

GOVERNING AND TRANSITION OF GREENSPACE IN URBAN REGIONS

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FOREWORD AND ACKNOWLEDGEMENTS

There is much room between conviction and science, and between being believed, being right by argumentation, and being understood. With years of experience, one can have a wealth of insights, and ideas about solutions, for which the argumentation has settled down like a mist in the unconscious part of the mind. All these insights do not necessarily form one consistent picture that you can easily draw. And this is what I have been doing with the inspiring and supportive help of my two supervisors: researching, drawing, writing, reformulating and arguing, in order to come to a more consistent picture, which is also supported by scientific evidence of others. I have learned a lot.

I found that some understandings are more complicated than I initially thought, or that others had already written about them forty years or even a century ago. Some of my insights go in quite against the mainstream ideas that idealize compact cities or collaborative governance, that forget about humans, differences in human access to nature, the benefits of urbanization and investments by the state.

Doing a PhD has been the stick that helped me to dedicate my time to respond to my curiosity. This curiosity and also the convictions probably will never stop. But for now at least a part of my curiosity has been satisfied and convictions have found arguments or have been put aside and forgotten. It was mostly an interesting and pleasant experience. I hope that the developed insights will find a practical use.

I am grateful to my supervisors, Prof. Gertrud Jorgensen and Dr. Karina Sehested who read my sometimes half finished texts and always found something encouraging to keep me going. My special thanks go out to Prof. Hilda Blanco for her good advice to ask Gertrud Jorgensen as supervisor for my subject. It was a pleasure to discuss the different policy theories with Karina Sehested, who was always able to also illustrate these bright ideas with concrete examples.

I am also grateful to all those scholars who took the effort to put their insights on paper for scientific peer review and publication, so others can learn from it. Especially Giddens' book on social structuration, from 1984, I find a real masterpiece. His insights are so very relevant to nowadays developments around social media and groups and what these can mean for society. But that is another issue. This thesis is about governing and access to greenspace in an urbanizing world, and I think this access is an undervalued issue.

Carmen Aalbers, September 2018

ABSTRACT

The international scientific literature calls for research on governing of greenspace, on local knowledge and on the impact of different actors on greenspace and its quality. It expresses concern about the sustainability of urbanization. This study makes a literature inventory concerning urban greenspace, especially using recent review articles and focusing on greenspace in a context of urban development, the meaning of nature, greenspace management and governing. It looks into governing at the level of functional urban areas and at the local, neighbourhood level. It makes an international comparison between functional urban areas by using the 'policy arrangement approach' which specifies the means of influence at the urban regional level, and collects evidence from case studies, based on four years of international research together with practitioners. At the local level, local initiatives by citizens in cooperation with municipalities or companies are studied. (Again) the means of influence are looked into, and the differences are identified with state management of greenspace and with the type and use of greenspace that the local state produces. By using the 'multilevel perspective' and 'strategic niche management' approaches from transition studies, the study identifies ways to upscale the local knowledge of citizens.

The thesis provides evidence that to preserve greenspace and integrate it in urban development, hierarchical government at the scale of the urban region is needed, equipped with a powerful set of means of influence. For the adaptation to local and private needs, pursuing complementarity between the means of local parties (citizens, companies) and the municipality is a workable strategy. The local study shows among others that innovation calls on all involved parties, not only the municipality.

SUMMARY

Greenspace development in urban areas does not keep up with urban development, which leads to scarcity of greenspace, and consequently missing out on important benefits of ecosystems in urban areas. It also renders greenspace exclusive, which contributes to socio-ecological inequality and reduces the possibilities for urbanites to interact with nature. The scientific literature calls for more research on governance of greenspace and local knowledge, and on the impact of different actors on greenspace and its quality. Reference is made to the 'parkification' of nature by authorities, and lack of insights in the wishes of citizens in terms of greenspace. There is broad concern about the sustainability of urbanization. Management and governing of greenspace and greenstructure are aspects of sustainable urban development that need more understanding and development.

