region were given tasks in coordinating planning between municipalities. In The Hague Region's Housing Strategy (THR, 2004), compact city thinking is dominant. The motto is: '*green, blue and compact*'. A compact urban form is linked to preservation of green space and quality of life in the region, with the notion that identity and variety in urban neighbourhoods is a prerequisite. One of the solutions is sought in multifunctional and multi-layered land use. Good public transport is seen as necessary. In their reaction to the Housing Policy document, the three largest municipalities actually characterise their city as compact (The Hague, Delft, Zoetermeer). Compact is interpreted as the proximity of a range of services and recreation facilities (Zoetermeer) and as a quality when combined with green urban space (The Hague).

The expression 'compact city' is not mentioned as such in Regional Structure Plan (RSP: THR, 2008). However, it does mention other related concepts. The RSP refers to the 'Stedenbaan' programme, which is intended to lead to a faster, more frequent and more finely mazed public transportation system between The Hague, Rotterdam and surrounding cities. Accessibility has replaced proximity as the leading concept. With the goal of preserving the green peri-urban enclaves, the RSP aims at building 80% of the housing targets within urban fabric. To reach this objective, strategies such as intensive and multiple land use, efficient land use and mixing functions (multifunctional land use) are mentioned. Densification is to be located around the 'Stedenbaan' public transport stations, a pure TOD concept. The areas around the central train stations of The Hague and Delft are already being restructured according to this philosophy.

However, not all planning activities in The Hague Region are geared towards the compact city. Especially with respect to transportation, no clear choice is being made. Improvements to the public transportation system and cycling routes are planned, but the RSP also aims for a substantial expansion of the road network. This policy mirrors the behaviour of travellers in the region. Public transport use in The Hague is below that of Amsterdam, Rotterdam and Utrecht (see Table 2.5). Car use by inhabitants of Zoetermeer is considerably higher than that of the other cities in the region. The motorways A4 and the A12, both leading into The Hague Region, are in the top four congested highways in the Netherlands (VID, 2008).

Table 2.5: Modes of transportation used by inhabitants of major cities in Randstad and The Hague Region (*). Source: CBS

Average 2002-2003	% of total transport per capita per day in km						
Transport mode	Netherlands	Amsterdam	Utrecht	Rotterdam	The Hague*	Delft*	Zoetermeer*
Car	75.6%	56.9%	63.7%	66.4%	64.9%	65.6%	70.1%
Public transport	12.0%	27.5%	23.4%	23.2%	21.5%	21.3%	16.5%
Moped	0.5%	0.4%	0.7%	0.4%	0.6%	0.2%	0.4%
Cycling and walking	9.2%	12.5%	9.5%	8.1%	11.1%	11.1%	10.8%
Other	2.7%	2.7%	2.6%	1.9%	1.9%	1.9%	2.2%
Distance travelled per capita per day (km)	31.86	27.98	37.28	28.4	25.12	30.15	29.09
Number of inhabitants 1 January 2003	16,192,572	736,562	265,151	599,651	463,826	96,588	112,594

The effects of the urban containment policy are clearly visible on the map of The Hague Region. It is neatly organised in urban, natural, greenhouse and meadow landscapes and, although the urban influence is tangible, the traditional landscapes and natural areas can therefore still be enjoyed by millions of visitors each year (Briene et al., 2006). Visitors to the peri-urban areas are mainly elderly and few are of foreign origin (ibid). Immigrant groups do not know the peri-urban areas and therefore use them less than native groups (Aalbers et al., 2009). The Hague Region aims to improve the accessibility of the peri-urban areas for the city dwellers, as there are too few urban parks to meet the demand for recreation (Vries et al., 2011).

Four neighbourhoods of The Hague are part of the national programme 'strong neighbourhoods' (*'krachtwijken'*). This programme recognizes the relation between public space and social problems. It combines improving housing variety and the quality and safety of public space with youth health, care for multi-problem families, employment and integration of immigrants. Although these projects are not officially connected to compact city policies, they do address possible negative social effects of compact city planning.

Summarizing, The Hague Region has a long history of urban containment policies which have been fairly effective in preserving some of the green peri-urban areas, but the region's cities have a shortage of urban parks. Multifunctional land use is one of the recent strategies aiming for land use efficiency and a high quality of life in the dense inner cities, where space is extremely scarce. Another strategy is improving public transportation, although car use is also facilitated though extension of the road network. With a changing demographic situation, the urban containment policies fail to take into account recreational needs of immigrants.

2.6 Discussion

The sample regions analysed in this paper show a diverse picture with respect to urban layout, population dynamics and planning history. However, all regions apply some form of compact city thinking, as summarized in Table 2.6. Densification, inner city building and brownfield development are applied by all of them. However, none of the regions aims for a 'traditional' monocentric, circular version of the compact city. They have to deal with the reality of the history of their urban development, population dynamics, the variety in housing preferences and their economic development agenda. All regions, therefore, use a polycentric/network interpretation of the compact city, such as Leipzig with its 'central places'. Accessibility is an issue in Montpellier and The Hague Region; both regions increase densities around transport nodes, using a TOD approach to compaction.

Comparing the sustainability trade-offs also gives a diverse picture. Montpellier and Leipzig-Halle illustrate that urban sprawl can have negative effects. In the case of a growing city, sprawl leads to landscape degradation, but in the case of a shrinking city, the life of the city is threatened by urban sprawl. Manchester and The Hague Region illustrate that strong protection of the peri-urban, and containing the city, has risks as well. Who can afford to travel, can provide themselves with a green living environment and green space for leisure. However, the less mobile may be trapped in dense urban districts with insufficient green space (Aalbers and Eckerberg, 2011). The peri-urban landscapes of Manchester may be 'protected' because of the Green Belt policy, but mere rules fail to improve their quality or to generate economic benefits to the areas themselves. The Hague Region is an example of a region with not only high densities, but also high traffic congestion. The attempt of Montpellier to prevent urban sprawl by means of agricultural hamlets led to social unrest among farmers and civilians because of differences in building rights and housing prices. In Greater Manchester, some dense housing projects of the past have developed into neighbourhoods with many social problems.

In all sample regions, the trade-off between high building densities and quality of life is recognized and strategies have been developed to deal with that. All regions make use of quality

criteria for residential areas, varying from a variety in housing for different target groups (Manchester, The Hague Region) to reviving the inner city (Leipzig) and detailed design guidelines (Montpellier). Leipzig, in addition, is improving the network of green spaces in the city. The Hague Region tries to stimulate land use efficiency through multifunctional land use, a concept that implies the possibility of, for instance, green space on roofs. Another way in which The Hague Region tries to compensate for the shortage of urban green space, is by improving the accessibility of the peri-urban landscapes.

Table 2.6: Comparison of the expressions of compact city thinking in the sample regions

	Montpellier	Leipzig-Halle	Manchester	The Hague Region
Dynamics	Correcting earlier urban sprawl	Adjusting to population shrinkage, re-urbanisation	History of strong planning, but a flow of larger commercial and institutional development in spite of urban containment policy	History of strong planning. Stabilizing population, but demographic shift with changing recreational needs
Concepts	Compact city, densification, polycentrism (decentralized concentration), proximity, limits urban development.	Central places (metropolitan network), Inner city building, brownfield development, Green Ring	Compact city, Green Belt, brownfield development	Compact city, polycentrism, satellite city, inner city building, TOD, Buffer zones
Trade-offs	Sprawl led to landscape degradation. Preventing sprawl leads to social problems in villages	Suburbanization led to inner city degradation.	Jumping the Green Belt combined with 'urban trap': the poor stay behind in the city. 'Conservation only' limits landscape diversity and dynamics of change.	Strong protection of peri-urban but too few urban parks. High congestion.
Strategies	Ban on civil housing in farming areas, joint planning guidelines for municipalities, including densification targets.	Inner city renewal, greening the city, developing peri-urban green space.	Social mix in housing.	Multifunctional land use, improving public transport, improving accessibility of peri-urban, variety in housing.

2.7 Conclusions

Even though the compact city may not be fully applicable to contemporary cities (Graham and Healey, 1999), we see that variants of the concept are widely used in the planning of European city regions. Our sample regions illustrate that the use of compact city thinking is diverse and is expressed in various forms. This is not surprising, since our sample regions are in different development stages and have a diverse planning history. We may conclude that the compact city concept is sufficiently vague and adaptable to allow for variety in interpretation and implementation. However, the traditional, monocentric interpretation of the compact city is not used by the regions studied in this paper.

From the vast amount of literature on the compact city, no clear conclusion can be drawn about its sustainability. Rather, a picture arises of dilemmas and contradictions. The compact city is not an implementable blueprint; therefore, planners need to develop more detailed and tailor-made strategies for sustainable development of their own region. However, little guidance is available to planners to balance sustainability contradictions (Williams, 1999). Balance is the main recommendation of Bramley et al. (2009), who take quality of life and well-functioning communities as the most important indicators. They suggest diversity in urban environments, similar to Breheny (1993). And this is exactly what we see happening in our sample regions: quality, diversity and multi-functionality are the focus of strategies that are combined with urban containment in order to deal with sustainability trade-offs. Apparently, the current generation of planners in our sample regions is well aware of the limitations of the compact city concept.

Lin and Yang (2006) give a number of recommendations for a more sustainable application of compactness, including greening high-density cities. However, such an approach may still be too much 'form' and too little 'process' (Neuman, 2005). Spatial governance and planning policy can be very political: one person's solution is another's problem, and any policy creates winners and losers. The Montpellier case study gave a clear example of a technically sound solution that failed to take into account the complexity of social processes related to land use change. Compact city strategies (and spatial planning in general) should, therefore, be accompanied by strategies for communication and involvement.

Urban sprawl is no sustainable direction of development, but striving for compaction is not an easy road either. This paper has shown that a broad interpretation of the compact city concept, including reflections on sustainability trade-offs, is useful in two ways. First, city regions need to be able to adapt the concept to their own situation; and second, narrowing down the compact city idea to high density only is undesirable and does not do justice to the complexity of real-life cities where real people live.

Abstract

In Dutch planning, there has always been an important role for spatial concepts. Their role has arguably changed with the recent decentralization of planning to the regional and local level. At the national level, guiding concepts of a more procedural nature have replaced the more substantive and place-based spatial concepts, leaving more room for regional and local interpretation. At the regional and local level, spatial concepts are still in use, but this seems to be in a more communicative, negotiating and developing role than before. In this paper, we analyse how place concepts are used to exercise power, mobilize resources and frame meaning over the use of the peri-urban areas, in the changing Dutch planning context. This paper focuses on two competing place concepts for overlapping green urban fringe areas in The Hague Region, which have been promoted by different actor constellations and which represent different visions about the meaning of these peri-urban areas. The case study allows conclusions about the changing role of spatial concepts in Dutch spatial planning.

3

Contested Spaces? The Use of Place Concepts to Communicate Visions for Peri-Urban Areas

This chapter was first published as: Westerink, J., Lagendijk, A., Dühr, S., Van der Jagt, P.D. & Kempenaar, J., 2013, *European Planning Studies* 21 (6) pp 780-800. ©Taylor & Francis, available online: <http://dx.doi.org/10.1080/09654313.2012.665042>

3 Contested Spaces? The Use of Place Concepts to Communicate Visions for Peri-Urban Areas

3.1 Introduction

Peri-urban areas are clear examples of the complexity of contemporary land use planning (Nilsson et al., 2008). One of the underlying reasons behind this complexity is the unclear meaning of these areas: are they urban or are they rural? Are they a platform for dynamics or are they assets to be preserved? Are they a production or a consumption landscape? Planning in many Western European countries, including the Netherlands, is increasingly an arena that is accessible for many parties, governmental and non-governmental, and where the exchange of views plays an increasing role. In policy making for peri-urban areas, we see that visions are communicated from different angles. Place concepts present an important repertoire used in these visions. Place concepts express through words and images how people look at the meaning, function and intended spatial organisation of an area (see also Zonneveld, 2005).

In this paper, we look at two competing place concepts for overlapping peri-urban areas in The Hague Region, the Netherlands, to gain insight into the role of such concepts in contemporary Dutch planning practice. Our overall focus of the analysis is to explore how these place concepts are used to exercise power, mobilize resources and frame meaning over the use of peri-urban areas, and how this relates to the changing planning culture and practice in the Netherlands. Peri-urban areas are particularly interesting for this inquiry. Their position in between 'proper' urban and rural areas has brought about a wide variety of viewpoints on their meaning and development, ranging from the extremes of consumption and leisure areas to agricultural production landscapes (Buijs et al., 2006). We will discuss how the changing planning context in the Netherlands has changed the role and the use of place concepts in our case studies.

Much of the empirical material for this paper was derived from the case study of The Hague Region in the European 6th Framework research project PLUREL (Peri-urban Land Use Relationships). Within this integrated project peri-urban land use relations were studied in general (Nilsson et al., 2008), but the case study research on which this paper draws focussed in particular on planning and governance strategies for peri-urban areas, by means of document study, interviews and action research (Aalbers and Van Dijk, 2007). The already available material on the two case study areas (see Aalbers et al., 2009) was for this paper supplemented with interviews with the project officer of the Land van Wijk en Wouden area committee (which is the institution promoting one of the competing visions) (26 March 2009) and an officer from South Holland Province (the higher-level authority for the two initiatives) (13 October 2010). These extra interviews were done to get more specific details about the initiatives and to follow their development.

This paper is structured as follows. First, we will discuss the change in Dutch planning culture and practice from a top-down and centralized system with use of substantive spatial concepts to a more decentralized system with a more negotiating form of governance in which guiding quality concepts are used. In the following section, we conceptualize the role of place concepts in spatial planning based on theoretical approaches on spatial frames, metaphors and power in planning. This theoretical framework will guide the analysis of our empirical cases in The Hague Region. We

conclude with general observations on the use of place concepts in peri-urban planning, the use of substantive and procedural spatial concepts, and their possible role in future.

3.2 Changes in the Dutch planning culture and practice

The Netherlands present a peculiar case in which a centralised and comprehensive planning ambition is matched by a, in procedural-legal terms, decentralised system of spatial governance (Wolsink, 2003). One reason why for many years substantive spatial planning concepts (such as the 'Green Heart'), and more recently also procedural planning concepts (such as 'spatial quality' and 'preservation through development') have served such an important role is because they provided a core vehicle for the central state to cascade down core planning ambitions via the provincial-regional to the local-municipal level.

In the Dutch planning system of the past decades, often described as a conceptual paradise, ample use has been made of spatial concepts and spatial metaphor to communicate the key characteristics of a territory and to frame proposals for its future use (Dühr, 2007). Some of the best-known Dutch planning concepts, the 'Green Heart', 'Bufferzones' and the 'Randstad' have already been introduced in the 1950s (Rijksdienst voor het Nationale Plan, 1958) and have proven highly durable. The 'Green Heart' refers to a (semi-)open space that is surrounded by the 'City Ring' ('Randstad') of Amsterdam, Utrecht, Rotterdam and The Hague. The Bufferzones refer to the green space between the Randstad cities to distinguish them from each other (see Figure 3.1). Both the concepts Green Heart and Bufferzones served to provide the Randstad urbanites with sufficient recreational space and to set limits to urbanisation (Bervaes et al., 2002). In their essence, the concepts of the Randstad, the Green Heart and the Bufferzones have been argued to communicate the Dutch 'planning doctrine' (Faludi and Van der Valk, 1994), namely, the control of urban growth and the preservation of green open spaces in this densely populated country. Their durability and success in communicating key Dutch planning principles has been ascribed to their vagueness and focus on a limited number of key messages, which allowed them to muster support by being 'subtly emphasised, deemphasized or reinterpreted' (Hall, 1993, p. 44), thus allowing considerable flexibility in their interpretation over time and by different actors.

This vital communicative role and flexibility of spatial planning concepts should be understood in the context that much of Dutch planning policy is traditionally not 'implemented' but rather more subtly 'applied'. Whereas implementation refers to a regulatory approach which leads to directly measurable outcomes that conform to the expressed policy intentions, application means that policy ambitions, expressed through spatial concepts, are translated into planning policies and practices of other actors and at other levels of scale and being used in decision-making. In Dutch planning, this has generally been referred to as the 'performance' ("doorwerking") of planning concepts (Faludi, 2000; Mastop and Faludi, 1997). In other words, in a country that has become known for its consensus-led approach to spatial planning, where the coordination between national, provincial and local levels is done not only through legal decisions but also through communication and negotiation, planning concepts have become an important instrument to shape 'the minds of actors involved in spatial development' (Faludi, 2001, p. 664).

In Dutch planning of the past decades, such 'performance' was assisted, moreover, by the centralised financial system which provided the central state with 'golden' strings of control (Faludi and Van der Valk, 1994) and alignment with sectoral policy practices (notably housing and agriculture). In the post-war period, these conditions gave a vital impetus to the rise of a planning doctrine focused on containing urban growth in a country experiencing rapid population growth and fixated on maintaining a strong urban-rural divide, the demarcation of economic growth zones (initially in the periphery, later on in more central parts of the territory), and the expansion and integration of nature areas (Faludi and Van der Valk, 1994).

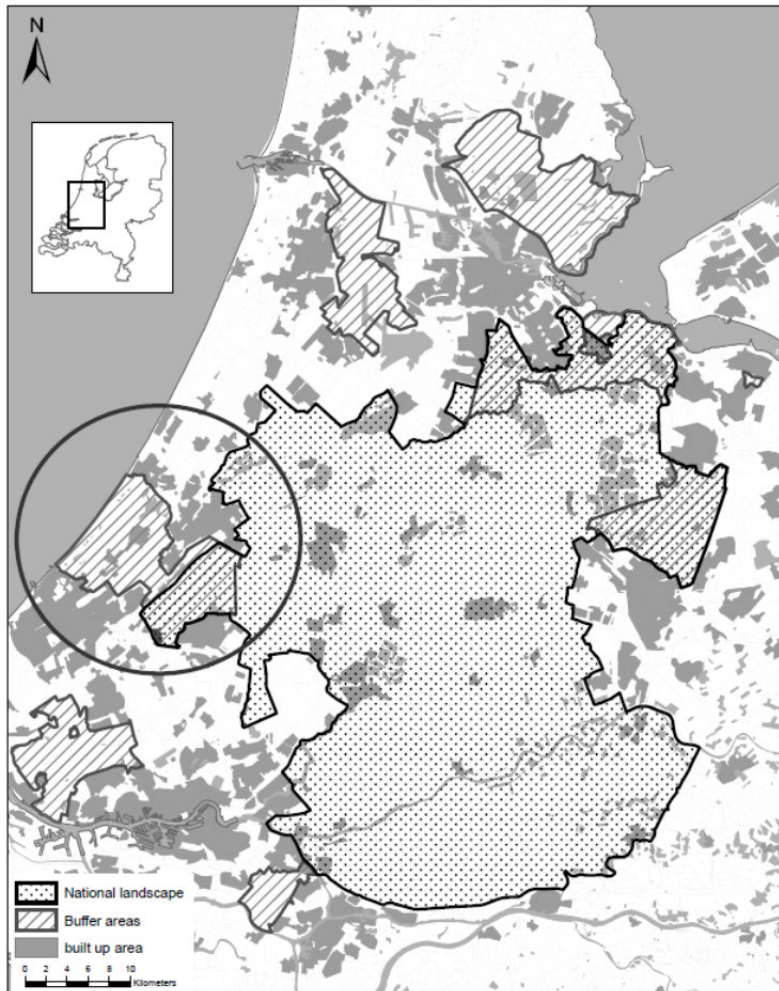


Figure 3.1: The Green Heart National Landscape and Bufferzones in the urbanized West of the Netherlands, with the location of the case study areas

While praised for its effectiveness and transparency for considerable time, the Dutch planning system was confronted with mounting critique from the 1980s onwards. It was considered too blunt, lacking in local engagement and adaptation, and hence in effectiveness. Spatial planning was seen as being too slow, too reactive and hence in need for a more pro-active approach to spatial development. It was felt that a more decentralised, local programmatic approach was needed, which could take on board, in a more effective way, pressing economic, ecological and social needs, as expressed by local stakeholders, without a resort to overarching conceptualisations (Wolsink, 2003). Such an approach was also warranted given the more competitive, strategic setting in which coalitions of agents seek funding through competitive bidding for national and EU funding (the influence of EU funds on regionalisation was not limited to the Netherlands, see for instance (Bachtler and McMaster, 2008). These concerns resulted in call for a shift in spatial governance from comprehensive *integrated spatial* planning to a focused *integrating development* planning (Wissink, 2000, p. 202). The aims and rationale of this new approach were detailed in an influential green paper, 'Spatial Development Policy', issued by the Dutch Scientific Council for Government Policy (WRR, 1998). A parallel development took place in environmental planning, in which a change was envisaged from 'command and control' to 'shared governance' (De Roo, 2003). Accompanying these trends, more emphasis was put on policy learning and integration as part of a move to more area-based development (Salet and Woltjer, 2009).

Against this background, the 1990s witnessed a proliferation of 'bottom-up' ideas and initiatives of strategic spatial planning, as well as a 'sideways' involvement of other departments and agencies. This prompted what could be considered as new phase in the battle for spatial planning concepts (Zonneveld and Verwest, 2005). The new initiatives included planning activities by city regions and other spatial alliances (such as cross-border programmes), the establishment of centres of expertise in the field of spatial development (in relation to multiple land use, mobility, large projects etc.) and a growing role of sectoral interventions. With respect to open space, the latter became manifest, in particular, in the eagerness of the Departments dealing with economic affairs and agriculture to express their views on the future of 'open space'. Economic interests had already become more prominent in national spatial planning from the 1970s onwards due to internationalisation pressures and recession. From the 1980s onwards, the Department of Economic Affairs started to articulate its own spatial perspectives focusing on economic clusters and corridors, calling for more space for business estates (EZ, 1997). The Department of agriculture produced imaginative ideas on how to cross the urban-rural divide, for instance in the form of 'urban agriculture' (LNV, 1996). The Department of Spatial Planning, Housing and Environment, in its development of the national spatial master plans, took some of these ideas on board notably through an elaboration of the concept of 'urban networks'. However, while this entailed a shift in the meaning of 'urban' and 'rural', it did not mark a break with the ruling 'anti-sprawl' planning doctrine.

The way other actors than the national and local spatial planning departments and non-governmental actors began to promote alternative ideas on how to move beyond the urban-rural divide is relevant for our study. Such discussions in the Netherlands on peri-urban spaces are part of a general trend in European countries and are driven by processes of suburbanisation and counter-urbanisation, supported by increased mobility and ICTs that reduce the importance of geographical proximity to urban areas as long as accessibility is

ensured. Parallel to this development, shifts in rural economies from agricultural to other activities are resulting in considerable changes in rural areas, especially those close to larger cities and towns. In the 'European Spatial Development Perspective' (ESDP: CSD, 1999), this was communicated through a call for a 'new urban-rural relationship'. In response, a considerable debate ensued in many European countries, including the Netherlands, on appropriate new planning policy responses for a vast variety of types of peri-urban areas and the different interests that promote alternative ways on how to shape and use them.

In a formal sense, the move from top-down comprehensive to a more development-oriented, more bottom-up approach to planning was facilitated by changes in Dutch planning legislation (Needham, 2005) and the most recent national spatial plan (Nota Ruimte: VROM et al., 2004). The decentralisation of competences from the national to lower levels of government, as set out in the new Act on Spatial Development (WRO: VROM, 2008) implies that, with the exception of certain forms of land use of national concern (such as national parks and major infrastructural developments), strategic spatial planning should take place at the regional (provincial) and the municipal level. In the new Dutch planning system, provinces are given a more strategic role in coordinating municipalities, whereas local authorities have more authority in making land use decisions for their territories. Alongside this decentralisation of competences, there has been a shift from traditionally substantive spatial planning concepts towards more process-oriented concepts and guidance, as explained in more detail in the following section. A notable example of such a core process-oriented concept is 'spatial quality', intended as a framework through which the spatial-economic, social and ecological qualities of new developments can be assessed. After an initial discussion by the WRR in its 1998 report, 'spatial quality' was introduced in the Fourth National Policy Document on Spatial Planning and promoted to a core aim in its successor document, the 'Nota Ruimte' (Spaans and Trip, 2010). It is defined through criteria relating to spatial and cultural diversity, economic and social functionalities, social equality, sustainability, attractiveness and 'human scale' (i.e. ensuring that space which is planned fits with citizens' demands and perceptions). Another example of a process-oriented concept is 'preservation through development' as introduced by the Department of Culture in its 'Nota Belvedere' (OCW et al., 1999; Reuselaars, 2003). The concept illustrates a shift in thinking from 'conservation' of landscape and heritage to integrating new functions and activities, as long as the 'quality' of the site as a whole would benefit. The other way around, making use of heritage value and place identity was considered to benefit spatial development. 'Belvédère areas', areas with a high heritage value, were delineated to aid this approach.

These shifts in Dutch planning over the past years have provided considerable scope for new forms of knowledge production and use and for experimentation with new planning approaches. Importantly for this paper, they have also introduced major changes to the role and significance of regional and local planning. While regional and local planning actors have always enjoyed considerable autonomy, the former planning system and budgetary regime compelled them to apply the prevailing planning ambitions and concepts articulated in the national spatial plans. Within the new framework, the application of national spatial concepts, and indeed even the preparation of national spatial concepts, is arguably being eroded. However, as we will discuss in the following sections, the power of such concepts nonetheless seems to ensure their durability. We will examine to what extent, and in what manner, current Dutch local and regional planning processes continue to refer to these established planning concepts in

preparing and drafting local/regional plans. In particular, we will consider to what extent their role may have changed, from one where they encapsulated the application of national planning 'doctrine', to a more flexible role of communication, negotiation and arbitration in local planning processes. The following section will provide a conceptual basis for this assessment.

3.3 Conceptualising the role of place concepts in spatial planning

As discussed above, in the Netherlands, as in other Western European countries, spatial planning has recently moved away from a top-down process of making strategic spatial plans and allocating land use to more decentralised and development-oriented forms seeking to steer spatial development. While national policy objectives and guiding principles continue to be important for decision-making and influencing planning processes at provincial and local levels, they are now frequently accompanied by collaborative and bottom-up planning processes. Local authorities, as the key spatial planning actors at municipal level, are increasingly also engaged in collaborative strategic planning processes at the city-regional level, reflecting the increasing connections between urban and rural areas described in the previous section. Such forms of more collaborative non-statutory planning at city-regional level have also presented opportunities for a stronger engagement of non-governmental actors in discussions on spatial development. Peri-urban areas, where different interests over the use and development of space tend to collide, reflecting different perspectives on the rural past of such areas, questions of identity, and their possible future in relation to nearby cities, frequently appear to be the subject of such more pluralistic and collaborative planning processes. Depending on the viewpoint, peri-urban areas can be seen as what could be described as 'consumption spaces' (i.e. open space, a greenbelt or 'green lung', a recreation area, a residential area for the wealthy) or a 'production space' (i.e. used for farming or semi-rural economic activities) or as a combination of different functions. Whichever viewpoint is supported, will engage different actors and lead to different discourses that bind these actors together and communicate their perspectives vis-à-vis those of other actors.

An important instrument for the articulation of ideas and discourses over spatial futures in communicative planning processes is spatial framing (see Van den Brink, 2009). The process of framing has been defined as "a way of selecting, organising, interpreting and making sense of a complex reality so as to provide guideposts for knowing, analysing, persuading and acting. A frame is a perspective from which an amorphous, ill-defined problematic situation can be made sense of and acted upon" (Rein and Schön, 1986, p. 4). Frames also come with a guidance of which actions to take, invoking scripts and instruments drawn from the existing repertoire of planning tools and promoting certain development projects. As a result, framing plays a critical role in bridging the more general understanding of the principles of spatial planning as an institutional activity and the practices of spatial planning 'on the ground'.

How this bridging takes place, however, remains a difficult issue to assess. Looking in more detail into the process of communication and framing, some scholars have pointed at the way power is played out in local planning practices (see for example Flyvbjerg, 1998b; Richardson, 2006; Throgmorton, 2003). In Flyvbjerg's and Richardson's (2002, p. 47) words, "communication is more typically characterised by non-rational rhetoric and maintenance of

interests than by freedom from domination and consensus-seeking". Richardson (2006, p. 205) argues that many core arguments often hinge on what he calls 'thin simplifications' that are embedded in the supportive analytical accounts that produce smoothing 'facts' about a certain territory, the wider spatial environment and their spatiality. Powerful agents are often able to marginalize competing stories, encouraging "planners to devise plans that are designed to persuade only the audiences that most matter to them" (Throgmorton, 2003, p. 127). As a result, frames are often bent to the interests and voices of the more powerful. Knowledge is produced, claims are made, and conclusions drawn in such a way that, while often alluding to rationalities based on objectivity and neutrality, they match specific political positions and interests.

Thus, as Flyvbjerg, Richardson, Throgmorton and others have argued, the significance of power should not only be read in terms of direct control and domination. Power also constitutes a key foundation of social relations and hence a major resource of collective action. Flyvbjerg and Richardson (2002, p. 50) contend that "rationality is penetrated by power", meaning that power structures shape policy making and implementation, but also rationality itself, in the sense of what is acceptable and appropriate in and for a given situation and which information and knowledge is considered valid. What is more, power presents a 'resource' not only in the way it helps agents to mobilise and align other agents, but also in the way it is *sedimented* in metaphors, concepts and frames. As germane to all discursive entities, the latter do not just present the direct outcomes of power struggles; they are the carriers of previous debates and struggles on what aims and purposes spatial planning should pursue. They provide the broad terms of reference of rationality, in which power structures are embedded and through which planning actors set and articulate their positions. Just like planning actors and in addition to other expressions of power in communicative planning processes, frames, concepts and metaphors, thus, exert power themselves (see Schön and Rein, 1994).

This perspective can shed light on the importance of spatial concepts and spatial metaphor in the communication of an area's value and potential, as has traditionally been the case in the comprehensive-integrated spatial planning system of the Netherlands. Because of the reliance of such systems on communication and deliberation, core questions are how different actor groups engage in processes of framing, how concepts are being prepared, and by whom and how they are used in planning processes. In turn, this requires reflection on their power structures and underlying rationalities. Spatial planning concepts can be defined as the verbal or visual expression of the envisaged spatial organisation of society (strategic or substantive concept) and the kind of interventions it requires (instrumental or procedural concept) (Dühr, 2007; Zonneveld and Verwest, 2005). Frequently, spatial concepts are presented as metaphor to make them more memorable and support the communication of the core messages of the concept. Healey (2004) has shown how metaphor is often employed as an aid to either understand place qualities and the spatiality of relations (for example 'the web'), or to focus policy attention and mobilise support ('growth pole', 'clusters', 'compact city'). Metaphors are also used to communicate comprehensive visions for a desirable future of a territory (e.g. 'polycentric development', 'global integration zones'). These three functions of communicating place qualities and spatial relations, to gain political support and to communicate a spatial vision, can also be combined in a single spatial metaphor, for instance 'network' (Healey, 2004).

Some examples of spatial metaphor, such as the 'Blue Banana' (RECLUS, 1989), have been extremely influential in shaping national and European policy discourses. The power of spatial concepts and spatial metaphor, as the 'Blue Banana' illustrates, is often to a considerable extent derived from their cartographic visualisation. Spatial concepts therefore frequently rely on simple memorable visual expression because "without such maps, planners and their users would - literally - be unable to convey what is 'the truth of the matter' that interests them" (Van Eeten and Roe, 2000, p. 65; see also Dühr, 2007).

However, powerful visual expressions rely on 'mappable' concepts. Some substantive spatial concepts are place-based, such as the 'Green Heart', whereas others are more generic and intended to apply to the entire territory. Yet, as explained above, the aspired transition towards a more focused *integrating development* planning has been accompanied by a stronger emphasis on procedural concepts in Dutch planning that imply governance or procedural principles. Such procedural concepts, as well as some generic substantive concepts, do not lend themselves as easily for cartographic visualisation as place-based concepts do. Visualising spatial concepts, thus, implies an important limitation that is characteristic of all mapping in planning, namely that territorial features and planning policy that are easy to locate and delineate on maps (such as urban areas or transport infrastructure) are more readily depicted than more diverse territories and spatial features, such as rural areas or landscapes (Dühr, 2007). Such 'structural distortion' (Dühr, 2007, p. 124) in favour of 'mappable' objects implies disadvantages for procedural concepts as well as for areas that are not easily delineated and located and therefore are not 'on the map' and immediately visible in discussions over the future use of space. In Dutch planning, for example, the 'Nota Ruimte' (VROM et al., 2004; 2006, p. 12) explains for the concept of 'spatial quality' that 'the actual form' this will take 'will be decided on a situation-by-situation basis by the provinces and municipalities'. This demonstrates that such complex planning concepts are not easily mapped, but if they are, the 'cartographic filter' which favours material objects will inevitably be applied (Dühr, 2007). In their communicative power, the visualization of such planning concepts will thus be focused on certain aspects only, and likely those that are of a place-based nature at the expense of the more generic substantive and the procedural principles that are equally part of such comprehensive planning concepts.

In essence, to what extent power plays unfold along manifestly discursive ways is a matter of context. To understand how this works in practice, we will focus on two dimensions in our case-studies: 'framing' and 'power and resources'. Dutch planning, with its strong reliance on the communication and framing of substantive planning concepts, can be seen as an extreme case (see (Dühr, 2007)). It is nonetheless important to understand the way communication and framing takes place in the context of locally specific strategic, institutional and material conditions and moves. In doing so, our study provides an example for the analysis of how different types of planning concepts (substantive and procedural) are used by different actor groups in communicative planning processes over contested spaces, such as peri-urban areas. Using this framework, the next sections will shed light on the power and rationality of different planning concepts in a peri-urban area in the Western Netherlands with a view to identifying the political and communicative role of planning concepts that are being promoted by different actors groups in bottom-up planning processes.

3.4 The use of spatial concepts in contested peri-urban spaces: 'Land van Wijk en Wouden' and 'Duin, Horst en Weide'

The case study areas are situated in the urbanized West of the Netherlands, between the cities of The Hague, Leiden, Zoetermeer and Alphen aan de Rijn (see Figure 3.1 and Figure 3.2). They can be described as peri-urban enclaves in a polycentric urban region (Aalbers et al., 2009). The areas are still 'open and green' as a result of effective zoning by municipalities, applying the national spatial concepts of the Green Heart and the Bufferzones since the 1960s (Van Rij et al., 2008). Bufferzones and Green Heart overlapped around the village of Stompwijk since their delineation, but because resisting urbanisation was the main goal of both spatial concepts, this overlap did not lead to conflict in a centralized, top-down context. However, decentralisation of planning and 'area-based development' (as described in section 2) changed the picture. Area-based development implied more than landscape conservation; it meant dynamics, projects and initiatives. Bottom-up initiatives were encouraged and civil society groups were being involved in governance processes concerning area development. As a result, different actor groups made proposals for development of our case study areas, from different visions on their future. To communicate these visions, they developed local successors of the national spatial concepts of 'Green Heart' and 'Bufferzone'. These regional place concepts, named 'Land van Wijk en Wouden' (LWW) and 'Duin, Horst en Weide' (DHW), like their predecessors 'Green Heart' and 'Bufferzone', overlap around Stompwijk (see Figure 3.2). In contrast to the national spatial concepts, the regional place concepts *do* compete: for attention, recognition and funds at the provincial level. Because they compete, communicating the visions is of extra importance to the actor groups involved. Therefore, comparison and analysis of these cases may be extra helpful to explore the role of place concepts in a context of decentralised planning in the Netherlands.

3.4.1 Land van Wijk en Wouden

Among the initiators of Land van Wijk en Wouden (LWW), there was a feeling that the area was considered as 'the back side' of the city, nothing more than spare room for development. The initiators felt that the area should instead be appreciated for its qualities. A coalition developed between the environmental cooperative 'Wijk en Wouden' and inhabitants of the villages, notably Zoeterwoude-Dorp (an environmental cooperative is an association of farmers who take agri-environmental measures and interested citizens, see for instance Franks & McGloin (2007b)). The 'rural' municipalities supported the initiative, followed by the 'urban' municipalities, especially Leiden and Zoetermeer. An area committee was set up in 2000, with representatives of the municipalities, the province, the environmental cooperative and some other local organizations. The area committee is assisted by a program office with two municipal officers. In 2001, local and regional government administrators committed themselves to *'preserving and strengthening the identity of the area, to strengthening its functions for the city, and to create a new urban-rural relationship'*.

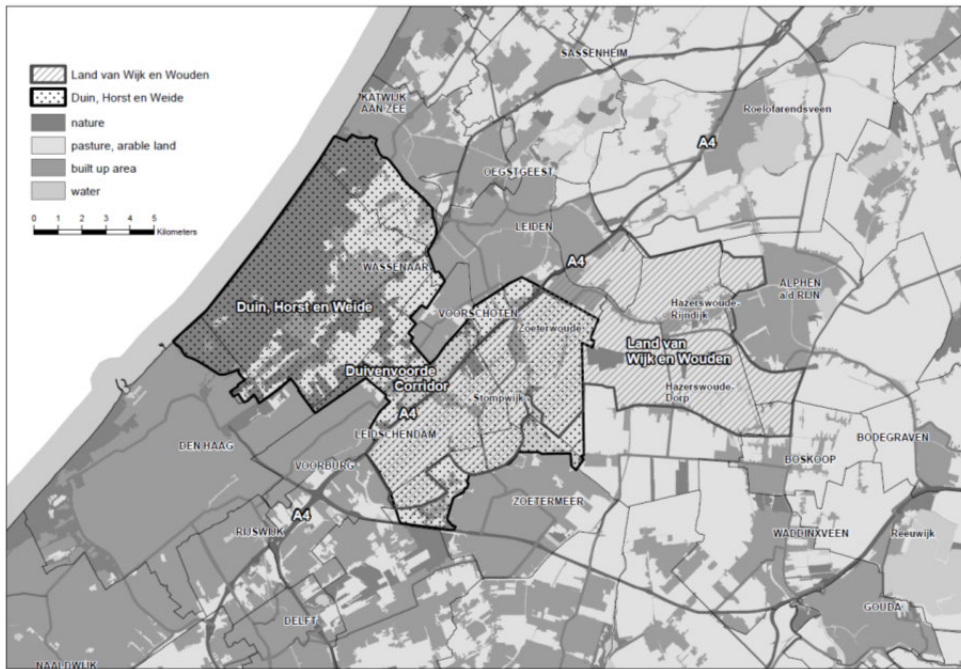


Figure 3.2: “Duin, Horst en Weide” and “Land van Wijk en Wouden” with villages and surrounding cities

Framing

The name ‘Land van Wijk en Wouden’ refers to its rural character, merging the names of the villages (Stompwijk, Zoeterwoude, Hazerswoude). The area more or less coincides with the Western border of the Green Heart (see Figure 3.1), but this was not intentional. Its delineation is a direct result from the working area of the environmental cooperative ‘Wijk en Wouden’, which in turn evolved from existing networks of dairy farmers. ‘Green Heart thinking’ is however represented in the coalition through the local Green Heart Great Polder foundation. At one point in time, it was considered whether the area should extend southwards and include arable fields too, but it was decided that the area should have a clear meadow identity. The rural character is the core of the place concept of LWW. In the discourse behind it, farmers are the ones who shaped the landscape in the past and who are still indispensable in its management. It seeks to raise awareness among urbanites with respect to the unique qualities of the area and its agrarian character, to ensure public and political support for resisting urbanization. This should ensure preservation of space for agriculture and a future for the dairy farms. The importance of the rural identity can be illustrated by the rejection by the area committee of the idea of a ‘regional park’ label (see the section on DHW). A park label was considered much too urban (interview program officer). While the discourse starts from farmers’ interests, it opens up to the interests of city-dwellers, because it is realized that support from ‘the city’ is needed to secure future farming in this area and a ‘license to produce’. The place concept that results from this discourse is one of a clearly recognizable landscape entity with a strong agrarian production

identity (meadows for dairy farming, see Figure 3.3). To win the hearts of the city-dweller, the area is to be made better accessible, among others through public footpaths on farmland. Also, experiencing the area should be made easier, through events, a touristic map and other information. On the website of the area committee, LWW is advertised as ‘*Special area, rich in nature, water, primal Dutch landscapes and cultural history*’.

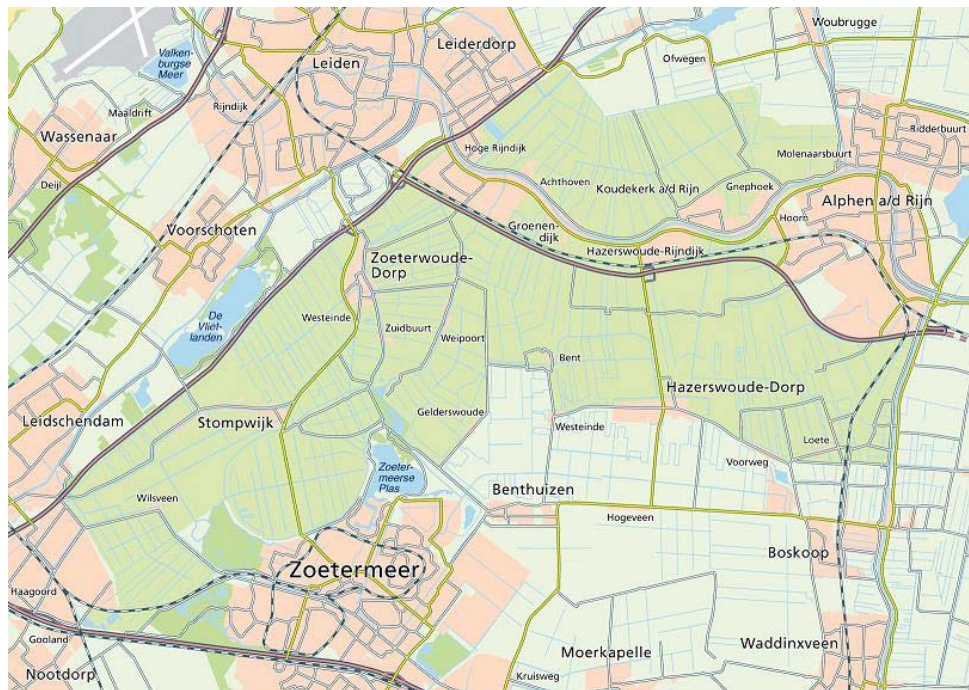


Figure 3.3: “Land van Wijk en Wouden” place concept: a uniform meadow area surrounded by cities (www.landvanwijkenwouden.nl)

Power and resources

As explained before, the Green Heart does not provide much by way of a legally binding status of protection. Such national ambitions were to be *applied* to local plans and activities, not *implemented*. Despite the doctrine status of the Green Heart, the border of the Green Heart has over time been repeatedly adjusted to allow for urbanization at its edges (Koomen et al., 2008). The concept of LWW, in recognition of the need for flexible interpretation of the boundaries of such concepts, also heavily depends on communication with the parties involved. Regularly, conferences or meetings are being organized to again raise the support of the responsible governments. This is not easy, since the area is part of six municipalities and three city regions. The province is the only authority that has a say in the developments in the area as a whole. However, according to the program officer, the focus of the province has shifted to other areas where actual reconstruction activities are planned. As a result, the program officer feels that after all these years, he still has to defend the right of the initiative and the place concept to exist.

This somewhat disappointing result partly stems from the limited support LWW has managed to muster. South Holland Province gave LWW the status of Priority Area in 2007 (PZH, 2007), which means that certain subsidies can be accessed. However, the Priority Area status did not yet result in actual subsidies and by lack of funds only a part of the envisioned projects could be executed. The idea of a 'green fund' for financing the projects was accepted by the municipalities during a conference in 2006, but few municipalities actually contributed to the fund. Nevertheless, the program office so far realised about 40 km of public footpaths on farmland, a mountain bike route, information billboards and picnic tables and organised events (the yearly Polder Day attracts 4,000-5,000 people). The lack of action by the governments, however, also resulted in local organizations starting projects of themselves, apart from the area committee.

Summarizing, the place concept of LWW attributes a primarily rural meaning to the peri-urban area, although the recognition of this meaning with the urbanites is strived for. Power is exercised by gaining support from the powerful, in this case the decision-makers at municipal and provincial level. This support is formalised by means of an administrative agreement. The goal is to achieve and maintain a planning status that acknowledges the farmers' 'licence to produce' and prevents further urbanisation while welcoming the urbanites to 'consume' the area. The initiative tries to 'put itself on the map': both literally and in the minds of the public, through events, tourist information and improving the recreational infrastructure. The funds needed for this are raised among the participating governments, with the financial contribution as an expression of commitment. The financial contribution has been a little disappointing, however.

3.4.2 Duin, Horst en Weide

Duin, Horst en Weide (DHW) is an idea of the municipalities of Wassenaar, Voorschoten and Leidschendam-Voorburg, who work together in the 'Duivenvoorde Pact' (informal cooperation since 2000, administrative agreement April 2004). At first, DHW simply meant a change of names for the Bufferzone Den Haag- Leiden- Zoetermeer (PvD, 2004). DHW more or less coincides with the Bufferzone, but the eastern border is still flexible in the development of the concept and in some versions it incorporates a part of Zoeterwoude municipality.

Framing

The name reflects the landscape sequence ('dune, horst and meadow'), underlining the diversity of the area (Figure 3.4). Diversity is as much a characteristic of the landscape as it is of the population. Wassenaar is known for its high-quality living environment, villas and estates. It is the favourite place to live for diplomats, old nobility, well-to-do policy makers and business people who work in The Hague. In contrast, Stompwijk is a village of less well-to-do inhabitants and farmers.

The discourse behind DHW starts from the needs of the city dweller. The alderman of one of the three municipalities (also administrator of The Hague Region) described LWW as "boring": an empty landscape with few possibilities for recreation and leisure activities, that is too far away for urbanites' use (interview 24 Jan 2008). In his opinion, DHW has much more to offer as a result of the diversity of the landscape and its features. He envisions people to cycle 'from Zoetermeer to the sea' through meadows, along windmills, castles, lush estates and through wild

dunes. Farming is secondary to the recreational (consumption) value of the landscape in this vision. In fact, without the city dweller defending the landscape, the farmers would lose their right to be in the area and farmland would be urbanised. Farming should therefore serve the needs of the urbanites. Quoting the alderman: *"Urban pressure can only be halted by making the city-dweller responsible for the area. The city-dweller should become an advocate."*

The discourse behind DHW links green space to cultural history, with an emphasis on 'icons' like the rural estates, the Duivenvoorde castle and the windmills of Stompwijk. The area is described as *"a museum full of paintings of Dutch masters"* (Bosch Slabbers Landschapsarchitecten, 2007). Linking green space with cultural history is an attempt to find elements of a regional identity (Aalbers et al., 2009) in order to raise support for preservation with the city-dwellers. There is also an ecological idea behind DHW. The area should be an ecological corridor as well as a recreational corridor. It should facilitate the migration of plants and animals between the dunes and the Green Heart, even as far as the *Veluwe* (forest area in the centre of the Netherlands) (Bosch Slabbers Landschapsarchitecten, 2007). Developments in the area should improve the recreational facilities (such as walking and cycling routes), bridge barriers (such as roads) and remove elements that damage the landscape experience (such as greenhouses). Much attention goes to the Duivenvoorde Corridor. This is the narrowest part of DHW and is 'clogged up' by greenhouses. However, also Duivenvoorde castle is situated in this narrow strip. The plan is to finance the removal of the greenhouses with the development of 'new estates' that have an obligatory amount of publicly accessible green space ('red for green'). This strategy is in line with the Belvédère concept of 'preservation through development' for built heritage and landscape.

Power and resources

Apart from the three Duivenvoorde municipalities, the concept is strongly supported by the city-regional authority of The Hague Region. Most of DHW is part of The Hague Region. Its bottleneck, the Duivenvoorde Corridor, is however part of the neighbouring region. To the benefit of DHW, the number of governments involved is smaller than in the case of LWW. What also helps is that it is an initiative from the governments themselves: the attention of the relevant administrators is already guaranteed. Although the concept seems to play a role so far only in policy making, some civil society groups and NGOs are being involved in the development of the plans. The city region has limited power and very little budget for planning issues (Aalbers et al., 2009). To create implementation space for itself, The Hague Region applies for funds with its municipalities, the province, the state and European funds such as INTERREG. A program office was started for the day-to-day management of the DHW ideas, similar to the program office for LWW.