On the basis of the international literature, two levels of scale of greenspace management are identified as critical: that of the Functional Urban Area and that of the local level or neighbourhood. Public interests are especially dependent on regional greenspace management, as balancing between urban development and greenspace, and secondly development and management of greenstructure, extend beyond the reach of individual cities. The private interests lay in the local neighbourhood, where citizens (can) interact most directly with nature. Local greenspace management can tailor greenspace to specific wishes and needs.

The aim of this research is to gain a better insight in regional governing of greenspace in functional urban areas, in view of preservation and integration of greenspace in urban development, and to understand what governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level. Considering the ongoing 'ecological modernization', greenspace management asks for being studied from the perspective of multilevel and multi-actor (between state, market and civil society) governance. The study uses the 'policy arrangement approach', and the 'multilevel perspective' and 'strategic niche management approaches' from transition studies. Much of the evidence is gathered via qualitative case studies in which also practitioners (e.g. government officers and citizens) and their insights are included.

Based on an international comparison of governing in functional urban regions, this thesis provides evidence that to preserve greenspace and integrate it in urban development, hierarchical government at the scale of the urban region is needed, equipped with a powerful set of means of action: a tight web of rulings between the regional and supra-regional hierarchical governments, and close cooperation of the latter two are critical. It also requires resources to support municipalities and to steer lower level actors; and a strong integrative regional discourse accompanied with a spatial vision that is shared among the municipalities and includes the natural system as basis for human life into the urban development..

Research in The Netherlands of citizens' initiatives in (urban) greenspace (although rather exclusive in terms of percentage and type of population involved) shows that these citizens demonstrate a multitude of values of nature and a desire for more interaction with nature. Tailoring greenspace to local interests of citizens is to happen within the frame that is set by the public interest in terms of greenspace preservation and integration and the related socio-ecological equality, ecosystem services and biodiversity targets.

This thesis finds that the integration of greenspace has multiple dimensions: spatially, financially, functionally, and economically. Finances are needed to stimulate new green management practices together with other actors. Concerning functional integration, much can be enhanced considering the meanings attributed to nature by citizens as proposed by the studied citizens initiatives. Economic integration is needed to make new practices more resistant against the building economy and to invest in peri-urban areas. There is evidence that this will enhance the cognition of and emotional attachment of citizens to nature. For the adaptation to local and private needs, pursuing complementarity between what local parties (citizens, companies) and the municipality can do is a workable strategy. For innovation, also offering a listening ear to citizens with specific ideas, even if these seem impossible, is important. This demands an open attitude, the skills and organization to cooperate and possibly some finances and allocation of staff by the municipality to support starting initiatives. But innovation calls on all parties (e.g. citizens, greensector), not only the municipality.

RESUMÉ (DANISH SUMMARY)

Udvikling af den grønne struktur i byområder holder ikke trit med byudviklingen. Det fører til knaphed på grønne områder, og man går derfor glip af de vigtige fordele der er ved at have velfungerende økosystemer i byerne. Det gør også at grønne områder bliver en eksklusiv ressource, hvilket bidrager til social ulighed når rige eller ressourcestærke beboere bosætter sig nær grønne områder, og efterlader de mindre ressourcestærke i byområder uden grønt. Og det reducerer byboernes mulighed for samspil med naturen. Den videnskabelige litteratur opfordrer til mere forskning om forvaltning af grønne områder, om brug af lokal viden og om virkningerne af forskellige aktører på byens grønne områder og kvaliteten af dem. Der henvises til at offentlige myndigheder tenderer til at 'parkificere' de grønne områder, og at der mangler indsigt i borgernes ønsker med hensyn til greenspace. Der er en generel bekymring for bæredygtigheden af urbaniseringen: Forvaltning og regulering af byernes grønne områder er aspekter af bæredygtig byudvikling, der har brug for mere forståelse og udvikling.