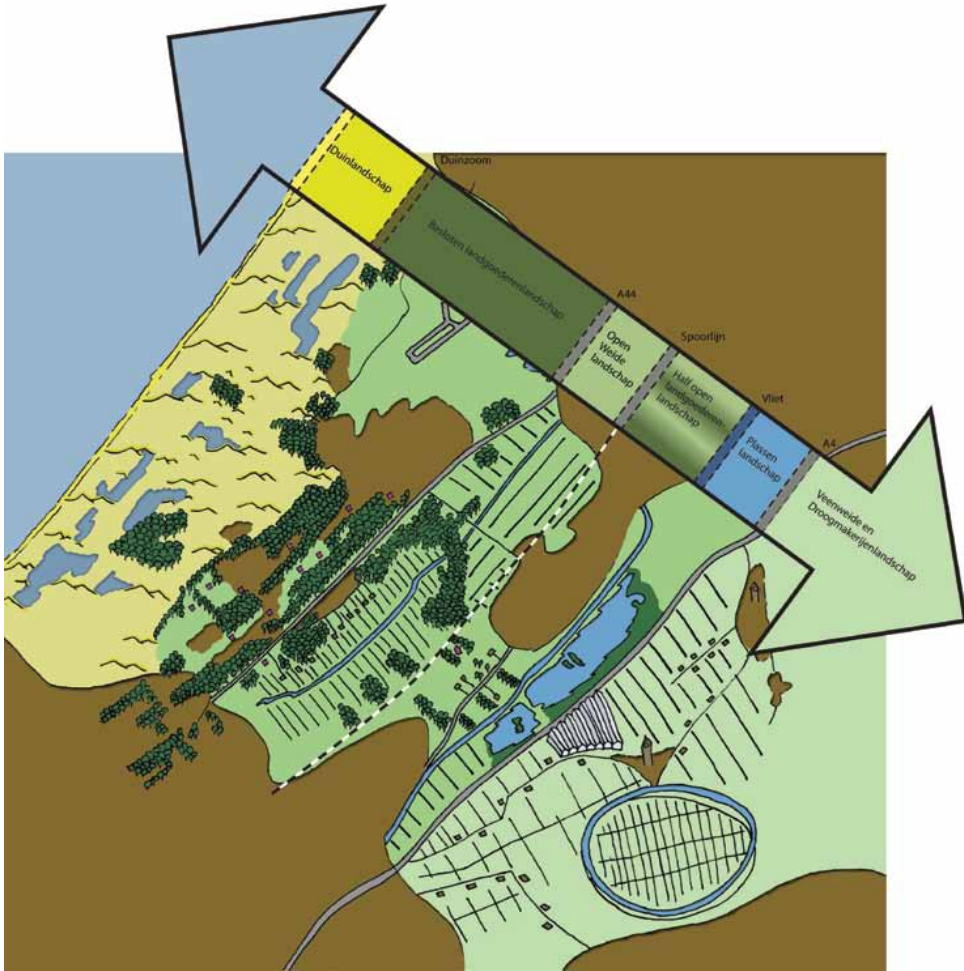


Figure 3.4: “Duin, Horst en Weide” place concept: a sequence of landscapes connecting the coast to the hinterland, with a high potential for recreation (Brons, 2010)

DHW has a Bufferzone status and it is a Belvédère area for its heritage value. The dune part of DHW is a Natura 2000 and drinking water reserve. In short, DHW is protected by EU and national regulations because of cultural values, protection of biodiversity, to provide for recreational space and to provide for drinking water. Still, the need is felt for another status, which is the ‘regional park’ status. The Hague Region identified DHW as one of the regional parks in its Regional Structure Plan (RSP: THR, 2008). Because the region has no zoning authority, it organised consensus about the RSP with the municipalities, which are to implement the actual zoning (Aalbers et al., 2009). In addition, the region promoted its ‘regional park’ concept with the province, striving for its acknowledgement in the provincial spatial strategy, an important planning document. In the following section, we will return to the question of whether this was successful.

In summary, the place concept of DHW attributes a primarily urban meaning to the peri-urban area with a complex discourse combining cultural heritage, ecology and recreation. The initiating municipalities have zoning authority, but support at provincial level is strived for to achieve recognition of the importance of the area, in order to maintain a special planning status and to get access to funds. The plea for recognition is backed up with an administrative agreement between the municipalities. Maps have been produced to illustrate the ideas of diversity and connection (see Figure 3.4). Ultimately, the municipalities want to prevent further urbanisation of the area and to improve its recreational value. The DHW initiative started as concept development among public administrators. The urbanites themselves are so far hardly involved. The first attempt for involving the public was a photography contest in 2010.

3.5 Analysis and discussion

We summarize and compare the case descriptions and their place concepts in Table 3.1. We may characterize DHW as an 'urban' concept, developed by urban actors with a mainly urban claim on the peri-urban area. In contrast, LWW is a 'rural' concept, developed by 'rural' actors with a mainly rural claim on the peri-urban area. However, both concepts aim to prevent urbanisation of the area at stake and to involve urbanites in its conservation and promotion. When looking at what the concepts aim to do as their core concern they do not differ much in that they are both seeking to improve the recreational infrastructure. Deliberately, concepts such as Green Heart, Bufferzone, landscape entity and landscape sequence are used to illustrate and 'sell' these visions. It may not be remarkable that governmental actors do this, in a context of Dutch planning history where spatial concepts have always been numerous and part of the standard tool box. However, also farmers and civilians of an environmental cooperative use them, in the case of LWW. Maybe the use of place concepts is inclusive and empowering in the sense that they represent a common language by which local initiators can communicate their vision to governmental actors.

Both place concepts build on substantive planning concepts that date from 1958. The 'new' DHW is an 'old' Bufferzone, and LWW is part of the long-standing concept of the 'Green Heart'. In Dutch planning history, these concepts have been icons of successful planning, gaining power over time. They were 'carriers of previous debates and struggles', as discussed above, and their authority was used to develop their regional successors DHW and LWW. For a long time, both concepts had a rather fixed character. However, with the more flexible national planning approach since the 1990s, and the expected termination of Bufferzones in 2009, combined with the decentralisation of planning responsibilities, regional actors felt the need to develop their regional variants of the old concepts to ensure sustained protection of the areas. In doing this, they added new elements to the concepts. They introduced discourses connected to local identities, communication strategies aimed at the regional citizens and a fine-grained vision on measures for improving the recreational infrastructure. The results are more flexible and embedded place concepts than the original ones, although they are still quite 'fixed' in the sense that they continue to adhere to the 'anti-sprawl' planning doctrine: urbanisation is regarded as undesirable and to be prevented by strict zoning. For DHW, the procedural concept of 'preservation through development' was included, but more as a funding mechanism to get rid of unwanted buildings and greenhouses than as an invitation for further urbanisation.

Table 3.1: Comparison of 'Land van Wijk en Wouden' and 'Duin, Horst en Weide'

		Land van Wijk en Wouden	Duin, Horst en Weide
Frames	Discursive elements	<ul style="list-style-type: none"> • Peri-urban = rural • Farmers are key stakeholders • How can 'urban' support 'rural'? • Without farmers, the landscape will disappear • Production landscape, where consumers are welcome 	<ul style="list-style-type: none"> • Peri-urban = urban • Urbanites are key stakeholders • How can 'rural' fulfil the needs of 'urban'? • Without linking up with the city, farmers will disappear • Consumption landscape, where production may have a place
	Spatial concepts	<ul style="list-style-type: none"> • 'Uniform' landscape entity. • Agricultural landscape • Part of the Green Heart 	<ul style="list-style-type: none"> • Sequence of landscapes • Recreational landscape • Connectivity • Duivenvoorde Corridor • Bufferzone
	Branding	<ul style="list-style-type: none"> • 'Special area, rich in nature, water, primal Dutch landscapes and cultural history' • Name: after the names of the villages in the area 	<ul style="list-style-type: none"> • 'A museum full of paintings of Dutch masters' • Name: after the landscape types
Power	Support	<ul style="list-style-type: none"> • Concept accepted by province and participating municipalities 	<ul style="list-style-type: none"> • Concept accepted by city region and participating municipalities
	Governance style	<ul style="list-style-type: none"> • Bottom-up, developed by farmers and small municipalities 	<ul style="list-style-type: none"> • Top-down, developed by public administrators, but trying to involve civil society and private sector.
	Institutions	<ul style="list-style-type: none"> • Within three city regions • Area committee with functioning program office 	<ul style="list-style-type: none"> • Mainly in one city region, although narrow corridor in neighbouring region. • Administrator The Hague Region is also alderman in one of the DHW municipalities. • Program office to be opened.
	Status	<ul style="list-style-type: none"> • Green Heart • Belvedere (Stompwijk) • Wijk en Wouden agreement • Provincial Priority area • Provincial Landscape 	<ul style="list-style-type: none"> • National Bufferzone • Belvedere • Natura 2000 (dunes) • Duivenvoorde Pact • Regional Park • Provincial Landscape
Resources	Finances	<ul style="list-style-type: none"> • Budget too limited for ambitions • Access to provincial subsidies 	<ul style="list-style-type: none"> • Access to European and central government funds • 'Red for Green' projects

The fact that both place concepts have in parallel evolved, exist and compete, is a sign that the process of decentralisation and transition to more participation in plan-making has been successful in this part of the Netherlands. Local and regional actors, both governmental and non-governmental, felt the need to take initiative and found the discursive space to develop and promote their ideas. When plan-making is no longer directed primarily 'from above', a multitude of initiatives may evolve, with contrasting spatial claims. This makes the governance process more elaborate. Our place concepts have similar interests at their core and no major differences in envisioned spatial layout of the area. The differences between them are thus subtle and concern the framing of the areas (meaning and spatial delineation) and the initiating actors. The competition between the place concepts therefore is not so much about 'competing claims' (Zonneveld and Verwest, 2005), but about funds, attention and level of acceptance with the public and in politics. The position 'on the map' plays an important role in this competition. This is illustrated by a discussion on the delineation of DHW in 2009, organised by The Hague Region (THR, 2009). South Holland Province presented its draft plans for Provincial Landscapes. DHW lost most of its 'meadow' to LWW in these plans. The Hague Region objected to this, claiming that losing the 'meadow' part would hinder bridging barriers for recreation, such as the A4 highway. For The Hague Region, losing the meadow area would mean losing part of the story (discourse).

Although LWW is more institutionalized than DHW, due to its program office, events, projects and its recognition with the public, attention from administrators seems to dwindle and the promised funds are not supplied. DHW, on the other hand, may have a strong administrative coalition between the municipalities and the city region, but lacks support with the province and acquaintance with the general public. The province has more power and funds than the city region and the position of the province may be decisive in the competition between the place concepts. In this context, the province's latest spatial strategy (PZH, 2010) is of great importance. The Province labelled both LWW and DHW as 'Provincial Landscapes'. In provincial landscapes, urbanisation is not allowed, but their recreational qualities are to be developed. There should be perspective for agriculture, combining food production with the delivery of public goods and services. Interestingly, the overlapping part of the place concepts is appointed to LWW, as uniform landscape entity (Figure 3.5). This decision was prepared by consultation with the administrators of both regions involved in DHW, in which consensus was reached that a larger area would be needed for developing planning strategies than the scale of LWW and DHW and that actions on the ground are more important than delineation of areas. In other words, the province appeased the conflict by upscaling strategy development. In the struggle between the place concepts, at this moment, LWW 'won' the part of the battle about the spatial framing, since the idea of a landscape entity prevailed with the province over the idea of a landscape sequence. However, DHW also gained. Previously, DHW was no priority area, but now it has the same provincial status as LWW.

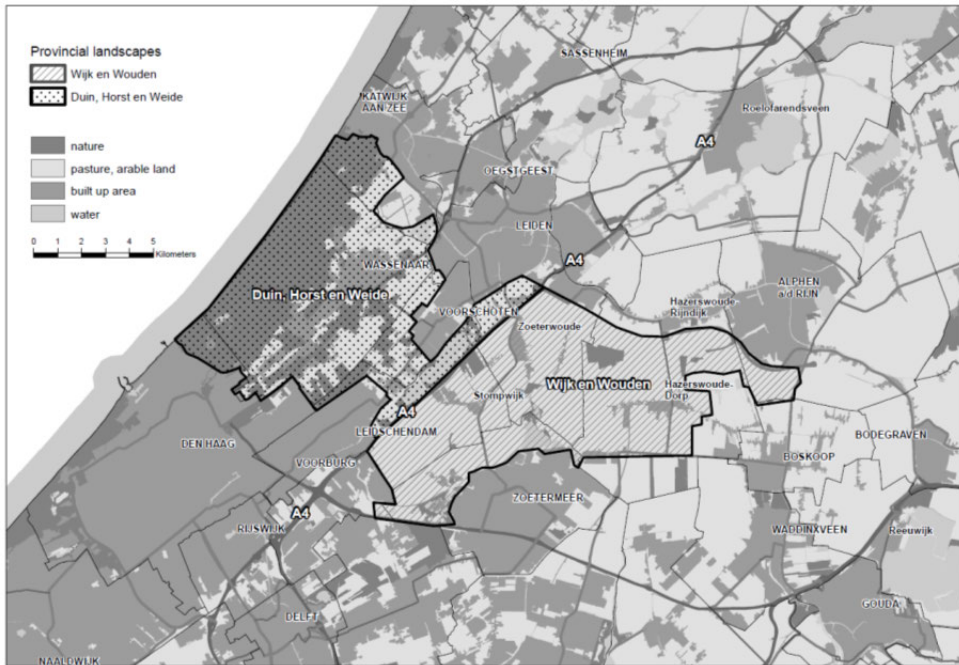


Figure 3.5: Provincial Landscapes “Duin, Horst en Weide” and “Wijk en Wouden”

The place concepts are more than the ‘position on the map’, as their history has shown, although the formal status of Provincial Landscape is an important step in their institutionalisation. The actors behind the place concepts will continue to develop and promote them. DHW may even continue to use its original spatial framing in its plan-making. DHW may also develop projects and events and may in this way start to compete with LWW for the attention of the public. The future of the place concepts is bound to be one of more variation and contention.

3.6 Conclusions

In this paper, we compared and analysed two competing place concepts for peri-urban areas in the Netherlands. We aimed to explore how place concepts are used to exercise power, to mobilize resources and to frame meaning over the use of peri-urban areas in the Dutch planning arena. To this end, we analysed the place concepts in the context of the changing Dutch planning culture and practice. Comparison of the cases showed that one (LWW) reflects a more ‘rural’ view on the peri-urban, while the other (DHW) reflects a more ‘urban’ view. One was developed bottom-up (LWW), and the other (DHW) in a more ‘top-down’ fashion. Yet, both concepts have many similarities in the way they exercise power. Both concepts are used with the objective to get a special planning status to protect the green character; to achieve attention, recognition and support with decision-makers and the public; and to generate resources for project implementation. Maps play an important role in communicating the envisioned meaning of the

areas. The initiatives use similar instruments, such as an administrative agreement and a project office. The LWW initiative is however much more advanced in communicating with the public, through a website and events. One may wonder why the initiatives did not join forces before the Province more or less 'forced them' by bringing spatial strategy development to a higher scale level. We think that the difference in views about the identity of the peri-urban area (rural or urban?) was the biggest obstacle for that.

From analysing these cases, we may conclude that the trend towards multi-level governance and decentralisation of planning has not prompted a complete paradigm shift in the Netherlands, at least not as regards the role and use of place concepts. Old substantive planning concepts and top-down governance styles are still invoked by regional and local actors that have received and taken up more responsibility in planning. The old spatial concepts of the Green Heart and the Bufferzone are still successful and live on in regional place concepts that have been prepared by regional actors. Accordingly, the doctrine embracing the urban-rural divide lives on, as both place concepts aim to curb urbanisation. Neither of the place concepts under study has sought to transcend this dichotomy in line with the long-standing calls for policy to create new urban-rural relations. In this sense, not much seems to have changed.

This is not the complete picture, however. At the regional level, the old substantive planning concepts have evolved into place concepts with a strong local identity discourse and a 'process' rather than only a spatial objective, incorporating procedural planning concepts like the Belvedere strategy 'preservation through development'. In this way, the place concepts help to bridge planning principles and planning practice 'on the ground' in novel ways. The case of Land van Wijk en Wouden especially shows that non-governmental actors make use of the space that is offered to them in the new context to take part in or even to initiate plan-making. Both initiatives have an orientation towards a pro-active approach of spatial planning through their program, a program office and the active engagement in organising events and interaction with the public. These aspects in the cases illustrate signs of the shift in Dutch planning practice from *integrated spatial planning* towards *integrating development planning*, and from *command and control* towards *shared governance*.

The use of place concepts, therefore, illustrates both the failure and success of the intended paradigm shift in Dutch planning. They reflect the old practice of 'master frames' and spatial concepts, but they also empower non-governmental actors in taking part in the plan-making process. Localization adds to the mappability and the communicative value of place concepts (Zonneveld and Verwest, 2005). Place concepts as we have seen in The Hague Region are more flexible and more communicative than the old spatial concepts. Therefore, we can expect that they will continue to be used in Dutch planning practice, especially in peri-urban areas, which are still subject of discursive struggles as a result of their 'in-between' position.

Abstract

This article identifies two alternative collaborative spatial planning discourses: a leading government with societal participation and self-governance by societal actors with government participation. It shows how the boundary between the roles of governments and societal actors in collaboration discourses is shifting, but also how both collaborative planning discourses exist alongside each other in two Dutch urban regions: Eindhoven Region and Parkstad Limburg. In both regions, these alternative discourses on role division in collaborative planning are similar, even though Eindhoven is a growing region in which the local and regional governments collaborate intensively with companies, and Parkstad Limburg is a shrinking region that more actively involves citizens. The article concludes with reflections on the need to manage boundaries in collaborative planning.

4

The Participating Government: Shifting Boundaries in Collaborative Spatial Planning of Urban Regions

This chapter was first published as: Westerink, J., Kempenaar, J., Van Lierop, M.J.H.M, Groot, S.P.T., Van der Valk, A.J.J., Van den Brink, A., 2016, The Participating Government: Shifting Boundaries in Collaborative Spatial Planning of Urban Regions. *Environment and Planning C: Government and Policy*, online first. © SAGE Publications, available online: <http://dx.doi.org/10.1177/0263774X16646770>

4 The Participating Government: Shifting Boundaries in Collaborative Spatial Planning of Urban Regions

4.1 Introduction

In collaborative spatial planning, governmental actors collaborate on spatial development in various ways with a wide range of stakeholders (Faehnle and Tyrväinen, 2013; Healey, 2006; Innés and Booher, 1999). This implies multiple boundaries between the roles of various collaborating actors, which need to be recognized and managed (Emerson et al., 2012; Leino, 2012). The boundary between the role of government and the role of societal actors in collaborative planning is not clear-cut, but is shifting and often contested (Rhodes, 1996). Current drivers for shifts in roles of government in planning are processes of devolution of competences from central states to lower tiers of government, as well as to private actors, which is accelerated by the current economic crisis and diminishing governmental budgets (Roodbol-Mekkes et al., 2012). A changing role of government implies a changing role of society and vice versa (Roberts, 2004). Defining and developing these roles, that is, managing the boundary, is therefore an important aspect of collaborative planning.

Although most publications take an initiating and decision-making role of government in collaboration for granted (e.g. Ansell and Gash, 2008), some authors envision a continuum of increasing citizen involvement and responsibility in public governance, ultimately leading to citizen control and government as 'subject' (Arnstein, 1969; Vigoda, 2002). In this article, we explore collaborative planning discourses in which the boundary between the roles of government and society is shifting towards a more distinct role for societal actors. In these discourses, (regional and local) governments participate in spatial initiatives from citizens and companies, who have in such cases a leading and determining role in the use and management of spaces.

Much literature is concerned with the normative, Habermasian roots of collaborative planning and consensus-seeking in collaborations (e.g. Brand and Gaffikin, 2007; Innés and Booher, 2015; Tewdwr-Jones and Allmendinger, 1998). Instead of as a prescriptive concept of how collaborative planning should be practiced, we take collaborative planning as a descriptive concept and analyse the boundary between the roles of governmental and societal actors in collaborative planning discourses. Those societal actors may be citizens as well as companies. In addition, most collaborative planning examples in the literature focus on interactions with citizens at the (very) local level (Leino, 2012; Parker and Street, 2015; Raco and Flint, 2001; Roy, 2015; Sorensen and Sagaris, 2010). There has been less attention in research for collaborative planning at the regional level and for involving citizens in strategic planning, while strategic planning at the regional level is gaining importance (Albrechts, 2013; Brand and Gaffikin, 2007; Hughes and Pincetl, 2014; Innes et al., 2011). In this article, we look at collaborative discourses related to strategic regional planning – with ties to local practices.

It has not yet been studied if and how the boundary between roles of governmental and societal actors in collaborative planning is influenced by varying paths of urban-regional development. Regional development paths such as growth or shrinkage determine spatial dynamics and enable or limit governmental action (Kempenaar et al., 2016; Wiechmann and Bontje, 2015). For

that reason, we presume that regional development paths have an impact on strategic planning as well as on the collaborative discourse (Hospers, 2014; Sousa and Pinho, 2013). We therefore explore regional collaborative planning discourses in regions with different development paths.

Based on the above, our research question is: *what are discourses on the boundary between the roles of government and societal actors in collaborative planning?* In the next sections we present the conceptual framework of boundaries in collaborative planning and collaborative planning discourses, followed by our research methods. Then we present the findings of our research in two case study regions in the Netherlands. Based on our findings, we demonstrate in the discussion how regional development paths do and do not influence regional collaborative planning discourses, and how the boundary between the role of government and societal actors in collaborative planning is and is not shifted.

4.2 Conceptual framework

4.2.1 Shifting boundaries in collaborative planning

Collaborative planning is one of the fields of collaborative governance (Emerson et al., 2012). In addition to these, various concepts are in use to describe policy making together with stakeholders. Some depart from the perspective of governmental actors, such as network governance (Hajer and Zonneveld, 2000; Salet and Woltjer, 2009), co-governance (Kooiman, 2003), soft spaces (Allmendinger and Haughton, 2009), public-private partnerships (Edelenbos and Teisman, 2008; Priemus, 2002), and deliberative governance (Healey, 2012). Other concepts depart from the perspective of societal stakeholders, such as citizen participation (Raco and Flint, 2001; Roberts, 2004; Sorensen and Sagaris, 2010), citizen involvement (Taylor, 2000), coproduction (Albrechts, 2013; Ostrom, 1996; Watson, 2014) and self-organisation (Van Dam et al., 2014). In this article, we conceive of collaborative planning as one coin with a governmental and a non-governmental (i.e. societal) side. This is in line with the cross-boundary characteristics of collaborative governance as described by Emerson et al. (2012). In their definition, collaborative governance encompasses “the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished” (p. 2). Collaborative planning comes in various shapes, at various scales, with different stakeholder constellations, reasons to collaborate and institutional arrangements (Emerson et al., 2012).

Collaborative planning is a way to make spatial planning a more inclusive endeavour (Healey, 1997; Innés and Booher, 1999). However, attempts to collaborate have not always succeeded in that purpose. Strategic spatial planning at the regional level often involves collaboration of governmental actors with companies because of economic development issues (Olesen, 2014; Zanon, 2013). However, a privileged position of companies over citizens and civil society groups in collaboration and deliberation is often criticized for democratic deficit (Mäntysalo et al., 2014; Roy, 2015; Skelcher et al., 2005). On the other hand, collaborative processes that do involve these stakeholders are not free from difficulties either. Attempts to involve stakeholders may result in a limited and unbalanced group of people who are willing to participate, while others

cannot be reached (Nienhuis et al., 2011). Moreover, efforts to reach consensus may ignore the existence of 'power play' in planning processes and may even be used to 'tame' stakeholder groups because the scope and the rules of the game are defined by the government officials (Flyvbjerg, 1998a; Sorensen and Sagaris, 2010; Tewdwr-Jones and Allmendinger, 1998). Rather than doing away with participation because of such difficulties, Sorensen and Sagaris (2010) propose that citizens are well-equipped to organise their own participation processes, and therefore should receive more responsibility in collaborative processes. More responsibility for citizens in collaboration implies a boundary shift in the direction of citizens in the lead (Vigoda, 2002).

Initiating leadership is an important driver in collaborative processes, but the leading initiator does not need to be a governmental organisation (Emerson et al., 2012). In her conception of collaborative planning, Patsy Healey includes the possibility that non-governmental actors perform a part of the governing through initiative and – within frames – decision making (2006, p. 288). Such self-governance is most likely to take care of collective values when certain conditions are met, including recognition by the government of the right to self-organise (Ostrom, 1990, 1999, 2009). In other words, governments have a role in protecting the boundary of self-governance. Healey sees this role of government in relation to self-governance as 'framing' and as 'enabling, facilitating, encouraging diversity in styles of organising' (Healey, 2006, p. 289; see also Sorensen and Sagaris, 2010). Defining and redefining the boundary dividing the roles of self-governance and formal government, as well as the choice of collaboration partners, are forms of boundary management in collaborative planning.

In collaborative spatial planning, managing the boundary between government and non-government is a core challenge in which all participating actors are involved (Emerson et al., 2012; Healey, 2012; Madanipour, 2006; Owen et al., 2007). This boundary, and in particular the framing and shifting of roles and responsibilities, is a discursive construct shaping and shaped in planning practice.

4.2.2 Collaborative planning discourses

Collaborative planning represents a field of discourse with diverging views (Innés and Booher, 2015). Before we can explore diverging discourses on complementary roles of governmental and societal actors in collaborative planning, we first need to clarify how we approach discourse. Discourse analysis is a broad field of theory and research, with various conceptions of what discourse is and how it could be studied (Gill, 2000; Jørgensen and Phillips, 2002). Arts and Buizer (2009) distinguish four main perspectives ranging from a narrow to a broad understanding of discourse: discourse as text, discourse as deliberation, discourse as frame and discourse as social practice. We depart from the latter perspective, which is based on the Foucauldian idea that discourse constitutes practice, moreover, discourse formation *is* practice (Foucault, 1972; Sharp and Richardson, 2001). In this line of thinking, discourse has been defined as "an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices" (Hajer and Versteeg, 2005). The entwinement of discourse and practice is also recognized by Healey in her book on collaborative planning when she defines a 'policy discourse' as "a system of meaning embodied in a strategy for action" (Healey, 2006, p. 277).

Skelcher et al. (2005) illustrate how discourses 'supply and limit action strategies and the range of possible behaviours' (p. 577) in collaborations. They analyse how partnership discourses structure the institutional design of partnerships and identify a managerialist, a consociational and a participatory discourse shaping respectively agency, club and polity type partnerships. An agency partnership implements government policy, a club partnership aims for mutual benefits of elite members, and polity partnerships aim for community participation and deliberation. The 'this is how we do it' in these partnerships, including division of roles, is defined by discourse; at the same time these partnerships are places where that specific discourse is reproduced.

Hence, we take a Foucauldian approach to discourse analysis. Because of our focus on boundary shifts, we are interested in the alternatives or discursive subgroups (Foucault, 1972, pp 65-66, 149-156) within the collaborative planning discourse referring to the boundary between roles of government and societal actors.

4.3 Research methods

To study the discourse and discursive subgroups on the boundary between the roles of governmental and societal actors we used a case study approach. We selected two regions in the Netherlands with different development paths: Eindhoven Region as an example of economic and demographic growth and Parkstad Limburg as an example of economic and demographic decline (see Figure 4.1). Both regions have developed spatial strategies with an emphasis on collaboration (BD, 2011; Parkstad, 2009, 2013).

When studying discourse, one needs to search for statements relevant to the research objective. Discourse is formed by groups of actors, at specific sites, by means of various types of oral, written and visual language (Foucault, 1972). However, these actors, sites and types of language are not clear beforehand, when studying collaborative planning discourses. Policy documents and official political meetings may not be the places to find emerging collaborative planning discourses, especially not a discursive subgroup that shifts the boundary between the roles of governmental and societal actors towards more self-governance. Therefore, next to reviewing the main regional policy documents on spatial planning in the case studies, we chose to put the main weight of our research on interviews with planning officials of local and regional governments. We supposed that they would be involved in collaborative planning discourse formation, including a possible discursive subgroup with a bigger role for societal actors. We made an inventory of the stakeholder network involved in spatial planning in each region by means of an internet search. From this network analysis and through snowballing, we identified key stakeholders for interviews about regional spatial planning.

In 2013 we interviewed 28 stakeholders with local, regional, provincial and national governments, as well as some representatives of non-governmental organisations and companies that were indicated as key actors by governmental interviewees (see Table 4.1). The interviews included two group interviews. We used a semi-structured interview approach with questions regarding the regional planning issues, actor networks and strategies. The interviews also allowed us to check whether our selection of policy documents was accurate. The in total 25 interviews of 1,5-2 hours were recorded and transcribed for an interpretative analysis (Miles

and Huberman, 2013). We used two methods for coding the complete text. First we performed a rough analysis through colour-coding, labelling references to issues, actors and strategies. After that we performed a more detailed content analysis with the aid of ATLAS-ti software. Three of the authors were involved in the interviewing as well as the analysis. While most of the interviews and the coding were done individually, we coded by means of a joint protocol. We coded each other's interviews and regularly discussed the outcomes. After coding, we analysed the dataset by means of queries to answer our research question. We focussed on the composition of the collaborative network, the issues of this collaboration, and the roles of governmental and societal actors. The thus created selection of quotations was categorised again ('bottom-up') for a more fine-grained understanding of the discourse. In order to find out how the collaborative planning discourses worked out in a specific situation, in each of the case study regions we analysed a topical planning example that was often mentioned by interviewees as a good practice of collaborative planning in their region.

Table 4.1: Organisational background of interviewees

	Number of interviewees	Number of interviews	Interviews in Eindhoven Region	Interviews in Parkstad Limburg
National government (I&M)	3	1	-	-
Provincial government	5	4	2	2
City region organisation	3	3	1	2
Water board	2	2	2	-
Municipality	8	8	4	4
Businesses (stakeholders)	4	4	1	3
Civil society NGO	1	1	1	-
Consultant/ architect	1	1	-	1
Housing corporation	1	1	-	1
Total	28	25	11	13

4.4 Introduction of the cases

In the Netherlands, the regional level, with provinces, municipalities, and until very recently also city regions, has become the most important setting for making integrated spatial strategies (Nadav, 2010; Van der Cammen and De Klerk, 2012). The city regional authorities, including those of Eindhoven Region and Parkstad Limburg, used to have a formal position in the development of regional spatial strategies. However, they lost their formal status in 2014. This termination, combined with devolution of planning competences from the state to the provinces and other changes in the planning system (Roodbol-Mekkes and Van den Brink, 2015; Roodbol-Mekkes et al., 2012), has induced uncertainty regarding the division of responsibilities between actors in collaborative planning. This uncertainty is strengthened by a national and public debate about the role of government and society in governance (Hajer, 2011; Van der Steen et al., 2014; VNG, 2012; WRR, 2012).



Figure 4.1: Location of case study regions in the Netherlands

4.4.1 Eindhoven Region

Eindhoven Region centres around the city of Eindhoven, with Helmond as second important town (see Figure 4.2). Since the 1920s, growth of Philips – today a multinational in electronics and high tech – spurred population growth in and around Eindhoven. In the 1990s, in response to low tide economic development, a group of ‘captains of industry’ decided to seek collaboration with the regional governments in active branding and development of the region. Even though Philips relocated its headquarters from Eindhoven to Amsterdam in 1998, economic conditions in the region have recovered and a cluster of various high tech companies has developed, including multinational in chip equipment manufacturing ASML and a number of large Philips divisions. The high tech sector has spurred employment in high tech, but also in other private and public services sectors. Between 1995 and the start of the 2008 recession, yearly employment growth averaged at 2.8 percent, 1.1 percent point higher than the national average. Employment in the high tech cluster remains high, and activities related to this cluster rank among the most productive in the country (Groot and Groot, 2016). Population growth continued: the total population of the region increased from 303,000 in 2000 to 332,000 in 2012 and the region is expected to continue its growth during the decades to come (PBL, 2013).

The region’s 21 urban and rural municipalities collaborate in *Samenwerkingsverband Regio Eindhoven* (SRE). This regional authority has supported the so-called ‘triple helix’, a network of captains of industry, local governors and chief staff members of knowledge institutes. This network develops and promotes the regional strategy, which aims to strengthen the

development of the high tech sector in the region (Fernández-Maldonado and Romein, 2010; Kooij et al., 2014; Van den Berg and Otgaar, 2012).

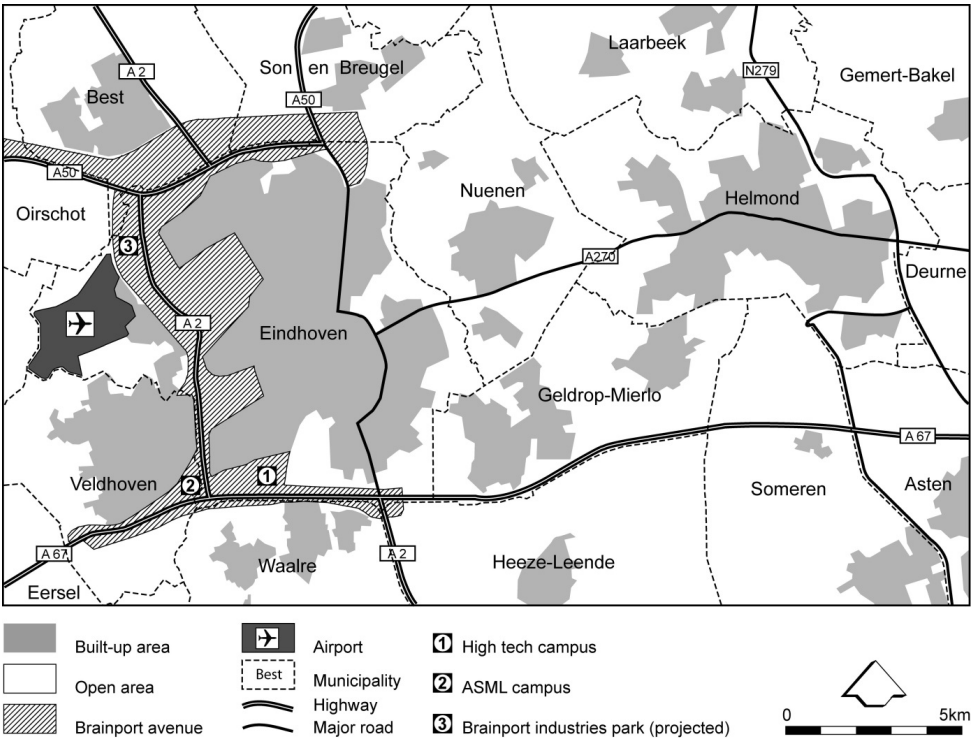


Figure 4.2: Map of Eindhoven Region

4.4.2 Parkstad Limburg

Heerlen is the main city in Parkstad Limburg (see Figure 4.3). Parkstad Limburg quickly urbanised in the first half of the 20th century because of its mining industry. In 1965, the average disposable household income in Heerlen was 104 percent of the national average (CBS, 2014). Since the mines closed in the 1960s and 1970s, the region has faced demographic decline and economic hardship. The average disposable household income has dropped to just 82 percent of the national average, the lowest of all Dutch regions (CBS, 2014). To compensate the mine closures, several large public institutions, such as Statistics Netherlands, were partially moved from The Hague to Parkstad. The low regional variety in public sector wages masks very low wage levels in other parts of the local economy (Groot and Groot, 2016). Many parts of Parkstad are among the areas with the lowest wages and productivity in the Netherlands (ibid). Wage levels of higher educated workers are between 10 and 25 percent lower compared to the national average. Such large wage differences impose strong incentives for the higher educated to leave Parkstad.

Population decline in Parkstad has been substantial. Between 2000 and 2012, the number of inhabitants fell from 218,000 to 204,000 (a decrease of 6.4 percent), a trend that is expected to continue for the next decades (PBL, 2013). Currently, the decline leads to vacancies in housing and retail, which is particularly visible in certain neighbourhoods and town centres. Prices of comparable housing are already between 25 and 50 percent below the national average, and are also low compared to other parts of Zuid Limburg.

The regional authority, in which the eight urban and rural municipalities of Parkstad collaborate, has played an important role to get shrinkage accepted by the municipalities, and to develop joint strategies to cope with its consequences (Elzerman and Bontje, 2013; Verwest, 2011).

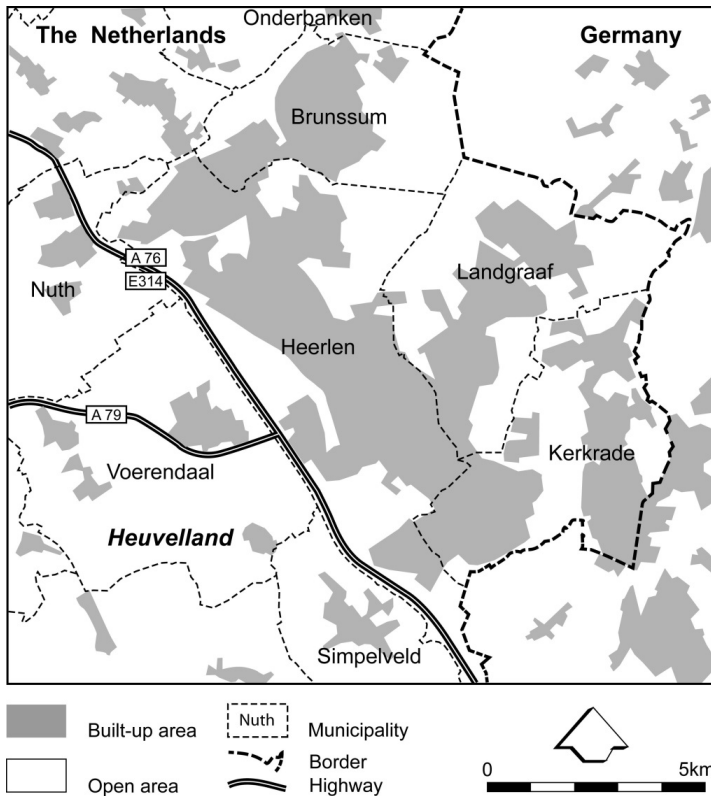


Figure 4.3: Map of Parkstad Limburg

4.5 Results: regional collaborative planning discourses

4.5.1 Issues and actors in Eindhoven Region and Parkstad Limburg

Collaboration in Eindhoven Region is aimed at promoting the high tech economy and regional competitiveness. This issue in turn determines the composition of the collaborative planning network. Competitiveness of the region, branded as 'Brainport' and 'smartest region in the world', is to be strengthened through knowledge and innovation, and by attracting 'knowledge workers'. According to this discourse, conditions for competitiveness are knowledge exchange between companies and research institutes, high quality of the living and working environment, and good accessibility. Strategies of local and regional governments align with this discourse:

"When you look at the development of Eindhoven, it is about high tech and attracting people from elsewhere. It is about the smartest region. Those people need to live somewhere and they need an attractive environment. And we think that with water and green space we can make an attractive environment to allure those people." (Water board official).

Good accessibility, as condition for competitiveness, has guided planning efforts to focus on the main roads and highways around Eindhoven, the airport and railway connections. The zone along the highway around Eindhoven is named 'Brainport Avenue'. Here, a chain of 'campuses' is to be developed to provide well accessible and high quality surroundings to high tech companies, inspired by the already established High Tech Campus and ASML Campus (see Figure 4.2).

Not one actor dominates the planning arena in Brainport Eindhoven and there is a widely shared conviction that 'no government can do it alone'. Until its termination, the regional authority SRE had a central position in the extensive network of governments, companies, public-private partnerships, research institutes, and – at the local level – citizen groups. Large high tech companies, such as multinationals ASML and Philips, are influential actors in spatial development. Innovative small and medium enterprises (SME's) in the high tech sector are also seen as important and take part in deliberations about strategic plans. The local and regional governments take a facilitating attitude towards spatial initiatives from high tech companies, because this is seen as contributing to the economy of the region:

"Governance in the context of the Brainport strategy means collaboration between companies, knowledge institutes and governments ... in which companies have a steering role ..." (BD, 2011, p. 211)

Actors deliberate to reach consensus about goals, strategies and spatial solutions and collaborate in aligning instruments and resources to reach joint ambitions in spatial development. The collaboration in the network is intensive and the deliberation platforms are numerous, to such an extent that smaller municipalities claim to lack capacity to 'show up everywhere' (Official of Son en Breugel Municipality).

In Parkstad Limburg, the conviction is widely shared that demographic decline, ageing of the population and high vacancy rates are the most pressing planning issues. The poor economic and employment situation is seen as closely related to shrinkage and hindering the region's recovery. Shrinkage provides a strong incentive for the municipalities to collaborate. Without collaboration they fear that each municipality would build to attract inhabitants from the other municipalities, leading to even more vacancy. The city region coordinated the composition of the joint Reconstruction Strategy (*Herstructureringsvisie*) (Parkstad, 2009), in which the municipalities agreed where to aim for intensification and where for extensification of neighbourhoods, including targets for numbers of houses to be demolished and built. As a city-regional board member summarised:

“Demography relates one to one to the reconstruction of your residential areas. That means that on balance you need to demolish more, rebuild less.”

In addition, the municipalities of Parkstad have intensified collaboration with the housing corporations. The semi-public housing corporations own most of the rental houses in the region. Municipalities and housing corporations work out joint strategies for reconstruction of neighbourhoods with vacancy and for re-use and management of empty sites. The province of Limburg is an important funding and regulating partner. In the Housing regulation for Zuid Limburg (*Verordening Wonen Zuid-Limburg*) of 2013, the province forbids municipalities to approve building plans if not at least the same number of houses is being demolished. This regulating role of the province is appreciated by the municipalities, because it prevents free-riding and imposes collaboration.

In addition to the more traditional and top-down planning approaches such as the Reconstruction Strategy and zoning, governmental actors in Parkstad feel the need to experiment with new forms of collaboration to deal with shrinkage. This includes involvement of citizens and SME's in the spatial development of the region:

“Citizens are as important as companies, governments and societal partners in the coming about of the new Parkstad region.” (Parkstad, 2013, p.13)

Broad involvement of stakeholders is the core of the IBA Parkstad strategy, which is described in section 5.3.

4.5.2 Alternative boundaries: leading or participating government

In our analysis of alternative discourses on the division of roles between governmental and societal actors, we found little difference between the case study regions. In this section, we therefore only differentiate between the regions when relevant. In both Eindhoven Region and Parkstad Limburg, the role of government in spatial planning and the division of responsibilities between governments and non-governmental actors are major topics of discussion. Stakeholders relate this to uncertainty about the division of roles between governments caused by recent changes in the Dutch planning system (see Section 4). Important reasons to collaborate with other governments are the economic crisis and public budget cuts. Such limitations in financial resources, combined with the absence of dynamics in the construction

sector (in Parkstad: shrinkage) are reasons to collaborate with citizens and companies, and to take a more inviting attitude as governments towards bottom-up initiatives and entrepreneurship.

Stakeholders still consider the basic role of government in spatial planning to be safeguarding public values such as protecting nature, and maintaining the quality of water and the landscape. Governments should make frames and rules, maintain them, and develop future-oriented strategies and spatial solutions. Several provincial and municipal officials stress that the government – that is, particularly their own tier – has a leading role in initiating and orchestrating spatial development. Some government officials however, especially in Parkstad Limburg, envision a more modest, process-supporting role. Process roles of government are: being the central connector in the actor networks, facilitating initiatives of others, being a co-creator and organising the process of listening to stakeholders. In sum, governments have both a rule-making and a process facilitating role in spatial development.

Likewise, stakeholders define multiple roles for societal actors. On the one hand, societal actors can participate in plan-making deliberations and give responses to government ideas. On the other hand, societal actors can take initiatives in making plans themselves, and take a leading role in the development and management of spaces. Based on our findings, we conceptualise two discursive subgroups of complementary roles of governmental and societal actors in collaborative spatial planning: a leading government with participation of societal actors, and self-governance by societal actors with a participating government (see Figure 4.4).

	Role of government	Role of societal actors
Initiative and governance by government	Leading government <ul style="list-style-type: none"> • Government invites parties to the table • Involving citizens: <ul style="list-style-type: none"> ◦ creates support for plans (PL) ◦ creates engagement (PL) ◦ results in fewer legal procedures (ER) ◦ improves the quality of the plan 	Participation of societal actors <ul style="list-style-type: none"> • Inventory of wishes • Involvement in design • Deliberation • Reaction to government plans • Citizen participation, company collaboration
Initiative and governance by societal actors	Participating government <ul style="list-style-type: none"> • Invites, seduces, activates, challenges actors to take initiative • Facilitates, stimulates, supports, cooperates in case of initiatives • Provides subsidies, manpower, advise, guidance through procedures • Checks what comes along (ER) 	Self-governance by societal actors <ul style="list-style-type: none"> • Idea, plan making • Layout, (re-)construction • Management, exploitation • Self-organisation and entrepreneurship • Citizens as well as companies

Figure 4.4: Collaborative planning discourses: leading government with participation of societal actors, compared to self-governance by societal actors with government participation (ER = Eindhoven Region, PL = Parkstad Limburg)

In case of a **leading government**, it is the government who invites parties to the table. These parties can be other governments, business representatives, environmental NGO's, or citizens. For regional and provincial authorities, deliberation with business representatives is common practice. Interaction with citizens is primarily seen as the responsibility of the municipalities, although the intention to involve citizens is repeatedly expressed by officials of other governmental bodies as well. Involving citizens in plan making has benefits: it creates societal support for the plans, results in fewer legal procedures because of objections, and it improves the quality of the plan because of the situational knowledge of citizens. As a board member from a Limburgian housing corporation explained:

"You should always strive for ... arranging a good mix between professional and experiential expertise. ... People who live, learn, work and die somewhere (well, not the last group) can say equally relevant things. And you should organize that well from the first moment."

However, a few municipal and provincial officials are also cautious about citizen participation. According to them, the government should not raise too many expectations with citizens. In some strategic planning processes at the provincial level, citizens are purposely not involved and sparsely informed, because they are not expected to be sufficiently interested or affected.

In case of a leading government, the **participation of societal actors** can take various forms. There is the traditional (and legal) possibility for citizens and other societal actors to react on government plans. In addition, citizens, companies and NGO's can be involved in earlier stages of plan making in the form of inventory of societal wishes and participation in spatial design. In both regions there is regular deliberation with citizens or their NGO's on spatial issues. In Parkstad Limburg, there are good experiences with involving artists as facilitators of citizen participation in the development of public spaces. In Eindhoven, the municipality involves the umbrella of local environmental groups *Trefpunt Groen Eindhoven* (TGE) on a regular basis:

"TGE is challenged to join in thinking and designing in an early stage, ... so we never see each other in court any more ... and that is pleasant for everybody and you get more results in the city." (Official of Eindhoven Municipality).

The discourse puts the emphasis on deliberation with companies and citizen participation. In Parkstad Limburg direct citizen involvement is aimed at, while all references to participation from Eindhoven concern NGO's that represent citizen's interests. Despite the positive notions on citizen participation, governmental as well as non-governmental stakeholders doubt the motivation of citizens to participate. Some say that most citizens are not interested in being involved, or only raise their voice if they object to government plans.

According to the discourse of **self-governance by societal actors**, (groups of) companies or citizens can self-organise and take initiative for spatial development. Such initiatives can involve generating the idea, the plan making, re-arrangement of the site and its management. It requires mental ownership, entrepreneurship and self-organisation with initiators:

“An example, we are going to grow vegetables on a one ha sports field ..., after three years there is still more talking than action. I said once, give me € 2,000 and I will just start, I will plant something and will take care of the maintenance, and I will try to involve people.” (Urban farmer, Heerlen).

However, examples of such self-governance are still scarce:

“There are too few [citizen initiatives], but they are there. The layer of engaged citizens that really set up things is still too thin.” (Official of Heerlen Municipality).

The counterpart of self-governing societal actors is a **participating government**. A participating government takes a responsive and facilitating attitude towards initiatives of others in spatial development. As one official stated:

“Whatever we do, there should be a demand, and we try to give all stakeholders a role as much as possible. Without us making up beforehand: this is how we will do it, and what is your opinion? And that means for green space for instance, that we invite parties to re-arrange, maintain and manage this area without our commissioning. But they will get room to do it, and we will no longer have the costs.” (Official of Eindhoven Municipality).

Such a government invites or challenges others to take initiative. It does not predefine land use, but merely checks if societal initiatives comply with the rules. Moreover, a participating government facilitates and supports such societal initiatives. This can take the form of moral support, technical advice, and guidance through formal procedures, as well as support through manpower (government officials spending time on private projects) and subsidies. Although interviewees express extensive and detailed ideas about the participating government, some say that governments find it difficult to adapt to such a new role and that they know few examples as yet:

“The government wants to, but at the same time finds it very hard, because it is not always responsive to ... solistic proposals from societal actors. But now, because of crisis and shrinkage, we are almost forced to much more align with players in the field. And for the government this means creating conditions rather than issuing ordinances.” (Official of Brabant province).

To illustrate the collaborative planning discourse of self-governance by societal actors with a participating government, in the next section we discuss a planning example from each case study region: Brainport Industries Park in Eindhoven Region and the IBA initiative in Parkstad Limburg.

4.5.3 Planning examples

Initiator of Brainport Industries Park (also known as the Brainport Innovation Campus) is Brainport Industries, a cooperative of approximately 80 SME's in Eindhoven Region with activities that are closely related to high tech multinational ASML. These SME's aim to develop a

campus within Brainport Avenue (see Figure 4.2) on which they can be situated closely to each other, share facilities, be flexible in housing, and continue to innovate through co-operation and knowledge exchange. The envisioned publicly accessible, high quality, green environment near to the highway would give them exposure in their markets and support from politicians and citizens. The cooperative aims to design, construct and manage the campus area, including the public green space.

Because this market initiative suits the Brainport Strategy, local and regional governments give it full support (Eindhoven, 2013). The provincial development organisation (*Brabantse Ontwikkelings Maatschappij* - BOM) facilitates the initiative by providing the manpower needed to organise the planning process. In addition, the province considers investing in the joint facilities on the campus terrain. Officials of the municipality of Eindhoven support the political lobby of the cooperative at the provincial and municipal level with argumentation and make sure that the legal zoning procedures go smoothly. For the municipality, such a large role for private actors is a new situation:

“We are now at the turning point that the initiative ... has gone to Brainport Industries. ... Brainport Industries will come with a business case, ... which clarifies which role we need to take here. So, Brainport Industries makes the move now. So the roles have been turned around completely.” (Official of Eindhoven Municipality).

The municipality is willing to take a step back, for instance with less detailed prescriptions in the zoning plan. However, the interviewed official considers making an additional contract with Brainport Industries about the layout and management of the area, to make sure that the good intentions about accessible green space will indeed become reality (see also Eindhoven, 2013).

In Parkstad Limburg, the city region initiated IBA Parkstad 2013-2020 as a platform to search for new forms of collaboration in spatial development:

“Parkstad ... is the first urban region in the Netherlands that is dealing with demographic decline. ... This development leads to altogether new questions, and we are used to thinking in growth only. At some point in that search there was this idea of someone within Parkstad Region who said: wait, an IBA could maybe help us in that search!” (Official of Limburg Province).

The regional authority was inspired by the German IBA's (*Internationale Bau Ausstellung*) which gave new *Schwung* to several German regions (Raines, 2011). IBA Parkstad is intended as a series of bottom-up projects that will form an exhibition in 2020. Projects are to be found by means of an 'open call' for societal actors with ideas for redevelopment of sites:

“Maybe there are inhabitants with an idea to do something with that vacant building or with those empty spaces that have been there for a while, or will appear. And try to motivate, to facilitate that through IBA, by which you put people into their own strength.” (City-regional board member and alderman).

Not every project will receive the IBA label: a project should fit in one of the themes related to renewable energy, re-use of sites and materials, and temporary land use. Initiators will need to make a business plan and a strategy for involving citizens. Being accepted as an IBA project gives exposure, recognition and access to an innovative network and to subsidies. Additional strategies are also aimed at collaborative planning: 'IBA Forum' as a platform for open deliberation with citizen involvement about the future of the region, 'IBA School' for exchange and learning between the projects, and 'IBA Event' for dissemination in the region and beyond (Parkstad, 2013).

IBA Parkstad as a whole would mean exposure and positive attention for the region as well as a way to restore hope, pride and entrepreneurship. IBA Parkstad is not only envisioned to yield good ideas for redevelopment of empty sites and vacant buildings, it should also help local governments to experiment with new ways of governance. Depending on initiatives from citizens and SME's means that the municipality has less control over outcomes. This uncertainty requires a new way of thinking and working. To create organisational space for this part of the search, a public-private organisation is founded for IBA, at some distance from the 'slow and bureaucratic' existing institutions.

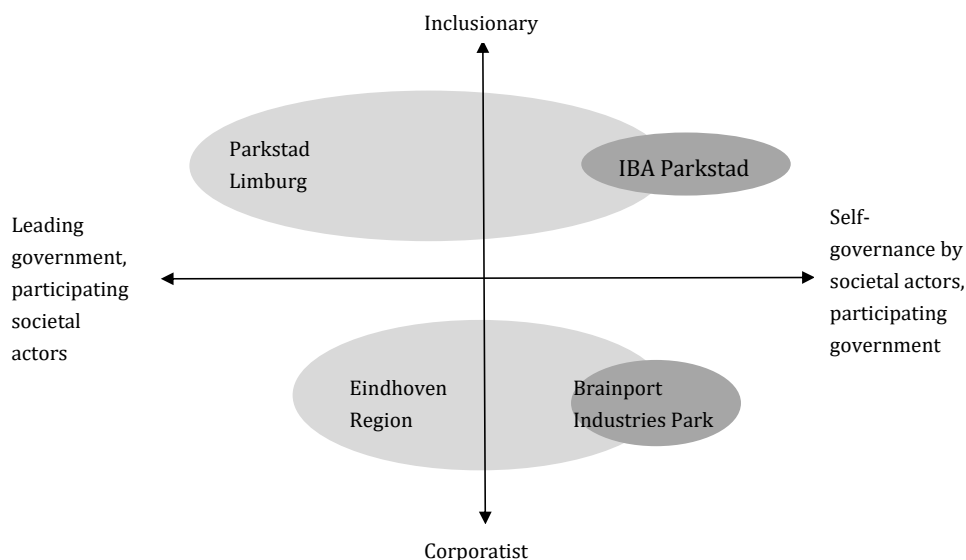


Figure 4.5: Framework for categorizing collaborative planning discourses combining an axis from a leading to a participating government, with an axis from inclusionary to closed network/ corporatist type of collaboration. In both regions we found the leading government as well as the participating government discourse. However, Eindhoven Region has a corporatist, and Parkstad Limburg a more inclusionary discourse.

4.6 Discussion

The regions of Eindhoven and Parkstad Limburg have different development paths and related issues. Planning efforts in growing Eindhoven serve the region's competitive position in the high tech economy. The efforts in Parkstad Limburg serve to accommodate shrinkage and reduce vacancy. Related to the different development paths, the governments in the regions collaborate with different actor groups. Companies have a very prominent role in the development of spatial strategies in Eindhoven Region, while in Parkstad companies have a more modest role. In contrast, citizen participation is absent in the strategic regional planning arena of Eindhoven (although prominent at the local level). Parkstad Limburg however is developing a more pro-active and positive attitude towards involvement of citizens as part of the regional strategy. Hence, we can conclude that Eindhoven Region represents a more 'corporatist' and Parkstad Limburg a more 'inclusionary' example of collaborative planning (Healey, 2006, p. 235, 237)(Figure 4.5). Skelcher et al. (2005) would use the words 'consociational' and 'participatory', respectively. In the cases, the collaborative discourses are related to the regional development paths and these discourses 'limit and supply' the composition of the actor network involved in collaboration (c.f. Skelcher et al., 2005). The focus on citizen engagement in Parkstad Limburg is in line with Hospers (2014), who suggests that capacity-building of citizens is a key policy strategy in cities with shrinkage.

Despite the differences in development paths, planning issues and collaborating actors, the discourses on the role of government *vis a vis* the role of societal actors in spatial development are noticeably similar in both regions. The discursive subgroups of leading government with participating societal actors, and self-governing societal actors with a participating government do not differ much. This suggests that the development of discourses on the 'participating government' does not strongly relate to regional differences. We suspect that these differences are more linked to nation-wide influences such as budget cuts and the general discourse on the roles of government and societal initiative (Hajer, 2011; Van der Steen et al., 2014; VNG, 2012; WRR, 2012). Nevertheless, the discourse on self-governing societal actors and a participating government is in line with Vigoda's expectations (Vigoda, 2002). He described an 'evolutionary continuum of public administration – citizen interaction' and observed a shift in complementary roles of citizens and public administration from 'clients and managers', towards 'partners in collaboration'. The next stage, he foresaw, would be citizens as 'owners' and public administration as 'subject'. Vigoda did not elaborate on this next stage, although he saw it as 'an ideal type of democracy, one that must remain ideal but can never be implemented practically' (p583). He doubted whether citizens are willing or capable to take ownership, but our cases suggest that, in confined situations of collaboration, they may do so, and governments are willing to take on a 'subject' role.

Vigoda's doubts seem to be reflected in the disappointment of the interviewees about the actual extent of citizen initiative. However, the two planning examples illustrate that the discourse on the participating government *is* practice in both regions. IBA Parkstad in Parkstad Limburg is set up as a boundary organisation (see e.g. Carr and Wilkinson, 2005; O'Mahony and Bechky, 2008) to manage the boundary between the local and regional governments and societal actors in collaborative planning. Strategies of IBA Parkstad, such as the open invitation to societal actors to propose innovative ideas and projects for (re)development of the region, belong to the

participating government discourse. IBA Parkstad tries to facilitate a leading role for societal actors in spatial development, while being selective about which initiatives to support. Hence, the participating government is actively present and not passive or absent. This active attitude is also seen in the case of Brainport Industries Park. Local and regional governments follow the initiating leadership of the cooperative of SME's, and leave it to decide on layout and management, while supporting it in various ways. In this case, a contract between the cooperative and the municipality forms a boundary management tool.

The participating government does not fully replace the leading government: both roles are to be played by governmental organisations. Apparently, one and the same government can take either a more pro-active or a more facilitating role depending on the situation, such as the availability of initiatives from society. A participating government therefore needs to be adaptive: to actively manage the dynamic boundary between government and non-government in collaborations, and to adjust its strategies to, for instance, the self-governing capacities of the societal initiators.

The inclusionary aim of collaborative planning evokes the question of democratic legitimacy. Indeed, there are democratic risks attached to a more leading role for non-governmental actors in spatial planning, especially in its corporatist shape. These risks include problems with representation of voices and interests, clientelism and unequal distribution of power. Although officials of the municipality and the central government regard the absence of citizens in the strategic planning arena of Eindhoven Region as a problem, the interviews do not reflect a thorough consideration of democratic opportunities and threats attached to the participating government. A participating government should find mechanisms to include the voice of the stakeholders other than the initiators, especially the unorganised ones, as well as to safeguard its own transparency in decision making (Healey, 2012; Mäntysalo et al., 2014).

4.7 Conclusions

“The cooperative, participating government. That’s what it is about at the moment.”
(Official of Netherlands Ministry of I&M).

Collaborative planning involves managing the boundary between the roles of governmental and societal actors in planning processes (Emerson et al., 2012). This boundary is not fixed and the roles may vary from a leading role for governmental actors to a leading role of (self-governing) societal actors. In situations of self-governance by societal actors in spatial planning, the framing role of the local or regional government (Healey, 2006, p. 289) has been conceptualised in this article as ‘participating government’. What the role of a ‘participating government’ encompasses, was studied in Eindhoven Region and Parkstad Limburg, two urban regions in the South of the Netherlands. We conclude that in planning discourses, a discursive subgroup of collaborative planning is developing, in which non-governmental actors take a leading role. In addition, and next to the discourse on the ‘participating government’, there is a continuing discourse on the ‘leading government’, concerning situations in which the government takes the lead and societal actors participate. The participating government does not replace the leading government. One and the same government therefore can have multiple positions in collaboration processes,

which can be confusing for the government as well as the collaborating partners. This means that adaptive and deliberate boundary management is needed in collaborations, by all actors involved, aimed at the definition and development of their own roles, as well as the interface between them. Indeed, in both regions, arrangements were designed to deal with the boundary between responsibilities of governmental and societal actors. In addition, the participating government needs to safeguard democratic processes, especially in situations with companies in the lead.

The alternative collaborative planning discourses on the leading and the participating government are noticeably similar in both regions, in spite of large differences in development paths. These different development paths have resulted in differences in major planning issues and types of actors involved in collaboration. In that sense, the development paths did influence the regional collaborative planning discourses. The regional discourses on a leading or participating government seem to be guided by national developments and discourses. Further research could consider how devolution 'from above' fosters or hinders the development of regionality in collaborative planning discourses.

Our Foucauldian approach to discourse was helpful in considering the entwinement of discourse and practice in collaborative planning, as well as the evolution of discursive subgroups. In this article we have identified an emerging collaborative planning discourse on self-governance by societal actors with a participating government. We suspect that an analysis of discussions in meetings of actors involved in specific projects and initiatives would enrich the understanding of that discourse. Further research would need to focus on studying those fragmented sites of discourse formation, as we may expect that the participating government is here to stay.

Abstract

Agri-environment schemes in the Netherlands have been criticized for their lack of effectiveness. Explanations were sought in the limited size of the individual farm and in the shallowness of the measures. We distinguish three scale problems: in the spatial dimension (from farm element to landscape), in the management dimension (from add-on measure to farming system) and in the governance dimension (from little to much space for self-governance by farmers). These scale concepts are used to translate insights from ecology and agro-economy to governance approaches. We analyse case studies of two new approaches: an area approach with group contracts and spatial coordination of agri-environmental measures, and a farming system with substantial adaptations of the farming concept. Both approaches have elements of increased self-governance and could offer inspiration for schemes elsewhere. We propose that appropriate space for self-governance is necessary when choosing another scale approach for making agri-environment schemes more effective.

5

Scale and Self-Governance in Agri-Environment Schemes. Experiences with Two Alternative Approaches in the Netherlands

This article was first published as: Westerink, J., Melman, T.C.P. and Schrijver, R.A.M., 2015, Scale and Self-governance in Agri-environment Schemes. Experiences with Two Alternative Approaches in the Netherlands. *Journal of Environmental Planning and Management* 58 (8) pp. 1490-1508. © Newcastle University, available online: <http://dx.doi.org/10.1080/09640568.2014.932762>

5 Scale and Self-Governance in Agri-Environment Schemes. Experiences with Two Alternative Approaches in the Netherlands

5.1 Introduction

Effective implementation of Agri-Environment subsidy Schemes (AES) is complicated by a number of scale problems. The European standard is that voluntary agreements are made with individual farmers about measures on parcels and/or landscape elements to be taken to the advantage of environment, landscape and/ or biodiversity. However, processes relating to environment, landscape and biodiversity take place in larger areas than that of the individual parcel or farm. In addition, agri-environment measures (AEM) are rarely aimed at farm level strategies, while many agri-environmental problems originate from changed farming systems. Being voluntary, agri-environment schemes leave space for decision-making by farmers, to join or not, on which parts of the farm to adopt the scheme and which measures to apply, but these measures may be strictly prescribed, inflexible and hard to combine with the farming practice. All these aspects influence the impact of agri-environment schemes.

Effectiveness of agri-environment schemes is debated; AES in Europe show varying results (Batáry et al., 2011; Blomqvist et al., 2009; Whittingham, 2011). Pleas are made in literature to use an area approach rather than working at farm level (Franks, 2011; Gabriel et al., 2010; Merckx et al., 2009; Prager et al., 2012; Smits et al., 2008) and to stimulate extensive farming systems rather than measures that are to be combined with conventional farm practices (Sutherland et al., 2012; Whittingham, 2007). However, only few examples are available of such alternative schemes. This paper tries to make a start with filling that void, by presenting two Dutch case studies of AES: one comprising an area approach and the other a farming system approach. The case studies concern areas where meadow bird protection is among the main public goals. We, therefore, aim to evaluate and compare the two approaches from the perspective of meadow bird protection, while we are aware that scale problems turn up in other agri-environmental issues as well.

In our analysis we try to integrate insights from the domains of ecology, agro-economy and governance. All these are relevant as to the effectiveness of agri-environment schemes, since AES are government instruments which try to influence decisions of farmers with the aim to improve the ecological quality of the rural area. This paper has an emphasis on governance, but the governance approach needs to be closely related to ecological and agro-economical insights. We use scale as a bridging concept to 'translate' insights from one domain to the other. The case descriptions are based on our own work in designing, monitoring and evaluating AES in the Netherlands. Because both approaches are rather new, we use this paper not to account for their ecological results, but to report on their design and especially the role of self-governance. We will argue that rethinking scale in AES requires reflection on the appropriate extent of self-governance.

In the following section, we will look at the literature to find keys to more effective meadow bird protection from an ecological point of view. We will find that the previous research has identified a number of scale problems as important reasons for disappointing results of meadow

bird protection. These scale problems are further conceptualised into scale dimensions for analysis of the two case studies with novel approaches toward agri-environment, designed to solve these problems of scale. The first is the 'Collective Management Plan', in which farmers in an area, organised in an Environmental Cooperative, spatially coordinate their joint efforts in meadow bird protection. The second is the 'Farming for Nature' initiative, an integrated farming system with higher water levels and a self-sufficiency of nutrients, which is meant to produce a range of public goods including biodiversity. For each approach a case study is presented and its design is analysed with respect to the spatial scale, the farm management scale and the scale of self-governance. There is space for self-governance even within publicly funded schemes, and this space may vary. In Section 2.6 we evaluate whether the scale strategies in the spatial and the farm management dimension are accompanied by an appropriate space for self-governance within the scheme. In Section 2.7 we assess the potentials of these innovations for agri-environmental policy in the Netherlands and elsewhere in Europe.

5.2 Keys to more effective meadow bird protection: three problems of scale

The most remarkable contribution of Dutch farmland to biodiversity is the great number of 'meadow birds'. The 'big four' are waders: Blacktailed godwit (*Limosa limosa*), Lapwing (*Vanellus vanellus*), Common redshank (*Tringa totanus*) and Oystercatcher (*Haematopus ostralegus*). Since the 1950s the number of meadow birds in the Netherlands has been decreasing as a result of intensified farming practices combined with climate change and a loss of grassland area (Beintema et al., 1997; Kleijn et al., 2010; Kruk et al., 1997; Schekkerman, 2008; Vickery et al., 2001). Since the 1980s, the Netherlands has developed agri-environment schemes to counter the decrease in the number of meadow birds and other loss of agro-biodiversity. In successive schemes, measures were prescribed to protect nests and to postpone the mowing of grasslands. In spite of this, in most areas in the Netherlands, the decline is continuing until today. Various studies showed little effect of the measures (Breeuwer et al., 2009; Kleijn et al., 2001), evoking criticism about the effectiveness of the schemes, and even agri-environmental policy in general (RLI, 2013).

New studies have led to an improved insight into the causes of meadow bird decline. Present population declines of five meadow breeding wader species in Europe are not caused by a decrease in adult survival, but by a decrease in reproduction. Reproductive output appears to be the bottleneck for population growth of these species (Roodbergen et al., 2012). For instance, the main bottleneck for sustaining the Blacktailed godwit population is chick survival (Schekkerman, 2008). For chick survival, poor accessibility of the unmown vegetation was identified as a bigger problem than the availability of food, and the researchers suggested this to be a result of a too dense and too high grassland vegetation in fields with postponed mowing (Kleijn et al., 2010; Schekkerman, 2008). Recommendations to improve the measures include raising groundwater levels and lowering fertilizer input to slow down vegetation growth in order to create a more open grassland structure (Kleijn et al., 2006; Kleijn et al., 2010; Verhulst et al., 2007). Verhulst et al. (2007, p. 78) state:

“Simple changes in farm management which can be integrated into existing farming systems relatively easily do not substantially increase densities of breeding waders”.

Such simple changes are, in this paper, referred to as add-on measures. Further-reaching measures, such as raising ground water levels, could have a positive effect on meadow bird populations, but would have a major (systemic) impact on farming practices. According to Schekkerman (2008, p. 194) measures should be intensified and concentrated in areas suitable for meadow bird protection. Part of the problem lies in the spatial configuration and scale of nature reserves. Unfavourable conditions on intensively used grasslands in the surrounding fields are considered an ecological trap (Kentie et al., 2013). Other publications stress the importance of cooperation of neighbouring farmers in producing variation in grassland habitats through mowing on different days and leaving refuge strips, known as ‘mosaic management’ (Oosterveld et al., 2011; Schekkerman et al., 2008). Summarizing, apart from a lack of focus on suitable areas, the lack of effectiveness of Dutch meadow bird protection schemes is attributed to the *limited size of the parcels and the farm* as management unit and to the *shallowness of the measures*. There is a mismatch between the management unit of the farm and the habitat of (in this case) the birds. In addition, there is a mismatch between add-on measures and the farming system.

In this paper, we conceptualise these problems as problems of scale. We use scale as a bridging concept because it has meaning in all scientific domains involved: ecology, agro-economy and governance. Since each domain developed its own theories and methods to describe the phenomena and behaviour related to different aspects or dimensions of scale, we focus on the mismatches that occur at the interface between the domains (Cash et al., 2006). Some work in this direction has already been undertaken by Cumming et al. (2006). Their work clearly shows that problems in managing natural resources often arise because of a mismatch between the scale of management and the scale of the ecological processes being managed. They distinguish scale mismatches in the spatial, temporal and functional dimensions. We build on Cash et al. (2006), who list a number of scale dimensions, including spatial and management scale, for which they give examples such as patch-landscape-region-globe (spatial) and task-project-strategy (management). They describe how scale mismatches and cross scale interactions can occur:

“Although these relationships are not conventionally framed as a scale issue, we would argue that some of the challenges relating to mismatches may not always have so much to do with space as with the “scale” of management response and change.” (Cash et al., 2006, p. 2)

In this paper, we use notions of scale to describe analytical movements between less and more, smaller and bigger, along a sliding scale with fuzzy levels, in three scale dimensions: spatial, farm management and governance (Figure 5.1). In this way we aim to illustrate the (cross scale) relation between agri-environment strategies aimed at larger areas or adjusted farming systems and self-governance by farmers. Moving the level of scheme intervention from the farm element to the area level, or from add-on measures to the farming system, may require more self-governance by farmers or farmers’ groups. In the following section, we will elaborate further on

scaling in the three dimensions and we will argue how spatial and farm management scale relate to the scale of self-governance.



Figure 5.1: Three scale dimensions affecting the effectiveness of meadow bird protection

5.3 Three scale dimensions

5.3.1 The spatial dimension

The decline and fragmentation of habitats pose a major threat to conservation of biodiversity in rural areas in Europe. Optimization of arable and grassland production in agriculture, as realized by intensification, mechanisation and spatial upscaling, has resulted in vast areas with monotonous conditions, leaving the rarer habitats only to exist in remnant elements (verges, ditch banks, wood rows, etc.). These uniform production areas are less suitable for many of the hitherto occurring wildlife species. The remnant elements are often too sparse and scattered to fulfil habitat demands of many characteristic species (Fahrig, 2003; Geertsema et al., 2002; Kruess and Tschardtke, 1994).

Agri-environmental schemes usually take the form of agreements with individual farmers on layout and management of parts of their farm. Voluntary participation does not guarantee that measures on individual farms will contribute to defragmentation of habitats.

“The principal problem posed in developing the next tranche of environmental services is the mismatch between the ownership and management of land and the spatial characteristics of watersheds, landscapes and valuable habitats.” (Franks and McGloin, 2007a, p. 1)

Many AEM would be more effective if they could be spatially coherent and could be applied at a landscape scale (Franks, 2011; Gabriel et al., 2010; Merckx et al., 2009; Prager et al., 2012; Smits et al., 2008). Landscape elements could form a green-blue infrastructure that could aid migration of animals between natural areas (Opdam et al., 2001) if they were integrally taken into consideration. Meadow bird protection could be designed for the area where the birds breed and feed, thus on a larger scale than the individual farm. Protection of topsoil and water

quality in watersheds would be much more effective if all land managers in that area would adjust their management practices accordingly. Raising water levels or creating space for storm water storage cannot be done without affecting all surrounding land managers. Spatial coordination is, therefore, desirable or even necessary for many AEM, which requires spatial planning and design (Dutton et al., 2008).

In the Netherlands, the so-called 'mosaic management' was developed to coordinate mowing activities of multiple farmers in an area in space and time, to improve the survival rate of meadow bird chicks. Since chick survival is the bottleneck of the sustainability of the meadow bird population, the requirements of the chicks have to be met during the entire breeding and hatching season. Therefore, all the growth stages of grassland vegetation relevant for a meadow bird family are referred to in mosaic management, the success of which depends on the combination of the different exploitation regimes on a number of farms in an area (Melman et al., 2010). The coordination of on-field activities among farms depends on the willingness of sufficient farmers at the right locations to combine the necessary measures with their overall farming practices. The following explains why the more substantial measures are hard to combine for conventional farmers.

5.3.2 The farm management dimension

Within an ordinary farm practice, problems of scale can occur at various management levels. We distinguish the strategic, tactical and operational management levels. Decisions at a daily operational level are taken within the context of strategic and tactical decisions, but the long-term farming strategy forms the most prominent frame for operational decisions (Ingram et al., 2013).

At the strategic level, dealing with long-term decisions, the farmer occasionally faces the question whether or not to (de)invest in production capacity. With an increased production capacity a farmer can increase the turnover but he will need more resources (labour, land or other capital goods) to achieve this. In the Netherlands, where land is relatively scarce and high priced, making adjustments in other factors of production, such as expansion of stable capacity and/or production quota, is often more attractive than land acquisition. As a result, an overall intensification of the production is a common phenomenon on Dutch farms. A voluntary decision on more extensive farming represents a major, strategic decision at the farm system level, since it will reduce the level of production.

Participation in AES is a tactical decision (cf. Van Herzele et al., 2013), because such schemes are voluntary and normally limited in time and space and impact on farm practice. Both the decision and the motivation have a dynamic character (Ingram et al., 2013) and can be reviewed on a mid-term basis. The level of uptake by a farmer represents a typical scale problem, or perhaps even multiple scale problems (Schrijver et al., 2009), because there are many factors for him to take into consideration. Meadow bird rich areas in the Netherlands coincide with regions that are only suitable for grassland production, and those areas are mostly occupied by dairy farmers who use these grasslands for grazing as well as for mowing forage. A farmer who wants to participate in a meadow bird protection regime may decide to do so on a limited scale, this probably having no effect on the rest of his operations. The overall farm strategy limits the

uptake capacity of the add-on measures related to meadow birds to around 30% of the farmland on an average dairy farm (Schrijver et al., 2008). If the farmer would decide to involve substantial parts of the farm and to choose substantial measures, he would likely have to deal with multiple flows of feedstuff. Perhaps, he would choose to compensate the lower quality of the 'meadow bird grassland' with a higher amount of concentrates, which in turn requires upscaling of the storage capacity for this type of feed. Such extra costs are normally not taken into account in the calculations of payment levels, confirming the add-on principle.

AES, therefore, generally promote measures that do not profoundly affect the farming system at the strategic level. They are add-on measures that at best help to repair some of the negative external effects of modern farming. AEM are, for instance, aimed at the maintenance of neglected landscape elements, which is no longer a normal part of daily farming routine because the elements have lost their function in the farming system. Other AEM are aimed at the protection of specific species, because they lost their habitat on the modern, large-scale and intensive farms. A conventional farm will aim for optimal production and will therefore apply high levels of fertilization, rational parceling, monoculture grassland and cropland and optimal drainage. Modern techniques make this ambition feasible in most areas. Agri-environment would, however, benefit from a low farming intensity, higher water tables and on-farm diversity. The farming system and the AEM may well conflict if the measures are not in line with farmer's logic and the overall strategy of the farm enterprise (cf. Ingram et al., 2013; Van Herzele et al., 2013). To bridge this conflict, a payment alone may not be enough and the results of the AES may not be durable.

An important exception to this practice of shaping AES with add-on measures is organic farming as AEM. Several EU member states subsidize organic farmers through their AES. Organic farming is a farming system, a measure at strategic management level, because it affects all tactical and operational management decisions and the whole farm property. In the Netherlands, where organic farming is not subsidized, organic farms relatively often take part in agri-environment schemes. Thirty percent of Dutch organic farms participated in the AES in 2006, compared to 9% of conventional farms, and while organic farms managed 2.5% of Dutch farmland that year, they took care of 6.2% of the area under agri-environmental management (Buurma et al., 2009). Apparently, participating in AES is a tactical decision that fits in the overall farm strategy of many organic farms. Agro-biodiversity and landscape elements make more sense to an organic farmer than to a conventional farmer, because in his farming system they are functional for for example, natural pest reduction or as a source of biomass.

5.3.3 The governance dimension

In the Netherlands, the concept of self-governance gets more and more attention, because the government has been looking for ways to reduce its own role and to 'leave more to society'. Local environmental cooperatives (LEC), in which farmers and sometimes citizens cooperate in agri-environmental management, are often mentioned as good examples of self-governance (Glasbergen, 2000; Termeer et al., 2013). In current practice, some of the tasks previously addressed by the government have already been taken up by the LEC (Smits et al., 2008). They make proposals for spatial coordination of AEM, disseminate information about the scheme to their members, provide knowledge about environmental management and ecology, and support

members in their application and reporting (Franks and McGloin, 2007a, b). The Dutch government launched so-called 'CAP pilots' to investigate possibilities to increase self-governance by groups of farmers in the post-2013 period of the Common Agricultural Policy (CAP). In these pilots, four LEC experimented with carrying out tasks such as design of measures, decision-making and control.

This trend toward increased self-governance seems to mismatch with the extent of the Dutch government involvement in decisions of land managers with agri-environment schemes. Although participation is voluntary and farmers are, to some extent, free to select the packages of their liking, the rules of the scheme are rather rigid and specific. Successive schemes since the 1980s prescribed the measures to the point of cutting dates and amounts of manure per ha, or the desired species composition, at the level of the landscape element. In addition, the amount of information to be submitted and reported by the farmers on the management units is substantial. The extensive bureaucracy demanded by the government – for reasons of accountability and control - and the striving for self-governance are contradictory (McKenzie et al., 2013). Smits et al. (2008) and Falconer (2000) suggest that institutions such as LEC can contribute to building the trust needed to reduce bureaucracy and transaction costs in AES.

'Pure' self-governance is highly theoretical. Building on Kooiman (2003), Arnouts et al. (2012) propose a continuum of 'modes' of governance ranging from hierarchical governance via co-governance to self-governance. In the analysis of their case studies, they recognize that in practice these modes of governance are usually mixed, but shifts take place in emphasis, for instance, from hierarchical governance to co-governance or self-governance. The continuum (or scale) from hierarchical to self-governance of Arnouts et al. (2012) is not very useful for the purpose of this paper. When studying situations of self-governance, we acknowledge that hierarchical and co-governance are also present. The other way around, it may be argued that all situations of governance by the government imply some space for self-governance. We are interested in this space. Rather than government strategies to involve non-governmental actors in policy making, we are interested in the *interface* between self-governance and government intervention in AES (see Figure 5.2) and the conditions needed for self-governance to function well *within* the public scheme.

Ostrom (1990, 1999, 2009) described the functioning of self-governance of common pool resources. Although Ostrom's analysis mostly concerns communities and ecosystems in remote areas, she (1990) as well as Polman et al. (2010) include social arrangements in the notion of common pool resources. Over-use and damage to a common pool resource will harm all users. Likewise, in the case of AES, poor overall results and fraud could lead to the end of the scheme. Therefore, the scheme itself can be considered a common pool resource for participating farmers.

Table 5.1: Design principles for self-governance in agri-environment schemes. Adapted from Ostrom (1999) and interpreted for AES

1. Clearly defined boundaries	a. The boundaries between government intervention and self-governance are well-defined b. Internal rules of the game such as requirements to join, roles and responsibilities, area of work, goals of the organisation, measures to take and internal accountability are clear and transparent
2. Congruence	a. The distribution of costs and benefits of self-governance and participating in the AES is proportionate for all participants b. Goals and measures are related to local conditions
3. Collective-choice arrangements	Participants can participate in modifying operational rules
4. Monitoring	Monitors who audit rule conformance, compliance with the AES and effects of AEM are accountable to the participants and/ or are the participants themselves
5. Graduated sanctions	Participants who violate rules are likely to receive graduated sanctions from other participants, from officials accountable to these participants, or from both
6. Conflict resolution mechanisms	Participants and their officials have rapid access to arenas to resolve conflict among participants or between participants and officials
7. Government protection	There is an agreement with the government about the level of autonomy and there is government protection of that autonomy
8. Co-operation with other self-governing groups in nested structures	In defining the boundaries between self-governance and government intervention, self-governing groups may benefit in their interactions with the government from co-operation with other groups in self-organised nested structures,

In Table 5.1, we adapted Ostrom's design principles for well-functioning self-governance institutions of common pool resources and applied them to self-governance in AES. Most design principles concern rules of the game, including rules about rulemaking. Two sets of agreements are needed: one within the group and one between the group and the government. In the case of AES, rules on monitoring (principle 4) may be among the most sensitive, since the results are not only of interest to the participants, but also to the government paying for the scheme. Since good ecological results are important for continuation of the scheme, self-monitoring of the results may need an external audit. Monitoring of internal rule compliance by participants themselves or self-appointed officials may be feasible, however. Of special interest is design principle 7, on government protection. This design principle applies to the interface between government intervention and self-governance. This boundary needs to be well-defined (principle 1) and it needs to be acknowledged by the government.

For the purpose of this paper, we define self-governance as *the space for decision-making by non-governmental actors as framed by the context of government intervention*. This space can be reduced by, for instance, additional regulation, or enlarged through negotiation between actors and the government or by goal-setting at a more general level. For self-governance to function

well in complex societies such as those in Europe, suitable conditions need to be created by the government, for instance, through funding self-organisation, creating a level playing field and establishing general rules of the game. There are numerous ways to organise self-governance and complementary governance by the government (Sørensen and Triantafyllou, 2009). Governments can facilitate self-governance by providing accurate knowledge, arenas for conflict-resolution, as well as mechanisms to back up internal monitoring and sanctioning efforts (Ostrom, 1999).

In the ideal situation, self-governance would take over where government policy stops (situation (A) in Figure 5.2), but in practice mismatches can occur in many ways. For instance, the space for self-governance can be too small to be functional (B). In the case of one of the CAP pilots in the Netherlands an LEC was supposed to design and test its own AES, but this was seriously limited by the regulations of the Demonstration Scheme used (Korevaar and Geerts, 2011). Another mismatch may occur when groups of individuals are unwilling to, or incapable of, taking up self-governance to the extent envisioned by the government (C). A 'retreating' government would leave more space for self-governance, but clearly this is not without any risk. The space for self-governance may not be filled in, may not deliver the quality aimed for or may be accompanied by high transaction costs as a result of the complex forms of organisation needed.

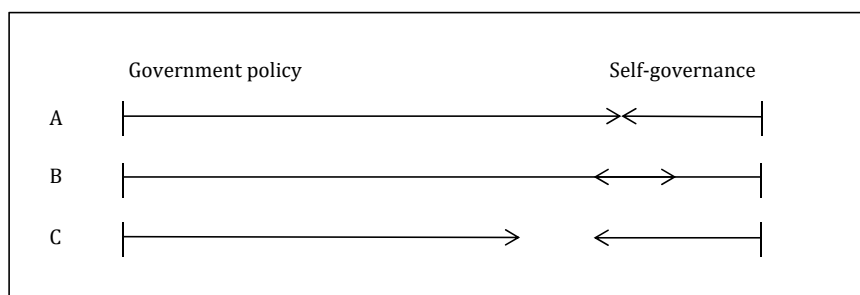


Figure 5.2: Model of a good match of government policy and self-governance (A), and two forms of mismatch between the level of government intervention and the level of self-governance (B and C)

How do spatial scale and farm management scale relate to self-governance? A strategy to design AES for larger areas, instead of individual landscape elements, involves a larger number of farmers. Relevant governance tasks include goal setting, spatial coordination of measures, control and evaluation. Groups of farmers may be better equipped to take care of, for instance, spatial coordination and control of measures than the government, because of their presence in and knowledge of the area and its people and farming practices. Moving governance tasks to farmer's groups implies self-governance by the group with respect to these tasks, while the government is still responsible for setting goals and evaluating effectiveness. Likewise, a strategy to design AEM as a farming system applies to the strategic level of farm management decisions, in contrast with most conventional AES that target tactical and operational decisions. Tactical and operational decisions in the case of a farming system as an AEM can be expected to

be in line with the strategic decision to adopt the farming system, and the farmer will be better equipped to balance and optimise such internal decisions than the government. Tactical and operational decisions would then belong to the space for self-governance, as long as the agreement at strategic level is kept. In short, describing goals, results or measures at strategic farm level, or at area level, would leave more space for a farmer or a farmers' group, for instance, in collaboration with local experts and interest groups, to decide how and where goals are to be achieved.

In the following two sections, we describe two approaches to AES that were developed in the Netherlands to deal with the scale mismatches in the spatial and management dimensions that negatively affect effectiveness. Both examples include a certain extent of self-governance and we will analyse them with respect to the appropriateness of the 'match' between the space for self-governance and the extent of government intervention.

5.4 Moving along the spatial scale: the case of Collective Management Plans

In the first period of meadow bird protection in the Netherlands (1981-2000) participation in the subsidy scheme was an individual matter. In areas designated for meadow bird protection farmers were eligible to apply for a management agreement. The farmer was free to choose the location, the number of hectares involved and the nature of the measures from a restricted menu. The menu offered prefab packages at fixed prices to compensate for the income losses and additional costs incurred. There was no further steering towards optimizing measures within the area.

Since 2000, there has been more attention for planning meadow bird management at area level. It had become clear that meadow bird protection at the scale of parcels (1-3 ha) and even of farms (20-40 ha) is insufficient. Rather, a scale of more than 200 ha would be necessary (area level) (Oosterveld, 2006; Oosterveld et al., 2011). The growing attention for the area scale coincided with the emergence of LEC in which farmers cooperated and communicated with the government in organised groups, at first mainly focussed on meadow bird protection, but later aimed at agri-environmental management in general. These LEC strived for accountability in agri-environment management and wished to be the main beneficiary of the agri-environment payments, so as to be able to distribute the payments among the participating farmers. This would acknowledge and strengthen their coordinating role. However, the Dutch proposal for group contracts was not approved by the European Commission at the time (Polman et al., 2011).

After that, alternative solutions were developed to achieve more spatial coherence in measures. The government promoted working together in LEC, areas were designated by the provinces where farmers could participate in the AES, and joint submission was made a prerequisite for individual applications for meadow bird schemes in a number of provinces. Some LEC arranged that their members voluntarily forward their payments to the LEC for redistribution based on the quality criteria of the cooperative.

The latest development in the strive for more spatial coherence is the so-called 'Collective Management Plan'. In Collective Management Plans, LEC lay down their proposals for spatially coherent measures for meadow bird protection in areas that are designated by the province. This designation is based on suitability in terms of water level, landscape openness, predation pressure and previous meadow bird abundance. One of the criteria for a Collective Management Plan is a solid management mosaic: a spatial and a temporal variation of measures to ensure the availability of a sufficiently sized habitat for chicks at all times during the period of 1 April to 15 June. Each Blacktailed godwit family, for instance, needs more or less 1.4 ha of this 'chick land' during the whole of the hatching season. To achieve this, a number of neighbouring farmers need to participate in the mosaic to provide for the patchwork of necessary measures. These measures include a range of delayed mowing dates, shelter strips and wet habitats.

Environmental cooperatives are professionalizing and a certificate for LEC was developed to gain the trust needed for more space for self-governance. Since 2011 only certified LEC can do joint submissions for meadow bird protection. The certificate concerns all organisational and technical activities involved with meadow bird protection: planning, implementation, monitoring, evaluation and auditing. The practice of the LEC is documented in a 'Quality Handbook', which is judged by an independent foundation which hands out the certificate in case of a positive evaluation. With a certificate the LEC can apply for agri-environment payments. The application is based on the Collective Management Plan, which needs to be consistent with the Quality Handbook. Recently, a methodology has been developed to make scientific information available for the design and evaluation of a Collective Management Plan. An online science based knowledge system (Melman et al., 2012) enables objective assessments of whether conditions meet the requirements of the target species, allowing flexibility to the farmers of the cooperative to fit these requirements into their farming practices.

Within the frames created by the government, such as designated areas, uniform description of measures and prerequisites for a Collective Management Plan, there is space for self-governance. In composing the Collective Management Plan, the LEC decides on measures and locations. To enlarge the space for self-governance, quality management and knowledge are important instruments for Dutch LEC. Certification allows them to carry more responsibility (cf. Smits et al., 2008). To receive a certificate, they need to prove that they are capable of organizing the necessary spatial coordination of suitable and coherent measures, a very complex task requiring extensive knowledge of the target species, environmental management and agricultural practices. The online knowledge system enables both self-governance in the sense of combining measures and sites, and assessment of the effectiveness by the government. Having established their status as expert coordinators, the next step may be that LEC will be rewarded with more flexibility, for instance, to administer measures to favourable sites in the course of the contract period (instead of beforehand), in reaction to the birds' behaviour.

5.5 Moving along the farm management scale: the case of Farming for Nature

Farming for Nature (FfN) is a farming system designed to supply food while improving biodiversity. It tries to tackle some of the causes of the decline in agro-biodiversity, especially over-fertilization, drainage and removal of landscape elements (Stortelder et al., 2001). On an FfN farm a functional coherence is created between cattle, fields and landscape elements, by means of three interlinked, complementary measures: (i) self-sufficiency in nutrients, (ii) higher water tables and (iii) 10% landscape elements. The farmer is encouraged to optimize his manure management in a situation of scarcity of nutrients, by means of an agreement at farm level to refrain from importing feedstuffs or fertilizer (i). The sources of nutrients are, therefore, limited to what becomes available through natural processes on the farm and from salt/ mineral licks that are allowed to keep the farm animals in good condition. Since the farm loses nutrients in the form of farm products, this leads to nutrient scarcity. Manure will, therefore, not be wasted on field edges or wet sites; rather, the farmer will gladly harvest biomass from landscape elements to make compost. Water becomes a welcome source of nutrients through sedimentation and accumulation of biomass in ditches. An FfN farm has to accept higher water levels than conventional farms (ii). As a result, arable production is only feasible on higher grounds, as was the case in the traditional farming systems. At an FfN farm, the farmer is free to choose the location of grasslands, arable fields and landscape elements, but the physical conditions on his farm will guide his choice. The farmer will seek his own balance between the number of his livestock and the available arable and grassland. All elements on the farm have a function in relation to each other. Landscape elements (iii), a source of biomass, must suit the regional landscape. Suitable elements in the East of the Netherlands may be tree hedgerows, steep ridges and heather fields; in the lowlands in the West, ditches, shallow shores and reed fields are more appropriate. In addition to landscape elements, an FfN farm includes 'outfields' for grazing and harvesting biomass, as in many traditional European farming systems.

Although not specifically designed for meadow bird protection, some of the most important conditions recommended for meadow birds are created on an FfN farm. An FfN farm can only sustain low cattle densities (up to 1 LSU/ha) because of the limited productivity. The higher water level in spring leads to a better penetrable soil for adult birds to find food and combined with the lower input of manure it leads to slower growing grass, enabling chicks to forage more easily. The composted manure is rich in organic matter, improving soil life, herb diversity and the insects on which the chicks feed. Other characteristics of the FfN farm can be disputed for their effect on meadow birds. As the agreement is at strategic farm level, no rules are set for mowing dates, grazing or mosaic management. Postponed mowing as an operational decision may follow from the farming system because the slower growing grass makes early mowing less interesting. Likewise, the herb rich edges along ditches may serve as a hiding place when the fields are mown.

An experimental AES was formulated for Farming for Nature, with a payment per ha that is comparable to the heavier packages of the national scheme, and a long term agreement (30 years). One of the FfN trials is located in the Biesland area, a green peri-urban enclave in the urbanized West of the Netherlands, near The Hague. 'The city' was turned from a threat into an opportunity in the FfN project because the municipalities and city region joined the water board,

the province and the ministry of agriculture to form a regional fund to provide the Biesland farmer with a long-term payment (Buizer, 2008). Hence, the project is an example of a local agri-environment scheme, in this case without European co-funding. In 2009, the extra landscape elements were created, mainly shallow shores along ditches, and the water management was adjusted. The conversion to the new farming system has led to a range of adjustments in farm management, which belong to the space for self-governance. The cattle breed has shifted toward a more robust type, organic material from ditches and shores is harvested to be composted together with the manure, an arable field has been created, and grass is harvested later in the year.

The farmer is aware that meadow birds are among the main reasons for the governments to fund the project, and an important reason for citizens from the nearby cities to support the farm. An active group of volunteers monitors the number of nesting pairs. These monitoring results – together with the monitoring results of plants, fish, water quality, farm economy and societal support - will be used in the evaluation of the scheme by the governments (Westerink et al., 2013b). Because of this, the farmer voluntarily respects later mowing dates (without any additional payment), later even than his slower growing grass would allow. In the context of the FfN farming system, this caused a chain of other adjustments. Because the farmer cannot purchase feedstuffs at will, the grass harvested at his own farm is crucial, not only in quantity but also in quality. The best grass is harvested in late summer as a result of low input, higher water levels and late mowing. For that reason, the cows are steered toward giving birth in summer. This way, the farmer combines an extensive, nature-oriented season in spring with a more productive season in summer and autumn.

The case of one farmer and his decisions is of course not representative. Personal motivation, entrepreneurship, landscape and societal context may have a great influence on farm strategy in addition to the scheme itself (cf. Van Herzele et al., 2013). However, the case study illustrates how a system approach can influence farmers to substantially change their practices in a coherent way. Compared to the conventional AES in the Netherlands which consists of add-on measures, FfN is a measure at strategic farm level. In this way, ecology is integrated into farming: the farming system creates conditions for biodiversity. Which biodiversity is to be produced is not specified beforehand, but a range of species is monitored. The effects of the scheme are evaluated, but payment and control are based on the (strategic) measures (no-input, high water levels and landscape elements). Formulating the AEM at strategic farm level increases the space for self-governance. The farmer decides on tactical farm management, location of land use types and operational work planning within the agreed farming system. In the case of the Biesland project, the space for self-governance within the farming system evoked the farmer to consider not only the rules of the AES, but also the overall evaluation criteria, and to develop a way of farming he expects will satisfy the governments and works well for his farming objectives.

5.6 Discussion

In this paper, we presented two new Dutch approaches that aim to overcome some of the scale problems linked to agri-environment schemes. The 'Collective Management Plans' try to achieve spatially coherent measures on a number of neighbouring farms (often entire polders of 250 to 2,500 ha) and are designed by Local Environmental Cooperatives. 'Farming for Nature' tries to achieve system coherent measures at strategic farm level, with much freedom for the farmer in his management decisions within the agreed limits. Both approaches have increased self-governance compared to the traditional AES in the Netherlands. Figure 5.3 summarizes the comparison.

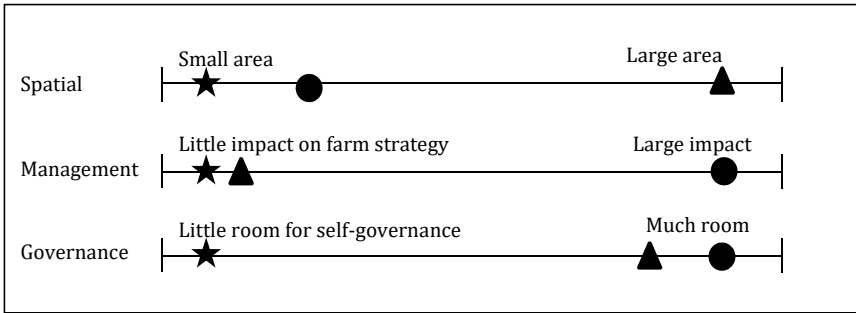


Figure 5.3: Collective Management Plans ▲ and Farming for Nature ● compared to traditional AES ★

Both approaches have their strengths and weaknesses. The Collective Management Plans have the potential to apply ecological knowledge in designing a set of measures that optimize conditions for the target species. The success of this design depends on the willingness of the individual farmers to participate. Thus far, however, few farmers choose the more substantial packages because they cannot combine them with their overall farm strategy. This is one of the reasons for disappointing results (RLI, 2013). The negotiation skills of the LEC and its reputation in the area are evidently crucial to achieve a high participation rate (Franks and McGloin, 2007a). Although the LEC can take care of part of the work concerned with submissions and reporting, the Collective Management Plans so far come with much bureaucracy for participants as a result of the high level of detail in which measures are described and controlled by the government. Because of this, there still seems to be a mismatch between self-governance and government steering (for that reason the Collective Management Plans are situated not as far on the scale of self-governance in Figure 5.3 as FfN), even though gradually the space for self-governance by LEC is enlarged. Currently, a new AES is in preparation in the Netherlands with even more responsibility for environmental cooperatives ('*collectieven*').

Farming for Nature does not have target species; rather, conditions are created for a high biodiversity through adapted water management, landscape elements and scarcity of manure. The farming system is expected to lead to good ecological results, taking into account nature's unpredictability, and therefore, no ecological targets related to specific species are agreed upon

with the farmer. In case of specific ecological targets of the government, monitoring can be done. If, for instance, meadow bird protection is the main objective, FfN has some uncertainty. An FfN farm in a peat area may lead to ditches with good water quality and a high diversity of amphibians and fish and shore vegetation, but a disappointing number of meadow birds. The farmer may have kept his part of the bargain, but the government may be unsatisfied – or be happy with the result in other parts of the ecosystem.

There seems to be a good match between the level of government intervention and the space for self-governance in FfN. In the case of Biesland, the space for self-governance within the farming system evoked tactical and operational decisions that were favourable for meadow birds. However, this is not necessarily always the case, because the farmer is not obliged to respect mowing dates and he does not need to work in mosaics. Incorporating extra rules about mowing dates and mosaics, targeting tactical and operational decisions, would reduce the space for self-governance. However, if FfN is to be implemented with specific meadow bird objectives in mind, it could be considered to do so. An alternative would be to take up FfN farms in Collective Management Plans to complement the mosaic of farms that take measures on parts of the farm only.