På grundlag af den internationale litteratur identificeres to spatiale niveauer for forvaltning af grønne områder som kritiske: det funktionelle (regionale) byområde, og det lokale kvartersniveau. Offentlige interesser i byernes grønne struktur er især afhængige af en regional forvaltning, der er i stand til at balancere mellem byudvikling og grøn struktur, og som tager sig af udvikling og forvaltning af den grønne struktur ud over de enkelte byområders jurisdiktion. De private interesser ligger primært i det lokale kvarter, hvor borgerne kan interagere direkte med naturen. Lokal forvaltning af grønne områder kan medvirke til at skræddersy dem til beboerne specifikke ønsker og behov.

Formålet med dette projekt er dels at få en bedre indsigt i planlægning og forvaltning af regionale byområder med særligt fokus på bevarelse og integration af grøn struktur i byudviklingen, og dels at forstå hvordan nye tilgange til forvaltning af grønne områder kan gøre dem mere i overensstemmelse med behov og ønsker hos borgere på lokalt plan. I lyset af den igangværende 'økologiske modernisering' bør forvaltningen af den grønne struktur i byerne undersøges ud fra et *multi-level* og multi-aktør perspektiv (mellem stat, marked og civilsamfund). Undersøgelsen anvender *Policy-arrangement* tilgangen som ramme, og bruger desuden *multi-level* perspektiv og *strategic niche management* tilgange fra teorien omkring transitionsstudier. Meget af empirien er indsamlet via kvalitative casestudier, hvor praktikere fra planlægning og grøn forvaltning samt borgere og deres indsigter indgår.

Baseret på en international sammenligning af planlægning og forvaltning i funktionelle byregioner, underbygger denne afhandling at en stærk regional forvaltning med kraftige virkemidler til rådighed er nødvendig for at styre arealanvendelsen i hele byregioner og dermed for at bevare en grøn struktur og integrere den i den samlede byudvikling. Særligt er et stærkt samspil mellem de regionale og overregionale myndigheder kritisk. Det kræver også ressourcer til at støtte kommunerne og styre lokale aktører, samt en stærk integreret regional diskurs, ledsaget af en fælles fysisk vision for den grønne struktur, som ser de naturlige systemer som grundlag for menneskets liv i byerne og som en integreret del af byudviklingen.

I afhandlingen indgår desuden forskning i Holland om borgerinitiativer i forvaltning af byernes grønne områder. Selv om projekterne omhandler en ret eksklusiv andel og type af befolkningen, viser de at disse borgere har et væld af forskellige værdier omkring naturen i byen og også ønsker mere interaktion med naturen. At skræddersy grønne områder til borgernes lokale interesser, må ske inden for rammerne af de offentlige interesser i bevaring, integration, social-økologiske ligestilling, økosystemfunktioner og biodiversitet.

Denne afhandling konkluderer, at integrationen af den grønne struktur i byudviklingen har flere dimensioner: fysisk/rumligt, finansieringsmæssigt, funktionelt, og samfundsøkonomisk. Finansiering er nødvendigt for at stimulere nye former for forvaltning af grønne områder i samspil mellem forskellige aktører. Når det gælder funktionel integration, kan forvaltningen forbedres ved at tage borgerenes forståelse af naturen i betragtning som det vises gennem studierne af borgerinitiativer. Økonomisk integration er nødvendigt for at gøre de nye forvaltningsformer modstandsdygtige mod det økonomiske pres fra byudvikling og for at sikre investeringer i periurbane områder.