There are perhaps other ways to combine the two approaches. FfN farms could strive for spatial coherence at area level. Whereas in the current pilots with FfN individual farms participate, the original concept envisioned a spatial zoning, in which FfN farms would form a buffer around nature reserves to reduce drought and nitrogen exposure in the reserves, or would make attractive urban fringes (Stortelder et al., 2001). So far, there is no experience with a spatial coordination of FfN farms, but LEC could definitely play a role here. Their task would be a difficult one, however, because conversion to FfN is far more substantial than taking part in the current AES. Not every farmer will be willing to adapt his farming system so thoroughly (cf. Van Herzele et al., 2013). Land consolidation could be needed, as in the Operation Corncrake project in Denmark, where the land consolidation was organised by a farmers' cooperative (Nielsen, 2003).

The bureaucracy of the Collective Management Plans could be reduced by choosing another scale in the management dimension. By applying more measures at strategic management level, the level of detail of the measures in the Collective Management Plans could probably be reduced. Examples of such measures are raising water levels, a ban on slurry manure and chemical fertilizer, a mosaic-friendly grazing system, 10% non-productive landscape elements (without prescribing where and what), a low cattle intensity or a traditional cattle breed. Another possibility would be to set and evaluate goals at area level instead of controlling individual measures. This would allow LEC more flexibility to negotiate about measures with farmers and to steer toward effectiveness because the continuation of the whole scheme in the area is at stake. It would mean that the agreement between farmer and LEC could have another level of detail, another time frame and another set of rules than the one between the LEC and the government (the AES). The agreement between the farmer and the LEC would be the result of internal rules, developed in the context of self-governance (see Table 1). More self-governance by LEC in the design of measures could also lead to the development of measures and farming systems that suit both the regional farming culture and the landscape.

5.7 Conclusion

Scale has been a useful concept for bridging boundaries between the domains of ecology, farm economy and governance in the analysis carried out in this paper. To our best knowledge, this has not been done before. Looking at the three scale dimensions and their cross scale interactions (see Cash et al., 2006) offered a new insight into possibilities to increase effectiveness of agri-environment schemes because of the relation between scale and governance. Both presented approaches offer possibilities to enlarge the space for self-governance within the scheme *as a result of* choosing another level in either the spatial dimension (Collective Management Plans) or the management dimension (Farming for Nature). This takes different forms for the two examples. Farming for Nature is an example of more self-governance by the individual farmer, while Collective Management Plans increase self-governance within groups of farmers. Farming for Nature enlarges the space for self-governance by moving the level of government intervention from the tactic to the strategic level of farm management. The Collective Management Plans enlarge the space for self-governance by moving the level of government intervention from the individual landscape element to an area. The case studies suggest that the level of self-governance is related to the level and detail of goal-setting, targets, description of measures, control, monitoring and evaluation. Another level of government intervention – and more self-governance – could mean less detailed prescriptions resulting in less bureaucracy around the interface between farmers and the government. We propose that attempts to improve effectiveness of AES by means of larger areas and adjusted farming systems *should* be accompanied by more space for self-governance, in order to avoid new scale mismatches. How big this space should be, and what the interface should look like, is a matter for discussion between government and farmers' groups and may depend on specificities of landscape, farming systems and social capital.

The presented approaches are relevant in the light of a number of current policy developments. An issue of concern is the decline of farming combined with land abandonment in the so-called High Nature Value Farmland areas. Modern, but extensive farming systems such as Farming for Nature may be part of the solution. The Dutch experiences with self-governance by farmers' groups with respect to AES are relevant in relation to CAP 2014-2020. The political agreement for CAP 2014-2020 opens up the possibility for groups of farmers to operate as 'end beneficiary' of second pillar payments (EC, 2013). Such a group of farmers would have to decide on measures and sites among each other and take care of the payments to the individual farmers. For the first pillar of CAP, the case of the Collective Management Plans can be helpful in finding ways to achieve spatial coherence in the 'ecological focus areas'. The environmental benefits of the EFA's could be improved by coordination and cooperation between farmers in an area. However, in the Dutch situation it has taken decades to develop the culture of cooperation in agri-environmental management (Polman et al., 2011) and the social capital needed for self-governance. In other member states such far-reaching cooperation may be harder to accomplish in the short term and investments may be needed to promote collaborative approaches (Emery and Franks, 2012). In England, McKenzie et al. (2013) found a high willingness of farmers (in principle) to participate in a collaborative AES.

In addition, scale and self-governance are relevant in the current discussions on payment-by-results (Gibbons et al., 2011; Schroeder et al., 2013). Both presented cases are based on the

principle of payment-by-action, as a result of negative experiences in the Netherlands with payment-by-result at farm level. Results are not entirely under the control of the farmer because of the scale mismatch between farm and bird habitat and external factors such as predation (cf. Schroeder et al., 2013). However, with agreements at the level of areas or even regions, reducing the influence of external factors, payment-by-results could be a realistic option for an AES aimed at meadow bird protection. Furthermore, it could further enlarge the space for self-governance in the sense that farmers' groups could take care of the whole design and implementation of the scheme.

This paper presented two examples of alternative approaches to agri-environment management based on taking another level for intervention in the spatial dimension and in the management dimension, respectively. The examples showed that choosing another level for intervention in either of these dimensions requires reflection on the level of self-governance needed and the policy instruments necessary for enabling this self-governance. Although both presented approaches can be improved, they hopefully offer inspiration for others taking a scale perspective for making agri-environment policy more effective.

Abstract

The landscape services concept provides a lens to study relations within the social-ecological networks that landscapes are, and to identify stakeholders as either providers or beneficiaries. However, landscape services can also be used as a boundary concept in collaborative landscape governance. We demonstrate this by analysing the case of Gouwe Wiericke in the rural west of the Netherlands. Here, a collaborative landscape governance process started off with low levels of trust between farmers and regional governments, as a result of previous processes. The introduction of the landscape services concept helped to bridge social boundaries, which eventually resulted in collective action: farmers and governments reached an agreement on adapted management of ditches and shores to improve water quality and biodiversity. However, we propose that bridging the social boundaries was achieved not merely due to the landscape services concept, but also due to the fact that multiple boundaries were managed simultaneously, and additional arrangements were used in boundary management.

6

Landscape Services as Boundary Concept in Landscape Governance: Building Social Capital in Collaboration and Adapting the Landscape

Judith Westerink, Paul Opdam, Sabine van Rooij and Eveliene Steingröver, in review with Land Use Policy (major revisions)

6 Landscape Services as Boundary Concept in Landscape Governance: Building Social Capital in Collaboration and Adapting the Landscape

6.1 Introduction

Landscapes are complex social-ecological systems: the result of and the medium for interaction between humans and nature. Because of biophysical and cultural variation, this interaction has different outcomes, reflected in a variety of land use patterns and landscape identities. Through 'mediation' by the landscape, stakeholders build up social and economic relations, such as between food producers and consumers or between land holders up- and downstream in a water catchment area. Because of this interrelatedness of spatial landscape patterns and social networks, in this article we view landscapes as social-ecological networks (Bodin et al., 2016; Cumming et al., 2010). An important concept for studying this interrelatedness is landscape services, as a specification of ecosystem services of landscapes (Termorshuizen and Opdam, 2009). The delivery of landscape services and the value it creates, depend on the spatial structure of the ecological network (Opdam, 2013). At the same time, the variety of landscape services aids the identification of stakeholders in the social-ecological network (Menzel and Teng, 2010). The landscape services concept implies that there are providers of services and beneficiaries of those services; the variety in landscape services implies that together these stakeholders represent a range of interests. Therefore, landscape services provide an angle for the description and analysis of social-ecological networks.

However, as we will demonstrate in this article, the concept of landscape services can have an additional role, namely in enhancing social capital in processes of collaborative landscape governance. Landscape governance deals with "the interconnections between socially constructed spaces and biophysical conditions of places" (Görg, 2007). Because of the emphasis on interconnections between the social and the biophysical, the idea of landscape governance suits the conception of landscapes as social-ecological networks well. Due to the variety of landscape services and the stakes of providers and beneficiaries, a collaborative landscape governance process would include a variety of actors, most likely with diverging values, aims and conceptions of the preferred landscape (Faehnle and Tyrväinen, 2013; Morris, 2004; Opdam et al., 2015b). The diverging identities, stakes, values, aims and conceptions could hinder the build-up of social capital needed for collaboration. These differences represent boundaries between social groups that need to be bridged before collective action can be reached. In this article we examine the use of landscape services as a boundary concept, in order to support collaborative landscape governance.

Boundary concepts have been shown to contribute to interaction and collaboration between social groups (Metze, 2011; Mollinga, 2010), but in literature landscape services have rarely been considered as boundary concepts. Ecosystem services have been recognised as a boundary concept: in the sense of a product of boundary work in research and multi-level and multi-actor environmental policy making (Kull et al., 2015; Schleyer et al., 2015). This development and the use of the ecosystem services concept between various scientific disciplines and tiers and departments of government, would explain its vagueness and ambiguity. Schleyer et al. (2015) suggested that ecosystem services could also prove suitable as a boundary concept in

participative processes. Palacios-Agundez et al. (2014) and Herringshaw et al. (2010) describe participative landscape governance processes in which the ecosystem services concept was applied, but they did not study its functioning as a boundary concept. Opdam et al. (2015a) investigated how the ways in which ecosystem services were framed in collaborative landscape governance processes affected the outcome. Because of their interest in the effectiveness of providing information in such processes, they approached ecosystem services as multiple frames and not as a boundary concept. Opdam et al. (2015b) did investigate landscape services as a boundary concept in landscape governance. In particular, they analysed cases in which landscape services were combined with green infrastructure, as boundary concepts that evolved over the course of the governance process. Although they recognised the role of boundary concepts in landscape governance, they acknowledged that the boundary concepts had not been the only 'tools' in boundary management. Apart from this publication, there is still very little evidence on the possible role of landscape services as boundary concept in collaborative landscape governance. At the same time, it seems unlikely that the use of a boundary concept alone will suffice to manage boundaries in landscape governance processes. Therefore, insight is needed into the conditions of landscape services as a concept for contributing to boundary management, in order to support the process and outcome of collaborative landscape governance. In this article, our research question is: under what conditions does landscape services as a boundary concept contribute to collaborative landscape governance?

We aim to answer this question by analysing a case of collaborative landscape governance in a rural area in the Netherlands. As action researchers we participated in this landscape governance process, in which landscape services were a leading concept. Landscape governance was aimed at creating a shift from single-purpose (dairy-farming) to multipurpose farming (delivering a range of landscape services). Farmers, as providers of landscape services entered a collaborative process with regional governments as beneficiaries. The collective action of farmers and regional governments comprised the following two components: the management of networks of ditches and banks was adapted in order to enhance the landscape services clean water and biodiversity, and a scheme was created which organised the payment to the farmers in return for their efforts. We consider how the landscape services concept, combined with other boundary arrangements, helped to develop the social capital needed to achieve this collective action. We also consider to what extent this collective action influenced the delivery of landscape services by adapting the biophysical conditions in the ecological network.

In the following section we elaborate our conceptual approach of collaborative landscape governance, landscape services, social capital and boundary management. After that, we explain our research methods and the various roles we performed as action researchers in the landscape governance process. Our results are presented as a case narrative. In the discussion we address how boundaries were managed through combining landscape services as a boundary concept with a process of social learning and other boundary arrangements. In addition, we examine the outcome of the collaborative landscape governance process by evaluating whether landscape services were affected by adapting the landscape (Görg, 2007 p. 960).

6.2 Conceptual approach

6.2.1 Collaborative landscape governance

We depart from the presumption that landscape governance requires collaboration. Landscape governance needs to take into account the following characteristics of the social and/or ecological networks: the stakes, values and interactions in the social network; the biophysical conditions in the ecological network; and the interactions and interdependencies in the social-ecological network (Bodin et al., 2016; Görg, 2007). As a result, landscape governance is a very complex endeavour. The term 'governance' implies that governments are not the only actors in landscape governance: other actors participate in or even initiate the governance process (Buizer et al., 2015). Because governance requires more than one actor, collaborative approaches are needed to reach a consensus on actions to shape the desired landscape and to develop the accompanying governance arrangements (Bodin et al., 2016; Healey, 1997; Innés and Booher, 1999; Opdam et al., 2015b). For that reason, a kaleidoscope of collaborative arrangements was developed, in which actors take various roles in partnerships and in other alliances (Kuindersma and Boonstra, 2010; Skelcher et al., 2005). Arrangements with a large role for self-governance by non-governmental actors receive increasing attention (Driessen et al., 2012; Westerink et al., 2016). In landscape governance this too makes sense: a self-governance perspective acknowledges the big say of landholders in the layout and management of their land. Self-governance implies that the boundary between self-governance and governmental intervention requires attention (Ostrom, 1990). In addition, self-governance means collaboration within the self-governing group. There are many examples of farmers collaborating in landscape management (Franks and Emery, 2013; OECD, 2013; Prager, 2015b; Prager et al., 2012; Westerink et al., 2015a). In order to develop a landscape with many landscape services, landholders as a group would need to negotiate the design of the landscape, the choice of management measures, landscape services and payments, jointly with their beneficiaries. These designs and negotiations, although based on conceptions of the preferred landscape, refer to the biophysical landscape and are therefore place-specific. In addition, the collective action resulting from the landscape governance process often changes the biophysical conditions in the landscape. For these reasons, analysis of landscape governance cannot ignore the biophysical landscape (Görg, 2007).

6.2.2 Landscape services

How humans benefit from ecosystems is expressed in the ecosystem services concept (De Groot et al., 2002; Gómez-Baggethun et al., 2010). Termorshuizen and Opdam (2009) suggested the less technical term 'landscape services' as more appropriate for use in community-based landscape planning. Examples of landscape services are clean water, the pollination of crops and landscape amenity. The variety of services provided by the ecological network is of relevance, because it determines the number and diversity of stakeholders with a potential interest in managing the ecological network. In general, and in particular for regulating services, the quality level depends on species diversity and consequently on landscape-wide characteristics of the ecological network (Bianchi et al., 2006; Fürst et al., 2014; Herzon and Helenius, 2008; Opdam et al., 2006). In addition, landscape pattern and biodiversity are important for a range of cultural services, such as recreation (Van Berkel and Verburg, 2014). Because of natural and human-

caused dynamics, it is also important whether the ecological network can be trusted to provide the service at the demanded level. For biodiversity-based services, this reliability has been associated with species diversity (e.g. Brittain et al., 2013), which relates reliability to ecological network structure. For example, the configuration of small elements in the landscape determines the viability of plant and animal populations which ensures the sustained delivery of landscape services (Isbell et al., 2011; Opdam et al., 2006). A landscape network structure that delivers many, reliable and good quality ecosystem services has been conceptualised as green-blue infrastructure (Benedict and McMahon, 2012; Opdam et al., 2015a; Steingröver et al., 2010).

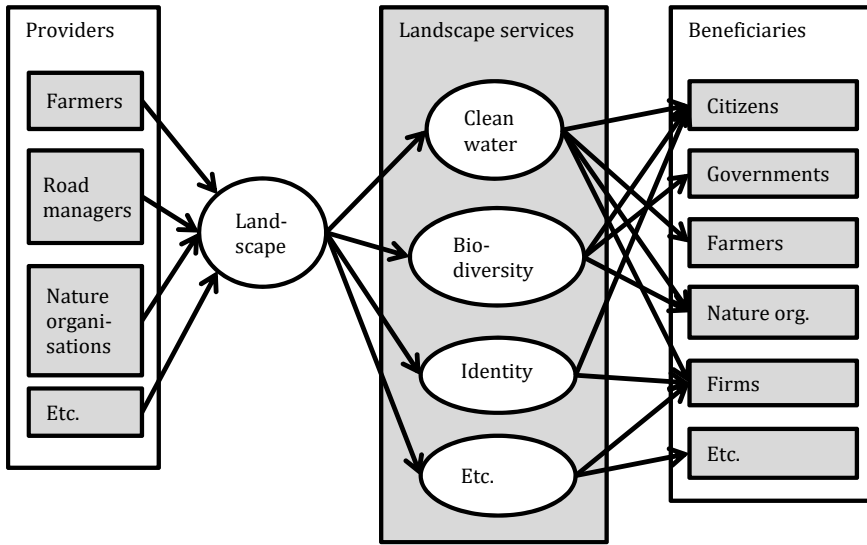


Figure 6.1: Roles of providers and beneficiaries of landscape services and examples of relations via landscape services.

The landscape services concept guides the identification of stakeholders in landscape governance (Figure 6.1). This social part of the social-ecological network consists of providers and beneficiaries of landscape services. Providers are land holders, such as farmers, nature organisations and local governments. Beneficiaries of landscape services are citizens and their representing bodies such as governments and civil society groups, and businesses such as farms, food processing industries and tourist companies. Note that stakeholders may be provider and beneficiary simultaneously. Collaborative landscape governance would seek to involve at least some of these stakeholders.

6.2.3 Social capital

Collaboration in landscape governance requires interaction between different actors (implying the presence of boundaries between those actors) as well as a basic level of trust (Emerson et al.,

2012). Social capital can be considered as the qualities of social networks that enable collaboration to result into collective action (Lopez-Gunn, 2003; Pretty, 2003). These qualities include trust and the capacity to learn (Bodin and Crona, 2008; Van Bommel et al., 2009). In general, with relation to social capital, a distinction is made between bonding ties within a social group and bridging ties between social groups (Putnam et al., 2004). Strong bonding ties within a group can lead to a strong sense of 'otherness' relating to people of other groups, and may thus negatively influence collaboration (Taylor, 2000). However, social networks can also combine strong bonding ties with bridging ties, making them strong, effective, and able to learn (Bodin and Crona, 2009; Sandström and Rova, 2010). These bridging ties have been described as weak or loose to distinguish them from ties with people that are close to us, but it is bridging ties that enable collaboration (Granovetter, 1983; Taylor, 2000). It is not self-evident however that stakeholders in landscape services have the social capital needed for collaborative landscape governance. Stakeholders may not be aware of their role as provider and/or beneficiary and their relations in the social-ecological network or boundaries may persist between them as a result of differences in culture, values and knowledge. Actively developing social capital with respect to bridging ties may be a prerequisite for landscape governance to arrive at collective action (Mills et al., 2011; Mills et al., 2014; Olsson et al., 2004; Schneider et al., 2003; Taylor, 2000).

6.2.4 Boundary management

Landscape governance processes are complex because of the number of boundaries that need to be addressed. First, there are boundaries between social groups that make the establishment of bridging ties difficult and may hamper collaboration because of low social capital (Lamont and Molnár, 2002; Taylor, 2000). Such social boundaries may, for instance, exist between farmers, citizens, public officials and researchers. Second, social boundaries may be influenced by institutional boundaries, such as the boundary between government and society (Rhodes, 1996). This boundary is apparent, for example, in discussions on self-governance and legitimacy of public interventions. Third, in rural landscapes some of the social boundaries are related to the boundary between 'agriculture' and 'nature' (Franks, 2010). With 'agriculture' and 'nature' we do not refer to the biophysical conditions 'as they are' in the landscape, but to the definitions of such categories as used and contested in landscape governance. Nature managers, farmers and other stakeholders may draw different boundaries between nature - as perceived to be present in the landscape - and what is considered agriculture. This influences landscape governance processes, and eventually the biophysical landscape conditions resulting from collective action.

All these boundaries we consider as cognitively and socially constructed distinctions between categories (Jones, 2009). Actors in landscape governance will try to influence these boundaries (Van Broekhoven et al., 2014). They will create and maintain boundaries that enable them in pursuit of their goals, while they will try to change or bridge boundaries that constrain them. For such boundary actions, actors may use boundary arrangements (Schut et al., 2013; Termeer and Bruinsma, 2016), for example boundary concepts. Boundary concepts have different meanings in different social worlds but their structure is common enough in more than one world to make them a recognisable means of translation (Star and Griesemer, 1989). In addition, they are based in action, subject to reflection and local tailoring, and their meaning may develop while being used (Opdam et al., 2015b; Star, 2010). They are similar to boundary objects but unlike

boundary objects, they are not material. In addition to boundary concepts and boundary objects, other tools and strategies are applied in boundary management. These include boundary workers, processes of social learning and boundary organisations. Boundary workers are people with the implicit or explicit task to manage boundaries in collaboration, often in the form of bridging or spanning (Sol et al., 2011; Termeer and Bruinsma, 2016; Warner et al., 2010). Processes of social learning make use of the differences between people. These processes also support the development of social capital (Leys and Vanclay, 2011; Pahl-Wostl et al., 2007; Sol et al., 2011; Tippet et al., 2005). Boundary organisations are formal or informal organisations founded between different social worlds to enable collaboration, coordination, mediation and exchange (Carr and Wilkinson, 2005; Franks, 2010; Miller, 2001; Parker and Crona, 2012). In sum, a range of boundary arrangements are available to actors in landscape governance for dealing with the boundaries that they inevitably will encounter or will wish to create themselves.

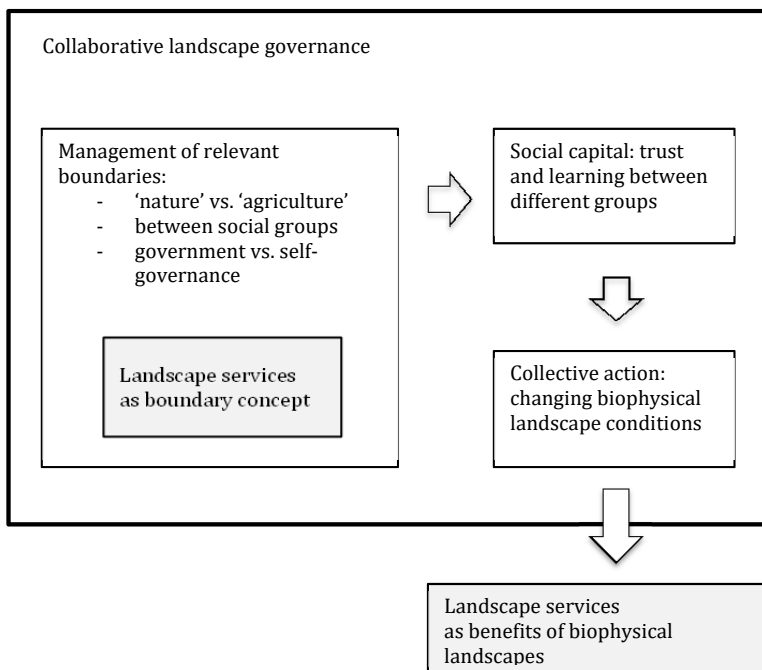


Figure 6.2: Management of relevant boundaries in collaborative landscape governance. The aim of the landscape governance is to arrive at collective action in order to change the biophysical landscape, and subsequently enhance the landscape services

Figure 6.2 summarises the above. Collaborative landscape governance requires the management of a number of boundaries. The involvement of people of various social groups with possibly diverging interests and perspective requires the development of social capital and the bridging of social boundaries. In addition, this social capital is affected by distinctions between categories

of land use, such as ‘nature’ and ‘agriculture’, and by the boundary between ‘government’ and ‘society’. Social capital is a prerequisite to arrive at collective action. Landscape services are included in the figure in two ways. First, as a boundary concept it may have a role in the management of boundaries in collaborative landscape governance. Second, they may be the intended outcome of the collective action adapting the biophysical conditions in the landscape.

6.3 Methods

The empirical material for this study was derived from an action research project that was carried out by an interdisciplinary research team of social and ecological scientists. At the invitation of the province of South Holland, we engaged with a group of stakeholders in a rural landscape in the west of the Netherlands. The area has a history of difficult negotiations between regional governments, nature organisations and dairy farmers, about connecting nature reserves by converting farmland into wetlands. Stakeholders were in need of a way out, because not only the future of farming in the area is at stake, but also the realisation of policy goals related to water (EU Water Framework Directive) and biodiversity (Bird and Habitat Directives). It was because of this precarious history, that we presented our joint project as a learning process, not only for farmers and government officials, but also for ourselves as researchers (Dewulf et al., 2009; Wals and Rodela, 2014). The project thus created scope for learning (Figure 6.3).

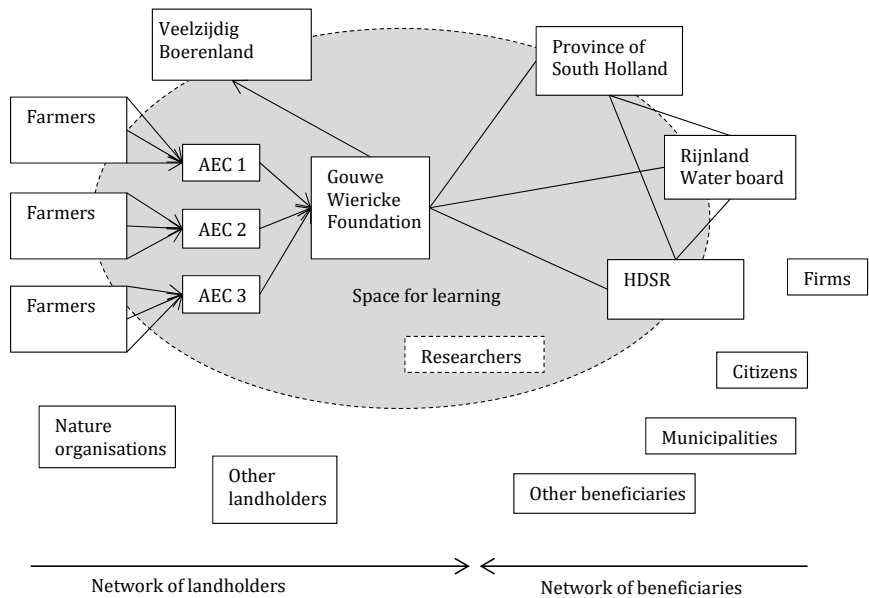


Figure 6.3: Social network of the landscape governance process in Gouwe Wiericke. Parts of the participating organisations are outside of the space for learning. Many other stakeholders are still outside of the network

The partnership consisted of farmers and public bodies: three agri-environmental cooperatives, their umbrella organisation *Veelzijdig Boerenland*, the Province of South Holland, the Water boards *Rijnland* and *HDSR*, and us as researchers (Figure 6.3). Agri-environmental cooperatives (AEC) are groups of farmers and sometimes citizens collaborating in landscape management (Franks, 2010). Water boards are regional authorities that manage comprehensive water systems. The composition of this group of actors was discussed with the province as well as with the group itself: the agri-environmental cooperatives were considered to represent farmers as the managers of the larger part of the rural landscape, while the public bodies felt responsible for pressing landscape issues, especially biodiversity and water management. Because of the low levels of trust at the start of the project, the partners preferred to postpone the involvement of nature organisations.

As action researchers, we aimed to contribute to a change process and to the empowerment of the partners (Creswell, 2009; Huntjens et al., 2015). Bringing together this group of actors was a major intervention in the governance of the landscape. Other interventions by the researchers included organising meetings to enable interaction, exchange, learning and reflection (see Figure 6.4 for an overview). In addition, we introduced concepts such as landscape services, roles of provider and beneficiary, self-governance and learning process, in order to bridge boundaries between the stakeholders and to create a discursive space. Furthermore, we brought in ecological knowledge at various occasions in the collaborative process. Hence, the researchers combined four roles (cf. Sol et al., 2011; Turnhout et al., 2013). Firstly, we were partner and participant in the learning process. Secondly, we acted as boundary workers by facilitating the process and by setting up the programs for meetings, while also chairing the them and reporting on them. Thirdly, we acted as knowledge brokers by bringing in and redistributing knowledge and information regarding agri-environment, ecology, water management and governance. And fourthly, we monitored the process on the one hand by means of a logbook, and on the other hand through documenting reflections by participants in partnership meetings, on the progress and lessons learnt. Discussions during meetings were tape-recorded and analysed by means of coding. Together with the minutes of meetings and other products of the project, these various forms of documentation were used for the qualitative analysis in this article.

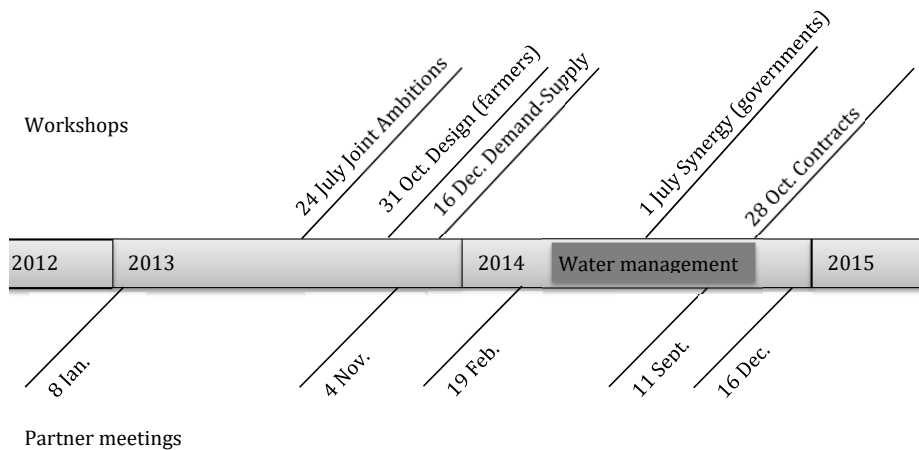


Figure 6.4: Overview of main meetings and events

In addition, we performed a simple quantitative analysis of the changes in the biophysical conditions of the ecological network. Measures aimed at improving the landscape services water quality and biodiversity were negotiated between the farmers' cooperative and the water board, and carried out by four small groups of neighbouring farmers. They agreed on the management of ditches and their banks by means of dredging and ecological cleaning in a two-year pilot, of which we discuss the first year in this article. The effect of these measures on water quality and biodiversity could not be measured within the research period, because a) the intended effect takes time to develop, and b) adaptation measures were taken in just a fraction of the ditches in the water board area, and they were connected to the larger network, making it impossible to assess the effect on overall water quality and biodiversity. We therefore assessed the potential impact of the measures on network size and connectivity by calculating the percentage cover by green-blue infrastructure that resulted from the measures. By lack of information on the quality of the current network of ditches or their state of management, we assumed that only dredged ditches with cleaned banks contribute to create a habitat for enhanced biodiversity. In addition, we assumed that the green-blue infrastructure consists of the ditch and the adjacent 1 m bank on either side, and compared this to the total farm area to calculate the percentage cover. The cover of green-blue infrastructure was calculated for each of the four clusters of participating farmers. We then calculated the increase in the cover of green-blue infrastructure on the scale of the landscape governed by the water board, assuming that all farmers in the area would participate.

6.4 Case study

6.4.1 Introduction to the area

The area of Gouwe Wiericke is part of the 'Green Heart', an area in the west of the Netherlands, dominated by pastures on peat and clay soils (Figure 6.5). To enable dairy farming under wet circumstances, the pastures are intersected by many ditches and waterways in a fine-grained network. Like most of the lowlands in the Netherlands, the area has a sophisticated, artificial system of varying water levels, related to the ground levels and adapted to land use demands. The ground level in Gouwe Wiericke is lower than the water level in the main water bodies, as a result of a long history of drainage and subsidence of peat since the Middle Ages. The area's typical biodiversity, marked by species such as the Blacktailed godwit and the Black tern, is attached to the moist grasslands and to the waterways.

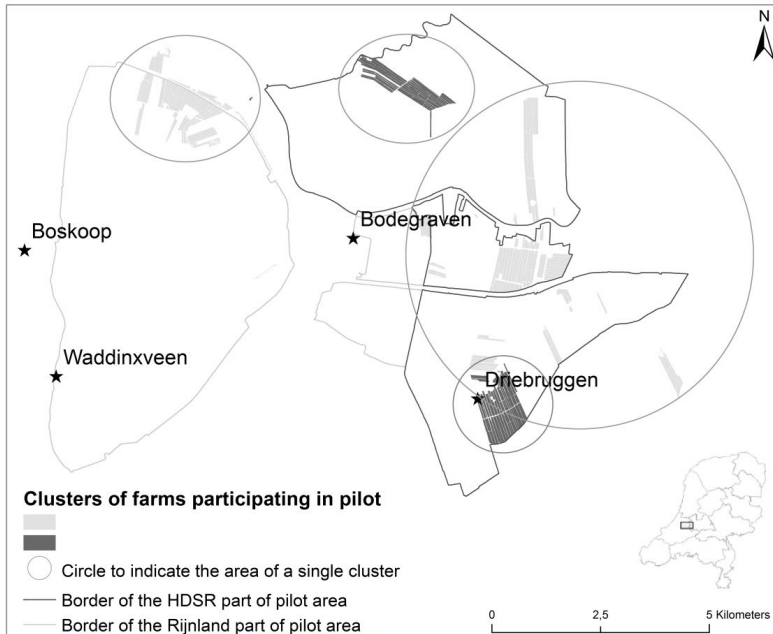


Figure 6.5: Map of project area with names of main towns

The delineation of Gouwe Wiericke is based on the working area of the Gouwe Wiericke Foundation, the cooperative body of the three agri-environmental cooperatives, each of which has its own subarea. In Gouwe Wiericke they represent more than half the farmers. The delineation of Gouwe Wiericke is logically rooted in the landscape, being the area enclosed by the three rivers Gouwe, Meije and Hollandse IJssel.

The following sections describe the landscape governance process in Gouwe Wiericke and the resulting collective action. The description has the form of a narrative, in more or less chronological order, organised according to the elements of the conceptual framework (Figure 6.2).

6.4.2 Landscape services and role frames

Building the social network started with bringing the following people together in a partnership: the board members of the three agri-environmental cooperatives; a representative of the umbrella organisation; and officials of the province and the water boards. Because of the history of conflict, much effort had to be put into commitment building. Preparing the project took more than half a year (see Figure 6.4).

In a meeting with representatives of the farmers and the governments, the following joint ambitions were selected to enhance landscape services: conserving the cultural landscape, enhancing biodiversity¹, improving water quality, and shortening nutrient cycles. In the remainder of the process, shortening nutrient cycles and conserving the cultural landscape lost priority, because the project focused on the landscape services for which the participating governments were willing to pay. Conservation of the present, a culturally valuable landscape pattern and agricultural land use were seen as prerequisites for the development of the landscape and the delivery of the other desired landscape services.

In the interactions we framed the roles and relations within the social network structure as beneficiaries and providers of landscape services. At many occasions participants proved willing to play the role of beneficiary or provider. Beneficiaries asked for proposals by providers ('what can you deliver?') and expressed willingness to pay for the landscape services. Providers were willing to consider the beneficiaries' wishes and to amend their proposals. The role of beneficiary or provider did not come naturally to all actors, however. Providers missed opportunities to compose (combinations of) services that were in demand, for instance because they already considered it part of their practices. Beneficiaries were not always able to formulate a clear demand and at times did not recognise opportunities for deals, for instance because the provider requested payment in kind. In addition, governments could not play the role of beneficiary in full, because according to European state aid regulation they are not allowed to subsidise measures that are already obligatory for farmers (including maintaining the depth of waterways and 'good agricultural practice'). The traditional role-taking of authority and subjects was not altogether absent from the interactions. At times government officials referred to their power in the sense of their authority to make rules. Likewise, farmers complained at times about the behaviour of government officials in previous or neighbouring processes. Overall, however, the new role frames enabled negotiation and collaboration.

¹ We are aware that in literature, biodiversity is generally regarded as a condition to the delivery, quality and reliability of landscape services. However, stakeholders in our case study considered biodiversity a landscape service in itself. We adopt their conception in this article.

6.4.3 Self-governance

An important objective of the stakeholders was to experiment with self-governance of landscape services. This self-governance was understood to be made up of the following components: the choice of measures; their spatial configuration; and control and payment. These activities were to be coordinated by the group of farmers themselves. The governments therefore wanted to make contracts on landscape services with the Gouwe Wiericke Foundation, as the farmers' cooperative, and leave the contracting of individual farmers to the foundation. For the farmers' cooperative, organising a joint proposal on behalf of its farmers was a new task. In the past, the cooperative – or rather the three cooperatives – tried to get as many participants as possible for a scheme designed by the government. This time the cooperative had to organise its farmers to deliberate and to compose a proposal that would be attractive to the beneficiaries. The researchers and the cooperative organised a design workshop for which four groups of 3-4 neighbouring farmers were invited. These groups were provided with maps of their land and with a list of measures that would be favourable for reaching one or more of the joint ambitions. The groups were also recommended to optimise the quality of their proposal by selecting multipurpose measures, choosing suitable sites, and creating physical connections with nature reserves and across various farms.

The next meeting involved government officials as well as the groups of farmers who had made the proposals. These groups of farmers and government officials were challenged to find a fit between offered and required landscape services for further negotiations. The farmers' proposals reflected self-governance capacity, because they jointly devised measures and innovative payment options. When the officials of the water board had reached an agreement with the farmers on which measures to take, the farmers were invited to make a full proposal.

The water boards drew up contracts with the cooperative on cleaning ditches and managing banks in an eco-friendly way. The cooperative contracted the individual farmers based on the available budget. In the developed self-governance arrangements, previous government tasks such as selection of sites, contracting farmers, control and payment were now done by the farmers themselves. For instance, the cooperative chose to perform a 100% control of the measures carried out by the farmers.

Although the province had participated in formulating joint ambitions, they did not take part in the actual 'collective action' established by the water boards and the farmers. This was due to an internal discussion among provincial officials about ecological goals and the formulation of the 'demand' towards the farmer's cooperatives. Apparently, the province is neither a single actor nor a group of uniform actors, and representation by individual officials may be problematic when they cannot raise internal support (see Figure 6.3). Nevertheless, the province and the water boards suspected that their goals could be mutually supporting, and they were looking for ways to get insight into this synergy. For this reason, a workshop was organised with the government officials to compare and combine maps in order to identify those areas where measures are able to contribute to reaching policy goals of both the province (biodiversity) and of the water boards (water management). The workshop yielded opportunities for combining goals and funds in specific areas. The produced maps offered valuable information to the farmer's cooperative on which areas were in demand with which beneficiaries.

6.4.4 Social capital: trust and social learning

The next workshop (and the last to be discussed in this article) was organised after the first season of the management of banks and ditches. Board members of the cooperative participated, as well as the representative of the umbrella organisation, and officials from the water boards and the province. The objectives of this workshop were to learn from the experiences in the preparation and execution of the first generation of contracts, and to develop ideas on the next generation of contracts. Participants were invited to evaluate their 'pilots' together. The farmers as well as the water board officials expressed that their trust in each other had improved as a result of searching and working together. While they had encountered and recognised cultural differences, farmers and water board officials were positive about each other's intentions, efforts and actions. The interactions between farmers and officials were not limited to the organised meetings: they had actively engaged with each other. Not only their mutual trust, but also their insights had grown. One of the most important questions in their joint search was how to formulate an agreement, not based on 'how to do it', but on 'what to achieve', leaving more responsibility for implementation to the farmers' cooperative. This search was not complete after this first pilot season; rather, water board officials and farmers had become aware of additional questions they wanted to address together. For instance, the level of detail in the government assignment, the formulation of the contract, and the impact on self-governance were important issues to attend to in the next round of agreements. The outcome of the workshop was that they wanted the next generation of contracts to be more complex. They wanted to develop multipurpose management of ditches and banks, serving goals of both the water boards and the province. This would imply various technical and contractual challenges.

In general, the meetings and workshops were important for social learning. At various moments, farmers explained to each other the meaning and possible impact of measures, or the working of rules and procedures. Government officials learned from farmers how proposed measures do or do not combine with farming practices, and how various government incentives can be contradictory. In addition, farmers brought detailed knowledge of the area into the discussions, while researchers contributed scientific insights where appropriate. The difference in culture and language between researchers, farmers and government officials was mentioned as a challenge in understanding each other, but also as an opportunity to learn from each other. In negotiating the measures to be selected, for instance, farmers as well as government officials had to – and did – make an effort to understand the person at the other side of the table. The actual collaboration in developing contracts for water management – shaped as a pilot with a learning objective – proved very important in the learning process as well as in building trust. This became painfully apparent through the province having missed out on this first pilot. At this point the bridging ties among representatives of the water boards and the farmers' cooperative appeared stronger than between farmers and provincial officials, and even between provincial officials and those of the water board. From the perspective of the social network, there was an urgent need for the province to join the next generation of contracts. However, the officials decided not to join just that moment, as the province was in the middle of policy transitions regarding the national agri-environment scheme.

6.4.5 Adapting the biophysical landscape conditions

The landscape governance involved a pilot aimed at the management of the network of ditches and banks in the project area. The collective action aimed to influence the physical landscape conditions so as to enhance the landscape services water quality and biodiversity, by means of adapted management of ditches and banks. Hence, the collective action was aimed at multiple landscape benefits: not just dairy farming, but also an improved water quality and biodiversity.

The farmers' cooperative made initial proposals to the Water boards HDSR and Rijnland, upon which each water board offered a contract to the cooperative. There were distinct differences between proposal and contract: a) the proposal included nine sets of measures, whereas the contract included merely one set; b) the proposal specified more measures than the contract; c) the proposal specified the measure 'combination living ditch & dredging' - in the contract this was split into two separate measures: the ecological cleaning, and the dredging of ditches. In the Rijnland pilot all three invited farmers participated (Table 6.1). In the HDSR pilot 9 out of 10 farmers that signed up did participate: 8 farmers applied the ecological cleaning measures, 7 farmers applied the dredging measures, and 6 farmers applied both measures. The farmers' report to the water board showed that for the HDSR pilot 77% of the agreed budget for ecological cleaning was used. This was due to the wet conditions during the pilot, which prevented the use of heavy machinery. Of the available budget for dredging 57% was used, as the remainder of the ditches did not need dredging, being deep enough to meet the standard required by the water board.

Table 6.1: Farmer participation and potential percentage cover of green-blue infrastructure at landscape scale

	Water board area	
	HDSR	Rijnland
# farmers participating, (# clusters)	9 (3)	3 (1)
Potential % green-blue infrastructure with 100% farmer participation and 100% of ditches cleaned in whole area of Water board	8.4%	17.5%
Potential % green-blue infrastructure with 100% farmer participation and ecological cleaning in 77% of ditches in whole area of Water board	6.5%	13.4%
Evaluation (>10% = well-permeable landscape, 3-7% = still fragmented)	Fragmented, spatial coordination and high participation needed for effectiveness	Well-permeable landscape

As explained in section 6.3, we could not measure the effects of the measures on water quality and biodiversity. Instead, we assessed network size and connectivity in the sense of the potential percentage cover of green-blue infrastructure at landscape scale. For the HDSR area this

amounts to 8.4% and for Rijnland to 17.5 % (Table 6.1). This difference between the two water boards is due to a different landscape structure: ditches in Rijnland are wider on average than in HDSR. In addition, in HDSR the ditch density is a bit higher than in Rijnland. We assumed that if in the water board areas all ditches would either be dredged or not need dredging and 77% of the ditch length would ecologically be cleaned (using the used budget in the pilot as a proxy), this would result into a 6.5% green-blue infrastructure in HDSR and 13.5% in Rijnland. As a general rule of thumb based on landscape modelling, species are able to reach all available habitat locations in the case of >10% green-blue infrastructure coverage; if the cover of green-blue infrastructure is between 3-7%, species will not be able to reach and use all available habitat (C. Vos, unpublished research). In the latter case, making sure that participating farmers (and ditches) are interconnected is imperative for improving sustainable conditions to stimulate biodiversity. Because the Rijnland part of Gouwe Wiericke has a more dense structure of ditches, the participation rate and exact location of measures on the various farms are less sensitive than in the HDSR part. In HDSR, a high participation in combination with spatial design would be necessary to promote biodiversity (Table 6.1). In addition, combining the 1 m strip of ecological cleaning with a manure-free strip of at least 1 m would improve the quality of service delivery, as well as extend the potential cover of green-blue infrastructure. The adjacent manure-free strip suggested was an option discussed for the second year of the pilot, to be financed by the province, but the province decided not to participate.

6.5 Discussion and conclusions

We examined a case of collaborative landscape governance in a rural area in the west of the Netherlands to answer the question: under what conditions does landscape services as boundary concept contribute to collaborative landscape governance? We analysed the development of social capital and self-governance arrangements, as well as the changes in the biophysical landscape. Various boundaries were managed before this collective action could be realised. We will now discuss the role of the landscape services concept in managing these boundaries, and how this boundary concept was combined with other boundary arrangements.

Landscape governance in Gouwe Wiericke was aimed at enhancing landscape services, especially related to water quality in ditches and water-related biodiversity. This required adaptation of the biophysical landscape conditions. The landscape governance involved collaboration between a farmers' cooperative, two water boards and a provincial authority. At the start of the process, social capital in the sense of bridging ties between public officials and farmers, was low, as a result of a history of conflict over converting farmland into nature. As researchers we also needed to develop social capital with the farmers and the governments, because we were part of the partnership. In this partnership, we took on the role of boundary workers. We could use this opportunity due to our being action researchers. Our involvement 'in the action' on the one hand gave us the possibility to support the change process by promoting collaboration and supplying knowledge to the learning process, and on the other hand it gave us access to first-hand information. In spite of our involvement, we managed to safeguard our observing role, through regularly meeting up with the research team to reflecting on our approach, and through keeping a logbook of the events in the landscape governance process and our observations.

Boundaries between 'farmers', 'government officials' and 'researchers' included different cultural backgrounds, values and bodies of knowledge as well as diverging aims and conceptions of the preferred landscape. In order to develop the social capital needed for collaboration, we used the landscape services concept in two ways. First, we used it to create discursive space to reach agreement on joint ambitions. One of the roots of the conflict had been the boundary between 'agriculture' and 'nature'. Previous delineations of that boundary had assigned 'nature' to the domain – and land ownership – of professional nature organisations. Instead, the landscape services concept, in combination with the concept of green-blue infrastructure, blurred the boundary between nature and agriculture, by emphasising on-farm biodiversity. On-farm biodiversity, linked to the agricultural landscape, made it possible for the farmers to join in a collaborative process because they could have a role in the collective action themselves, while it acknowledged their earlier agri-environmental efforts. Second, we used the landscape services concept to reframe the roles of the actors as providers and beneficiaries and to create a negotiation process between demand and supply.

In addition, to enhance social capital, we strategically organised the landscape governance process as a learning process (see also Pahl-Wostl et al., 2007). The rules of the game of negotiation between providers and beneficiaries of landscape services and those of a joint learning process opened up possibilities for expressing demands, making proposals, experimenting and exploring solutions together. This contrasts with the rules of the game of command and control, contestation and conflict in earlier landscape governance processes, in which the participants were involved. These new possibilities corrected the power imbalance by stressing the mutual dependence of the participants and acknowledging the equal value of farmers' ideas and input. They also enabled us as researchers to supply the participants with information. For instance, the provided list of suitable measures for landscape adaptation functioned well as a boundary object in the negotiations between farmers and government officials on the desired landscape adaptation.

One of the dimensions of the collaborative landscape governance was the assigning of governance tasks either to the governmental or the non-governmental actors. The boundary between government and non-government was managed through a number of self-governance arrangements, including the landscape management proposals and self-monitoring by the farmers' cooperative. The double set of contracts between the water boards and the farmers' cooperative and between the cooperative and the individual farmers was especially designed for designating the space for self-governance as well as for coordinating across the boundary with government intervention. The farmers' cooperative functioned as a boundary organisation, which is shown by its mediating role and its two-sided responsibility. The trust expressed by leaving formerly governmental tasks to the farmers' cooperative further enhanced the development of social capital.

We have seen that social learning and the development of trust in the social network have been crucial in arriving at collective action of the farmers and the water boards. We have also seen that the collective action in turn has strengthened trust and learning between them. Literature suggests that collaborative processes can foster social learning within the social network, especially when the network consists of a broad range of stakeholders (Bodin and Crona, 2009; Innés and Booher, 1999). However, we have also seen that collaborative processes combined

with boundary management do not guarantee the participation of all envisioned actors in the collective action. The province did not participate in the collective action, even though it did participate in the same collaborative process and was subject to the same bridging attempts. Establishing a partnership for collaboration between various actors inevitably creates a new boundary between who is inside and who is outside the partnership. In this case, that boundary ran right through the provincial organisation. Other processes within that organisation prevented it to participate in the collective action in Gouwe Wiericke. As a result, the boundary between water board officials and provincial officials, which seemed bridged, was maintained, while bridging did occur across the boundary between water board officials and farmers. Perhaps, more boundary management within the provincial organisation could have resulted in a different outcome.

The resulting collective action implied adaptation of the biophysical landscape conditions in the sense of changed management of the ecological network of ditches and banks. Due to the small scale and short duration of the pilot it was not possible to establish the effect on the landscape service delivery in the pilot area. However, we demonstrated the importance of landscape structure for successful landscape adaptation. The density of ditches in the landscape is lower in the HDSR area than in Rijnland, limiting the potential cover of green-blue infrastructure, which in turn represents habitat and connectivity. As a result, to be equally successful in increasing conditions for biodiversity, the farmers' cooperative will have to put much more effort into persuading neighbouring farmers to participate in the HDSR area than in the Rijnland area. The absence of the province as a contract partner caused a focus on water-related landscape services. Because of this, the quality of the delivered services was not as high as it would have been, had the biodiversity and environmental quality in ditches, on the banks and in the fields been approached more comprehensively.