Afhandlingen peger på at dette vil fremme borgernes forståelse af og følelsesmæssige tilknytning til naturen. For tilpasning til lokale og private behov kan komplementaritet mellem hvad lokale aktører (borgere, virksomheder) og kommunen kan gøre, udgøre en brugbar strategi. For at fremme innovation er det vigtigt at lokale myndigheder er lydhøre overfor borgere med specifikke idéer, også selvom de synes umulige. Dette kræver en åben holdning, kompetencer og organisation til at samarbejde med borgene, og muligvis økonomiske midler og tildeling af personale ved kommunerne for at understøtte en opstartsproces. Men innovation kræver at alle parter involveres (fx borgerne og den grønne sektor), ikke kun kommunen.

SAMENVATTING (DUTCH SUMMARY)

De ontwikkeling van groene ruimte in stedelijke gebieden blijft achter bij de stedelijke ontwikkeling. Dit leidt tot schaarste aan groen, en het missen van belangrijke voordelen van ecosysteem diensten in stedelijke gebieden. Ook maakt het groen exclusiefs en dat leidt tot sociaal-ecologische ongelijkheid. Het achterblijven van groenontwikkeling leidt ook tot minder mogelijkheden voor interactie van stadsmensen met natuur. De internationale wetenschappelijke literatuur dringt aan op meer onderzoek naar overheidssturing en samenwerking aan groene ruimte, naar lokale kennis en de betekenis daarvan voor de kwaliteit van groen. De literatuur spreekt van 'verparking' van de natuur door de overheid en van gebrek aan inzicht in de wensen van de burgers op het gebied van groen. Er bestaat brede bezorgdheid over de duurzaamheid van de verstedelijking. Overheidssturing en samenwerking op groene ruimte en groenstructuur zijn aspecten van duurzame stedelijke ontwikkeling die meer inzicht vragen.

Op basis van de internationale literatuur, identificeert deze studie twee schaalniveaus van groenbeheer als zijnde cruciaal: dat van het functionele stedelijke gebied en dat van het lokale buurtniveau. Algemene belangen bij groene ruimte zijn met name afhankelijk van regionaal groenbeheer. Balanceren tussen stadsontwikkeling en groene ruimte en ontwikkeling en behoud van een vitale, veerkrachtige groenstructuur, gaan de reikwijdte van individuele steden te buiten. Particuliere belangen in groen liggen daarentegen op het lokale niveau waarop burgers direct met de natuur (kunnen) omgaan. Lokaal groenbeheer kan de groene ruimte op specifieke lokale wensen en behoeften afstemmen.

Het doel van dit onderzoek is om meer inzicht te verwerven in het regionale bestuur van groene ruimte in functionele stedelijke gebieden, met het oog op behoud en integratie van groen in stedelijke ontwikkeling, en om te bepalen welke lokale sturing eraan bijdraagt dat het lokale groen beter beantwoordt aan de verschillende behoeften en wensen van burgers. Gezien de voortdurende 'ecologische modernisering' vraagt dit om onderzoek vanuit het perspectief van multi-actor en multilevel governance. De studie gebruikt de beleidsarrangementen benadering, en het multi-level perspectief en de strategische niche benaderingen van transitiestudies. Veel van het bewijsmateriaal is verzameld via kwalitatieve case studies waarin ook de praktijkinzichten van ambtenaren en burgers meegenomen zijn.

Op basis van een internationale vergelijking van sturing in functionele stedelijke gebieden, levert deze thesis het bewijs dat behoud van groene ruimte en integratie van groen in stedelijke ontwikkeling vragen om hiërarchische overheidssturing op het niveau van de functionele stedelijke regio. Deze overheid dient uitgerust te zijn met een krachtige set van sturingsmiddelen: wet- en regelgeving die nauwkeurig is afgestemd tussen de regionale en supra-regionale overheden om te kunnen sturen op stedelijke ontwikkeling en groene ruimte zijn cruciaal; het beschikken over hulpmiddelen zoals geld en expertise om gemeenten te ondersteunen en te sturen op het gedrag van lokale actoren; een integraal regionaal beleidsdiscours vergezeld van een ruimtelijke visie die door de gemeenten in de functionele stedelijke regio wordt gedeeld en die het natuurlijke systeem beschouwt als basis voor menselijk leven en als integraal onderdeel van stedelijke ontwikkeling.