Based on this study, we argue that managing the boundaries between various groups of stakeholders - which result from differences in values, perspectives, language, knowledge and culture - is key to collaborative governance of landscapes as social-ecological networks. In our case study, the introduction of the landscape services concept was crucial. However, we propose that it functioned well as boundary concept because it was combined with boundary workers organising a learning process, self-governance arrangements and other boundary management tools. In addition, we suggest that it was crucial for multiple boundaries to be managed simultaneously. Not only social boundaries were bridged; the boundary between government and non-government was addressed, as well as the boundary between agriculture and nature. This contributed to enhancing social capital just as the bridging of social boundaries did.

Collaborative landscape governance in the case study was based on a limited partnership that did not include all stakeholders. More complex landscape governance, involving more actors and issues, would increase the need for boundary management. We propose that experiments with collaborative landscape governance in a variety of situations, aided by the concept of landscape services and other boundary arrangements, will increase our insight. To qualify as landscape governance, these experiments and their analysis would need to combine the social process with the biophysical landscape changes (Görg, 2007).

Abstract

In this paper we address two challenges that are faced by scientists who engage in transdisciplinary landscape planning. In building a common understanding and application of the knowledge they bring in, they face the need to integrate knowledge from a range of scientific disciplines to create comprehensive solutions, while aligning the diverging values and perspectives on the future of involved actors. Boundary management has been proposed as a strategy to support the decision-making of actors by reconfiguring the boundaries between different forms of academic and non-academic expertise and between facts and opinions, interests and values. In this paper we investigate how landscape concepts can play a role as a boundary concept in transdisciplinary landscape planning. By analysing three Dutch case studies, we conclude that collective views and coordinated actions within the local planning groups grew during the planning process. We argue that the characteristics of the landscape concepts contributed to this emerging collaboration by creating a discursive space for actors with different values and knowledge bases. We find that this role evolved during the planning process, from conceptually binding, via broadening the planning focus and the coalition, towards facilitating the implementation of collective action to adapt the landscape. Thus, whereas in the early phases of the planning process the concept linked landscape value to landscape functioning, later on it connected landscape functioning to landscape structure.

7

The Role and Evolution of Boundary Concepts in Transdisciplinary Landscape Planning

This chapter was first published as: Opdam, P.F.M., Westerink, J., Vos, C.C., De Vries, E.A., 2015, The Role and Evolution of Boundary Concepts in Transdisciplinary Landscape Planning. *Planning Theory and Practice* 16 (1) pp. 63-78. ©Taylor & Francis, available online: <http://dx.doi.org/10.1080/14649357.2014.997786>

7 The Role and Evolution of Boundary Concepts in Transdisciplinary Landscape Planning

7.1 Introduction

Landscapes grow out of the interaction of the natural and human system (Matthews and Selman, 2006); they continue to be adapted to meet future demands and challenges, such as urban expansion or climate change. Both urban and rural landscapes continue to be adapted to meet future demands and challenges, such as urban expansion or climate change. Landscape adaptations can be organized in a formal planning process led by the state or a regional government, but are increasingly conceived as a collective forum of public and private actors (Ansell and Gash, 2008; Healey, 1997; Innés and Booher, 1999). Such diverse groups of actors interacting with their landscape have been viewed as complex social-ecological systems (Innés and Rongerude, 2013; Ostrom, 2009). Collaborative landscape planning requires, as proposed by Faehnle and Tyrväinen (2013): knowledge integration, meaningful involvement of local actors and functioning governance, resulting in sustainable use of the area. Knowledge management in such collaborative planning processes (Beunen and Opdam, 2011; Brunckhorst, 2005) therefore has two major challenges. One challenge is the integration of knowledge from different scientific disciplines within the local landscape context (Opdam et al., 2013). Ecological processes in the landscape, and therefore its functioning in relation to human use, interact with the heterogeneous pattern of vegetation cover and land use types (Wu and Hobbs, 2007). Hence, groups of local actors deciding about landscape change need to be informed about how the various demands can be induced from a change of spatial pattern in their area. We follow Campbell (2012) in arguing that, for providing such knowledge, synthetic rather than analytical approaches are required, because the essence of planning is to “create a future both different and better than would have happened in the absence of any planning” (Campbell, 2012, p. 142). The second challenge comes from the normative interpretation of such information. Individual actors have diverging views on preferred futures and therefore different motives for adapting the landscape. Also, local communities are faced with objectives of governmental policies that may not align with their own economic or societal perspectives. Therefore, scientists involved in local landscape planning are faced with the challenge of building bridges in two ways: (i) between scientific disciplines to create a comprehensive picture of landscape functioning that is understandable and meaningful to local actors, and (ii) between actors with widely different values and perspectives on the future, in building a common understanding and applying this knowledge.

As a strategy to build such bridges and to ensure that research adequately supports the decisions of actors, boundary management has been advocated (Cash et al., 2003; Gerritsen et al., 2013). Boundary is here a metaphor for barriers in cooperation and understanding as a result of different forms of academic and non-academic expertise as well as diverging facts and opinions, interests and values (Kueffer and Hirsch Hadorn, 2008). Boundary management includes the use of boundary objects and concepts that facilitate cooperative problem solving without reaching full consensus (Carlile, 2004; Star and Griesemer, 1989; Werkman et al., 2011). For government-led spatial planning projects, Hagens (2010) found that landscape concepts supported cooperation between spatial planners with conflicting interests. She also suggested that such a role could change as the planning process evolves.

Our focus here is at the boundary role of landscape concepts in community-based landscape planning. Our aim is to explore how, in different phases of the planning process, landscape concepts foster knowledge integration as well as collaborative relationships in the group of actors. We will do this by reconsidering three case studies in which groups of local actors were supported by scientists to go through collective decision-making about reshaping their landscape. The cases encompass a gradient from rural to urban landscapes because we intend that our investigation has relevance for both rural and urban planning. Differences and similarities between the three cases provide a preliminary insight into how landscape concepts contribute to more effective transdisciplinary landscape planning.

7.2 Approach

7.2.1 Landscape concepts as boundary concepts

Based on Lang et al. (2012) we understand transdisciplinary landscape planning as a knowledge production process in which scientists and representatives from the local community share knowledge, develop improved understanding of the social-ecological system and discover solutions to adapt the landscape to meet future requirements. It is in this type of process that boundary concepts have been proposed to play a role in building common grounds (Werkman et al., 2011).

Concepts are abstractions that try to capture and communicate an idea or a thought to make sense of a complex world (Kooij et al., 2014). Because of their communicative value, concepts are widely used in research, policy and politics. Concepts often take the shape of metaphors that appeal to the imagination and make it easier to understand, remember and reproduce the idea. In landscape planning, in which the adaptation of the spatial pattern is in focus, spatial concepts are part of standard repertoire. Spatial concepts express in words, and often in schematic maps, the desired future of an area, such as the 'Compact City' or the 'Green Heart'. Where spatial concepts in the past were mainly used by policy makers to reach and maintain consensus about the desired spatial layout of an area, they are increasingly used by local actors to frame meaning for their landscape (Westerink et al., 2013a). Spatial concepts can help to express meaning, to gain support and to exercise power (Hagens, 2010; Van Duinen, 2013; Westerink et al., 2013a). Kooij et al. (2014) proposed to use the term 'open concept' to stress the role of spatial concepts to bring different discourses together in a 'middle ground'. Instead of adopting the "open concept", we use the term "boundary concept" as a special case of a "boundary object", a term existing in literature for over two decades.

The need to bridge boundaries in transdisciplinary work was acknowledged in 1989 by Star and Griesemer, who proposed that 'boundary objects' could allow different groups to work together without consensus or a common knowledge base. Boundary objects are *"plastic enough to adapt to the needs and constraints of the several parties that employ them, yet robust enough to maintain identity... They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation."* (Star and Griesemer, 1989, p. 393). Star (2010), reviewing the discussions following the 1989 publication, defined boundary objects as follows: *"They are material and at the same time affect a process,*

their meaning is open to various interpretations, they are based in action, subject to reflection and local tailoring, and their meaning may develop while being used." Libraries, standardized forms, ideal types ('species'), models and maps were interpreted as boundary objects (Carlile, 2004; Cash et al., 2003; Harvey and Chrisman, 1998; Star and Griesemer, 1989). It is not only objects that can have this mediating and translating role in transdisciplinary settings; for non-material intermediates the term 'boundary concept' is in use (Metze, 2011; Mollinga, 2010). Like boundary objects, boundary concepts create discursive space in settings with a common urgency, but without consensus or a common knowledge base. In the context of this paper we limit ourselves to concepts that refer to the landscape as the spatially explicit social-ecological system about which the concept "tells a story": hence we will use the term landscape concept. We will consider how such concepts function as boundary concepts.

A possible boundary role of landscape concepts has not been accounted for very often. The term landscape itself was considered 'a bridging concept between the natural and the social sciences' by (Görg, 2007). Deppisch and Hasibovic (2013) and Wilkinson (2012) observed that using the resilience concept created a common ground for deliberation, negotiation and learning in climate change adaptation and urban landscape planning. Termorshuizen and Opdam (2009) proposed that the term landscape services, rather than the often used term ecosystem services, fosters interdisciplinary and transdisciplinary cooperation. Little attention was paid to the role that such landscape concepts could play in knowledge integration and cooperative relationships, and how this role evolved during the planning processes. Kooij et al. (2014) described the development of an open concept as it 'travelled' from one region to another, but did not mention a possible role in knowledge integration.

We therefore believe that this article contributes to new understanding about how landscape concepts can help in dealing with two challenges in transdisciplinary landscape planning. The first one is integrating and synthesizing knowledge that can be connected to action (Campbell, 2012). The second one is consensus building (Innés and Booher, 1999). To stress the need for building cooperative exchange between actors that interpret and weigh knowledge against different values and perspectives we will use the term negotiation rather than deliberation for consensus. We are also interested in how the role of landscape concepts evolves as the planning processes proceed. To this aim we will build on Gray's (1989) three-step collaborative process: problem setting, direction setting and implementation. For application in landscape and urban planning we split "direction setting" into "broadening the scope" (to include actors with potential collaborative advantages who may add additional goals) and "defining landscape change" (as a decision process to identify where and how the landscape is going to be changed to achieve the goal). Hence we distinguish the following four phases: (1) defining the specific problem and goal setting, (2) broadening the focus to include more stakeholders, in search for added value and synergy, (3) defining landscape change as an integrative set of measures, (4) implementation as a collective action. The character of knowledge integration in this process changes from understanding the multifaceted problem to defining and implementing solutions in the form of landscape change. In parallel, the character of negotiation changes from aligning values to developing governance arrangements. We investigate how boundary concepts can play a role in each of these phases in creating the discursive space for knowledge integration as well as negotiation of values and interests (Figure 7.1).

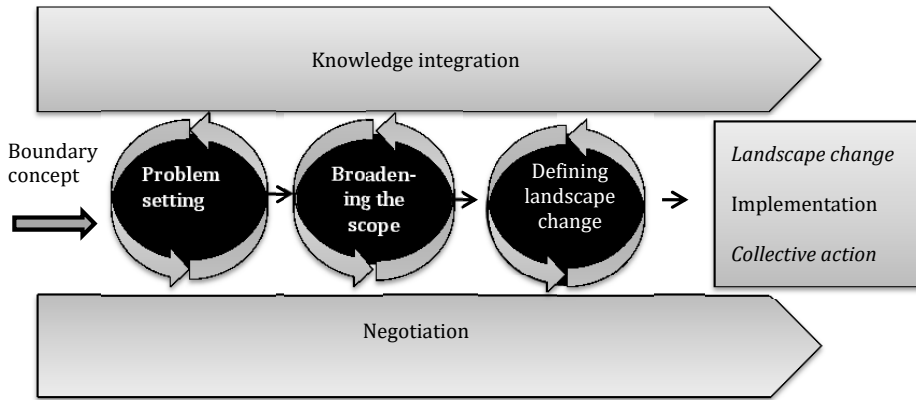


Figure 7.1: Analytical framework for the role of boundary concepts in transdisciplinary landscape planning. Two aims of using boundary concepts are proposed: dealing with knowledge integration (including contextual knowledge) and facilitating negotiation between actors (consensus and coalition building). The framework distinguishes four phases in the planning process, in which the contribution of the boundary concepts is supposed to be different

7.2.2 Method

The framework in Figure 1 was used to explore the role of boundary concepts in three case studies located in the Netherlands. We have selected these case studies from our own practice, in a rural, a peri-urban, and an urban landscape. In all cases, transdisciplinary research supported a multi-stakeholder planning process that resulted in landscape changes aimed at a sustainable future. In all three cases the stakeholder groups approached their area as social-ecological systems and both social and ecological aspects were taken into account in the research and planning process. Results of these research and planning efforts have been reported elsewhere (Buizer, 2008; Steingröver et al., 2010; Westerink et al., 2015a; Westerink et al., 2013b). Our own involvement in the processes was an important source of information: for each project we could draw on an archive of minutes, emails, joint products and research reports. For this article we have chosen for the narrative as a way to summarize processes that took years and were much more complex than can be told here. The narratives focus on the boundary role of landscape concepts during the evolution of the planning processes. Through this focus and the comparison of the cases we gained insight into the role of boundary concepts in transdisciplinary landscape planning.

We are aware that by leaning on the paradigms of collaborative planning and consensus-seeking, this article belongs to the school of Habermas (1984) and Healey (1997), with a strive for power-free, participatory, democratic deliberations. Other schools stress for instance the – at times constructive – role of power in multi-stakeholder processes (Arts and Van Tatenhove, 2004; Flyvbjerg, 1998a, leaning on Foucault, among others). We do not deny the role of power in landscape planning processes in our cases, but focus on knowledge integration and consensus building because they belong to the informal ‘rules of the game’ in the stakeholder groups.

7.3 Analysis of cases

7.3.1 Hoeksche Waard

The Hoeksche Waard (Steingröver et al., 2010) is a 300 km² former estuarine floodplain used for agriculture since the Middle Ages, close to the cities of Rotterdam and Dordrecht. In response to urban expansion, local farmer groups decided to develop a more sustainable agriculture by lowering the level of chemical pest control and instead using the landscape's capacity to provide natural pest control. They expected to create a stronger position as a food provider in view of urban agglomerations. The farmer groups asked the researchers to help them with planning this goal.

Landscape concept. In the early phase, the landscape service of natural pest regulation served as a common perspective for farmers to communicate about developing sustainable farming. The idea was that stimulating enough natural enemies would prevent harmful species living in the crops becoming numerous and causing unacceptable damage. The researchers connected this landscape concept with a second one: green infrastructure, a spatial network of semi-natural (non-crop) elements extending across the farm landscape. These elements are partly owned and managed by individual farmers at a farm level basis, partly by nature conservation organizations and local public bodies such as the municipality and the water management board. At the start of the planning project each actor group had its own management aim and methods.

Problem setting. The researchers proposed a design tool in which they combined scientific knowledge from landscape and insect ecology with local farmer's knowledge about the management of landscape elements, the occurrence of plants and insects and agricultural practices. The spatial guidelines on which the tool was based connected the functionality of the green infrastructure (as desired by the farmers) to the spatial conditions required to support this functionality. Thus, the combination of the two concepts (green infrastructure and pest control) connected desired value to physical adaptation.

By applying the tool in a common workshop, the farmers discovered that if their individual farm was to become less dependent on chemical pest control, they had to collaborate in making the green infrastructure more robust across a landscape-wide area. Hence, they found out that their individual and collective interests were connected. The researchers observed that the green infrastructure concept facilitated a shared focus on a concrete part of the landscape where the service could be established without major changes in the landscape pattern. In this phase, no conflicts between farmers with different attitudes (conventional versus organic farming) were reported.

Broadening the scope. Because green infrastructure also included parts of the landscape owned and managed by public organizations, the farmers could make the green infrastructure more effective for lower costs by pulling these actors into the collaborative process. Therefore, the researchers provided information showing that green infrastructure also provides a water purification service. Hence the combination of the green infrastructure and landscape service concept was used as a synthetic basis for inserting knowledge from soil chemistry and hydrology.

By linking additional services to the planned green infrastructure (such as water purification, biodiversity and landscape identity), a bridge was created to other interest groups which were not yet engaged. Based on these potential benefits, a local landscape conservation group and the water board adopted the goal of collaboratively enforcing green infrastructure. No struggle was reported by the researchers. Farmers started negotiations with the water board about payments for contributing to the board's management targets.

Defining landscape change. In a separate workshop all actor groups discussed four alternative strategies for implementing the change proposed by the researchers. They agreed upon a mixture of all strategies: a focus on priority areas next to a focus on locations where opportunities emerged. The two priority areas were appropriate locations to combine natural pest control measures with promoting recreation, and had the advantage of being situated next to robust landscape elements owned by public actors. The wish to take advantage of already running experiments with flowery field margins, which had been sown with wild flower seeds, influenced both the choice for priority areas and for additional locations in places where robust landscape elements were already present. By choosing this double strategy, the actor group wanted to combine low input-high effect measures with stimulating as many actors as possible to contribute to the common vision. In a follow-up the researchers and actors developed a shared green infrastructure management plan.

What we see is that in this phase the role of integrating knowledge from different disciplines was limited to the design of four strategies based on landscape ecological, management efficiency and governance principles. The process was characterized by a high degree of collective decision making. Negotiations that were observed were between neighbouring farmers about where exactly they were going to plan green infrastructure change. There was a struggle between farmers and other actors over the probability that species protected by law or species harmful to crops would colonize the green infrastructure. It was agreed that both events could be potentially harmful or a constraint to farming. By adjusting management measures these risks were minimized. Also, the researchers used a commonly agreed risk classification approach (Steingröver et al., 2010) which may also have contributed to preventing a conflict.

Implementation. Several examples of collective action were observed. Following the first year in which one farm successfully refrained from using pesticides, an increasing number of farmers created flowery strips, while the water board and the conservation group implemented the management plan on dykes and along water courses. Several farmers created flowery strips in places next to where the water board developed more natural banks. More farmers from outside the planning group adhered to common effort. Farmers exerted pressure on municipalities to give green infrastructure a prominent place in the landscape plan.

We suggest that in this case a combination of the landscape services and the green infrastructure concept facilitated negotiation between farmers in creating a common vision on the future of their farm landscape, and between groups of actors with different interests in joining efforts to develop green infrastructure. We propose that the multiple services simultaneously provided by the green infrastructure offered common ground for knowledge integration throughout the planning process, but was most apparent in the problem setting and broadening phase. Green infrastructure was the more dominant landscape concept in the later phases of the process.

7.3.2 Biesland polder

The Biesland polder (Westerink et al., 2013b) is an agricultural enclave of around 140 ha in a highly urbanized area. Around the turn of the century, local and regional governments planned to build houses and convert the remaining open space into urban forest. In response, the farmer and local nature volunteers from the city of Delft looked for ways to make the farm landscape so important for 'the city' that urbanisation and afforestation would no longer be an option (Buizer, 2008). They allied with researchers who brought in the idea of a nature-oriented farming system based on the concept of 'nutrient cycle'.

Landscape concept. The concept of 'nutrient cycle', which was used as a landscape concept, describes how grass is eaten by the cows, and manure from the cows is applied to the grass to sustain its growth. For instance, the amount of manure applied affects the diversity of plants in the meadow, which affects milk production as well as animal health and the quality of manure. The concept refers to the interconnectedness of farm management and the natural system.

Problem setting. The farmer claimed that with the proposed farming system he could create a landscape of more value to citizens than a recreational forest. He was supported by a new citizens' group, the 'Friends of Biesland', who aimed to preserve the traditional landscape. In their negotiations the farmer and his allies convinced the regional governments that the new farming system would be beneficial for biodiversity and for recreation and thus would help to achieve policy goals, although in a different way than envisioned in the official plans. The governments (municipalities, city region, water board, province, state), the Friends of Biesland, the farmer and the researchers formed a project group to work towards implementation of the ideas. The establishment of a nature-oriented farm became a shared planning goal.

The concept of nutrient cycle aided the set-up of a scheme for monitoring and evaluation, through research and social learning, which involved the research disciplines of landscape ecology, agronomy, animal husbandry, (farm) economy, hydrology, soil science, sociology and governance. In addition to the researchers, a group of local nature volunteers and other interested citizens actively took part in formulating research questions as well as in collecting and analysing data. The nutrient cycle as a concept was helpful to understand interrelatedness of disciplinary outcomes and to become aware of social-ecological interdependencies (Westerink et al., 2013b).

Broadening the scope. In the first years of the planning process the coalition of stakeholders grew quickly, including governmental bodies. The role of the landscape concept in creating coalitions was particularly apparent in the involvement of the water board. The water board is the regional authority responsible for managing the extensive and complicated water system in a large area. This actor was interested in the concept of 'nutrient cycle' because it would result in a farming system producing considerably lower emissions of nitrogen and phosphorus into the water system. The water board saw possibilities with combining the improvement of water quality (and thereby complying with the EU Water Framework Directive) with water storage; the board proposed to adjust the shores of ditches for this purpose. The idea was welcomed in the project group, because it matched well with the other ideas for landscape adjustments aimed at biodiversity. In this way, the water board became one of the funding governments and an active

member of the research network. The addition of this extra goal called for additional knowledge that had to be integrated into the conceptual design. The water storage capacity was calculated and water quality and water levels were monitored.

Defining landscape change. The plans involved proposals for the adjustment of farm management, for the rearrangement of the landscape and for governance arrangements. The farming system was based on three interrelated measures: no-input of feed and manure from outside the farm ('*closed nutrient cycle*'), higher water levels, and layout and management of landscape elements. Together with the local stakeholders and researchers the farmer made a plan for re-arrangement of the landscape and the water levels. Ten per cent of the farm area was transformed into landscape elements, mainly in the form of shallow shores along the ditches. These shallow shores provided beneficial conditions for biodiversity as well as storage capacity for storm water. Researchers gave input on effective layout. The wet soil was favourable for the growth of biomass, used by the farmer for composting and as feed. The concept of 'nutrient cycle' thus connected the design of the landscape and the farming system as well as the goals of various actors.

Implementation. However, working towards implementation also made conflicts of interest more apparent. A 'closed nutrient cycle' as a base for the farming system implied that the farmer would need to grow his own crops to supplement the grass as feed. However, on the wet soil in the Biesland polder, arable farming proved to be more difficult than anticipated. After fruitless attempts to acquire suitable land in the vicinity, the farmer proposed to replace the 'closed cycle' measure by a 'balance' measure, allowing the purchase of feed in return for the removal of manure from the farm. The concept of the nutrient cycle aided the discussions about the appropriateness of this adaptation. The researchers proposed a formula for input and output to operationalize the balance measure, which was eventually accepted by the members of the project group. However, one regional government did not agree with relinquishing the no-input principle and left the coalition.

The governance arrangements involved an agreement between the governments about their financial contributions for rearrangement and management of the area. It was agreed that the province would manage the agreement with the farmer on behalf of the other governments. The long-term agreement between the farmer and the province involved a yearly payment for the environmental services provided by the farmer. The agreement differed considerably from the national agri-environment scheme, because of the farming system approach and the related space for self-governance (Westerink et al., 2015a).

We propose that the system concept of the nutrient cycle performed a boundary role throughout the planning process. The concept supported negotiation of diverging values (agriculture, biodiversity, recreation, water) as well as knowledge integration (various disciplines and local knowledge). The same concept was used in the phases of goal setting, adding value and planning change, but its meaning and interpretation evolved with its changing role.

7.3.3 Future cities: Arnhem

Arnhem, a city with 150.000 inhabitants in the east of the Netherlands, is situated adjacent to the river Rhine and the Veluwe, a forest area of 80,000 ha. The city aimed to mitigate the impacts of climate change and take adaptation measures. Heat waves in 2003 and 2006 resulted in a growing awareness of the negative impacts of urban heat. The cancellation of the International Four Days Marches Nijmegen (a famous annual walk) because of health risks had a particularly large impact. As a consequence, reducing city heat became a specific focus. The city organized several workshops to explore the extent of the urban heat problems in the city and to identify possible adaptation actions. Scientists and international practitioners were asked to support this process (Interreg IVB NWE Future Cities project (<http://www.future-cities.eu/>))

Landscape concept. Initially, 'climate proof cities' served as a concept to connect various climate related problems that were experienced by different stakeholders, such as a wish to produce sustainable energy and improve air temperature and air quality. The scientists connected heat problems to urban green and water elements that could reduce city temperatures, the so called 'green infrastructure'. During the planning process the concept of 'climate proof cities' broadened to improving 'quality of life', which resulted in additional support for enhancing green infrastructure in the city.

Problem setting. The workshops in this phase were attended by professionals of the city of Arnhem responsible for the green environment, water management, city development, and sustainable energy, as well as by representatives of the Arnhem Nijmegen Region representing regional policy levels. Scientists, who had an advisory role, provided temperature maps predicting urban heat islands and dominant air flows (Ren et al., 2011). Modelling results were discussed, and local knowledge was incorporated to improve the model output, for instance by indicating city quarters with large private gardens and incorporating future urban development plans. The scientists advised taking advantage of the geographical location of the city and scaled up the analysis to include the impact of the surrounding landscape on the city climate. The resulting urban climate analysis map visualized the heat islands in the inner city and the relative cool temperatures of the Veluwe-forests and (to a lesser extent) the river floodplain that could be used as cooling systems for the city (http://www.future-cities.eu/fileadmin/user_upload/pdf/The_future_of_our_cities_EN.pdf, see p. 17). The project group decided to reduce urban temperatures by stimulating urban green and urban water and taking advantage of the geomorphological setting of the city.

Broadening the scope. The project group started a communication to inform the citizens of Arnhem on urban heat problems and possibilities to improve the 'quality of life' in the city through green infrastructure. Initially, urban project developers were not interested in the project as they considered adding urban green as costly and a barrier for efficient project development. This attitude changed after scientists presented evidence to suggest that urban green spaces actually create added financial value to development projects, in addition to improving the local climate and quality of life. Project developers started cooperating by incorporating additional urban green in their development projects. Thus, linking the values of project developers to the benefits provided by green infrastructure changed them from uninterested to active investors. Citizens also came forward with initiatives to increase the

quality of life in their neighbourhoods, for example by creating green walls. A local history group picked up the initiative of additional urban water and combined it with historic cultural values, thus finding extra support for their plan to restore a former brook through the city. The project group made an inventory of city quarters where high concentrations of heat-vulnerable citizens coincided with heat islands. As a consequence, a coalition emerged with the Regional Health Service adding their knowledge to the project on how outdoor temperatures influence indoor climates of buildings and health impacts of these indoor temperatures on senior citizens. Thus, by broadening the concept from 'climate proof cities' to improving the 'quality of life' and by emphasizing the diverse benefits of green infrastructure, a coalition of actors with different interests was generated.

Identifying landscape change. The project group organized a design workshop with three parallel groups to focus on the city as a whole and on specific sections. Practitioners from Arnhem and other cities with similar heat problems were invited to participate. To facilitate negotiation between the actors, scientists used an interactive design table to show the relationship between the urban climate map and green infrastructure. A list with adaptation options was also provided. The three groups negotiated internally about where action should be taken, and identified the best locations for adaptation measures. This resulted in three independent maps showing priority areas and adaptation measures. As the three maps showed a large overlap, the planning group decided it was justified to merge them in one Heat Attention Map for the city. In the Heat Attention Map, priority was given to the most effective measures and city quarters where a high density of heat-vulnerable citizens coincided with high temperatures. In this exercise the combination of the heat mitigation (as a landscape service) and green infrastructure concepts facilitated the transformation of goals into site-specific measures.

Implementation. The Heat Attention Map was given an official and legal status when it was incorporated into the new Structure Plan of the city of Arnhem (2020-2040). The map indicates locations and actions to be taken to reduce the effects of heat in the city. Areas where a high heat risk existed were given a high priority to implement these plans. New urban developments in the city of Arnhem are obliged to incorporate measures to reduce urban heat in the areas of the city identified.

We observe that in this case green infrastructure served as the most important boundary concept. Already during the goal setting phase enhancing green infrastructure has been identified as a possible solution for the city heat problems. Furthermore, shifting to the quality of life concept during the broadening phase extended the support with additional actors. In identifying landscape change the green infrastructure concept allowed a transformation into spatially explicit measures in priority areas by linking preferred cooling effects to local actions and connecting to multiple benefits. Green infrastructure served also as common ground for integrating knowledge about diverse landscape services.

7.4 Discussion and conclusions

In transdisciplinary research aiming to facilitate landscape adaptation, scientists have to cope with the integration of knowledge from different scientific disciplines and differences in values and world views of the actors in the planning group. Both boundaries potentially hinder understanding and collective action. We have analysed three cases of transdisciplinary planning in urban, peri-urban and rural landscapes to see whether and how landscape concepts fostered knowledge integration and negotiation. Our findings have been captured in Figure 7.2. We have discussed how the use of landscape concepts enhanced knowledge integration because the inclusion of various landscape functions required that knowledge from different disciplines had to be combined. In addition, local knowledge of the planning actors was indispensable for a thorough understanding of the problem and for making grounded choices about how and where to change the landscape structure. Not only knowledge integration, but also the negotiation and exchange of views and perceptions were facilitated by the landscape concepts. From the reconstruction of the cases we conclude that collective views and coordinated actions within the local planning groups had grown during the planning process. We propose that the characteristics of the landscape concepts have contributed to this emerging collaboration, by creating discursive space for actors with different values and knowledge bases. Although we do not have evidence that different actors supported different interpretations of the landscape concepts, the fact that they joined the process based on diverging interests suggests that they did. The concepts were based in action and evolved in the course of action. They were subject to discussion in the actor groups, and were incorporated into the discourse of the planning process. The landscape concepts in our cases guided a collective process of specification of actions 'on the ground' in the context of the common goal. Our cases therefore illustrate how the landscape concepts functioned as boundary concepts. The concepts '*... affected a process, their meaning was open to various interpretations, they were based in action, subject to reflection and local tailoring, and their meaning developed while being used*' (cf. Star, 2010).

In all cases we observed that landscape concepts were used during the development of the planning process and that their meaning developed while being used. In all three cases we observed that landscape concepts played different roles in subsequent phases of the planning process (Table 7.1): conceptually *binding* the first group of actors (in the phase of problem definition and goal setting), *broadening* the scope and extending the planning group (in the phase searching for added value and coalition building) and *operationalizing* goals into coordinated action for site-specific measures (in the phase of identifying landscape change). We think that it was essential that in all cases the subsequent concepts contributed to a consistent storyline which evolved during the planning process. Analytically, we have presented this process in a linear way, but in practice there were parallel developments and iterative loops. Nevertheless, we noted that in the course of the planning project, the boundary concepts evolved from enhancing a shared vision towards coordinating action, and from open to spatially guiding. Only in the Biesland case, we collected insight into the role of the concepts in the implementation phase. In the other cases we were no longer actively involved in the planning process.

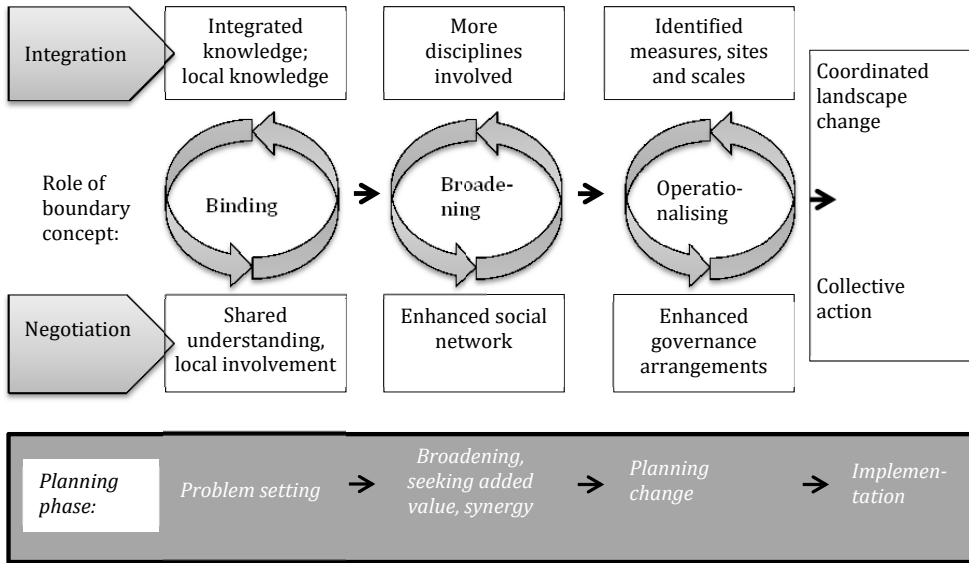


Figure 7.2: Overview of the boundary roles played by the landscape concepts throughout the planning process. For each role the supposed impact on the knowledge integration and negotiation processes is indicated

The sequence in the use of concepts we observed could be interpreted as a transition from a concept which links landscape value to landscape functioning towards a concept which links landscape functioning to landscape structure. This structure-function-value chain was suggested by Termorshuizen and Opdam (2009) to develop interdisciplinary knowledge for landscape planning based on landscape services. However, in these cases this sequence was applied in reverse order, starting with value as perceived by the local planning group. We consider this transition as typical for the process of collaborative landscape planning, which implies that, to work as a boundary concept, a sequence of landscape concepts should evolve from desired values (connected to a required landscape functioning) towards spatial structure (inferred from required functioning). Interestingly, in all cases the idea of landscape services was implicitly embedded in the landscape concepts used, especially in their 'broadening' role.

In addition to the attributes of boundary objects proposed by Star (2010), our analysis suggests several additional characteristics of landscape concepts that possibly played a role in boundary management. In their binding role particularly, the concepts appealed to a sense of urgency with stakeholders. They were social-ecological concepts (connecting human value to physical structure) and evolved along a consistent storyline from conceptually binding to spatially guiding. The landscape concepts emphasized spatial or process dimensions of the social-ecological system.

Table 7.1: Summary of the boundary roles of landscape concepts (*italics*) in the cases. Three boundary roles are distinguished: binding actors with different backgrounds to work on a common aim, broadening the actor network to engage more interest groups, to widen the support for and create added value of the intended change, and operationalizing towards physical change and governance arrangements

Role:	Binding	Broadening	Operationalizing
<i>Hoeksche Waard</i>	<i>Natural pest regulation</i> united conventional and organic farmers and connected ecology to agricultural economy	<i>Landscape Services</i> connected to <i>Green Infrastructure</i> engaged several other interest groups, e.g. water management and landscape protection	Connecting the natural pest control service to the <i>Green Infrastructure network</i> shifted the focus to collective landscape management
<i>Biesland Polder</i>	<i>Nutrient cycle</i> connected ecology and landscape to the farming practices	<i>Nutrient cycle</i> made process relevant to water board because of relations with water storage and water quality	<i>Closed nutrient cycle</i> was substituted by <i>Nutrient balance</i> for a feasible farming system that serves the same planning goals
<i>Future Cities</i>	<i>Climate proof cities</i> made climate change impact locally relevant to a variety of environmental interest groups	<i>Quality of life</i> connected environmental to social issues, and brought in other stakeholders with other interests	The concept of <i>Green Infrastructure</i> localised needed measures and made action feasible for individuals and organizations

We do not intend to suggest that boundary concepts alone will solve all problems in transdisciplinary landscape planning. In our case descriptions, the role of boundary concepts is difficult to separate from the role played by scientists. Turnhout et al. (2013) suggested three roles of scientists in knowledge brokering: supplying, bridging and facilitating. In this paper we have focused on the role of landscape concepts in supporting the bridging role. As Turnhout et al. stated, bridging requires scientists to mediate and translate between domains. Our cases can be seen as examples where supplying information was closely interrelated with the process architecture. In Biesland, ‘boundary events’ were organised in which stakeholders met to exchange views and data. In the Hoekse Waard, a design tool developed by the scientists in cooperation with local farmers and landscape managers may have played a role as a boundary object which also may have contributed to the changes observed in actor relations (Steingröver et al., 2010). We think that it is likely that without the scientists performing the bridging and facilitating roles of the knowledge broker, the phenomena described would not have occurred.

We have developed our ideas during collaborative planning cases at a local landscape level, which evolved from goal setting towards actual implementation of desired landscape change. The similarities in the boundary-spanning role of landscape concepts between the three cases suggests that our conclusions may apply irrespective of the type of landscape. In all three cases the communication between local actors and between scientists and actors are crucial for consensus building and collective adaptation of the landscape. Therefore we think that our findings may be significant for any collaborative process in socio-ecological systems evolving

from goal setting towards actual interventions. The insights may be equally applicable in urban and rural planning, but also in collaborative environmental management.

The framework that we used for our analysis (Figure 7.1) could be useful as an analytical framework for further research on the role and impact of landscape concepts in collaborative landscape planning. We suggest that future research focuses on whether different types of landscape concepts can be distinguished based on characteristics or performance, and to find support for the idea that different types of concept are effective in different phases of the planning process. It is our impression that in our cases the concepts used were mutually dependent on one another: they were telling the same storyline together, but in a different way and we suggest that these differences were related to the planning phase. We would like to see future studies focusing on such complementary roles of different types of boundary concepts.

8

Conclusions and Discussion

8 Conclusions and Discussion

8.1 Introduction

The previous chapters have illustrated, from different angles, 'the making of differences' in spatial governance. I decided to focus my thesis on boundaries because I noticed that they matter in spatial governance. Spatial governance involves extensive debating on the meaning of places, as well as on the role of 'government' in relation to the role of 'society' in governing the development of those places. These debates focus on boundaries between categories. Is this pasture agricultural land or nature? Is the peri-urban landscape urban or rural? What part of the governance should be exercised by the government, and what can be 'left to society'? The differences between those categories are debated and often contested. Such debates are even more complicated because of the variety of social groups participating in spatial governance processes, each with their own identities, values and knowledge systems. Boundaries around social groups, as constructed by the group members themselves as well as by the other participants in spatial governance, greatly influence the evolution and the outcomes of those processes.

Important boundaries in spatial governance thus relate to meanings of places, social institutions and social groups, which are conceptualised in this thesis as physical, institutional and social boundaries, respectively. Such boundaries do not simply exist, they are constructed and changed in social and cognitive processes (Jones, 2009). Once formed, they enable some of the actors in spatial governance to steer towards their goals. Other actors, however, may experience these boundaries very differently and find their attempts to influence spatial governance to be constrained. Likewise, a boundary may enable some and constrain other governance strategies of an actor. As a consequence, actors in spatial governance will try to manage boundaries (Van Broekhoven et al., 2014), on the one hand by forming and further delineating them as long as they suit them, and on the other hand by shifting, blurring, bridging or removing boundaries that constrain them. For such boundary actions, actors may make use of arrangements (Schut et al., 2013). Boundary arrangements are (combinations of) tools and strategies that enable boundary actions. I consider boundary management a composition of boundary actions and accompanying boundary arrangements (section 1.3.3).

Because I was interested in these boundary arrangements and their role and functioning in spatial governance, I set out to answer the following question: *What is the role of boundary arrangements in the management of physical, social and institutional boundaries in spatial governance?* I studied cases to get more insight into the tools and strategies used by actors to influence boundaries, and especially into how this boundary management affected the governance practice. I engaged with stakeholders in spatial governance processes to find out how they acted and interacted, I read documents and I conducted interviews. This way I gathered empiric data on which I based my interpretative analysis. The cases included (mainly Dutch) examples of peri-urban planning, urban-regional planning, landscape governance and agri-environmental management. The following topics were covered in the chapters: spatial concepts used by governmental as well as non-governmental actors to preserve the peri-urban area; the shifting of collaborative planning discourses in urban regions that emphasise a large role for non-governmental actors; the extent of self-governance in agri-environment schemes;

and lastly the role of boundary concepts in collaborative landscape governance. I found that in the cases multiple boundaries were managed and a range of boundary arrangements were used.

In this concluding chapter, by answering the research question, I will synthesise the insights I gained on 'making a difference' in spatial governance practices. Subsequently, I will reflect on these answers. In addition, I will critically review my theoretical and research approach, my contribution to the scientific debate, and the societal relevance of my work. I will conclude with suggestions for further research.

8.2 Answering the research question

My general research question: *What is the role of boundary arrangements in the management of physical, social and institutional boundaries in spatial governance?* was elaborated in the following three sub-questions:

- *Which arrangements are used by actors to take actions towards boundaries in practices of spatial governance?*
- *How can the choice and functioning of boundary arrangements be understood?*
- *What are conditions for boundary arrangements to support spatial governance?*

The first sub-question helped me to identify boundary arrangements in relation to the boundary actions for which they are used. With the second sub-question I investigated how boundary arrangements relate to the enabling and constraining boundary properties that evoke boundary actions. The third sub-question turned my attention towards the performance of boundary management in spatial governance. After having addressed the sub-questions in the following sections, I will answer the general research question.

8.2.1 Identified boundary arrangements

The first sub-question is: *Which arrangements are used by actors to take actions towards boundaries in practices of spatial governance?*

The case studies revealed the use of a variety of boundary arrangements, in various combinations (Table 8.1). The most prominent boundary arrangements in the case studies were frames, boundary concepts, processes of social learning, boundary organisations and contracts. I did not find contracts as boundary arrangements in literature, but based on the case studies I will add them in this section, as a form of boundary object. Subsequently I will elaborate on the use of the identified arrangements in taking actions towards boundaries. At the end of this section I will complement the categories of boundary arrangements from literature (see section 1.3.3) with the arrangements I have identified in the cases, and I will integrate them into a preliminary typology of boundary arrangements.

Table 8.1: The use of boundary arrangements in managing physical (p), social (s) and institutional (i) boundaries in the case studies

Case	Ch.	Boundaries	Actions	Arrangements
The Hague Region	2	Urban-rural (p)	Demarcate/ delineate Integrate	Spatial frames
Land van Wijk en Wouden vs. Duin, Horst en Weide (The Hague Region)	3	Urban-rural (p + s)	Demarcate/ delineate	Spatial frames
Eindhoven Region + Parkstad Limburg	4	Government – non-government (i)	Shift/ redefine	Role frames, boundary organisation, social learning (experiment), contract
Collective Management Plans + Farming for Nature	5	Government – non-government (i)	Shift/ redefine Co-ordinate	Contracts, boundary organisation
		Agriculture – nature (p)	Integrate/ blur	Contracts, boundary organisation
Gouwe Wiericke	6	Various groups (s)	Bridge	Boundary concept, role frames, social learning, boundary objects, boundary workers
		Government – non-government (i)	Shift/ redefine	Contracts, boundary organisation, role frames
		Agriculture – nature (p)	Integrate/ blur	Boundary concept, contracts, boundary organisation
Hoekse Waard + Farming for Nature + Arnhem Future Cities	7	Various groups (s)	Bridge	Boundary concepts, social learning
		Science and disciplines (i)	Bridge	Boundary concepts

Frames

In the case studies, I found spatial frames and role frames. By their nature, frames seem to separate rather than to integrate. However, in the studied practices of spatial governance, frames are not just used to demarcate and shift boundaries, but also to integrate and to bridge. I use the term spatial frames for spatial concepts, to emphasise that they refer to areas as well as frame meaning for those areas. Sometimes, spatial frames are operationalised as delineation of areas on the map, as in the cases of ‘Land van Wijk en Wouden’ and ‘Duin, Horst en Weide’. However, spatial frames are also encountered as more vague conceptualisations such as of the ‘compact city’. In the cases, spatial frames were used to delineate and maintain the urban-rural boundary. In The Hague Region, this was combined with integrating land use categories by means of the spatial frame of multifunctional land use. The spatial frames of LWW and DH&W, delineating the physical urban-rural boundary, failed to bridge the social urban-rural boundary.

Role frames define responsibilities of actors in collaborative processes. Role frames are not only important to understand one's own role, but also the role of the collaborating partners. In the cases of Eindhoven Region and Parkstad Limburg, the complementary roles of governmental and non-governmental actors in collaborative planning were framed as either a leading government with societal participation, or as self-governing societal actors with government participation. This way, role frames support the shifting and re-delineation of the institutional boundary between government and non-government in collaborative settings. In the collaborative landscape governance process in Gouwe Wiericke, roles of stakeholders were deliberately reframed from 'authority' and 'subject' to 'beneficiary' and 'provider' of landscape services. This helped to get away from conflicts and power play from the past, and to bridge social boundaries.

Boundary concepts

I encountered the following boundary concepts in the case studies: green infrastructure, nutrient cycle and landscape services. Boundary concepts have meaning in various worlds, but nevertheless retain their identity; hence they are used to mediate and translate among social groups in collaborative settings (Metze, 2011). In the cases of Gouwe Wiericke, Hoekse Waard, Farming for Nature and Arnhem Future Cities, boundary concepts helped to integrate knowledge as well as to facilitate negotiation in the landscape planning processes with various stakeholder groups, including researchers. The concepts supported the bridging of social boundaries between stakeholders, creating a discursive space 'in the middle' because they had meaning in different worlds and were mouldable in their use over time. Because of these attributes, the concepts supported social learning as well as collective action. In contrast to spatial frames, spatial concepts with characteristics of boundary concepts did contribute to the bridging of social boundaries in the case studies. The spatial concept of green infrastructure was used to bridge boundaries in the cases of Gouwe Wiericke, Hoekse Waard and Arnhem Future Cities, in combination with the landscape services concept. In the cases, boundary concepts also supported integration across the nature-agriculture boundary. In addition, they helped to bridge ontological and epistemic boundaries between scientific disciplines and between scientific and lay knowledge (Mollinga, 2010). Hence, boundary concepts simultaneously address social, physical and institutional boundaries.

I found that bridging social boundaries is a prerequisite for a concept in order to function as a boundary concept. Other concepts that bridge boundaries between disciplines are compact city (social-environmental), scale (ecology-economy-governance) and social-ecological network (social-ecological). These concepts did not function as boundary concepts in the cases because they did not contribute to bridging social boundaries. However, I suspect they have the potential to function as boundary concepts in other settings if used as such.

Boundary objects can have a role in the management of boundaries in a way similar to boundary concepts. They differ from boundary concepts in the sense that they are material and at the same time carriers of meaning (Star, 2010). Boundary objects were not studied indepth in the case studies. Examples are the GIS tool for meadow bird management in the case of the Collective Management Plans (enabling exchange of knowledge and information between farmers and government officials); the collective management plans themselves; the list of possible measures in the case of Gouwe Wiericke (facilitating negotiations between farmers and government

officials); and the design tool in the Hoekse Waard case (facilitating collaborative landscape design). Contracts can also be understood as boundary objects. They are considered below.

Social learning

Processes of social learning contributed to bridging social boundaries in the case studies of Gouwe Wiericke and Farming for Nature in Biesland. Social learning refers to the insights and knowledge acquired from interaction and collaboration as a result of the diversity of actors involved, as well as from the lessons drawn from joint efforts (Pahl-Wostl, 2006; Tippet et al., 2005). Social learning is a result of interaction and collaboration, especially in prolonged processes, but in the cases it was also used deliberately as a design principle in management of social boundaries in spatial governance processes. It was used as a strategy to bridge and (temporarily) remove social boundaries, by framing the collaboration as a process of social learning, by defining joint questions to explore, and by creating moments of reflection during the process. In Gouwe Wiericke, the social learning process, in combination with new role frames ('provider and beneficiary') and the boundary concept of landscape services, supported collaboration among stakeholders that had a history of conflict. In organising this process, boundary workers had a role. Social learning created informal rules of the game, scope for experimenting and exploring, away from formal rules and hierarchies. It created room for questions, as well as for introducing different types of knowledge, including scientific insights, without claiming superiority. That social learning can benefit from boundary concepts, also became clear in the Biesland case. Here, the learning process was set up as a transdisciplinary scheme for monitoring and evaluation, facilitated by the boundary concept of nutrient cycle. A range of stakeholders and scientists was involved in joint research and learning, furthering social capital in the network and the functioning of the farming system. As joint understanding grew, bridging ties developed into bonding ties (Putnam et al., 2004): social boundaries seemed removed and a new group was born, despite its diverse composition. However, new issues and conflicts increased differences between stakeholders again, especially after the researchers had stopped facilitating the learning process (see also Westerink, 2016). This suggests that bridging a social boundary cannot be expected to be permanent and that boundary management may need to be continuous.

Boundary organisations

In the case studies, I found two types of boundary organisations: the ones founded by non-governmental actors (agri-environmental cooperatives) and those founded by governmental actors (IBA-Parkstad). According to literature, boundary organisations are founded between two or more social worlds, in order to manage the boundary and to enable collaboration between the two (Parker and Crona, 2012). They can take the form of formal or informal organisations and they combine delineation with hybridisation and coordination (Leino, 2012; Miller, 2001). In the cases, boundary organisations have a role in coordination across the boundary between government and non-government, and in integrating nature with agriculture. They use boundary concepts and boundary objects. In addition, IBA Parkstad had a role in bridging social boundaries, through organising social learning and exchange.

Agri-environmental cooperatives are important in managing the agriculture - nature boundary as well as the boundary between government and non-government. Agri-environmental cooperatives bridge the agriculture - nature boundary (see also Franks, 2010) by supporting

their members in taking measures on their farms for the benefit of biodiversity. They do so by devising plans for agri-environment measures on groups of farms. These plans function as boundary objects in discussions with governments and nature organisations. The scheme itself and the contracts can also be considered boundary objects (see below). By mediating between the general agri-environment scheme and the specific on-farm situation, agri-environmental cooperatives operate on the institutional boundary between the farmers and the government. As the agri-environmental cooperatives perform an increasing share in the governance of the scheme, the need to be accountable to actors on both sides of the boundary is also growing. In the Gouwe Wiericke case, the water board authority signed an agreement with the regional umbrella of agri-environmental cooperatives, and this umbrella organisation drew up contracts with farmers, comprising specific measures. This mediating between worlds, two-sided accountability and the use of boundary objects is typical for boundary organisations (cf. Carr and Wilkinson, 2005; Miller, 2001).

For IBA Parkstad the local and regional governments founded a separate organisation, with the explicit aim to facilitate experimenting, innovation and cooperation between citizens, businesses and governments in the process of urban renewal. A situation of demographic and economic decline, leading to unoccupied houses, vacant offices and empty sites urged the regional government to seek collaboration with non-governmental stakeholders and create scope for experiment. IBA Parkstad mediates between the governments and other stakeholders by organising events and interactions and by showing 'good examples' to the world. IBA Parkstad makes use of the boundary concepts 'EnergyCity', 'FlexibleCity' and 'RecycleCity' to select projects for exhibition. The concepts evoke the connection between issues which are not automatically connected, for example between offices and green space, energy and vacancy, and flexibility and governance. In addition, the concepts are meant to inspire the deliberation and cross-boundary cooperation within the actor networks (Parkstad, 2013). Experimenting has not often been mentioned in literature as an explicit role of boundary organisations. This does, however, apply to IBA Parkstad. IBA Parkstad is, as it were, responsible for organising a process of social learning at regional scale.

Contracts

In literature, contracts have not yet been identified as boundary arrangements. However, I consider contracts to be boundary objects because they are material but at the same time have meaning to actors at both sides of the boundary between, in the case of contracts in this thesis, government and non-government. This meaning is not identical on both sides because it serves different purposes. As a result, the contract mediates and enables exchange and coordination. Contracts describe norms and rules of the game among people or institutions, mutual expectations and responsibilities, as well as implications in case of non-compliance (see for instance Polman, 2002; Vincent-Jones, 2000). The role of contracts between public and private parties depends on how the boundary between government and non-government is drawn (Vincent-Jones, 2000). Managing the boundary between the responsibility of government and non-government in spatial governance includes delineating, shifting and re-delineating that boundary. Contracts can contribute to delineation and re-delineation because they explicate joint, separate and mutual responsibilities in cross-boundary collaborations. The need for this is all the greater when the boundary has been shifted and roles are not yet clear. In the Eindhoven Region one of the interviewees of a local government expressed the need for a written

agreement with a cooperative of companies that had received great liberty in developing a campus area, so as to safeguard public values.

In the agri-environmental cases, the boundary between the responsibilities of government and non-government was shifted as well. However, the agri-environmental contracts did not always support this boundary shift. Instead, the agri-environmental contracts are mainly used to blur the physical boundary between agriculture and nature, as they describe what farmers do to integrate nature into their farming practices in return for a public payment. The contracts have different meanings for the government and for the farmers. For the government, the agri-environmental contracts are an instrument in enhancing on-farm biodiversity and particularly the protection of a number of species that depend on agricultural land, as well as a way to enforce the management on the parcels involved, as agreed on in the contracts. For the farmers, the contracts provide them with the opportunity of receiving a payment for their agri-environmental efforts, as well as a source of bureaucracy. Still, it is the same contract, with a material dimension as a piece of paper that is signed and filed. The contracts have a coordinating role because they specify tasks of the farmers (e.g. management activities and reporting) as well as tasks of the government (e.g. control and payment). Agri-environmental contracts, in combination with agri-environmental cooperatives as boundary organisations, are boundary arrangements in the management of the boundary between government and farmers. This is illustrated in the fact that as of 2016, the content of the agri-environmental contracts reflect another allocation of those tasks than before.

Typology of boundary arrangements

Based on the arrangements encountered in the case studies and in literature (see section 1.3.3), I propose a typology of boundary arrangements (Table 8.2). To the well-known categories of boundary arrangements in literature: boundary object, boundary concept, boundary organisation and boundary worker, I have added frame and boundary process. Frames have been studied extensively in adjacent bodies of literature, but have not yet been broadly recognised as boundary arrangements. I propose boundary process as a new category of boundary arrangements, which includes social learning but also boundary events (Opdam et al., 2015b), settings (Mollinga, 2010) and probably participative design (Rauws and van Dijk, 2013). In the proposed typology contracts are a sub-category of boundary objects. In boundary management, various combinations of arrangements are applied, forming specific composite arrangements. In addition, the arrangements are used to manage various and often multiple boundaries.

Table 8.2: Typology of boundary arrangements in spatial governance, based on findings derived from literature combined with empirical findings

Type of boundary arrangements	Description	Boundary arrangements in case studies	Examples from case studies
Frame	Content of a category and its boundary as framed by actors in boundary management. A frame can both (re-)delineate and blur a boundary.	Spatial frame	Land van Wijk en Wouden as rural area and landscape entity.
		Role frame	Participating government. Provider of landscape services.
Boundary concept	A concept that is specifically used for bridging boundaries, especially social boundaries. It has meaning in different worlds (Mollinga, 2010). It is recognisable but multi-interpretable, is based in action, is subject to local tailoring and evolves while being used. It does not necessarily conceptualise all boundaries it manages, but supports the bridging of social boundaries by creating discursive space 'in the middle'.	Boundary concept	Landscape services. Green infrastructure. Nutrient cycle.
Boundary object	Works in a similar way to a boundary concept in that it bridges boundaries and has meaning in different worlds while it still retains its identity, but it is material as well as conceptual (Star, 2010). In addition, it can support coordination across a boundary.	Contract	Agri-environmental contract.
		Other boundary concepts	List of possible measures to enhance landscape services. GIS tool for information exchange.
Boundary organisation	A formal or informal organisation established to manage boundaries. It is accountable to the worlds it is intended to mediate between and coordinates across the boundary (Carr and Wilkinson, 2005). It makes use of other boundary arrangements, including experimenting.	Boundary organisation	Agri-environmental cooperative. IBA-Parkstad.
Boundary process	Meetings or series of meetings of actors of various social groups organised and designed with the aim to manage boundaries, and creating rules of the game to suit that purpose (Mollinga, 2010; Termeer and Bruinsma, 2016).	Social learning	Transdisciplinary monitoring & evaluation. Landscape planning as learning process.
Boundary worker	Person with the implicit or explicit task to manage boundaries in collaborative settings.	Boundary worker	Researchers in transdisciplinary projects.

8.2.2 Choice and functioning of boundary arrangements

The second sub-question is: *How can the choice and functioning of boundary arrangements be understood?*

In answering this sub-question, the enabling and constraining properties of boundaries provide a doorway to analysis. The choice of boundary arrangements is related to the actions that actors wish to perform towards boundaries in their attempts to influence the boundary's enabling and constraining properties. The functioning of a boundary arrangement is related to the effect of the action on the properties of the boundary: whether it has become more enabling or less constraining. This changed or maintained boundary is never finished (cf. Jones, 2009), since each boundary management cycle may evoke a next one (see Figure 1.1).

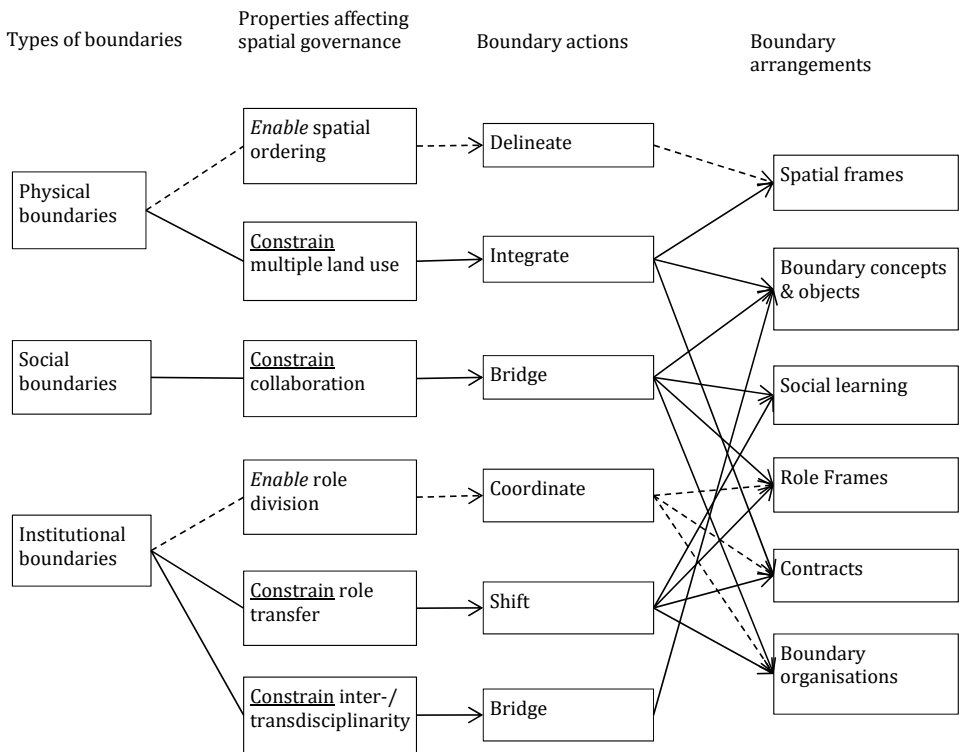


Figure 8.1: The relation between the choice of boundary arrangements, actions and enabling or constraining properties of boundaries in the cases. The relations to enabling properties are represented in *italics* and with dotted arrows; the relations to constraining properties are represented as underlined and with continuous arrows

Figure 8.1 relates the enabling and constraining properties of boundaries to actions and arrangements. It summarises the analysis of the case studies according to the framework of Figure 1.1. For reasons of legibility, it is now presented in a linear instead of a circular form. In addition, boundary management has been separated into boundary actions and boundary arrangements, and enabling and constraining properties have been made specific for spatial governance. Figure 8.1 presents the outcomes of the case studies, including the specific boundary arrangements that were identified, rather than a complete framework, reflecting the typology of boundary arrangements of Table 8.2. The enabling properties of social boundaries, such as bonding within groups, are not addressed, and additional boundary arrangements can be envisioned to those found in the cases (see Table 8.2). I will now explain Figure 8.1, starting from the enabling and constraining properties of physical, social and institutional boundaries.

In spatial governance, actors delineate physical boundaries because they *enable* spatial ordering, zoning, and the implementation of a range of policy instruments. In the case studies in The Hague Region, spatial concepts as spatial frames were powerful and effective instruments in the delineation and reproduction of physical boundaries. However, physical boundaries also *constrain* integrated spatial solutions. Spatial concepts are also used for integration or blurring of physical boundaries, such as multifunctional land use and green-blue infrastructure. Multifunctional land use was used as a spatial frame, while green-blue infrastructure was used as a boundary concept. Green-blue infrastructure in the case studies was operationalised in adapted landscape management and thus was successful in overcoming constraint. I do not have enough information to assess whether the constraint of physical boundaries was equally diminished by the spatial frame of multifunctional land use. Other arrangements used to deal with the constraining effects of physical boundaries are contracts specifying measures for land management, and boundary organisations aimed at integration. In most agri-environmental cases, the boundary between agriculture and nature was blurred by means of boundary arrangements, which made it less constraining, but it was not removed. Integration went furthest in the Farming for Nature case, because of the specific design of the contract.

Social boundaries *constrain* collaboration between different social groups. In the development of social capital, bridging of social boundaries is needed in the sense of creating space for exchange and learning, in order to be able to collaborate with 'others'. To create such space, boundary concepts and social learning processes have been used in the cases. In one case, role frames contributed to this. The Gouwe Wiericke case demonstrated that the constraint of social boundaries can be diminished through a combination of a boundary concept with other arrangements, and through managing additional boundaries.

The institutional boundary between government and non-government *enables* a clear division of roles between actors in spatial governance. For that reason it is maintained and reproduced in spatial governance practices, for example through role frames such as the 'leading government' or contracts to coordinate tasks across the boundary. However, institutional boundaries also *constrain* actors in their pursuit of, for instance, more room for self-governance. Due to this, in collaborations, the boundary between the roles of governmental and non-governmental actors is shifted and redefined by means of role frames. Boundary organisations and contracts also have a role in this shifting and redefining, as well as in coordinating tasks across the boundary. Delineation, shifting and re-delineation are similar actions however, and the enabling and

constraining properties of institutional boundaries are not always easy to disentangle: self-governance is both enabled and constrained by the boundary between government and non-government (Ostrom, 1999). In the case of Parkstad, role frames, a boundary organisation and experimenting (or 'social learning' at the regional scale) did diminish constraint with regard to self-governance. However, most agri-environmental contracts only partly diminished that particular constraint. Institutional boundaries between science and practice and between scientific disciplines *constrain* inter- and transdisciplinary approaches. Boundary concepts support bridging these boundaries, thus diminishing constraint.

Figure 8.1 suggests that the relation between enabling and constraining properties and boundary actions is more straightforward than the relation between actions and arrangements. While the action follows from the properties of specific boundary types, one action can be supported by multiple arrangements. Nevertheless, based on Figure 8.1, three types of boundary arrangements can be distinguished. There are boundary arrangements that support actions influencing enabling properties of boundaries, boundary arrangements that support actions influencing constraining properties, and arrangements that support both. The first type, that exclusively supports actions influencing enabling properties, was not found in the cases.

In general, in the case studies, boundary arrangements matched the boundary actions well. However, I have found two instances in which the arrangement did not support a boundary action. When arrangements did not match boundary actions, it was because not all relevant boundaries had been addressed by the arrangement. In both instances, a new cycle of boundary management was evoked. First, the contract design of some of the agri-environmental schemes did not match the shifted boundary between government and non-government, because the arrangements dated from before the boundary shift. The contracts were intended to integrate across the nature-agriculture boundary, but had not sufficiently taken into account the shifted institutional boundary. In the case of the collective management plans there was a mismatch between the level of self-governance by the agri-environmental cooperatives and the level of detail of the (take it or leave it) agreements between farmers and the government. In the Gouwe Wiericke case a larger share of the governance was exercised by the farmers themselves. Here, the shift was formalised in a double set of contracts with a central role for a boundary organisation, but the content of the agreements still had the same level of detail as before. Only in the Farming for Nature case a good match between shifted roles and contract design was encountered. In response to the schemes constraining self-governance, succeeding agri-environmental schemes did take the shifted institutional boundary into account, although the quality of the match is still a matter of debate among policy makers and agri-environmental cooperatives. Second, the spatial frames of the place concepts in The Hague Region did not contribute to bridging the social boundaries between the competing coalitions – but were probably not intended to do so. These social boundaries constrained collaborative planning of the peri-urban area in The Hague Region. In response to this constraint being reinforced by the competing place concepts, the province introduced a new place concept at a higher scale level, eliciting the formation of a new actor coalition (cf. Heley, 2013).

Scaling was also a way out in other boundary management cycles. Planners in The Hague Region introduced more integrative spatial concepts at a lower scale level, in response to the delineation of the urban-rural boundary with compact city strategies, which constrained

multiple land use. Urban containment at regional level was thus combined with multifunctional land use at local level. In Gouwe Wiericke, integration of nature and agriculture at landscape level was attempted through realising a fine-grained green-blue infrastructure on farmland. Delineating a physical boundary can thus be combined with blurring or vice versa, and spatial concepts are used for both delineating and blurring physical boundaries.

8.2.3 Conditions for boundary arrangements to support spatial governance

The third sub-question is: *What are conditions for boundary arrangements to support spatial governance?*

To evaluate under which conditions boundary arrangements support spatial governance, I have adopted the following criteria from Hartmann and Spit (2015): effectiveness, fairness and democratic legitimacy. In relation to these criteria, the case studies touched upon concerns with respect to:

- Effectiveness in the sense of collaboration and learning as prerequisite in governance of complex issues, and in the sense of safeguarding public values such as protection of green space and the enhancement of biodiversity and ecosystem services;
- Fairness in the sense of the right to self-govern; and
- Democratic legitimacy in the sense of inclusion of stakeholders and transparency of public administration.

These criteria are interrelated and the case studies have shown that trade-offs can occur.

Effectiveness

The complexity of spatial governance is reflected in the fact that in general, multiple boundaries need to be managed in spatial governance processes. In situations of high uncertainty and complexity, collaboration, learning and experimenting are appropriate strategies (Christensen, 1985; Healey, 2006; Olsson et al., 2004). It is no surprise therefore that several boundary arrangements aim to support just those. Moreover, in choosing and designing boundary arrangements it is wise to take demands of collaboration and experimenting into account. For instance, to be successful in enhancing collaboration in spatial governance processes, spatial concepts need to be able to bridge social boundaries. For that purpose, spatial concepts should be designed and used as boundary concepts. In addition, boundary organisations, especially those founded by governmental actors, need room for the development of boundary management practices that differ from established governance practices, as well as room for experimenting.

Collaboration, learning and experimenting generally involve blurring and bridging different types of boundaries. This may go well together with effective enhancement of biodiversity and ecosystem services. Enhancing rural biodiversity requires collaboration between various actors as well as integration of nature and agriculture. The cases of Gouwe Wiericke, Hoekse Waard and Farming for Nature are clear examples in which blurring physical boundaries and bridging social boundaries went well together. However, protection of green space and biodiversity at times requires delineating physical boundaries, for instance by means of spatial frames. Such delineation will severely constrain options for certain actors, while other actors will welcome the boundary. Delineation of physical boundaries is more straightforward through hierarchical

than through collaborative governance. Collaboration, learning and experimenting therefore need to be balanced with more hierarchical modes of governance. They do not exclude each other, though (cf. Arnouts et al., 2012; Driessen et al., 2012).

Fairness

Boundary arrangements may need to balance the clear boundaries that are needed for self-governance (Ostrom, 1990) with creating a hybrid space that is needed in collaboration (Miller, 2001; Parker and Crona, 2012). For instance, self-governing agri-environmental cooperatives also operate as boundary organisations between farmers and government. This tension is a likely characteristic for boundary organisations founded by non-governmental actors. They somehow need to balance their hybrid, in-between identity with enhancing self-governance (cf. Leino, 2012). There are other ways as well in which boundary arrangements need to combine effectiveness with the right to self-govern. With respect to the nature-agriculture boundary, contracts are important arrangements for enhancing on-farm biodiversity. The effectiveness of the scheme is delicate, because the measures the farmers agree to implement, interfere with their usual farming practices, and, to establish the desired habitats, collaboration between farmers in an area is required. Farmers' local knowledge, motivation and skills in farming and collaboration may surface best in situations of self-governance. The effectiveness of the schemes is thus related to the way in which the boundary between government and non-government is delineated in the scheme. Contracts as boundary arrangements need to match the institutional boundary between roles of collaborating actors. When the boundary is shifted towards more self-governance, contracts need to reflect this in two ways. They need to coordinate activities at both sides of the boundary in a way that enhances the functioning of self-governance. In addition, they need to specify what public values are to be achieved through enhanced self-governance (cf. Peel et al., 2009). The balance between these two may be delicate (cf. Vincent-Jones, 2000). That self-governance does not necessarily safeguard the effective delivery of public values, was illustrated in the case of Eindhoven. Here, a bottom-up initiative by companies was welcomed by the local and regional authorities, but their promise to create and manage public spaces was not completely trusted and one of the interviewees suggested to develop a contract between the self-governing companies and the municipality.

Democratic legitimacy

There is a tension between the right to self-govern and inclusion of stakeholders. Self-governing groups of citizens or companies in spatial development do not automatically give a voice to all stakeholders, as the Eindhoven case demonstrated. In addition, the role of a participating government facilitating this self-governance is not automatically transparent to all stakeholders, which could compromise accountability of government. Thus, shifting the boundary between the role of governmental and non-governmental actors toward more self-governance may come with democratic risks. To this end boundary arrangements for managing the boundary between government and non-government, such as role frames, need to reconcile the right to self-govern with other democratic principles. In the Eindhoven case, a new cycle of boundary management would be required to adjust the role frames for this purpose. By contrast, IBA Parkstad as a boundary organisation promotes bottom-up initiative, under the condition that those initiatives remain open to participation of stakeholders.

Hence, boundary arrangements not only need to match envisioned boundary actions (sub-question 2), but also need to contribute to effectiveness, fairness and democratic legitimacy of spatial governance. Because of possible mutual influences between the three, this is a delicate balancing act.

8.2.4 The role of boundary arrangements in spatial governance

Spatial governance inevitably involves boundary management. I daresay: spatial governance is boundary management. Because of the complexity of policy issues and stakeholder networks, in general multiple boundaries are of relevance. These include physical, institutional and social boundaries. As a result, 'making a difference' is deeply rooted in practices of spatial governance. By drawing, challenging, changing, maintaining or bridging boundaries, actors try to influence enabling and constraining boundary properties in pursuing their goals. In doing so, they use a range of boundary arrangements. In the case studies I have identified the following boundary arrangements: spatial and role frames, boundary concepts, boundary organisations, processes of social learning and contracts. I have integrated these with arrangements that I found in literature into a typology of boundary arrangements (Table 8.2). I therefore propose the following categories of boundary arrangements: boundary concept, boundary process (including social learning) and boundary worker as arrangements supporting actions toward constraining boundaries; and boundary organisation, frame and boundary object (including contract) as arrangements that can support actions toward both constraining and enabling boundaries.

I did not find a strong relation between the type of boundary (physical, social or institutional) and boundary arrangements chosen. Rather, the choice of boundary arrangements is a product of the type of boundary, enabling and/or constraining properties, and boundary actions. While boundary actions follow from the enabling or constraining properties of specific types of boundaries, the actions can generally be supported by multiple boundary arrangements. Therefore, in boundary management, boundary arrangements are often combined in specific, composite arrangements (see Table 8.1 and Figure 8.1). A strong combination is a boundary organisation with role frames and contracts. Another strong combination is social learning with boundary concepts. Arrangements are not only combined because several arrangements may support the same actions (Figure 8.1), but also because in situations of spatial governance, multiple boundaries are to be managed. Not considering all relevant boundaries may negatively affect the effectiveness of governance.

Managing boundaries does not automatically contribute to the effectiveness, fairness and democratic legitimacy of spatial governance. These criteria should therefore be taken into account when using boundary arrangements. Striving to enhance effectiveness, fairness and democratic legitimacy through the choice and design of boundary arrangements is complicated because of possible trade-offs between the three.

Boundary arrangements are a medium for and give shape to boundary actions. Boundary actions can be traced and recognised more easily due to boundary arrangements. In a way, boundary arrangements institutionalise boundary actions, giving them a longer-term impact and facilitating collective use, transfer and reproduction. Therefore, boundary arrangements support the shaping and reproduction of boundaries and confirm their structural properties.

8.3 Contribution to scientific debate

Boundary management in practices of spatial governance often occurs implicitly. 'Boundary management' was my theoretical lens for analysing practices that do not necessarily use the terms 'boundaries' or 'boundary management'. Nevertheless, the answer to the research question reveals the complex nature of boundary management. Boundaries are managed, and often several boundaries simultaneously, through the use of a variety of boundary arrangements, and combinations of boundary arrangements. This shows reflexivity of actors in spatial governance (cf. Giddens, 1984). Sometimes a relevant boundary is overlooked in spatial governance practices, but this is often corrected in a succeeding cycle of boundary management. Apparently, actors are quite competent in boundary management as an implicit activity. They may become even more competent once they are more aware of what they are doing. Furthermore, this would ease the evaluation of boundary management against criteria for 'good spatial governance'.

Viewing boundary arrangements as institutionalising boundary actions releases some of the tension between on the one hand the idea of boundaries as structural properties of social systems, 'stretching across time and space' (Giddens, 1984, p. 377), and on the other hand the possibility of managing them. I consider this tension a problem of scale, of the embeddedness of 'local' practices of spatial governance in overarching social systems. Actors in such practices draw on boundaries as they are produced in general discourse, or have been institutionalised before in higher level governance systems. At the same time, actors do have the power to influence their own practices and they use that power in boundary management. This way, they create their own version of boundaries and devise their own boundary arrangements. The sum of all those 'local' boundary actions will slowly but inevitably change boundaries as structures. Without those local practices, the structures would not exist. An example of this problem of scale is the development of alternative collaborative planning discourses in Eindhoven Region and Parkstad Limburg. The discursive boundary shift towards more self-governance seemed to have come 'from above'. However, without 'local' practices reproducing the shifted boundary, it would not have shifted. In turn, boundary management in local practices will again shape the boundary: in the local practices, but eventually also in the overarching social system. Likewise, understandings of the difference between 'agriculture' and 'nature' are part of general discourse and institutionalised land use rights, regulations and subsidy schemes, but are changed in the interactions of local governance practices, which in turn influence the general discourse (cf. Buijs et al., 2014).

In the field of spatial governance the theoretical lens of boundary management has not been used this extensively before. It has provided new insights into spatial governance practices and has revealed that spatial governance inevitably implies boundary management. In addition, the application of boundary theory in the analysis of spatial governance practices has yielded new insights into the functioning of boundary management.

To spatial governance literature and boundary literature I contribute a framework of boundaries, enabling and constraining properties, spatial governance and boundary management by actors, as introduced in section 1.3.3. Elements of this framework have been proposed and used in literature (Heley, 2013; Hernes, 2004; Schut et al., 2013; Sternlieb et al.,

2013; Van Broekhoven et al., 2014), but the framework as a whole is new. Its cyclical nature allows the study of multiple cycles of boundary management as have been identified in the case studies. As the framework aligns with the more general structuration theory, it can also be applied in other disciplinary fields of governance, policy and public administration. In this thesis it was applied to physical, social and institutional boundaries, but the management of other types of boundaries can also be studied using this framework.

To the boundary literature I contribute a typology of boundary arrangements and insights about their combined application. This study demonstrated that a range of boundary arrangements is used in spatial governance, and that they are often combined. Much literature focuses on only one type of arrangement (e.g. boundary objects, Harvey and Chrisman, 1998; Turnhout, 2009) or on a specific combination (particularly boundary organisations and boundary objects (Carr and Wilkinson, 2005; O'Mahony and Bechky, 2008; Parker and Crona, 2012)), but this study showed that the arsenal of arrangements is much larger and that combinations of boundary arrangements are more diverse. Moreover, combinations of boundary arrangements are the rule rather than the exception. The number of boundary arrangements encountered in the cases was varied though incomplete, which caused me to propose a typology of boundary arrangements in Table 8.2. This typology does not only apply to spatial governance: it potentially has a wider relevance.

As contribution to spatial governance literature, in this thesis I have combined physical boundaries with the more often studied social and institutional boundaries (Barth, 2000; Gieryn, 1983; Keulartz, 2009; Lamont and Molnár, 2002; Rhodes, 1996; Tilly, 2004). While social and institutional boundaries are evident in all governance domains, physical boundaries are unique to spatial governance. Combining the three was both new and useful. While physical boundaries are at the core of struggles in spatial governance because they distinguish meanings of places, they are closely related to both social and institutional boundaries. In spatial governance, struggles about one type of boundary can only be understood by also considering the other two types.

In addition, for the study of spatial governance, the intersection with boundary theory was particularly useful in considering spatial concepts not only as spatial frames but also as boundary concepts. The use and study of spatial concepts is common practice in the field of spatial governance (Dieleman et al., 1999; Hagens, 2010; Hajer and Zonneveld, 2000; Heley, 2013; Van Duinen, 2013; Van Rij et al., 2008; Zonneveld, 2005), but they have not been considered to be boundary concepts before. In other fields, boundary concepts have shown to support the bridging of social boundaries in collaboration (Metze, 2011; Mollinga, 2010). This thesis has pointed out that spatial concepts do not always support the bridging of social boundaries, but also that spatial boundaries can be shaped as boundary concepts as well. When shaped and used as boundary concepts, spatial concepts are helpful in the bridging of social boundaries.

8.4 Suggestions for further research

Further research could apply the framework of boundaries, enabling and constraining properties, governance and boundary management by actors (actions and arrangements) to other disciplinary fields of governance, policy and public administration. Other types of boundaries may be relevant there, although social and institutional boundaries are likely to be important. Analysing more cases with this framework will likely enhance the understanding of the role of boundary management in governance practices and especially of how cycles of boundary management succeed each other.

The management of physical boundaries in spatial governance deserves more attention in research. Even though categories for places, land use and areas belong to the 'native language' of spatial governance, their construction, reproduction and contestation have hardly been studied in terms of boundary management. This thesis is one of the exceptions. More research on the management of physical boundaries will enhance the understanding of spatial governance, although it should not take place isolated from social and institutional boundaries. The role of spatial scale in managing physical boundaries could also be explored further (cf. Cash et al., 2006; Padt and Westerink, 2012).

In addition, further research may explore how boundary organisations on the boundary between government and non-government relate to self-governance and governance experiments. This thesis includes an example of a government-initiated boundary organisation (IBA Parkstad) and an example of bottom-up boundary organisations (agri-environmental cooperatives). Both have a role in managing the shifted boundary between the roles of government and non-government in spatial governance. However, to what extent and in what way they can be part of self-governance arrangements at the non-governmental side of the boundary, while in an in-between position, needs to be studied further. In addition, the role of boundary organisations in governance experiments should be explored. Governance experiments are abundant in the context of the shifting boundary between government and non-government, which is not confined to spatial governance alone.

This study has shown that the repertoire of boundary arrangements is larger than acknowledged so far. A number of boundary arrangements deserve more attention than could be given in this thesis and have yet received very limited attention in other research. In this thesis, role frames have been introduced as boundary arrangements. How role frames contribute to managing boundaries in collaboration should be explored more extensively. The design and functioning of boundary processes such as social learning is a relatively underresearched question as well. Similar to the way social learning contributes to boundary management, participative (urban, landscape) design might be a valuable boundary arrangement in spatial governance, which has yet to be studied.

8.5 Reflections

8.5.1 Usefulness of theoretical lens

The theoretical lens of boundary management was useful to find patterns in a wide range of practices in spatial governance. The framework allowed me to gain general insights regarding the functioning of boundary management across domains within spatial governance. It revealed similarities between peri-urban planning, regional urban planning, landscape governance and agri-environment management. It also revealed that the making of differences (or: their social construction) explains some of the core struggles in spatial governance. It showed that their management (another term to point at deliberate as well as implicit social construction) determines large parts of spatial governance processes. In addition, distinguishing social, institutional and physical boundaries provided a comprehensive way to study spatial governance. These boundaries have consequences because of their enabling and constraining properties, to which actors in spatial governance respond with a range of strategies. The lens of boundary management has provided a way to identify, categorise and evaluate these strategies as boundary arrangements. This enriched the understanding of the role of boundary arrangements in practices of spatial governance, and of those practices in general.

However, a theoretical lens inevitably also limits one's perspective. Therefore it was an advantage to use additional theoretical concepts in the individual chapters. Important concepts in the chapters were spatial concepts, collaborative governance, self-governance, social capital, landscape services and inter- and transdisciplinarity. All these theoretical concepts have dimensions that align with boundary theory. Spatial concepts always involve physical boundaries because they address the meaning of places (Westerink et al., 2013a). Collaborative governance implies cross-boundary activities because of the multiplicity of actors involved in collaboration (Emerson et al., 2012). Self-governance is bounded by public governance. Moreover, defining a number of boundaries (of the group, the managed resource, between self-governance and public governance) is a pre-condition of self-governance to function well (Ostrom, 1990). Social capital concerns the quality of ties between representatives of different social groups (Bodin and Crona, 2008). Landscape services is an inter-disciplinary concept (across disciplinary boundaries) that stresses multifunctional land use (blurring physical boundaries). Transdisciplinary research crosses the boundary between scientific and lay knowledge (Mollinga, 2010). Hence, using these additional concepts enriched the understanding of spatial governance practices, while the lens of boundary management enabled synthesis.

A social science study on boundaries could have included domain analysis as an analytical approach (Silverman, 2006; Spradley, 1979). Domain analysis originates from anthropology and describes domains as larger units of cultural knowledge. It tries to map meanings as relations between terms (and other symbols). Domains comprise a cover term and two or more included terms, the latter being dependant on their relation with the first. Boundaries separate domains and thus determine what is inside of and what is outside of a domain. The researcher tries to map how the 'natives' define the domains and their boundaries. Interviews with members of the 'native community' is an important method for data collection. Domain analysis would not have been very useful for my purpose for a number of reasons. First, it assumes stability of domains (categories) and boundaries. In the theory of boundary management introduced in Chapter 1,

boundaries are considered as changing and adaptable. Second, domain analysis assumes a uniform 'culture' and consensus about domains and their boundaries. However, I take boundaries for being contested and I studied groups of actors that are not uniform. Moreover, boundaries between groups of people have been part of the research question. Therefore, other research approaches were applied.

8.5.2 Research design

I departed from a social constructivist perspective on conducting research. A social constructivist approach enabled me to uncover perspectives of actors in spatial governance, as well as my own perspective. It enabled me to view these perspectives as a research object, rather than as a representation of truth. A social constructivist approach matches a conceptual framework which considers boundaries to be social constructs that are continually contested and changed.

Because the research question concerned spatial governance practices, I chose a case study approach. The case studies provided a rich and many-sided insight into a number of practices of spatial governance. The case study approach provided insight into the complexity of those practices as well as into the related sophisticated and delicate nature of boundary management. Even so, some boundary arrangements known in literature were not represented very clearly in the cases. As a result, I did not pay much attention to boundary objects (apart from contracts), boundary workers and boundary spanners.

The case studies were predominantly Dutch. Only the case studies of Leipzig-Halle, Greater Manchester and Montpellier Agglomération in Chapter 2 were outside of the Netherlands. While the combination of the case studies gave a good insight into the practice of spatial governance in the Netherlands, it limits the applicability of the findings to other regions. Understanding of spatial governance practices gained through interpretative approaches is always context dependent (Yanow, 2000). Nevertheless, there is no reason to assume that such research cannot yield insights that are more generally relevant. This was elaborated in section 8.3.

I was given the opportunity of studying cases because of my involvement in commissioned and otherwise financed research. The questions asked in assignments and grants of public bodies inevitably influence the scope of the research. Within the PLUREL project (financed by the European Commission) and the AESUS project (financed by the Netherlands Organisation for Scientific Research) there was relatively much freedom to formulate the research questions and to determine the scope. In contrast, Farming for Nature and Green Blue Links (Gouwe Wiericke) were commissioned by the Ministry of Economic Affairs and the Province of South Holland. Because of the nature of the assignments, those commissioners had more influence on the scope of the research and on the research questions. However, both projects were shaped as action research projects. This meant that not only the commissioners, but also other stakeholders had a say in the research questions and the design of the project. This way, shaping commissioned research as action research prevented the scope from being geared towards one party's interest only, while it increased legitimacy. So, on the one hand, the commissioned and action research character of the research limited the freedom of the researcher, but on the other hand, it increased salience (cf. Cash et al., 2003).

All research projects on which this thesis builds, were carried out in teams. This was an advantage, because research design, results, analysis and conclusions could be discussed with peers, preventing tunnel vision and allowing each to challenge the others' inferential steps. In addition, all teams were interdisciplinary or transdisciplinary. This prevented inferential steps from being skipped as well as the taking for granted the own theoretical assumptions. Furthermore, it forced us to discuss findings in terms that could be understood by others.

8.5.3 The role of the researcher

From a social constructivist viewpoint I could observe and analyse governance practices, even when I myself was part of them. In some of the research projects in which empirical material was gathered for this thesis, I took part in such practices as action researcher. A potential risk of action research is becoming too involved in 'the action', and identifying too much with the stakeholders with whom social capital is built in the collaboration. This could threaten the objectivity and independence of the researcher. While total objectivity is an unachievable ideal in most research and particularly in social science, transparency concerning the frames and perspectives of the researcher is indispensable for the accountability of her role (Silverman, 2006). Therefore, I must make clear that I have a positive attitude towards collaboration. Because of this general preference, which is part of my character as well as of my conviction, I may have overlooked good practices of hierarchical governance. In addition, working with farmers and citizens has strengthened my conviction that farmers, if enabled, can take care of rural landscapes and biodiversity, and that involving citizens in the governance of their landscape is necessary. Especially in the Farming for Nature project I was deeply involved over a longer period. However, that did not prevent me from vigilance to weaknesses in the concept, the process and its results. In Westerink et al. (2013b) a section is dedicated to reflection on the research approach and on the role of the researchers in the Farming for Nature project. As researcher I have tried to combine involvement with intellectual independence, and to be transparent about my own position in the process, towards stakeholders as well as towards fellow researchers.

An important aim of action research is empowerment of stakeholders through joint learning and development of knowledge in collaboration between scientists and lay experts (Creswell, 2009; Huntjens et al., 2015). In the Farming for Nature and Green Blue Links projects this effect was clearly evident. In both projects stakeholders expressed their appreciation to the process of action research (Westerink et al., 2013b, p. 109-111; GBS partner meeting 10 December 2015; M. Vergeer email 26 February 2016). The Farming for Nature project empowered the farmers and citizens in their interactions with the governments; the Green Blue Links project in Gouwe Wiericke empowered the farmers to develop good relationships with regional governments and built their capacity to expand their network and collaborate with others.

In all research projects I made efforts to work with stakeholders in an ethical way by being transparent and by safeguarding confidentiality (Huntjens et al., 2015). Transparency about the development of the research process and the results was ensured through regular meetings and presentations, supervising committees or a partnership with stakeholders, low-threshold research products such as 'Verhalen van Biesland', and free copies of the scientific articles.

Confidentiality was maintained by not disclosing identities or confidential information, unless agreed on by the stakeholders involved.

8.6 Societal relevance and policy implications

Although AESUS and PLUREL were based on quite general questions of financing bodies that operated at a distance, the willingness of stakeholders to participate in supervising committees confirms the societal relevance of the research. The research questions of Farming for Nature and Green Blue Links, though commissioned by a national and a regional government, were developed in collaboration with a wider range of stakeholders before the research was commissioned. This confirms the societal demand for these projects. However, that does not prove the societal relevance of the application of boundary theory to the analysis of these cases. Therefore, to test the societal relevance of my theoretical ideas, I presented and discussed boundary arrangements with groups of stakeholders on a number of occasions. During one of the 'evenings' in Biesland, I discussed their own boundary concept of 'nutrient cycle' with the participating farmers and citizens. In two workshops with farmers of the agri-environmental cooperatives Noordelijke Friese Wouden and Ark & Eemlandschap, I discussed boundary organisations in relation to self-governance in the context of the new Dutch agri-environment scheme. In another meeting with farmers, nature managers and local government officials in Krimpenerwaard, I discussed the nature - agriculture boundary in its physical and social appearance, and the possible role of boundary concepts and social learning in managing this boundary. All these discussions were in-depth and vivid, and stakeholders started using the terms boundary, boundary concept and boundary organisation. This demonstrates the practical value of the theoretical concepts as well as that they build on a repertoire of mutual knowledge of social scientists and members of society (Giddens, 1984).

This thesis has pointed out the fact that many struggles in processes of spatial governance relate to boundaries. These distinctions, such as between 'agriculture' and 'nature', 'government' and 'society', and groups of people have consequences and are therefore contested and defended by various means. More insight into the 'existence', multiplicity and effects of those boundaries help actors to navigate such processes. This thesis has yielded insights that can help actors in spatial governance to better understand the processes in which they are involved, to better position themselves and to recognise the often multiple boundaries that they have to deal with. As a consequence, managing those boundaries can be done more strategically and can more consciously be aligned with values of effectiveness, fairness and democratic legitimacy. In addition, the focus of this thesis on boundary arrangements yields a range of options to take actions toward boundaries. A range of boundary arrangements is available to actors managing boundaries, but they need to be adjusted to each specific setting as well as to the boundary actions envisioned. Combining boundary arrangements can add to their effectiveness. This has a number of policy implications.

First, actors need to acknowledge all relevant boundaries in spatial governance processes. If not all relevant boundaries are considered and managed, effectiveness of governance may be suboptimal. For instance, if the use of spatial concepts is only aimed at the management of physical boundaries, this may not contribute to collaboration in a wide actor network. In

collaborative processes, spatial concepts can best be shaped and used as boundary concepts. As boundary concepts, spatial concepts will prove a better tool in facilitating discussions on physical boundaries because they simultaneously support the bridging of social boundaries.

Second, in the context of a shifting and contested boundary between government and non-government, governmental actors and boundary organisations need to carefully consider their role. Currently, in many practices of spatial governance, shifting and re-delineation occurs, but this shifted boundary is not clear-cut and it varies per setting. Boundary arrangements should therefore be tailored to the varying ambitions and capacities of self-governing societal actors, as well as to the extent to which the self-governing actors consider the voice of other stakeholders. This means that governmental as well as non-governmental actors need to acknowledge that involvement of governmental actors is necessary in all situations of spatial governance, including situations of self-governance. Shifting the boundary between government and non-government toward more self-governance does not necessarily imply a smaller role for governmental actors, but rather a different and more adaptive role. To complement self-governance, governmental actors need to take on a more inviting and facilitating role than in settings with a leading government, while preserving transparency and democratic accountability. Responsiveness to and engagement with societal initiatives are important first steps to practise such a role.

In addition, boundary organisations such as agri-environmental cooperatives and IBA Parkstad need to carefully position themselves and consider their identity in relation to both the worlds they serve. In the case of the agri-environmental 'collectives' in the Netherlands, this is an urgent question which affects trust in the collectives of the government as well as of the farmers. Agri-environmental cooperatives are boundary organisations that simultaneously represent a self-governing group of actors. They therefore need to find ways to combine their hybrid, in-between position and the two-sided accountability of a boundary organisation with the identity and the expectations of the self-governing group. When governments found a boundary organisation, such as in the case of IBA Parkstad, it should be allowed to develop its own identity and boundary management practices. Such boundary organisations may consider experimenting to be a boundary management strategy, which may be easier for them than for their founders, and which may enhance their added value.

Third, boundary arrangements need to be selected and combined with care and may possibly need to be adapted over time. Boundary arrangements often complement each other in performing the same boundary action and in managing multiple boundaries. For instance, boundary concepts probably perform best if combined with other boundary arrangements that are useful in bridging boundaries in collaboration, such as social learning and role frames. In addition, boundary organisations will be able to fulfil their role better when using a range of other boundary arrangements. However, boundary management implies that boundaries are 'never finished or fixed' (Jones, 2009). As a consequence, although they institutionalise boundary actions in a way, boundary arrangements cannot be expected to be fixed either. During collaborative processes, boundary concepts, for instance, tend to evolve over time, which contributes to their bridging function. Fixing boundary concepts in sharp definitions and delineations in agreements and policy should therefore be avoided. In addition, after a boundary between government and non-government is shifted, boundary arrangements (such as

contracts) from before the boundary shift need to be reconsidered, for they may not match the new boundary.

How could boundary management have supported spatial governance in the Buijtenland van Rhoon, the setting of the story that set the stage for this thesis? First, acknowledgement would have been needed of the multiple boundaries that are relevant: the nature-agriculture boundary, the urban-rural boundary, social boundaries between groups, and the boundary between government and non-government. Second, an integrative concept could have supported the ambition to combine nature, agriculture and (urban) recreation in the area. While the governmental proposals separated agricultural and natural zones, the proposal of farmers and citizens promoted a more integrative green-blue infrastructure. However, shaping and using green-blue infrastructure as a boundary concept could have supported not only the bridging of the physical boundaries, but also the social boundaries. For that purpose, it would have had to be much more open and multi-interpretable, and NOT been drawn on a map before the phase of defining the landscape change (in which the boundary concept could have played an operationalising role). Third, a boundary concept alone would not have been enough to develop the social capital needed for deliberation and eventually collaboration. It would have had to be combined with boundary workers who could organise a boundary process that would change the rules of the game, such as a process of social learning. There would be sufficient material for a joint learning process: the cultural history of the area, sustainable farming practices, the biodiversity of the area, water management, options for future land management, and the marketing of local produce. Fourth, for social capital to develop, for actors to even enter the social learning process, the boundary between government and non-government would need to be addressed. The right to self-govern would need to be acknowledged by the government and the boundary between self-governance and public governance would have to be jointly defined. A boundary organisation, mediating between the farmers and the government could have aided the definition of this boundary. In fact, the founding of a cooperative for self-management of the area was proposed. In order to function as a boundary organisation, such a cooperative would need to balance defending the boundary of self-governance with creating the hybrid space needed for collaboration.

9

References

9 References

- Aalbers, C. B. E. M., Eckerberg, K., 2011, Governance patterns and performance of regional strategies in peri-urban areas. Comparative analysis of seven case studies in Europe and China, in: *PLUREL*, Alterra Wageningen UR, Wageningen.
- Aalbers, C. B. E. M., Van Dijk, T., 2007, JAF Remix: analysis framework. A framework for research of spatial planning and governance strategies in Rural-Urban Regions to promote sustainability of rural-urban linkages, in: *PLUREL*, Alterra Wageningen UR, Wageningen.
- Aalbers, C. B. E. M., Van Dijk, T., Van der Jagt, P. D., Westerink, J., 2009, Analysis of regional spatial planning and decision making strategies and their impact on land use in the urban fringe: case study of The Hague region, The Netherlands., in: *PLUREL*, Alterra, Wageningen, pp. 129.
- Abraham, M., Maney, G. M., 2012, Transforming place and belonging through action research, community practice, and public policy: Comparing responses to NIMBYism, *Current Sociology* 60(2):178-201.
- Adolphson, M., 2010, Kernel densities and mixed functionality in a multicentred urban region, *Environment and Planning B: Planning and Design* 37(3):550-566.
- Aguilera, A., Mignot, D., 2004, Urban sprawl, polycentrism and commuting. A comparison of seven French urban areas, *Urban Public Economics Review* 1:93-114.
- Albrechts, L., 2013, Reframing strategic spatial planning by using a coproduction perspective, *Planning Theory* 12(1):46-63.
- Allmendinger, P., Haughton, G., 2009, Soft spaces, fuzzy boundaries, and metagovernance: The new spatial planning in the Thames Gateway, *Environment and Planning A* 41(3):617-633.
- Ansell, C., Gash, A., 2008, Collaborative governance in theory and practice, *Journal of Public Administration Research and Theory* 18(4):543-571.
- Arnouts, R., Van der Zouwen, M., Arts, B., 2012, Analysing governance modes and shifts - Governance arrangements in Dutch nature policy, *Forest Policy and Economics* 16:43-50.
- Arnstein, S. R., 1969, A Ladder of Citizen Participation, *Journal of the American Planning Association* 35:216-224.
- Arts, B., Buizer, M., 2009, Forests, discourses, institutions. A discursive-institutional analysis of global forest governance, *Forest Policy and Economics* 11(5-6):340-347.
- Arts, B., Van Tatenhove, J., 2004, Policy and power: A conceptual framework between the 'old' and 'new' policy idioms, *Policy Sciences* 37(3-4):339-356.
- Bachtler, J., McMaster, I., 2008, EU Cohesion policy and the role of the regions: Investigating the influence of structural funds in the new member states, *Environment and Planning C: Government and Policy* 26(2):398-427.

- Barth, F., 2000, Boundaries and connections, in: *Signifying identities: Anthropological perspectives on boundaries and contested values* (A. Cohen, ed.), Routledge, London, pp. 17-36.
- Batáry, P., Báldi, A., Kleijn, D., Tscharntke, T., 2011, Landscape-moderated biodiversity effects of agri-environmental management: A meta-analysis, *Proceedings of the Royal Society B: Biological Sciences* **278**(1713):1894-1902.
- Bauer, A., 2010, Assessment report on local and regional planning strategies, in: *PLUREL*, Helmholtz Centre for Environmental Research - UFZ, Leipzig.
- BD, 2011, Brainport 2020. Top economy, smart society. Visie, strategie en uitvoering, Brainport Development NV, Eindhoven.
- BdJ, 2010, Raumordnungsgesetz. Baugesetzbuch, edition 42, Deutscher Taschenbuch Verlag, Bundesministerium der Justiz. Munich, pp. 415-435.
- Beintema, A. J., Dunn, E., Stroud, D. A., 1997, Birds and wet grasslands, in: *In: D.J. Pain & M.W. Pienkowski (eds.), Farming and birds in Europe: the common agricultural policy and its implications for bird conservation. Academic Press, San Diego, London; 269-296.*
- Benedict, M. A., McMahon, E. T., 2012, Green infrastructure: linking landscapes and communities, Island Press.
- Bervaes, J. C. A. M., Kuindersma, W., Onderstal, J., 2002, Rijksbufferzones; verleden, heden en toekomst, Den Haag, VROM, 2002. Voorstud. vijfde Nota ruimtel. Orden. Reeks 2 Nr. 8, 94 blz.
- Beunen, R., Opdam, P., 2011, When landscape planning becomes landscape governance, what happens to the science?, *Landscape and Urban Planning* **100**(4):324-326.
- Bianchi, F. J. J. A., Booij, C. J. H., Tscharntke, T., 2006, Sustainable pest regulation in agricultural landscapes: A review on landscape composition, biodiversity and natural pest control, *Proceedings of the Royal Society B: Biological Sciences* **273**(1595):1715-1727.
- Blomqvist, M. M., Tamis, W. L. M., de Snoo, G. R., 2009, No improvement of plant biodiversity in ditch banks after a decade of agri-environment schemes, *Basic and Applied Ecology* **10**(4):368-378.
- Bodin, Ö., Crona, B. I., 2008, Management of Natural Resources at the Community Level: Exploring the Role of Social Capital and Leadership in a Rural Fishing Community, *World Development* **36**(12):2763-2779.
- Bodin, Ö., Crona, B. I., 2009, The role of social networks in natural resource governance: What relational patterns make a difference?, *Global Environmental Change* **19**(3):366-374.
- Bodin, Ö., Robins, G., McAllister, R. R. J., Guerrero, A. M., Crona, B., Tengö, M., Lubell, M., 2016, Theorizing benefits and constraints in collaborative environmental governance: A transdisciplinary social-ecological network approach for empirical investigations, *Ecology and Society* **21**(1).