Onderzoek in Nederland van burgerinitiatieven in met name stedelijk groen (hoewel vaak beperkt qua betrokken aantal en type bewoners) laat zien dat deze burgers een veelheid van waarden aan natuur toekennen en meer interactie met natuur willen. Afstemming van groen op de lokale belangen van burgers dient plaats te hebben binnen de kaders van het algemeen belang bij behoud en integratie van groen, ecosysteemdiensten, biodiversiteit en sociaal-ecologische doelen.

Dit onderzoek constateert dat de integratie van groen in stedelijke ontwikkeling meerdere dimensies heeft: ruimtelijke, financiële, functionele en economische dimensies. Financiën zijn nodig om nieuwe groenbeheerpraktijken samen met andere actoren te stimuleren. Qua functionele integratie is er veel ruimte voor verbetering, gezien de betekenissen van natuur die de burgerinitiatieven naar voren brengen. Economische integratie gaat erom nieuwe vormen van stedelijk groen meer resistent te maken tegen stedelijke druk en te investeren in ontwikkelingen in peri-urbane gebieden. Er is bewijs dat meer interactie met natuur tot meer kennis en emotionele betrokkenheid van burgers bij natuur zal bijdragen. Voor de aanpassing aan lokale wensen is het realiseren van complementariteit tussen de gemeente en lokale partijen (burgers, bedrijven) een werkbare strategie. Voor innovatie in de omgang met natuur is ook het bieden van een luisterend oor aan burgers met concrete ideeën, zelfs als ze onmogelijk lijken, belangrijk. Dit vraagt een open houding, de vaardigheden en organisatie om samen te werken en (zoals al vermeld) eventuele financiële en personele middelen van gemeentezijde in de opstartfase van initiatieven. Maar innovatie van groen doet een beroep op alle partijen (o.a. burgers, groensector) en niet alleen op gemeenten.

LIST OF CONTENT

FOREWORD AND ACKNOWLEDGEMENTS.....	- 5 -
ABSTRACT	- 6 -
SUMMARY	- 7 -
RESUMÉ (DANISH SUMMARY)	- 8 -
SAMENVATTING (DUTCH SUMMARY)	- 9 -
1 INTRODUCTION	- 13 -
2 EXISTING INTERNATIONAL INSIGHTS ON URBAN GREENSPACE AND THIS STUDY	- 17 -
2.1 Introduction	- 17 -
2.2 Greenspace as interface between society and nature.....	- 17 -
2.3 Urban development, and urban greenspace getting scarce	- 23 -
2.4 Importance of urban greenspace for human life and sustainable urbanization	- 25 -
2.5 Greenspace management from governing perspective	- 30 -
2.6 Summarizing the insights and the research gap.....	- 36 -
3 OBJECTIVES AND RESEARCH QUESTIONS.....	- 37 -
4 THEORETICAL FRAMEWORK	- 39 -
4.1 Introduction	- 39 -
4.2 Social structuration theory	- 39 -
4.3 'Institutionalisation', 'political modernization' and the 'policy arrangement approach'	- 40 -
4.4 Transition theory	- 42 -
5 RESEARCH METHODS AND DATA	- 45 -
5.1 Introduction	- 45 -
5.2 Research methods in the study of regional governing of greenspace in urban regions in Europe and China (Article I)	- 46 -
5.3 Research methods in the study of local governing of urban greenspace in citizens initiatives in Dutch greenspace (Article II)	- 49 -
5.4 Research methods in the study of transition in local governing of urban greenspace (Article III)	- 50 -
6 INSIGHTS FROM SCIENTIFIC ARTICLES	- 53 -
6.1 Insights from article I on regional governing of greenspace in urban regions in Europe and China	- 53 -
6.2 Insights from article II on local governing of urban greenspace by citizens initiatives in Dutch greenspace (Article II)	- 54 -
6.3 Insights from Article III on transition in local governing of urban greenspace.....	- 56 -
7 DISCUSSION	- 59 -
7.1 Introduction	- 59 -
7.2 Regional governing of greenspace in urban regions, in view of preservation and integration of greenspace in urban development	- 59 -
7.3 Collaborative governance of local greenspace to respond to the multiple needs and wishes of citizens	- 62 -
7.4 Perspectives for future research.....	- 65 -
8 CONCLUSIONS.....	- 67 -