- Bogunovich, D., 2009, From planning sustainable cities to designing resilient urban regions, in: *Fourth International Conference on Sustainable Development and Planning*, WIT Press, Cyprus, pp. 87-96.
- Boonstra, W. J., Van Den Brink, A., 2007, Controlled Decontrolling: Involution and Democratisation in Dutch Rural Planning, *Planning Theory & Practice* **8**(4):473-488.
- Bosch Slabbers Landschapsarchitecten, 2007, Duin, Horst en Weide. Van Rijksbufferzone tot Regiopark, Bosch Slabbers Landschapsarchitecten, The Hague, pp. 58.
- Bramley, G., Dempsey, N., Power, S., Brown, C., Watkins, D., 2009, Social sustainability and urban form: Evidence from five British cities, *Environment and Planning A* **41**(9):2125-2142.
- Brand, R., Gaffikin, F., 2007, Collaborative planning in an uncollaborative world, *Planning Theory* **6**(3):282-313.
- Breeuwer, A., Berendse, F., Willems, F., Foppen, R., Teunissen, W., Schekkerman, H., Goedhart, P., 2009, Do meadow birds profit from agri-environment schemes in Dutch agricultural landscapes?, *Biological Conservation* **142**(12):2949-2953.
- Breheny, M., 1993, Planning the sustainable city region, *Town & Country Planning* **62**(4):71-75.
- Breheny, M., 1996, Centrists, decentrists and compromisers, in: *The compact city. A sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 13-36.
- Breheny, M., 1997, Urban compaction: Feasible and acceptable?, *Cities* **14**(4):209-217.
- Brian, S., Rodgers, M. O., 2001, Urban form and thermal efficiency how the design of cities influences the Urban heat island effect, *Journal of the American Planning Association* **67**(2):186-198.
- Briene, M., Goessen, F., Meij, S., Van der Poel, P., 2006, Recreatie Monitor Zuid-Holland, ECORYS, Rotterdam.
- Brittain, C., Kremen, C., Klein, A. M., 2013, Biodiversity buffers pollination from changes in environmental conditions, *Global Change Biology* **19**(2):540-547.
- Brons, 2010, Landschapsonwikkelingsplan Duin, Horst en Weide. De sleutel tot uitvoering. Achtergronddocument, Brons en partners landschapsarchitecten, Culemborg.
- Brunckhorst, D. J., 2005, Integration research for shaping sustainable regional landscapes, *Journal of Research Practice* **1**(2):Article M7.
- Buijs, A., Mattijssen, T., Arts, B., 2014, "The man, the administration and the counter-discourse": An analysis of the sudden turn in Dutch nature conservation policy, *Land Use Policy* **38**:676-684.
- Buijs, A. E., Pedrolì, B., Luginbühl, Y., 2006, From hiking through farmland to farming in a leisure landscape: Changing social perceptions of the European landscape, *Landscape Ecology* **21**(3 SPEC. ISS.):375-389.
- Buizer, I. M., 2008, Worlds apart: interactions between local initiatives and established policy, Wageningen University, Wageningen.

- Buizer, M., Arts, B., Westerink, J., 2015, Landscape governance as policy integration 'from below': a case of displaced and contained political conflict in the Netherlands, *Environment and Planning C: Government and Policy*.
- Burton, E., 2001, The Compact City and Social Justice, in: *Housing Studies Association Spring Conference. Housing, Environment and Sustainability*, University of York.
- Buurma, J. S., Janssens, S. R. M., Prins, H., 2009, Versterking biologische landbouw via het toekomstige GLB, LEI Wageningen UR, Den Haag, pp. 33.
- Buyck, J., Chery, J. P., Jarrige, F., 2008, Analysis of spatial planning and decision making strategies and their impact on land use in the urban fringe. Montpellier case study, in: *PLUREL*, Alfred Peter Paysagiste, Paris.
- Calthorpe, P., 1993, *The Next American Metropolis: Ecology, Community, and the American Dream*, Princeton Architectural Press, New York.
- Campbell, H., 2012, Planning to Change the World: Between Knowledge and Action Lies Synthesis, *Journal of Planning Education and Research* **32**(2):135-146.
- Capello, R., Camagni, R., 2000, Beyond optimal city size: An evaluation of alternative urban growth patterns, *Urban Studies* **37**(9):1479-1496.
- Carlile, P. R., 2004, Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries, *Organization Science* **15**(5):555-568.
- Carr, A., Wilkinson, R., 2005, Beyond participation: Boundary organizations as a new space for farmers and scientists to interact, *Society and Natural Resources: An International Journal* **18**(3):255-265.
- Cash, D. W., Adger, W. N., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L., Young, O., 2006, Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World, *Ecology and Society* **11**(2):8-19.
- Cash, D. W., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., Guston, D. H., Jäger, J., Mitchell, R. B., 2003, Knowledge systems for sustainable development, *Proceedings of the National Academy of Sciences* **100**(14):8086-8091.
- CBS, all years, Statline, Centraal Bureau voor de Statistiek.
- Christensen, K. S., 1985, Coping with uncertainty in planning, *Journal of the American Planning Association* **51**(1):63-73.
- Christiansen, T., Jorgensen, K. E., 2000, Transnational governance 'above' and 'below' the state: The changing nature of borders in the New Europe, *Regional and Federal Studies* **10**(2):62-77.
- CLG, 2010, Planning Policy Statement 3: Housing, Communities and Local Government, London.
- Creswell, J. W., 2009, Research design : qualitative, quantitative, and mixed methods approaches, Sage, Los Angeles, CA [etc.].
- CSD, 1999, European Spatial Development Perspective (ESDP): Towards balanced and sustainable development of the territory of the European Union, Committee on Spatial

- Development, Office for Official Publications of the European Communities, Brussels, Potsdam.
- Cumming, G. S., Bodin, T., Ernstson, H., Elmqvist, T., 2010, Network analysis in conservation biogeography: Challenges and opportunities, *Diversity and Distributions* **16**(3):414-425.
- Cumming, G. S., Cumming, D. H. M., Redman, C. L., 2006, Scale mismatches in social-ecological systems: Causes, consequences, and solutions, *Ecology and Society* **11**(1):14.
- Dantzig, G. B., Saaty, T. L., 1973, Compact City: a Plan for a Liveable Urban Environment., in: *Compact City*, Freeman, San Francisco.
- De Groot, R. S., Wilson, M. A., Boumans, R. M. J., 2002, A typology for the classification, description and valuation of ecosystem functions, goods and services, *Ecological Economics* **41**(3):393-408.
- De Ridder, K., Lefebvre, F., Adriaensen, S., Arnold, U., Beckroege, W., Bronner, C., Damsgaard, O., Dostal, I., Dufek, J., Hirsch, J., IntPanis, L., Kotek, Z., Ramadier, T., Thierry, A., Vermoote, S., Wania, A., Weber, C., 2008, Simulating the impact of urban sprawl on air quality and population exposure in the German Ruhr area. Part I: Reproducing the base state, *Atmospheric Environment* **42**(30):7059-7069.
- De Roo, G., 2003, Environmental Planning in the Netherlands: Too Good to be True. From Command-and-Control Planning to Shared Governance, Ashgate, Farnham.
- De Vries, J., Priemus, H., 2003, Megacorridors in north-west Europe: issues for transnational spatial governance, *Journal of Transport Geography* **11**(3):225-233.
- Deppisch, S., Hasibovic, S., 2013, Social-ecological resilience thinking as a bridging concept in transdisciplinary research on climate-change adaptation, *Natural Hazards* **67**(1):117-127.
- Dewulf, A., Gray, B., Putnam, L., Lewicki, R., Aarts, N., Bouwen, R., Van Woerkum, C., 2009, Disentangling approaches to framing in conflict and negotiation research: A meta-paradigmatic perspective, *Human Relations* **62**(2):155-193.
- Dieleman, F. M., Dijst, M. J., Spit, T., 1999, Planning the compact city: The randstad Holland experience, *European Planning Studies* **7**(5):605-621.
- Driessen, P. P. J., Dieperink, C., Van Laerhoven, F., Runhaar, H. A. C., Vermeulen, W. J. V., 2012, Towards a Conceptual Framework for The Study of Shifts in Modes of Environmental Governance - Experiences From The Netherlands, *Environmental Policy and Governance* **22**(3):143-160.
- Duany, A., Plater-Zyberk, E., Speck, J., 2000, Suburban Nation: The Rise of Sprawl and the Decline of the American Dream., North Point Press, New York.
- Dühr, S., 2007, The Visual Language of Spatial Planning: Exploring Cartographic Representations for Spatial Planning in Europe, Routledge, London.
- Dumez, H., Jeunemaitre, A., 2010, The management of organizational boundaries: A case study, *Management* **13**(3):151-171.

- Dutton, A., Edwards-Jones, G., Strachan, R., Macdonald, D. W., 2008, Ecological and social challenges to biodiversity conservation on farmland: Reconnecting habitats on a landscape scale, *Mammal Review* **38**(2-3):205-219.
- EC, 2013, Proposal for a Regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). COM(2011) 627 final/2 2011/0282 (COD), European Commission, Brussels.
- Edelenbos, J., Teisman, G. R., 2008, Public-private partnership: On the edge of project and process management. Insights from Dutch practice: The Sijtwende spatial development project, *Environment and Planning C: Government and Policy* **26**(3):614-626.
- EEA, 2006, Urban sprawl in Europe. The ignored challenge., in: *EEA Report* European Environment Agency Copenhagen.
- Eindhoven, 2013, Commissienotitie Betreft Voortgangsnotitie over Ontwikkeling Brainport Innovatie Campus binnen Landelijk Strijp. Raadsnummer 13R5217, Gemeente Eindhoven, Eindhoven.
- Elnahas, M. M., 2003, The effects of urban configuration on urban air temperatures, *Architectural Science Review* **46**(2):135-138.
- Elson, M., Walker, S., MacDonald, R., Edge, J., 1993, The Effectiveness of Green Belts, DOE, HMSO, London.
- Elzerman, K., Bontje, M., 2013, Urban Shrinkage in Parkstad Limburg, *European Planning Studies* **23**(1):87-103.
- Emerson, K., Nabatchi, T., Balogh, S., 2012, An integrative framework for collaborative governance, *Journal of Public Administration Research and Theory* **22**(1):1-29.
- Emery, S. B., Franks, J. R., 2012, The potential for collaborative agri-environment schemes in England: Can a well-designed collaborative approach address farmers' concerns with current schemes?, *Journal of Rural Studies* **28**(3):218-231.
- Emmanuel, R., Fernando, H. J. S., 2007, Urban heat islands in humid and arid climates: Role of urban form and thermal properties in Colombo, Sri Lanka and Phoenix, USA, *Climate Research* **34**(3):241-251.
- Evers, A., Schulz, A. D., Wiesner, C., 2006, Local Policy Networks in the Programme Social City -- A Case in Point for New Forms of Governance in the Field of Local Social Work and Urban Planning, *European Journal of Social Work* **9**(2):183-200.
- Ewing, R., Rong, F., 2008, The impact of urban form on U.S. residential energy use, *Housing Policy Debate* **19**(1):1-30.
- EZ, 1997, Ruimte voor economische dynamiek: Een verkennende analyse van ruimtelijk-economische ontwikkelingen tot 2020, Ministerie van Economische Zaken, Den Haag.
- Faehnle, M., Tyrväinen, L., 2013, A framework for evaluating and designing collaborative planning, *Land Use Policy* **34**(0):332-341.
- Fahrig, L., 2003, Effects of Habitat Fragmentation on Biodiversity, in: *Annual Review of Ecology, Evolution, and Systematics*, pp. 487-515.

- Falconer, K., 2000, Farm-level constraints on agri-environmental scheme participation: A transactional perspective, *Journal of Rural Studies* **16**(3):379-394.
- Faludi, A., 2000, The performance of spatial planning, *Planning Practice and Research* **15**(4):299-318.
- Faludi, A., 2001, The application of the European Spatial development perspective: Evidence from the north-west metropolitan area, *European Planning Studies* **9**(5):663-676.
- Faludi, A., Van der Valk, A., 1994, Rule and Order - Dutch Planning Doctrine in the Twentieth Century, Kluwer Academic Publishers, Dordrecht.
- Feindt, P. H., Kleinschmit, D., 2011, The BSE Crisis in German Newspapers: Reframing Responsibility, *Science as Culture* **20**(2):183-208.
- Fernández-Maldonado, A. M., Romein, A., 2010, The role of organisational capacity and knowledge-based development: The reinvention of Eindhoven, *International Journal of Knowledge-Based Development* **1**(1-2):79-96.
- Flyvbjerg, B., 1998a, Habermas and Foucault: Thinkers for civil society?, *British Journal of Sociology* **49**(2):210-233.
- Flyvbjerg, B., 1998b, Rationality and Power. Democracy in Practice, The University of Chicago Press, Chicago, London.
- Flyvbjerg, B., 2006, Five misunderstandings about case-study research, *Qualitative Inquiry* **12**(2):219-245.
- Flyvbjerg, B., Richardson, T., 2002, In search of the dark side of planning theory., in: *Planning Futures: New Directions for Planning Theory* (P. Allmendinger, M. Tewdwr-Jones, eds.), Routledge, London and New York, pp. 44-62.
- Foucault, M., 1972, The Archaeology of Knowledge, Travistock Publications, London.
- Franks, J., 2010, Boundary organizations for sustainable land management: The example of Dutch Environmental Co-operatives, *Ecological Economics* **70**(2):283-295.
- Franks, J. R., 2011, The collective provision of environmental goods: A discussion of contractual issues, *Journal of Environmental Planning and Management* **54**(5):637-660.
- Franks, J. R., Emery, S. B., 2013, Incentivising collaborative conservation: Lessons from existing environmental Stewardship Scheme options, *Land Use Policy* **30**(1):847-862.
- Franks, J. R., McGloin, A., 2007a, Environmental co-operatives as instruments for delivering across-farm environmental and rural policy objectives: Lessons for the UK, *Journal of Rural Studies* **23**(4):472-489.
- Franks, J. R., McGloin, A., 2007b, Joint submissions, output related payments and Environmental Co-operatives: Can the Dutch experience innovate UK agri-environment policy?, *Journal of Environmental Planning and Management* **50**(2):233-256.
- Fricke, C., 2015, Spatial Governance across Borders Revisited: Organizational Forms and Spatial Planning in Metropolitan Cross-border Regions, *European Planning Studies* **23**(5):849-870.

- Fürst, C., Opdam, P., Inostroza, L., Luque, S., 2014, Evaluating the role of ecosystem services in participatory land use planning: proposing a balanced score card, *Landscape Ecology* **29**(8):1435-1446.
- Gabriel, D., Sait, S. M., Hodgson, J. A., Schmutz, U., Kunin, W. E., Benton, T. G., 2010, Scale matters: The impact of organic farming on biodiversity at different spatial scales, *Ecology Letters* **13**(7):858-869.
- Geertsema, W., Opdam, P., Kropff, M. J., 2002, Plant strategies and agricultural landscapes: Survival in spatially and temporally fragmented habitat, *Landscape Ecology* **17**(3):263-279.
- Gerritsen, A. L., Stuiver, M., Termeer, C. J. A. M., 2013, Knowledge governance: An exploration of principles, impact, and barriers, *Science and Public Policy* **40**(5):604-615.
- Gibbons, J. M., Nicholson, E., Milner-Gulland, E. J., Jones, J. P. G., 2011, Should payments for biodiversity conservation be based on action or results?, *Journal of Applied Ecology* **48**(5):1218-1226.
- Giddens, A., 1984, *The constitution of society*, University of California Press, Berkeley and Los Angeles.
- Gieryn, T. F., 1983, Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists, *American Sociological Review* **48**(6):781-795.
- Gill, R., 2000, Discourse Analysis, in: *Qualitative Researching with Text, Image and Sound. A Practical Handbook* (M. W. Bauer, G. Gaskell, eds.), Sage, London, pp. 172-190.
- Glasbergen, P., 2000, The environmental cooperative: self-governance in sustainable rural development, *Journal of Environment and Development* **9**(3):240-259.
- Gómez-Baggethun, E., de Groot, R., Lomas, P. L., Montes, C., 2010, The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes, *Ecological Economics* **69**(6):1209-1218.
- GONW, 2008, *Regional Spatial Strategy for the North West Region*, Government Office for the North West, London.
- Gordon, P., Richardson, H. W., 1997, Are compact cities a desirable planning goal?, *Journal of the American Planning Association* **63**(1):95-106.
- Görg, C., 2007, Landscape governance. The "politics of scale" and the "natural" conditions of places., *Geoforum* **38**(5):954-966.
- Gough, D. A., Oliver, S., Thomas, J., 2013, *An introduction to systematic reviews*, London [etc.], GB: SAGE.
- Graham, S., Healey, P., 1999, Relational concepts of space and place: Issues for planning theory and practice, *European Planning Studies* **7**(5):623-646.
- Granovetter, M., 1983, The Strength of Weak Ties: A Network Theory Revisited, *Sociological Theory* **1**:201-233.

- Gray, B., 1989, Collaborating: Finding common ground for multiparty problems, Jossey-Bass, San Francisco, CA.
- Gregory, I. N., 2002, Time-variant GIS databases of changing historical administrative boundaries: A European comparison, *Transactions in GIS* **6**(2):161-178.
- GRL, 2010, Grüner Ring Leipzig.
- Groot, S. P. T., Groot, H. L. F. d., 2016, Dynamiek van hoger opgeleiden op de arbeids- en woningmarkt, *in progress*.
- Haase, A., Kabisch, S., Steinführer, A., 2005, Reurbanisation of inner-city areas in European cities: scrutinizing a concept of urban development with reference to demographic and household change, in: *Society, Economy, Environment-Towards the Sustainable City* (I. Sagan, D. M. Smith, eds.), Bogucki Wydawnictwo Naukowe, Gdansk and Poznan, pp. 75-91.
- Haase, D., 2008, Urban ecology of shrinking cities: an unrecognised opportunity?, *Nature and Culture* **3**(1):1-8.
- Haase, D., Nuißl, H., 2007, Does urban sprawl drive changes in the water balance and policy?. The case of Leipzig (Germany) 1870-2003, *Landscape and Urban Planning* **80**(1-2):1-13.
- Habermas, J., 1984, The Theory of Communicative Action, Beacon Press, Boston.
- Haccou, H. A., Deelstra, T., Jain, A., Pamer, V., Krosnicka, K., De Waard, R., 2007, MILU: Multifunctional and Intensive Land Use. Principles, Practices, Projects and Policies, The Habiforum Foundation, Gouda.
- Hagens, J. E., 2010, The performance of landscape concepts in spatial planning : branding, bonding and bringing about, Wageningen University, Wageningen.
- Hajer, M., 2011, De energieke samenleving. Op zoek naar een sturingsfilosofie voor een schone economie, Planbureau voor de Leefomgeving, Den Haag.
- Hajer, M., Versteeg, W., 2005, A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives, *Journal of Environmental Policy and Planning* **7**(3):175-184.
- Hajer, M., Zonneveld, W., 2000, Spatial planning in the network society-rethinking the principles of planning in the Netherlands, *European Planning Studies* **8**(3):337-355.
- Hall, P., 1993, Comments on Dutch Planning, in: *Dutch Strategic Planning in International Perspective* (A. Faludi, ed.), SISWO, Amsterdam.
- Halley, A. A., 1998, Applications of boundary theory to organizational and inter-organizational culture, *Public Administration and Management* **3**(2):5-19.
- Hartmann, T., Spit, T., 2015, Dilemmas of involvement in land management – Comparing an active (Dutch) and a passive (German) approach, *Land Use Policy* **42**:729-737.
- Harvey, F., Chrisman, N., 1998, Boundary objects and the social construction of GIS technology, *Environment and Planning A* **30**(9):1683-1694.

- Häußermann, H., Haila, A., 2004, The European City: A Conceptual Framework and Normative Project, in: *Cities of Europe: Changing Contexts, Local Arrangements and the Challenge to Social Cohesion* (Y. Kazepov, ed.), Blackwell Publishing, Oxford, pp. 43-63.
- Healey, P., 1997, Collaborative planning. Shaping places in fragmented societies, in: *Planning - Environment - Cities*, Macmillan Press, London.
- Healey, P., 2004, The treatment of space and place in the new strategic spatial planning in Europe, *International Journal of Urban and Regional Research* **28**(1):45-67.
- Healey, P., 2006, Collaborative Planning, Second Edition. Shaping Places in Fragmented Societies, in: *Planning - Environment - Cities*, Palgrave Macmillan, Houndmills, Basingstoke.
- Healey, P., 2012, Re-enchanting democracy as a mode of governance, *Critical Policy Studies* **6**(1):19-39.
- Heley, J., 2013, Soft spaces, fuzzy boundaries and spatial governance in post-devolution Wales, *International Journal of Urban and Regional Research* **37**(4):1325-1348.
- Hernes, T., 2004, Studying composite boundaries: A framework of analysis, *Human Relations* **57**(1):9-29.
- Herringshaw, C. J., Thompson, J. R., Stewart, T. W., 2010, Learning about restoration of urban ecosystems: A case study integrating public participation, stormwater management, and ecological research, *Urban Ecosystems* **13**(4):535-562.
- Herzon, I., Helenius, J., 2008, Agricultural drainage ditches, their biological importance and functioning, *Biological Conservation* **141**(5):1171-1183.
- Hillman, M., 1996, In favour of the compact city, in: *The compact city. A sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 36-44.
- Holden, E., 2004, Ecological footprints and sustainable urban form, *Journal of Housing and the Built Environment* **19**(1):91-109.
- Holden, E., Norland, I. T., 2005, Three challenges for the compact city as a sustainable urban form: Household consumption of energy and transport in eight residential areas in the Greater Oslo Region, *Urban Studies* **42**(12):2145-2166.
- Hoppe, R., 2005, Rethinking the science-policy nexus: From knowledge utilization and science technology studies to types of boundary arrangements, *Poiesis und Praxis* **3**(3):199-215.
- Hoppe, R., 2010, From knowledge use towards boundary work: Sketch of an emerging new agenda for inquiry into science-policy interaction, in: *Knowledge Democracy: Consequences for Science, Politics, and Media*, pp. 169-186.
- Hospers, G. J., 2014, Policy Responses to Urban Shrinkage: From Growth Thinking to Civic Engagement *European Planning Studies* **22**(7):1507-1523.
- Howley, P., 2009, Attitudes towards compact city living: Towards a greater understanding of residential behaviour, *Land Use Policy* **26**(3):792-798.

- Howley, P., 2010, 'Sustainability versus liveability': An exploration of central city housing satisfaction, *European Journal of Housing Policy* **10**(2):173-189.
- Howley, P., Scott, M., Redmond, D., 2009, Sustainability versus liveability: An investigation of neighbourhood satisfaction, *Journal of Environmental Planning and Management* **52**(6):847-864.
- Hughes, S., Pincetl, S., 2014, Evaluating collaborative institutions in context: the case of regional water management in southern California, *Environment and Planning C: Government and Policy* **32**(1):20-38.
- Huntjens, P., Eshuis, J., Termeer, C. J. A. M., Van Buuren, A., 2015, Forms and foundations of action research, in: *Action Research for Climate Adaptation. Developing and applying knowledge for governance* (A. Van Buuren, J. Eshuis, M. Van Vliet, eds.), Routledge, Oxon/ New York, pp. 19-34.
- Ingram, J., Gaskell, P., Mills, J., Short, C., 2013, Incorporating agri-environment schemes into farm development pathways: A temporal analysis of farmer motivations, *Land Use Policy* **31**:267-279.
- Innés, J. E., Booher, D. E., 1999, Consensus building and complex adaptive systems a framework for evaluating collaborative planning, *Journal of the American Planning Association* **65**(4):412-423.
- Innés, J. E., Booher, D. E., 2015, A turning point for planning theory? Overcoming dividing discourses, *Planning Theory* **14**(2):195-213.
- Innes, J. E., Booher, D. E., Di Vittorio, S., 2011, Strategies for megaregion governance: Collaborative dialogue, networks, and self-organization, *Journal of the American Planning Association* **77**(1):55-67.
- Innés, J. E., Rongerude, J., 2013, Civic networks for sustainable regions - Innovative practices and emergent theory, *Planning Theory and Practice* **14**(1):75-100.
- INSEE, 2010, Les chiffres clés de Montpellier Agglomération, pp. 14.
- Isbell, F., Calcagno, V., Hector, A., Connolly, J., Harpole, W. S., Reich, P. B., Scherer-Lorenzen, M., Schmid, B., Tilman, D., Van Ruijven, J., Weigelt, A., Wilsey, B. J., Zavaleta, E. S., Loreau, M., 2011, High plant diversity is needed to maintain ecosystem services, *Nature* **477**(7363):199-202.
- Jacquez, G. M., Maruca, S., Fortin, M. J., 2000, From fields to objects: A review of geographic boundary analysis, *Journal of Geographical Systems* **2**(3):221-241.
- Jarrige, F., Soulard, C., Nougaredes, B., Laurens, L., Sabatier, B., 2008, Les projets agri-urbains: des innovations territoriales? Exemple du bâti agricole dans l'Hérault (France), in: *Territoires, acteurs et projets: regards sur le canada, la France et ailleurs* (F. N. D. Laurens, L. Bryant, S. Loudiyi, eds.), Editions de l'Université de Montréal, Montréal, pp. 91-97.
- Jenks, M., Burton, E. E., 1996, The compact city: a sustainable urban form?, E & FN Spon, London [etc.].

- Johnson, J., 1996, Sustainability in Scottish cities, in: *The Compact City: a sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 318-327.
- Jones, R., 2009, Categories, borders and boundaries, *Progress in Human Geography* **33**(2):174-189.
- Jørgensen, M., Phillips, L., 2002, Discourse analysis as theory and method, Sage, London.
- Kempenaar, A., van Lierop, M., Westerink, J., van der Valk, A., van den Brink, A., 2016, Change of Thought: Findings on Planning for Shrinkage from a Regional Design Competition, *Planning Practice & Research* **31**(1):23-40.
- Kentie, R., Hooijmeijer, J. C. E. W., Trimbos, K. B., Groen, N. M., Piersma, T., 2013, Intensified agricultural use of grasslands reduces growth and survival of precocial shorebird chicks, *Journal of Applied Ecology* **50**(1):243-251.
- Keulartz, J., 2009, Boundary-work, Pluralism and the Environment, in: *A Companion to the Philosophy of Technology*, pp. 263-269.
- Kleijn, D., Baquero, R. A., Clough, Y., Díaz, M., De Esteban, J., Fernández, F., Gabriel, D., Herzog, F., Holzschuh, A., Jöhl, R., Knop, E., Kruess, A., Marshall, E. J. P., Steffan-Dewenter, I., Tscharnkte, T., Verhulst, J., West, T. M., Yela, J. L., 2006, Mixed biodiversity benefits of agri-environment schemes in five European countries, *Ecology Letters* **9**(3):243-254.
- Kleijn, D., Berendse, F., Smit, R., Gilissen, N., 2001, Agri-environment schemes do not effectively protect biodiversity in Dutch agricultural landscapes, *Nature* **413**(6857):723-725.
- Kleijn, D., Schekkerman, H., Dimmers, W. J., Van Kats, R. J. M., Melman, D., Teunissen, W. A., 2010, Adverse effects of agricultural intensification and climate change on breeding habitat quality of Black-tailed Godwits Limosa l. Limosa in the Netherlands, *Ibis* **152**(3):475-486.
- Knight, C., 1996, Economic and social issues, in: *The Compact City. A sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 114-121.
- Kooij, H.-J., Van Assche, K., Lagendijk, A., 2014, Open Concepts as Crystallization Points and Enablers of Discursive Configurations: The Case of the Innovation Campus in the Netherlands, *European Planning Studies* **22**(1):84-100.
- Kooiman, J., 2003, Governing as governance, Sage, London.
- Koomen, E., Dekkers, J., Van Dijk, T., 2008, Open-space preservation in the Netherlands: Planning, practice and prospects, *Land Use Policy* **25**(3):361-377.
- Koomen, E., Rietveld, P., Bacao, F., 2009, The third dimension in urban geography: The urban-volume approach, *Environment and Planning B: Planning and Design* **36**(6):1008-1025.
- Korevaar, H., Geerts, R. H. E. M., 2011, Tussentijdse evaluatie GLB pilot Winterswijk, Plant Research International, Wageningen, pp. 46.
- Kruess, A., Tscharnkte, T., 1994, Habitat fragmentation, species loss, and biological control, *Science* **264**(5165):1581-1584.

- Kruk, M., Noordervliet, M. A. W., Ter Keurs, W. J., 1997, Survival of black-tailed godwit chicks *Limosa limosa* in intensively exploited grassland areas in the Netherlands, *Biological Conservation* **80**(2):127-133.
- Kueffer, C., Hirsch Hadorn, G., 2008, How to Achieve Effectiveness in Problem-Oriented Landscape Research: The Example of Research on Biotic Invasions, *Living Reviews in Landscape Research* **2**(2):49.
- Kuindersma, W., Arts, B., Van der Zouwen, M. W., 2012, Power faces in regional governance, *Journal of Political Power* **5**(3):411-429.
- Kuindersma, W., Boonstra, F. G., 2010, The changing role of the state in dutch regional partnerships, *Environment and Planning C: Government and Policy* **28**(6):1045-1062.
- Kull, C. A., Arnould de Sartre, X., Castro-Larrañaga, M., 2015, The political ecology of ecosystem services, *Geoforum* **61**:122-134.
- Lamont, M., Molnár, V., 2002, The study of boundaries in the social sciences, in: *Annual Review of Sociology*, pp. 167-195.
- Lang, D. J., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., Swilling, M., Thomas, C. J., 2012, Transdisciplinary research in sustainability science: Practice, principles, and challenges, *Sustainability Science* **7**(SUPPL. 1):25-43.
- Leino, H., 2012, Boundary Interaction in Emerging Scenes: Two Participatory Planning Cases from Finland, *Planning Theory and Practice* **13**(3):383-396.
- Leys, A. J., Vanclay, J. K., 2011, Social learning: A knowledge and capacity building approach for adaptive co-management of contested landscapes, *Land Use Policy* **28**(3):574-584.
- Lin, J. J., Yang, A. T., 2006, Does the compact-city paradigm foster sustainability? An empirical study in Taiwan, *Environment and Planning B: Planning and Design* **33**(3):365-380.
- LNv, 1996, Visie Stadslandschappen, Ministerie van Landbouw, Natuurbeheer en Visserij, Den Haag.
- Loibl, W., Köstl, M., 2010, Report on a methodology to delineate RUR sub-regions, in: *PLUREL*, Austrian Research Centres, Seibersdorf.
- Loibl, W., Köstl, M., Steinnocher, K., 2008, List of generic rural-urban region types; quantitative classification, in: *PLUREL*, Austrian Research Centers, Seibersdorf.
- Lopez-Gunn, E., 2003, The Role of Collective Action in Water Governance: A Comparative Study of Groundwater User Associations in La Mancha Aquifers in Spain, *Water International* **28**(3):367-378.
- LPSA, 2003, Landesentwicklungsplan 2003, Sächsisches Staatsministerium des Innern, Dresden.
- LPSAH, 1999, Landesentwicklungsplan des Landes Sachsen-Anhalt, Ministerium für Landesentwicklung und Verkehr Sachsen-Anhalt, Magdeburg.
- Lütke-Daldrup, E., 2001, Die perforierte Stadt. Eine Versuchsanordnung, *Bauwelt*, **24**, *Stadtbauwelt* **150**:40-45.

- Madanipour, A., 2006, Roles and challenges of urban design, *Journal of Urban Design* **11**(2):173-193.
- Mäntysalo, R., Jarenko, K., Nilsson, K. L., Saglie, I.-L., 2014, Legitimacy of Informal Strategic Urban Planning—Observations from Finland, Sweden and Norway, *European Planning Studies* **23**(2):349-366.
- Martins, H., Miranda, A. I., Borrego, C., 2008, Linking urban structure and air quality, in: *Transportation Land Use, Planning, and Air Quality - Proceedings of the 2007 Transportation Land Use, Planning, and Air Quality Congress*, Orlando, Florida, United States, pp. 219-227.
- Mastop, H., Faludi, A., 1997, Evaluation of strategic plans: The performance principle, *Environment and Planning B: Planning and Design* **24**(6):815-832.
- Matthews, R., Selman, P., 2006, Landscape as a Focus for Integrating Human and Environmental Processes, *Journal of Agricultural Economics* **57**(2):199-212.
- Maxwell, J. A., 2012, A realist approach to qualitative research, Sage, Thousand Oaks, California.
- McKenzie, A. J., Emery, S. B., Franks, J. R., Whittingham, M. J., 2013, FORUM: Landscape-scale conservation: Collaborative agri-environment schemes could benefit both biodiversity and ecosystem services, but will farmers be willing to participate?, *Journal of Applied Ecology* **50**(5):1274-1280.
- Meijerink, S., Stiller, S., 2013, What Kind of Leadership Do We Need for Climate Adaptation? A Framework for Analyzing Leadership Objectives, Functions, and Tasks in Climate Change Adaptation, *Environment and Planning C: Government and Policy* **31**(2):240-256.
- Melman, D., Schotman, A., Vanmeulebrouk, B., Kiers, M., Meeuwssen, H., Roosenschoon, O. R., De Snoo, G. R., 2010, An internet-accessible tool for drawing up tailor made management plans for meadow birds, in: *Agri-environment schemes; what have they achieved and where do we go from here?*, 27-29 April 2010, Oadby, UK, pp. 405-414.
- Melman, T. C. P., Schotman, A. M., Vanmeulenbrouk, B., Kiers, M. A., Snoo, G. R. d., 2012, An Internet-accessible tool for drawing up tailor made management plans for meadow birds, in: *Agriculture in an Urbanizing Society*, Hof van Wageningen, Wageningen.
- Menzel, S., Teng, J., 2010, Ecosystem services as a stakeholder-driven concept for conservation science, *Conservation Biology* **24**(3):907-909.
- Merckx, T., Feber, R. E., Riordan, P., Townsend, M. C., Bourn, N. A. D., Parsons, M. S., Macdonald, D. W., 2009, Optimizing the biodiversity gain from agri-environment schemes, *Agriculture, Ecosystems and Environment* **130**(3-4):177-182.
- Metze, T. A. P., 2011, Deliberative governance in synergy with government: A case study of credible environmental improvements in the dairy gateway, USA, *International Review of Administrative Sciences* **77**(1):31-49.
- Metze, T. P., Van Zuydam, S., 2013, Pigs in the City: Reflective Deliberations on the Boundary Concept of Agroparks in The Netherlands, *Journal of Environmental Policy and Planning*.

- Miles, M. B., Huberman, A. M., 2013, *Qualitative Data Analysis*, Sage, London.
- Miller, C., 2001, Hybrid management: Boundary organizations, science policy, and environmental governance in the climate regime, *Science Technology and Human Values* **26**(4):478-500.
- Mills, J., Gibbon, D., Ingram, J., Reed, M., Short, C., Dwyer, J., 2011, Organising collective action for effective environmental management and social learning in Wales, *Journal of Agricultural Education and Extension* **17**(1):69-83.
- Mills, M., Álvarez-Romero, J. G., Vance-Borland, K., Cohen, P., Pressey, R. L., Guerrero, A. M., Ernstson, H., 2014, Linking regional planning and local action: Towards using social network analysis in systematic conservation planning, *Biological Conservation* **169**:6-13.
- MoL, 2006, Monitoringbericht 2005, Municipality of Leipzig, Leipzig.
- MoL, 2009, Monitoringbericht 2008, Municipality of Leipzig, Leipzig.
- Mollinga, P. P., 2010, Boundary Work and the Complexity of Natural Resources Management, *Crop Science* **50**(Supplement_1):S-1-S-9.
- Montpellier-Agglomération, 2006, Schéma de cohérence territoriale de l'Agglomération de Montpellier, Montpellier-Agglomération, Montpellier, pp. 211.
- Morris, C., 2004, Networks of agri-environmental policy implementation: a case study of England's Countryside Stewardship Scheme, *Land Use Policy* **21**(2):177-191.
- Morris, C., 2006, Negotiating the boundary between state-led and farmer approaches to knowing nature: An analysis of UK agri-environment schemes, *Geoforum* **37**(1):113-127.
- Nadav, H., 2010, The Power to Collaborate. How judicious use of power accelerates the strategic capacity of regions in the Netherlands, Eburon Uitgeverij BV, Delft.
- NE, CPRE, 2009, Green Belts: a greener future, Natural England, CPRE, Cheltenham, UK.
- Needham, B., 2005, The new Dutch spatial planning act: Continuity and change in the way in which the Dutch regulate the practice of spatial planning, *Planning Practice and Research* **20**(3):327-340.
- Neuman, M., 2005, The compact city fallacy, *Journal of Planning Education and Research* **25**(1):11-26.
- Newman, D., Paasi, A., 1998, Fences and neighbours in the postmodern world: Boundary narratives in political geography, *Progress in Human Geography* **22**(2):186-207.
- Nickolai, D. H., Hoffman, S. G., Trautner, M. N., 2012, Can a Knowledge Sanctuary also be an Economic Engine? The Marketization of Higher Education as Institutional Boundary Work, *Sociology Compass* **6**(3):205-218.
- Nielsen, H. E., 2003, Final LIFE-Nature report 2002. Waddensea Estuary Nature and Environment Improvement Project. Project no.: LIFE99 NAT/DK/006456, Danish Forest and Nature Agency, Oxbøl State Forest District, Oxbøl.

- Nienhuis, I., Van Dijk, T., De Roo, G., 2011, Let's collaborate! But who's really collaborating? Individual interests as a leitmotiv for urban renewal and regeneration strategies, *Planning Theory and Practice* **12**(1):95-109.
- Nilsson, K., Sick Nielsen, T., Pauleit, S., 2008, A plurel approach to peri-urban areas. *Town & Country Planning* (December):519-524.
- Nougarèdes, B., 2008, Sociabilités et modes d'habiter: le bâti viticole dans l'Hérault. Mémoire de Master II recherche "formation aux métiers de la recherche en sociologie", option "action publique territoire et environnement", Université de Toulouse II - Le Mirail, Toulouse.
- Nuissl, H., Rink, D., 2005, The 'production' of urban sprawl in eastern Germany as a phenomenon of post-socialist transformation, *Cities* **22**(2):123-134.
- NWDA, 2009, Regional Economic Strategy for the North West, North West Development Agency, Warrington.
- O'Mahony, S., Bechky, B. A., 2008, Boundary organizations: Enabling collaboration among unexpected allies, *Administrative Science Quarterly* **53**(3 SPEC. ISS.):422-459.
- OCW, LNV, VROM, VenW, 1999, Nota Belvédère. Beleidsnota over de relatie cultuurhistorie en ruimtelijke inrichting, Ministerie van Onderwijs, Cultuur en Wetenschappen; Ministerie van Landbouw, Natuur en Visserij; Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu; Ministerie van Verkeer en Waterstaat, Den Haag.
- OECD, 2013, Providing Agri-environmental Public Goods through Collective Action, OECD Publishing, Paris.
- Olesen, K., 2014, The neoliberalisation of strategic spatial planning, *Planning Theory* **13**(3):288-303.
- Olsson, P., Folke, C., Berkes, F., 2004, Adaptive comanagement for building resilience in social-ecological systems, *Environmental Management* **34**(1):75-90.
- Oosterveld, E. B., 2006, Betekenis van waterpeil en bemesting voor weidevogels, in: *De Levende Natuur*, pp. 134-137.
- Oosterveld, E. B., Nijland, F., Musters, C. J. M., de Snoo, G. R., 2011, Effectiveness of spatial mosaic management for grassland breeding shorebirds, *Journal of Ornithology* **152**(1):161-170.
- Opdam, P., Coninx, I., Dewulf, A., Steingröver, E., Vos, C., van der Wal, M., 2015a, Framing ecosystem services: Affecting behaviour of actors in collaborative landscape planning?, *Land Use Policy* **46**:223-231.
- Opdam, P., Foppen, R., Vos, C., 2001, Bridging the gap between ecology and spatial planning in landscape ecology, *Landscape Ecology* **16**(8):767-779.
- Opdam, P., Nassauer, J. I., Wang, Z., Albert, C., Bentrup, G., Castella, J. C., McAlpine, C., Liu, J., Sheppard, S., Swaffield, S., 2013, Science for action at the local landscape scale, *Landscape Ecology* **28**(8):1439-1445.

- Opdam, P., Steingröver, E., Rooij, S. V., 2006, Ecological networks: A spatial concept for multi-actor planning of sustainable landscapes, *Landscape and Urban Planning* **75**(3-4):322-332.
- Opdam, P. F. M., 2013, Using ecosystem services in community-based landscape planning: science is not ready to deliver, in: *Landscape Ecology for Sustainable Environment and Culture* (B. Fu, K. B. Jones, eds.), Springer, Dordrecht, pp. 77 - 101.
- Opdam, P. F. M., Westerink, J., Vos, C. C., Vries, E. A. d., 2015b, The role and evolution of boundary concepts in transdisciplinary landscape planning, *Planning Theory and Practice* **16**(1):63-78.
- Ostrom, E., 1990, *Governing The Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, Cambridge.
- Ostrom, E., 1996, Crossing the great divide: Coproduction, synergy, and development, *World Development* **24**(6):1073-1087.
- Ostrom, E., 1999, Self Governance and Forest Resources in: *Occasional Paper No. 20*, CIFOR, Bogor.
- Ostrom, E., 2009, A general framework for analyzing sustainability of social-ecological systems, *Science* **325**(5939):419-422.
- Owen, S., Moseley, M., Courtney, P., 2007, Bridging the gap: An attempt to reconcile strategic planning and very local community-based planning in Rural England, *Local Government Studies* **33**(1):49-76.
- Owens, S., 1986, *Energy, planning and urban form*, Pion Limited, London, pp. 118.
- Owens, S. E., Rickaby, P. A., 1992, Settlements and energy revisited, *Built Environment* **18**(4):247-252.
- Paassen, A. v., Berg, J. v. d., Steingröver, E. G., Werkman, R. A., Pedroli, B., 2011a, Knowledge in action : the search for collaborative research for sustainable landscape development, in: *Mansholt publication series : 11*, Wageningen Academic Publishers, Wageningen, pp. 319.
- Paassen, A. v., Opdam, P., Steingröver, E. G., Berg, J. v. d., 2011b, Landscape science and societal action, in: *Knowledge in action : the search for collaborative research for sustainable landscape development*, Wageningen Academic Publishers, Wageningen, pp. 17-40.
- Padt, F. J., Westerink, J., 2012, Addressing Scale in Open Space Preservation: Learning from the Hague Region in the Netherlands, *Tijdschrift voor Economische en Sociale Geografie* **103**(5):601-614.
- Pahl-Wostl, C., 2006, The importance of social learning in restoring the multifunctionality of rivers and floodplains, *Ecology and Society* **11**(1).
- Pahl-Wostl, C., Craps, M., Dewulf, A., Mostert, E., Tabara, D., Taillieu, T., 2007, Social learning and water resources management, *Ecology and Society* **12**(2).
- Palacios-Agundez, I., Fernández de Manuel, B., Rodríguez-Loinaz, G., Peña, L., Ametzaga-Arregi, I., Alday, J. G., Casado-Arzuaga, I., Madariaga, I., Arana, X., Onaindia, M., 2014, Integrating

- stakeholders' demands and scientific knowledge on ecosystem services in landscape planning, *Landscape Ecology*:1-11.
- Parker, G., Street, E., 2015, Planning at the neighbourhood scale: localism, dialogic politics, and the modulation of community action *Environment and Planning C: Government and Policy* **33**(4):794-810.
- Parker, J., Crona, B., 2012, On being all things to all people: Boundary organizations and the contemporary research university, *Social Studies of Science* **42**(2):262-289.
- Parkstad, 2009, Herstructureringsvisie voor de woningvoorraad, Parkstad Limburg, Heerlen.
- Parkstad, 2013, IBABoek 1.1 (P.-I. organisatie, ed.), Stadsregio Parkstad Limburg, Heerlen.
- Pasqui, G., Bozzuto, P., 2011, Keywords: city of cities/ city of populations, in: *Strategic Planning for Contemporary Urban Regions. City of Cities: A Project for Milan* (A. Balducci, V. Fedeli, G. Pasqui, eds.), Ashgate, Farnham, pp. 89-93.
- PBL, 2013, Demografische ontwikkelingen 2010-2040 – Ruimtelijke effecten en regionale diversiteit, Planbureau voor de Leefomgeving, The Hague.
- Peel, D., Lloyd, G., Lord, A., 2009, Business improvement districts and the discourse of contractualism, *European Planning Studies* **17**(3):401-422.
- Pleijte, M., Schut, M., During, R., 2011, Reflexivity in action research: two spatial planning cases, in: *Knowledge in action : the search for collaborative research for sustainable landscape development*, Wageningen Academic Publishers, Wageningen, pp. 221-246.
- Polman, N., Poppe, K. J., Van der Schans, J.-W., Van der Ploeg, J. D., 2010, Nested markets with common pool resources in multifunctional agriculture, *Rivista Di Economia Agraria LXV* **2**(Giugno):295-318.
- Polman, N. B. P., 2002, Institutional economics analysis of contractual arrangements; managing wildlife and landscape on Dutch farms, Wageningen Universiteit, Wageningen.
- Polman, N. B. P., Slangen, L. H. G., Van Huylenbroeck, G., 2011, Collective approaches to agri-environmental management, in: *EU policy for agriculture, food and rural areas: 2nd revised edition* (A. J. Oskam, G. Meester, H. J. Silvis, eds.), Wageningen Academic Publishers, Wageningen, pp. 371-376.
- Prager, K., 2015a, Agri-environmental collaboratives as bridging organisations in landscape management, *Journal of Environmental Management* **161**:375-384.
- Prager, K., 2015b, Agri-environmental collaboratives for landscape management in Europe, *Current Opinion in Environmental Sustainability* **12**:59-66.
- Prager, K., Reed, M., Scott, A., 2012, Encouraging collaboration for the provision of ecosystem services at a landscape scale-Rethinking agri-environmental payments, *Land Use Policy* **29**(1):244-249.
- Pretty, J., 2003, Social Capital and the Collective Management of Resources, *Science* **302**(5652):1912-1914.

- Priemus, H., 2002, Public-private partnership for spatio-economic investments: A changing spatial planning approach in the Netherlands, *Planning Practice and Research* **17**(2):197-203.
- Putnam, R., Light, I., de Souza Briggs, X., Rohe, W. M., Vidal, A. C., Hutchinson, J., Gress, J., Woolcock, M., 2004, Using Social Capital to Help Integrate Planning Theory, Research, and Practice: Preface, *Journal of the American Planning Association* **70**(2):142-192.
- PvD, 2004, Pact van Duivenvoorde Samenwerkingsconvenant, Gemeente Leidschendam-Voorburg, Gemeente Voorschoten en Gemeente Wassenaar, Wassenaar.
- PZH, 2007, Doen wat werkt. Contourennota Levend Landschap, Provincie Zuid-Holland, Den Haag.
- PZH, 2010, Visie op Zuid-Holland. Structuurvisie, Provincie Zuid-Holland, Den Haag.
- Raco, M., Flint, J., 2001, Communities, places and institutional relations: Assessing the role of area-based community representation in local governance, *Political Geography* **20**(5):585-612.
- Raines, A. B., 2011, Wandel durch (Industrie) Kultur [Change through (industrial) culture]: Conservation and renewal in the Ruhrgebiet, *Planning Perspectives* **26**(2):183-207.
- Rauws, W., van Dijk, T., 2013, A design approach to forge visions that amplify paths of peri-urban development, *Environment and Planning B: Planning and Design* **40**(2):254-270.
- Ravetz, J., 1999, Urban Form and the Sustainability of Urban Systems: theory and practice in a northern conurbation, in: *Achieving Sustainable Urban Form* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 215-228.
- Ravetz, J., 2000, City-Region 2020: Integrated Planning for a Sustainable Environment, Earthscan, London.
- Ravetz, J., 2008, The city-region in time and space: Analysis of regional spatial planning and decision-making strategies, and their impact on land use in the urban fringe. Greater Manchester, in: *PLUREL*, Manchester University, Manchester.
- RECLUS, 1989, Les villes 'européennes'. Rapport pour la DATAR. Sous la direction de Roger Brunet par Groupement d'Interêt Public, RECLUS, Montpellier.
- Rein, M., Schön, D. A., 1986, Frame-Reflective Policy Discourse, *Beleidsanalyse (driemaandelijks publicatie van het Ministerie van Financiën)* **4**:4-18.
- Ren, C., Ng, E. Y. Y., Katschnner, L., 2011, Urban climatic map studies: A review, *International Journal of Climatology* **31**(15):2213-2233.
- Reuselaars, I., 2003, Belvedere: Preservation of cultural heritage as part of town and country planning in the Netherlands, *Archaeologisches Nachrichtenblatt* **8**(2):189-202.
- Rhodes, R. A. W., 1996, The New Governance: Governing without Government, *Political Studies* **44**(4):652-667.
- Richardson, T., 2006, The thin simplifications of European space: Dangerous calculations?, *Comparative European Politics* **4**:203-217.

- Rijksdienst voor het Nationale Plan, 1958, De ontwikkeling van het westen des lands, Staatsdrukkerij en Uitgeverijbedrijf, 's-Gravenhage.
- RLI, 2013, Onbeperkt houdbaar. Naar een robuust natuurbeleid, Raad voor de Leefomgeving en Infrastructuur, Den Haag.
- Roberts, N., 2004, Public deliberation in an age of direct citizen participation, *American Review of Public Administration* **34**(4):315-353.
- Roberts, P., 2008, Sustainable Communities - Policy, Practice and Professional Development: A Model for Europe, in: *Sustainable Urban Development: Changing Professional Practice* (I. Cooper, M. Symes, eds.), Routledge, London, pp. 127-144.
- Roodbergen, M., Van der Werf, B., Hötter, H., 2012, Revealing the contributions of reproduction and survival to the Europe-wide decline in meadow birds: Review and meta-analysis, *Journal of Ornithology* **153**(1):53-74.
- Roodbol-Mekkes, P. H., Van den Brink, A., 2015, Rescaling spatial planning: spatial planning reforms in Denmark, England, and the Netherlands, *Environment and Planning C: Government and Policy* **33**(1):184-198.
- Roodbol-Mekkes, P. H., Van der Valk, A. J. J., Korthals Altes, W. K., 2012, The Netherlands spatial planning doctrine in disarray in the 21st century, *Environment and Planning A* **44**(2):377-395.
- Roy, P., 2015, Collaborative planning - A neoliberal strategy? A study of the Atlanta BeltLine, *Cities* **43**:59-68.
- RPH, 2009, Regionaler Entwicklungsplan für die Planungsregion Halle, Regionale Planungsgemeinschaft Halle, Halle.
- RPWS, 2008, Regionalplan Westsachsen, Regionaler Planungsverband Westsachsen, Leipzig.
- Runhaar, H., Van Nieuwaal, K., 2010, Understanding the use of science in decision-making on cockle fisheries and gas mining in the Dutch Wadden Sea: Putting the science-policy interface in a wider perspective, *Environmental Science and Policy* **13**(3):239-248.
- Runhaar, H. A. C., Van der Windt, H. J., Van Tatenhove, J. P. M., 2016, Productive science-policy interactions for sustainable coastal management: Conclusions from the Wadden Sea area, *Environmental Science and Policy* **55**:467-471.
- Salet, W., Woltjer, J., 2009, New concepts of strategic spatial planning dilemmas in the Dutch Randstad region, *International Journal of Public Sector Management* **22**(3):235-248.
- Sandström, A., Rova, C., 2010, Adaptive co-management networks: A comparative analysis of two fishery conservation areas in Sweden, *Ecology and Society* **15**(3).
- SAOS, 2010, Population Statistics, Saxony-Anhalt Office of Statistics.
- SAS, 2010, Population Statistics, territorial status 31.07.08, Saxon Office of Statistics.
- Schekkerman, H., 2008, Precocial problems: shorebird chick performance in relation to weather, farming, and predation, Rijksuniversiteit Groningen, Groningen, pp. 228p.

- Schekkerman, H., Teunissen, W., Oosterveld, E., 2008, The effect of 'mosaic management' on the demography of black-tailed godwit *Limosa limosa* on farmland, *Journal of Applied Ecology* **45**(4):1067-1075.
- Schleyer, C., Görg, C., Hauck, J., Winkler, K. J., 2015, Opportunities and challenges for mainstreaming the ecosystem services concept in the multi-level policy-making within the EU, *Ecosystem Services* **16**:174-181.
- Schneider, M., Scholz, J., Lubell, M., Mindruta, D., Edwardsen, M., 2003, Building consensual institutions: Networks and the National Estuary Program, *American Journal of Political Science* **47**(1):143-158.
- Schön, D. A., Rein, M., 1994, *Frame Reflection. Toward the Resolution of Intractable Policy Controversies*, Basic Books, New York.
- Schrijver, R. A. M., Rudrum, D. P., De Koeijer, T. J., 2008, Economische inpasbaarheid van natuurbeheer bij graasdierbedrijven, in: *WOt-rapport 80*, Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen.
- Schrijver, R. A. M., Rudrum, D. P., Diemont, W. H., De Koeijer, T. J., 2009, Compensation or Conservation Payments for Farmers? Exploring Opportunities for Agri-environmental Schemes in The Netherlands, in: *Multifunctional Rural Land Management. Economics and Policies* (F. Brouwer, C. M. Van der Heide, eds.), Earthscan, London, pp. 169-186.
- Schroeder, L. A., Isselstein, J., Chaplin, S., Peel, S., 2013, Agri-environment schemes: Farmers' acceptance and perception of potential 'Payment by Results' in grassland-A case study in England, *Land Use Policy* **32**:134-144.
- Schusler, T. M., Decker, D. J., Pfeffer, M. J., 2003, Social learning for collaborative natural resource management, *Society and Natural Resources* **16**(4):309-326.
- Schut, M., Van Paassen, A., Leeuwis, C., 2013, Beyond the research-policy interface. Boundary arrangements at research-stakeholder interfaces in the policy debate on biofuel sustainability in Mozambique, *Environmental Science and Policy* **27**:91-102.
- Schweitzer, L., Zhou, J., 2010, Neighborhood air quality, respiratory health, and vulnerable populations in compact and sprawled regions, *Journal of the American Planning Association* **76**(3):363-371.
- Scoffham, E., Vale, B., 1996, How compact is sustainable - How sustainable is compact?, in: *The Compact City a Sustainable Urban Form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 66-73.
- Sharp, L., Richardson, T., 2001, Reflections on foucauldian discourse analysis in planning and environmental policy research, *Journal of Environmental Policy and Planning* **3**(3):193-209.
- Silverman, D., 2006, *Interpreting qualitative data : methods for analyzing talk, text and interaction*, London [etc.], GB: Sage.
- Sinn, A., Haase, D., Walde, A., 2008, Analysis of regional spatial planning and decision-making strategies and their impact on landuse in the urban fringe, in: *PLUREL*, Helmholtz Centre for Environmental Research - UFZ, Leipzig.

- Sinning, H., 2002, Leistungsfähigkeit und Grenzen kommunikativer Planungsinstrumente am Beispiel nachhaltiger Freiraumpolitik in Stadtregionen, Rheinisch-Westfälischen Technischen Hochschule, Aachen.
- Skelcher, C., Mathur, N., Smith, M., 2005, The public governance of collaborative spaces: Discourse, design and democracy, *Public Administration* **83**(3):573-596.
- Smits, M. J., Driessen, P., Glasbergen, P., 2008, Governing agri-environmental schemes: Lessons to be learned from the new institutional-economics approach, *Environment and Planning C: Government and Policy* **26**(3):627-643.
- Snow, D. A., Rochford, E. B., Jr., Worden, S. K., Benford, R. D., 1986, Frame Alignment Processes, Micromobilization, and Movement Participation, *American Sociological Review* **51**(4):464-481.
- Sol, J., Beers, P. J., Oosting, S. J., Geerling-Eiff, F. A., 2011, Action research in a regional development setting: students as boundary workers in a learning multi-actor network, in: *Knowledge in action: The search for collaborative research for sustainable landscape development*, Wageningen Academic Publishers, Wageningen, pp. 133-152.
- Sonne, W., 2009, Dwelling in the metropolis: Reformed urban blocks 1890-1940 as a model for the sustainable compact city, *Progress in Planning* **72**(2):53-149.
- Sorensen, A., Sagaris, L., 2010, From participation to the right to the city: Democratic place management at the neighbourhood scale in comparative perspective, *Planning Practice and Research* **25**(3):297-316.
- Sørensen, E., Triantafyllou, P., 2009, The politics of self-governance, Ashgate, Farnham, pp. 223.
- Sousa, S., Pinho, P., 2013, Planning for Shrinkage: Paradox or Paradigm, *European Planning Studies* **23**(1):12-32.
- Spaans, M., Trip, J. J., 2010, Ruimtelijke kwaliteit en rijksbemoeienis, *Rooilijn* **43** (6):406-411.
- Spradley, J. P., 1979, The ethnographic interview, New York, US: Holt, Rinehart and Winston.
- Star, S. L., 2010, This is not a boundary object: Reflections on the origin of a concept, *Science Technology and Human Values* **35**(5):601-617.
- Star, S. L., Griesemer, J. R., 1989, Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39, *Social Studies of Science* **19**:387-420.
- Steingröver, E. G., Geertsema, W., van Wingerden, W. K. R. E., 2010, Designing agricultural landscapes for natural pest control: A transdisciplinary approach in the Hoeksche Waard (The Netherlands), *Landscape Ecology* **25**(6):825-838.
- Sternlieb, F., Bixler, R. P., Huber-Stearns, H., Huayhuaca, C., 2013, A question of fit: Reflections on boundaries, organizations and social-ecological systems, *Journal of Environmental Management* **130**:117-125.
- Stortelder, A. H. F., Schrijver, R. A. M., Alberts, H., Van den Berg, A., Kwak, R. G. M., De Poel, K. R., Schaminée, J. H. J., Van den Top, I. M., Visschedijk, P. A. M., 2001, Boeren voor Natuur: De slechtste grond is de beste, in: *Alterra-rapport 312*, Alterra, Wageningen.

- Stretton, H., 1996, Density, Efficiency and Equality in Australian Cities, in: *The Compact City. A sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 45-52.
- Sutherland, L. A., Gabriel, D., Hathaway-Jenkins, L., Pascual, U., Schmutz, U., Rigby, D., Godwin, R., Sait, S. M., Sakrabani, R., Kunin, W. E., Benton, T. G., Stagl, S., 2012, The 'Neighbourhood Effect': A multidisciplinary assessment of the case for farmer co-ordination in agri-environmental programmes, *Land Use Policy* **29**(3):502-512.
- Taylor, M., 2000, Communities in the lead: Power, organisational capacity and social capital, *Urban Studies* **37**(5-6):1019-1035.
- Termeer, C. J. A. M., Bruinsma, A., 2016, ICT-enabled boundary spanning arrangements in collaborative sustainability governance, *Current Opinion in Environmental Sustainability* **18**:91-98.
- Termeer, C. J. A. M., Stuiver, M., Gerritsen, A., Huntjens, P., 2013, Integrating Self-Governance in Heavily Regulated Policy Fields: Insights from a Dutch Farmers' Cooperative, *Journal of Environmental Policy and Planning* **15**(2):285-302.
- Termorshuizen, J. W., Opdam, P., 2009, Landscape services as a bridge between landscape ecology and sustainable development, *Landscape Ecology* **24**(8):1037-1052.
- Tewdwr-Jones, M., Allmendinger, P., 1998, Deconstructing communicative rationality: a critique of Habermasian collaborative planning, *Environment and Planning A* **30**(11):1975-1989.
- Tewdwr-Jones, M., Allmendinger, P., 2006, Territory, identity and spatial planning: Spatial governance in a fragmented nation, in: *Territory, Identity and Spatial Planning: Spatial Governance in a Fragmented Nation*, pp. 1-380.
- Thomas, L., Cousins, W., 1996, The compact city: A successful, desirable and achievable urban form?, in: *The Compact City: A Sustainable Urban Form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 53-65.
- THR, 2004, Regionale woonvisie Haaglanden 2000-2015, Stadsgewest Haaglanden, Den Haag.
- THR, 2008, Regionaal Structuurplan, Stadsgewest Haaglanden, Den Haag.
- THR, 2009, Verslag Programmagroep Duin Horst Weide 18 maart 2009, Stadsgewest Haaglanden, Den Haag.
- Throgmorton, J. A., 2003, Planning as persuasive storytelling in a geobal-scale web of relationships, *Planning Theory* **2**(2):125-151.
- Tilly, C., 2004, Social boundary mechanisms, *Philosophy of the Social Sciences* **34**(2):211-236.
- Tippett, J., Searle, B., Pahl-Wostl, C., Rees, Y., 2005, Social learning in public participation in river basin management—early findings from HarmoniCOP European case studies, *Environmental Science & Policy* **8**(3):287-299.
- Troy, P. N., 1996, Environmental stress and urban policy, in: *The Compact City. A sustainable urban form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 200-211.

- Turnhout, E., 2009, The effectiveness of boundary objects: The case of ecological indicators, *Science and Public Policy* **36**(5):403-412.
- Turnhout, E., Stuijver, M., Klostermann, J., Harms, B., Leeuwis, C., 2013, New roles of science in society: Different repertoires of knowledge brokering, *Science and Public Policy* **40**(3):354-365.
- Uytenhaak, R., Mensink, J., 2008, *Steden vol ruimte : kwaliteiten van dichtheid*, Nai010 Publishers, Rotterdam.
- Van Berkel, D. B., Verburg, P. H., 2014, Spatial quantification and valuation of cultural ecosystem services in an agricultural landscape, *Ecological Indicators* **37**(PART A):163-174.
- Van Bommel, S., Röling, N., Aarts, N., Turnhout, E., 2009, Social learning for solving complex problems: A promising solution or wishful thinking? A case study of multi-actor negotiation for the integrated management and sustainable use of the Drentsche AA area in the Netherlands, *Environmental Policy and Governance* **19**(6):400-412.
- Van Broekhoven, S., Boons, F., Van Buuren, A., Teisman, G., 2014, Boundaries in action: a framework to analyse boundary actions in multifunctional land-use developments, *Environment and Planning C: Government and Policy* **32**:online first.
- Van Dam, R., Salverda, I., During, R., 2014, Strategies of citizens' initiatives in the Netherlands: connecting people and institutions, *Critical Policy Studies* **8**(3):323-339.
- Van Den Berg, L., Drewett, R., Klaassen, L. H., Rossi, A., Vijverberg, C. H. T., 1981, *Urban Europe Vol. 1: a study of growth and decline*, Pergamon Press, Oxford.
- Van den Berg, L., Otgaar, A. H. J., 2012, Brainport Eindhoven: A proactive approach towards innovation and sustainability, in: *European Cities and Global Competitiveness: Strategies for Improving Performance* (P. K. Kresl, D. Ietri, eds.), Edward Elgar Publishing, Cheltenham Glos, pp. 171-201.
- Van den Brink, M., 2009, *Rijkswaterstaat on the horns of a dilemma*. PhD thesis at Radboud University Nijmegen, Eburon, Delft.
- Van der Cammen, H., De Klerk, L., 2012, *The Selfmade Land, Culture and Evolution of Urban and Regional Planning in the Netherlands*, Spectrum, Houten - Antwerpen.
- Van der Steen, M., Scherpenisse, J., Hajer, M., Van Gerwen, O.-J., Kruitwagen, S., 2014, *Leren door doen. Overheidsparticipatie in een energieke samenleving*, NSOB and PBL, Den Haag.
- Van der Steen, M., Van Twist, M., Chin-A-Fat, N., Kwakkelstein, T., 2013, *Pop-up public value. Public governance in the context of civic self-organisation*, NSOB Netherlands School of Public Administration, Den Haag.
- Van der Valk, A. J. J., Van Dijk, T., 2009, Rethinking open space planning in metropolitan areas, in: *Regional Planning for Open Space*, Routledge, London, pp. 1-21.
- Van der Waals, J. F. M., 2000, The compact city and the environment: A review, *Tijdschrift voor Economische en Sociale Geografie* **91**(2):111-121.
- Van Duinen, L., 2013, Mainport and corridor: exploring the mobilizing capacities of Dutch spatial concepts, *Planning Theory and Practice* **14**(2):211-232.

- Van Eeten, M., Roe, E., 2000, When fiction conveys truth and authority the Netherlands green heart planning controversy, *Journal of the American Planning Association* **66**(1):58-67.
- Van Herzele, A., Gobin, A., Van Gossum, P., Acosta, L., Waas, T., Dendoncker, N., Henry de Frahan, B., 2013, Effort for money? Farmers' rationale for participation in agri-environment measures with different implementation complexity, *Journal of Environmental Management* **131**(0):110-120.
- Van Kersbergen, K., Van Waarden, F., 2004, 'Governance' as a bridge between disciplines: Cross-disciplinary inspiration regarding shifts in governance and problems of governability, accountability and legitimacy, *European Journal of Political Research* **43**(2):143-171.
- Van Rij, H. E., Dekkers, J. E. C., Koomen, E., 2008, Analysing the succes of open space preservation in the Netherlands: the Midden-Delfland case, *Tijdschrift voor Economische en Sociale Geografie* **99**(1):p.115-125.
- Verhulst, J., Kleijn, D., Berendse, F., 2007, Direct and indirect effects of the most widely implemented Dutch agri-environment schemes on breeding waders, *Journal of Applied Ecology* **44**(1):70-80.
- Verwest, F., 2011, Demographic decline and local government strategies: a study of policy change in the Netherlands, Delft: Eburon.
- Vickery, J. A., Tallowin, J. R., Feber, R. E., Asteraki, E. J., Atkinson, P. W., Fuller, R. J., Brown, V. K., 2001, The management of lowland neutral grasslands in Britain: Effects of agricultural practices on birds and their food resources, *Journal of Applied Ecology* **38**(3):647-664.
- VID, 2008, Verkeers Informatie Dienst.
- Vigoda, E., 2002, From responsiveness to collaboration: Governance, citizens, and the next generation of public administration, *Public Administration Review* **62**(5):527-540.
- Vincent-Jones, P., 2000, Contractual Governance: Institutional and Organizational Analysis, *Oxford Journal of Legal Studies* **20**(3):317-351.
- VNG, 2012, Kantelen en de kracht van de eenvoud. Een sprankelende handreiking voor de participerende overheid, Vereniging Nederlandse Gemeenten, Den Haag.
- Vogelzang, T. A., Kloen, H., Westerink, J., Janssens, S. R. M., 2009, Natuurakkers in het Buytenland: bedrijfsconcepten voor het samengaan van natuur en akkerbouw, Den Haag, NL: LEI Wageningen UR.
- Vries, S. d., Staritsky, I., Clement, J., Kiers, M., Roos-Klein Lankhorst, J., 2011, Vraaggerichte recreatieplanning op regionaal niveau; naar een betere afstemming van geboden op gevraagde mogelijkheden voor recreëren in het groen middels AVANAR-plus, Alterra Wageningen UR, Wageningen, pp. 104.
- VROM, 2008, Wet ruimtelijke ordening (WRO), Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu, Den Haag.
- VROM, LNV, VenW, EZ, 2004, Nota Ruimte – Ruimte voor ontwikkeling, Ministerie van Volksgezondheid, Ruimtelijke Ordening en Milieubeheer, Ministerie van Landbouw,

- Natuur en Voedselkwaliteit, Ministerie van Verkeer en Waterstaat, Ministerie van Economische Zaken.
- VROM, LNV, VenW, EZ, 2006, National Spatial Strategy: Creating Space for Development; Summary, Ministry of Housing, Spatial Planning and the Environment; Ministry of Agriculture, Nature and Food Quality; Ministry of Transport, Public Works and Water Management; Ministry of Economic Affairs The Hague.
- Wals, A. E. J., Rodela, R., 2014, Social learning towards sustainability: Problematic, perspectives and promise, *NJAS - Wageningen Journal of Life Sciences* **69**:1-3.
- Ward, K., Fagan, C., McDowell, L., Perrons, D., Ray, K., 2010, Class transformation and work-life balance in urban Britain: The case of Manchester, *Urban Studies* **47**(11):2259-2278.
- Warner, J., Lulofs, K., Bressers, H., 2010, The fine art of boundary spanning: Making space for water in the East Netherlands, *Water Alternatives* **3**(1):137-153.
- Watson, V., 2014, Co-production and collaboration in planning - The difference, *Planning Theory and Practice* **15**(1):62-76.
- Werkman, R. A., Van den Berg, J., Van Paassen, A., Harms, B., 2011, What is collaborative landscape research about?, in: *Knowledge in action: the search for collaborative research for sustainable landscape development*, Wageningen Academic Publishers, Wageningen, pp. 41-56.
- Westerink - Petersen, J., Aalbers, C. B. E. M., 2013, The Hague Region: Negotiating the Common Ground in Peri-Urban Landscapes, in: *Peri-urban futures: Scenarios and models for land use change in Europe*, Springer Verlag, Berlin Heidelberg, pp. 99-129.
- Westerink, J., 2016, Collaborative governance of a peri-urban enclave: how a farm became nature and citizen oriented, in: *Second International Conference on Agriculture in an Urbanizing Society - Reconnecting Agriculture and Food Chains to Societal Needs. Proceedings of the Conference* (A. Visser, G. Brunori, S. Paolini, eds.), Aicare, Rome Italy.
- Westerink, J., Kempenaar, A., Van Lierop, M., Groot, S., Van der Valk, A., Van den Brink, A., 2016, The participating government: Shifting boundaries in collaborative spatial planning of urban regions, *Environment and Planning C: Government and Policy*.
- Westerink, J., Lagendijk, A., Dühr, S., Van der Jagt, P. D., Kempenaar, J., 2013a, Contested Spaces? The Use of Place Concepts to Communicate Visions for Peri-Urban Areas, *European Planning Studies* **21**(6):780-800.
- Westerink, J., Melman, T. C. P., Schrijver, R. A. M., 2015a, Scale and self-governance in agri-environment schemes: experiences with two alternative approaches in the Netherlands, *Journal of Environmental Planning and Management* **58**(8):1490-1508.
- Westerink, J., Stortelder, A. H. F., Ottburg, F. G. W. A., De Boer, T. A., Schrijver, R. A. M., De Vries, C. K., Plomp, M., Smolders, E. A. A., Eijssink, F., Bulten, G. H., 2013b, Boeren voor Natuur; Hoe werkt het en wat levert het op?, Alterra Wageningen UR, Wageningen.
- Westerink, J., Vogelzang, T., Van der Sluis, T., Smit, B., Henkens, R., 2015b, Naar Buiten! Hoogwaardige akkernatuur en recreatie in het Buitenland van Rhooen, Wageningen, NL: Alterra Wageningen UR.

- Whittingham, M. J., 2007, Will agri-environment schemes deliver substantial biodiversity gain, and if not why not?, *Journal of Applied Ecology* **44**(1):1-5.
- Whittingham, M. J., 2011, The future of agri-environment schemes: Biodiversity gains and ecosystem service delivery?, *Journal of Applied Ecology* **48**(3):509-513.
- Wiechmann, T., Bontje, M., 2015, Responding to Tough Times: Policy and Planning Strategies in Shrinking Cities, *European Planning Studies* **23**(1):1-11.
- Wilkinson, C., 2012, Urban resilience: What does it mean in planning practice, *Planning Theory & Practice* **13**(2):319-324.
- Williams, K., 1999, Urban intensification policies in England: Problems and contradictions, *Land Use Policy* **16**(3):167-178.
- Williams, K., Burton, E., Jenks, M., 1996, Achieving the compact city through intensification, in: *The Compact City a Sustainable Urban Form?* (M. Jenks, E. Burton, K. Williams, eds.), E & FN Spon, London, pp. 83-96.
- Wissink, W., 2000, Ontworpen en ontstaan: een praktijktheoretische analyse van het debat over het provinciale omgevingsbeleid, Sdu Uitgevers, Den Haag.
- Wolsink, M., 2003, Reshaping the Dutch planning system: A learning process?, *Environment and Planning A* **35**(4):705-723.
- Wood, R., Ravetz, J., 2000, Recasting the Urban Fringe, *Landscape Design* **294**(10):13-16.
- WRR, 1998, Ruimtelijke ontwikkelingspolitiek (W. R. v. h. Regeringsbeleid, ed.), Sdu Uitgevers, Den Haag.
- WRR, 2012, Vertrouwen in Burgers, in: *WRR-rapport*, Wetenschappelijke Raad voor het Regeringsbeleid, Amsterdam.
- Wu, J., Hobbs, R. J., 2007, Landscape ecology: the state of the science, in: *Key Topics in Landscape Ecology* (J. Wu, R. J. Hobbs, eds.), Cambridge University Press, Cambridge, pp. 271-287.
- Yanow, D., 2000, Conducting Interpretative Policy Analysis, in: *Qualitative Research Methods Series*, Sage, Thousand Oaks.
- Yin, R. K., 2009, Case Study Research. Design and Methods, in: *Applied Social Research Methods Series*, Sage, Thousand Oaks, pp. 219.
- Zanon, B., 2013, Scaling-down and scaling-up processes of territorial governance: cities and regions facing institutional reform and planning challenges, *Urban Research and Practice* **6**(1):19-39.
- Zonneveld, W., 2005, In search of conceptual modernization: The new Dutch 'national spatial strategy', *Journal of Housing and the Built Environment* **20**(4):425-443.
- Zonneveld, W., Verwest, F., 2005, Tussen droom en retoriek : de conceptualisering van ruimte in de Nederlandse planning, Ruimtelijk Planbureau, Den Haag.

Summary

Summary

In spatial governance, several types of boundaries are relevant. Firstly, in spatial governance, actors try to influence the spatial composition, the management and the use of places. Crucial parts of the debates in spatial governance processes are about meanings of those places and about differences between these meanings. These differences matter, for reasons concerning consequences of designating areas, the zoning of land use and options for management. They have an impact on whether a landscape is changed or preserved as well as on whether higher or lower landscape qualities, such as biodiversity and ecosystem services, are achieved. They have an impact on land use rights and on the quality of life as well. It is therefore not surprising, that meanings of places and differences between them are subject of struggle.

Secondly, spatial governance often takes place in networks of actors. Indeed, stakeholders increasingly becoming actors, is characteristic of governance. When these actors meet, interact and collaborate, the differences between groups of people become apparent. These differences, as understood and expressed by those people themselves, concern identity, culture, perspectives and knowledge. They may be prove both a fertile ground for, as well as a barrier against collaboration and governance.

Thirdly, governance is characterised by a government no longer being the only nor the most obvious actor. The difference between the roles of government and non-government is a contested matter in many domains of governance, including spatial governance.

In this thesis, the above differences are conceptualised as boundaries. I conceptualise them as physical, social and institutional boundaries respectively. With boundaries I do not mean borders on a map. I use boundaries as a metaphor for distinctions between categories. Categories and differences between them, as they appear in practices of spatial governance, are socially constructed. This does, however, not imply that they are 'unreal': boundaries have enabling and constraining effects on actions of actors in spatial governance. For this reason, actors engage in 'making a difference' through active construction, maintenance, change or deconstruction of boundaries. To carry out these boundary actions, actors can make use of a range of tools and strategies that I have named boundary arrangements. In this thesis, boundary management refers to the performing of boundary actions, using boundary arrangements. The following arrangements are considered: frames, boundary concepts, boundary organisations, contracts, processes of social learning, and combinations thereof. Boundary management may change the boundary, which will thus effect how actors exert spatial governance. This may evoke new cycles of boundary management.

My research question is:

What is the role of boundary arrangements in the management of physical, social and institutional boundaries in spatial governance?

- *Which arrangements are used by actors to take actions towards boundaries in practices of spatial governance?*

The above question refers to what people do with which boundaries and by what means.

- *How can the choice and functioning of boundary arrangements be understood?*

This question investigates how boundary arrangements relate to and influence the enabling and/or constraining effects of boundaries in spatial governance. It refers to the reasons for taking boundary actions and choosing boundary arrangements.

- *What are conditions for boundary arrangements to support spatial governance?*

This last question leads to recommendations on the application of boundary arrangements.

My interest in practices of spatial governance led me to take a case study approach. The cases I studied were planning and governance of peri-urban areas in The Hague Region; agri-environmental schemes in the province of Zuid-Holland; and collaborative planning discourses in the regions of Eindhoven and Parkstad. Part of my studies were carried out in the form of action research, in close collaboration with stakeholders, aiming to contribute to a change process. Other studies were positioned more outside of 'the action', but still included stakeholder interaction and validation. The case studies produced a rich collection of data, ranging from interview reports, minutes of meetings and policy documents, to project logbooks. I analysed the data using interpretative approaches, in line with a social constructivist epistemology.

Managing physical boundaries in The Hague Region

In The Hague Region, spatial concepts support the strive for urban compaction as well as for the preservation of the open peri-urban areas. Several of those concepts, including the 'buffer zones', the 'green heart' and 'transit-oriented development' strongly relate to the idea of 'compact city'. The compact city concept holds a promise of sustainable urban development: combining the reduction of emissions and land consumption with the proximity of services and peri-urban landscapes and effective public transport for city dwellers. The case studies of The Hague Region and other European city regions show that application of the compact city concept is accompanied by sustainability trade-offs. For instance, the preservation of the peri-urban area may decrease the area of available green space within the city, which, to the urban poor, may be of more importance than the peri-urban areas. The case studies show that planners are aware of such trade-offs and have developed strategies for dealing with them. One of the strategies in The Hague Region is multifunctional land use, combining green space with other functions.

In terms of boundary management, compact city concepts are tools to delineate the urban-rural boundary. Not only in the sense of a clear and visible border between city and countryside, but more particularly in the sense of the difference between urban and rural qualities, which complement each other, while rural qualities remain the more vulnerable of the two. A strong urban-rural boundary enables the amplifying of urban qualities and the protection of rural qualities, but also comes with constraints: these constraints are managed with for instance the concept of multifunctionality. This concept blurs physical boundaries.

In line with a strong urban-rural boundary, actors in The Hague Region try to raise the importance of peri-urban areas for the city, by means of place concepts. For two overlapping peri-urban areas, a coalition of 'rural' actors and a coalition of 'urban' actors developed competing place concepts. The first concept framed a rural/ agrarian meaning and the second an urban/ park meaning of the peri-urban area. Although both concepts claimed to create value for the city dwellers, and the actual proposals for interventions in the landscape were very similar, the actor coalitions could not reach an agreement on the future of the area. I suspect that this is a result of the social boundaries between them, which the competing place concepts failed to bridge.

Managing social boundaries with boundary concepts

That spatial concepts *can* contribute to bridging social boundaries is shown in case studies of landscape planning elsewhere in the province of Zuid-Holland, and also in the city of Arnhem. Here, the concept of green-blue infrastructure, combined with other concepts, functioned as a boundary concept. Boundary concepts contribute to bridging social boundaries, because they are multi-interpretable while still recognisable, and evolve while being used. This way, they function as a medium for exchange, mutual understanding and negotiation. In the analysed cases of landscape planning, the concepts supported collaboration and learning between actors, including researchers, who were different as to their backgrounds, the values they held and their experience. In the successive stages of the landscape planning processes, the boundary concepts had a binding role, bringing together actors in a joint process; a broadening role, widening the scope of issues and the group of actors; and an operationalising role, guiding collective action aimed at changing the landscape.

Managing physical and institutional boundaries with agri-environmental contracts

Two of the landscape planning processes mentioned, include the enhancement of on-farm biodiversity. These are attempts to blur the physical boundary between agriculture and nature. Common arrangements to integrate nature into farming practices are agri-environmental contracts, which appear in several of the case studies. Agri-environmental schemes have been criticised for their low effectiveness throughout the EU and also in the Netherlands, where meadow bird protection is one of the main objectives. In this thesis I argue that problems of scale explain this low effectiveness. Measures on single fields and farms do not match the habitat size needed by the birds. In addition, add-on measures that fail to change the farming system, do not match the habitat quality needed by the birds. Attempts to apply more effective agri-environmental management need to move up on the spatial scale (larger areas) as well as on the management scale (from tactic to strategic farm decisions). I argue that both moves need to be accompanied by more room for self-governance by farmers. In the case of larger areas improved self-governance could support collaboration among farmers and the utilisation of their local knowledge and social capital. In the case of farming systems it could boost the competence of the farmer to bring tactical and operational decisions in line with strategic decisions. Case studies of collective management plans and Farming for Nature suggest that too much detail in the agri-environmental contracts leads to bureaucracy, and constrains self-governance. For more effective agri-environment schemes, in other words, the boundary between government and non-government needs to be shifted. Agri-environmental contracts are arrangements that coordinate across that boundary; when it shifts, the contracts need to be adapted along with it.

Managing institutional boundaries in collaborative planning in the regions of Eindhoven and Parkstad Limburg

In collaborative spatial planning of urban regions, the boundary between government and non-government is also contested. In collaborative planning, alternative discourses emerge on this boundary, as is illustrated by the case studies in Eindhoven Region and Parkstad Limburg. Actors in these regions envision two positions for this boundary, attaching a set of complementary roles of governmental and non-governmental actors to each boundary position. One discourse describes a leading government and participation of non-governmental actors. The other discourse describes self-governing non-governmental actors and a participating government. The alternative discourses exist alongside of each other in both regions. Even though Eindhoven is a growing region and Parkstad faces population shrinkage, the discourses on a leading or a participating government do not differ much with respect to the role frames. However, they do differ with respect to the non-governmental actors envisioned to take on the complementary roles. In Eindhoven Region, companies are the main partners in collaboration, while in Parkstad, collaboration with citizens is actively pursued.

Role frames are not the only tools in managing the boundary between government and non-government in collaborative planning. The case of Parkstad Limburg includes a boundary organisation. IBA Parkstad was founded by the city region and the municipalities, in order to enhance collaboration between the governmental actors mentioned, the local companies and the citizens. Its assignment is to support experimenting, creativity and bottom-up initiatives. A new, separate organisation was believed to be better equipped to evoke such a process in the region, than the existing institutions.

Managing institutional and social boundaries in Gouwe Wiericke

Agri-environmental cooperatives can also operate as boundary organisations, which is demonstrated in the Gouwe Wiericke case in the province of Zuid-Holland. Here, the organisation of three collaborating agri-environmental cooperatives established a local scheme to improve water quality in ditches. It created contracts with two water boards (regional authorities for water management) which aimed to arrange the dredging of ditches and ecological cleaning of ditch banks. In turn, the cooperative contracted the individual farmers for the management of their ditches and banks. The cooperative received payment from the water boards and in turn paid out the participating farmers. In addition, it monitored compliance of the farmers' activities with the contracts during the season.

The in-between position of the cooperative and the two sets of contracts were part of a pilot in the context of a larger collaborative project aiming to improve the landscape as to the landscape services it provides. In this project, a social network was developed with representatives of the agri-environmental cooperatives, the water boards and the province. At the start of the project, social capital was low and social boundaries between the participants constrained collaboration. These boundaries between 'farmers' and 'government officials' related to cultural background, types of knowledge and perspectives on the nature-agriculture boundary and the boundary between government and non-government. The boundaries had been firmly delineated in previous landscape planning processes, with low social capital as a result. The participation of researchers in the project added more social boundaries. They brought in a number of strategies, however, to bridge the social boundaries. Firstly, they framed the collaborative

project as a process of social learning. Secondly, they introduced landscape services as a boundary concept. And thirdly, they introduced role frames of producers and beneficiaries of landscape services. In addition, they supported the bridging of social boundaries, by simultaneously addressing the institutional and physical boundaries. In this case, the boundary arrangement to bridge social boundaries clearly consisted of a combination of strategies.

Conclusions

Spatial governance inevitably involves boundary management. In the case studies I have identified the following boundary arrangements: spatial and role frames, boundary concepts, boundary organisations, processes of social learning and contracts. I have integrated these with arrangements that I found in literature into a typology of boundary arrangements. I did not find a strong relation between the type of boundary (physical, social or institutional) and boundary arrangements chosen. Rather, the choice of boundary arrangements is influenced by the type of boundary, the enabling and/or constraining properties, as well as by boundary actions. In boundary management, boundary arrangements are often combined in specific arrangements. Arrangements are not only combined because several arrangements may support the same actions, but also because in situations of spatial governance, multiple boundaries are to be managed.

Managing boundaries does not automatically contribute to the effectiveness, fairness and democratic legitimacy of spatial governance. To support effectiveness, boundary arrangements must support collaboration, social learning, and the furthering of public values, such as the protection of green space and biodiversity. To support fairness, boundary arrangements must respect the right to self-govern. To support democratic legitimacy, boundary arrangements must ensure the inclusion of stakeholders and transparency of government. However, the strive to enhance effectiveness, fairness and democratic legitimacy by means of choosing and designing boundary arrangements, is complicated, because of possible trade-offs between the three.

In this thesis I introduce a framework of boundaries, enabling and constraining properties, spatial governance and boundary management by actors. Its cyclical nature allows the study of multiple cycles of boundary management. It may be applied in other fields of governance and to additional types of boundaries. To combine physical boundaries with social and institutional boundaries enhanced the understanding of the nature of spatial governance. I argue that in spatial governance, struggles about one type of boundary can only be understood by considering the other two types as well.

Recommendations

Boundary arrangements and their combination need to be tailored to specific spatial governance settings, including the multiple boundaries that are relevant, as well as to the boundary actions envisioned. When spatial governance processes are to be collaborative, and social boundaries need to be bridged, spatial concepts will be a better tool in facilitating discussions on physical boundaries when shaped and used as boundary concepts. Boundary organisations which at the same time represent a self-governing group of actors, need to find ways to combine their hybrid, in-between position and the two-sided accountability with the identity and the expectations of the self-governing group. Social learning and experimentation are recommended, especially in combination with other boundary arrangements.

Governmental as well as non-governmental actors need to acknowledge that involvement of governmental actors is necessary in all situations of spatial governance, including situations of self-governance. In such situations, governmental actors need to take on a more adaptive, experimenting and facilitating role than in settings with a leading government, while retaining transparency and democratic accountability. After a boundary has been changed, boundary arrangements, such as contracts, need to be reconsidered.

Further research could involve applying the framework of boundaries, enabling and constraining properties, governance and boundary management by actors (actions and arrangements) to other disciplinary fields of governance, policy and public administration.

The management of physical boundaries in spatial governance could receive more attention in research. Even though categories for places, land use and areas belong to the 'native language' of spatial governance, their construction, reproduction and contestation has hardly been studied in terms of boundary management. In addition, the role of boundary organisations in governance experiments and in enhancing self-governance could be explored. Other arrangements also deserve more attention in research, especially role frames and participatory design.

Acknowledgements

Acknowledgements

Here it is! I am glad I made it. I owe many things to many people, who inspired, helped and supported me. First of all, I would like to thank my promoters, Adri van den Brink and Catrien Termeer. They had faith in me and supported me not only through guiding my steps in content and process, but also in practical ways including a certain number of days. I am glad you persuaded me to follow some courses and challenged me not to take the easy road. Also I thank Joke Luttik and Lawrence Jones-Walters, my former and current team leader, and the Alterra leadership, for allowing me to spend some time and money on my PhD project. I am grateful that Deborah Peel, Peter Feindt, Hens Runhaar and Tejo Spit took the effort and the time to read and judge this thesis and to challenge me at my defence. Annet Kempenaar and Alwin Gerritsen, my paranymphs: thank you for standing next to me and for sharing and exchanging PhD experiences.

Although many hours of work were lonely, also much of the accomplishment has been a joint effort. I would like to thank my co-authors, in order of appearance: Dagmar Haase, Annette Sinn, Françoise Jarrige, Joe Ravetz, Carmen Aalbers, Annet Kempenaar, Pat van der Jagt †, Arnoud Legendijk, Steffi Dühr, Dick Melman, Raymond Schrijver, Marjo van Lierop, Stefan Groot, Arnold van der Valk, Adri van den Brink, Paul Opdam, Sabine van Rooij, Eveliene Steingröver, Claire Vos and Barry de Vries. It was inspiring to discuss the various versions of the papers. Being teamed up with you helped me to go on even when some of the manuscripts were rejected the first time.

Likewise, I enjoyed working with (additional) colleagues and stakeholders in the research underlying this thesis. I cannot mention everyone, but special thanks go to Jan and Mieke Duijndam, Annelies Bruinsma, Fabrice Ottburg, Anton Stortelder, Marleen Plomp, Gidi Smolders, Inge de Vos, Tsveta Velinova, Gerard van Wakeren, Mags Dootjes, Yvonne Oostdam, Mieke Vergeer, Warmelt Swart, Eric Koomen and Rob Ligtenberg. I learnt a lot from you. Other colleagues and stakeholders influenced me in other settings and additional projects, with good discussions and ideas: Annemieke Smit, Gerard Straver, Lèneke Pfeiffer-Vermeer, Gerard Migchels, Roel During, Jeroen Kruit, Rosalie van Dam, Irini Salverda, Wim de Haas, Kees van Valkengoed, Frans van Alebeek, Katrin Prager, Jeremy Franks, Anne van Doorn, Wim Schippers, Theo Vogelzang, Roel Jongeneel and Nico Polman are among them.

Long ago, it were Wim Timmermans, Marleen Buizer and Hein van Holstein who trusted me with my dream job at Alterra. Especially I owe a lot to Marleen: not only did she leave me a wonderfully organised project in Farming for Nature, she also infected me with the publishing virus. Our paper did not end up in this thesis, but this thesis started there. You have been a great example.

Even though Marleen, Bas Arts and I started earlier, it was Frans Padt who delivered me my first scientific publication. You taught me how to respond to reviewers and that was very useful.

Luckily, there are people with skills that I do not have. The artwork on the cover was made by Anja Magnee †. Maps were made by Co Onderstal, Adrie van 't Veer and Inez Woltjer. Sylvia van Haperen performed the English editing of the chapters 1, 5, 6, 8 and the Summary. Thank you for that! Audrey Raijmann-Schut and Maarit Junnikkala were very helpful in arranging appointments with my promotors. My secretary Jeanette Simonis and Anja de Jong have relieved me of much administrative project stuff.

Under different circumstances and in other times, I would never have had this opportunity. Only two generations before me, women got fired when they married. I want to express my gratitude to those who strove for education for all children (including Samuel van Houten), women going to university (including Aletta Jacobs), and the right to work part-time for women and men (including Annelies Verstand-Bogaert). All my teachers in primary and secondary school must have had their indispensable share in my education. And even though I have now ended up in the social sciences, I am still happy with my study Tropical Forestry in Wageningen and the experiences I had in Kenya and Uganda doing research for my Masters. Especially I would like to thank Reitze de Graaf, Freerk Wiersum and Hank Bartelink. When I was looking for a job as freshly graduated forestry engineer, it was Wouter van Dam who welcomed me as volunteer with International Tree Fund. This enabled me to remain engaged with tropical forests even though my career took another direction. And it gave me the opportunity to visit Costa Rica so many times that I have lost count. I have learnt so many things from the ITF friends, especially from Wouter † and Anneliese van Dam and Leen Verbeek. And I am grateful to Miguel Soto Cruz and Anabelle Maffioli for all their efforts as volunteers for the Carara Ecological Corridor, and for teaching me to wash my hands with soil.

Judith was more appropriate a name than my parents could have known in advance. In spite of difficult times and sorrow, I had a great youth with my brothers Kaj † and Marnix. For this, mum and dad, you have my greatest respect. My love for landscapes and nature I clearly inherited from you. Thanks for all the walks on Sunday afternoons and for holidays to dunes and mountains.

At this point, I want to thank my God and Father for strength, peace and inspiration. I am grateful for the prayers of my sisters and brothers in church and at work. I wrote this thesis while I was an elder in my church, which required much of my time and energy. Writing a PhD thesis next to work, family and volunteering seemed a mission impossible and it was not self-evident that I would succeed. I therefore count my blessings.

Home is where the heart is: and I have a good home. Thank you Bendiks, Dieke and Lois for being my family; for love, encouragement, and for not taking me too seriously.

Completed Training and Supervision Plan

Completed Training and Supervision Plan

Judith Westerink-Petersen

Wageningen School of Social Sciences (WASS)

Name of the learning activity	Department/Institute	Year	ECTS*
A) Project related competences			
PhD Proposal	LUP/LAR/PAP	2014-2015	6
WASS introduction course	WASS	2015	1
B) General research related competences			
<i>'Compact city, trade-offs and strategies in regions'</i>	PLUREL conference, Copenhagen	2010	1
<i>'Scaling, governance and Agri-Environment Schemes'</i>	Conference Agriculture in an Urbanizing Society, Wageningen	2012	1
<i>'Collaborative governance of a peri-urban enclave: how a farm became nature and citizen oriented'</i>	Conference Agriculture in an Urbanizing Society, Rome	2015	1
Convene a working group on the conference	Conference Agriculture in an Urbanizing Society, Rome	2015	2
Review of papers in several journals	Cities, J. of Environmental Planning and Management, Environment and Planning A, European Planning Studies, J. of Urbanism, The Geographical Journal	2012-2015	3
Review of a book chapter	'Scale-Sensitive Governance of the Environment'	2014	0.5
Systematic literature review	WASS/ Methodology Group	2015	4
Qualitative data analysis YRM-60806	Methodology Group	2015	6
C) Career related competences/personal development			
Writing worth citing	Claire Mc Gregor	2010	1
Supervision 2 interns (students Organic Agriculture and Sustainable Tourism)	Alterra-WUR	2015	4
Leading workshops and presenting at the science-practice interface, list with participant groups, topics and dates attached	Alterra-WUR, LUP	2013-2016	2
Total			32.5

*One credit according to ECTS is on average equivalent to 28 hours of study load

List of presentations at scientific conferences

Title	Date	Location	Name of conference
Collaborative governance of a peri-urban enclave: how a farm became nature and citizen oriented	14 September 2015	Rome	Agriculture in an Urbanizing Society
Scaling, governance and Agri-Environment Schemes	2 April 2012	Wageningen	Agriculture in an Urbanizing Society
Compact city, trade-offs and strategies in regions	21 October 2010	Copenhagen	PLUREL Final Conference

List of presentations at the science-practice interface

Title	Date	Location	Target group
Wat is er volgens u aan de hand in ruimtelijke planning?	11 November 2013	Roermond	Public officials/ planners in regions Eindhoven and Parkstad
Vraag-aanbodworkshop Groenblauwe Schakels	16 December 2013	Bodegraven	Farmers, water boards, province
Het boundary concept van Biesland	24 November 2014	Delfgauw	Farmers, citizens, nature volunteers, public officials
Kom over de brug. De buurt als partner voor landschap en agrarische natuur	4 December 2014	Wageningen	Farmers of agri-environmental cooperatives, green citizen organisations
De participerende overheid: een democratisch drama?	2 April 2015	Amsterdam	Public officials, planning professionals
Wat je aan elkaar hebt. Hoe sterk is uw netwerk?	22 April 2015	Lunteren	Farmers, public officials (Nationale ANLb Dag)
Lerend beheren: praktijk & onderzoek bij elkaar brengen	20 May 2015	Utrecht	Farmers, policy makers, consultants
Het sociale netwerk van Groenblauwe Schakels	11 September 2015	De Meije	Farmers, water boards, province
Hoe werkt samenwerken in landbouw en natuur?	12 November 2015	Stolwijk	Farmers, nature managers, municipality, province.
Lerende netwerken & speelveldanalyse in het ANLB: NFW	16 November 2015	Burgum	Farmers: agri-environmental cooperative Noordelijke Friesche Wouden
Lerende netwerken & speelveldanalyse in het ANLB: A&E	24 November 2015	Eemnes	Farmers: agri-environmental cooperative Ark & Eemlandschap
Wie is de klant van de landschapsbeheerder?	9 December 2015	Kamerik	Multifunctional farmers (Dag van de Multifunctionele Landbouw)
Lessen en observaties uit Groenblauwe Schakels	10 December 2015	Bodegraven	Farmers, water boards, province

Title	Date	Location	Target group
Waarom samenwerking een goed idee is	21 January 2016	Ouderkerk aan de Amstel	Hospitality entrepreneurs, citizen initiative, nature volunteers
De toekomst van Amstelland	2 February 2016	Amsterdam	Supporters of Stichting Beschermers Amstelland (citizen initiative)
Coordination and Collaboration in the landscape-level provision of Agri-environmental Services	21 April 2016	Haarlem	Directors of European Rural Development Programs

Kunstwerk cover: Anja Magnee

Vormgeving: Wageningen University & Research, Communications Services

Druk: Drukkerij Zalsman