REFERENCES - 69 -

Article I - 81 -

Article II - 101 -

Article III - 133 -

Appendix 1 Objective and questions of the comparative case study research of the PLUREL project - 149 -

Appendix 2 Generic interview questions for the analysis of regional governing.....- 150 -

Appendix 3 Table to assess performance of the regional strategies in terms of outcomes and process - 151 -

Appendix 4 Table to characterize the urban region..... - 154 -

1 INTRODUCTION

scarcity of urban greenspace and effects

This thesis was written out of concern about the increasing scarcity of urban greenspace. Nature is the basis for many forms of life, including human life in cities. This is for instance expressed by the concept of 'ecosystem services'. It expresses this basis for human life in terms of the multiple services that nature provides to humans and their society. Greenspace, such as parks, forests, lawns and meadows, helps reduce heat stress and can improve physical and mental health, and wellbeing. Through its open soil rainwater can infiltrate which helps to prevent flooding during heavy rainfall in an otherwise built and paved surrounding. Recent incidences of severe urban heat and flooding as a result of climate change illustrate the importance of sufficient greenspace and open soil in urban areas. At other moments or in other situations other ecosystem services can be important, e.g. local food production. And services like contribution to health are of permanent and increasing importance with nowadays problems of lack of physical exercise and the presence of environmental and psychic stress. By its multiple services greenspace can thus substantially contribute to the resilience of cities and urban regions and their population. In urban areas these ecosystem services ('urban ecosystem services') are jeopardized by urban densification¹. Urbanization is not necessarily a problem, but urban development following the paradigm of a compact city puts (too) much pressure on greenspace and greenspace is getting scarce in urban areas. This form of urban development is a global phenomenon (Haaland and Konijnendijk Van Den Bosch 2015; Byrne et al., 2010; Breheny 1992; Brunner and Cozens 2012). It leads to a degradation of the green urban environment and thus the quality of life in present urban societies, but also for future generations, because urban structures are not easily undone.

A related second problem is that the scarcity of greenspace and the related precariousness of ecosystems in urban areas works out especially negative for the more vulnerable groups (Millenium Ecosystem Assessment, 2005 p60) such as poor, handicapped or older people and young children, in terms of accessibility to greenspace (Aalbers et al., 2002 p28; Van Herzele and Wiedemann, 2003; Harrison et al., 1995), affordability of greenspace or exposing them to environmental threats they are especially vulnerable to. As part of Sustainable Development Goal (SDG) 11, which aims at making cities and human settlements inclusive, safe, resilient and more sustainable, the UN want by 2030, to "provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities" (www.undp.org).

Thirdly, urban densification leads to a decreasing number of possibilities and occasions for direct interaction of people living in urban areas, with nature. The daily lived experience by humans of nature's services, like by growing food, enjoying shade or cooling, safety from flooding during heavy rainfall, and reduction of stress, may be expected to raise their understanding of the fact that nature is the basis for human survival. For instance, Weick (2011) suggests that cognition is continuously developed through reflection after interaction. It may be expected that this also goes for interaction (or what he calls 'perceptual experience') with nature. Such learning interaction of urban dwellers with nature requires the vicinity to nature. In addition, Stoll-Kleeman (2001) suggests that groups can attach emotional ties to nature. So besides or as part of cognition also feelings of attachment may exist (Jones et al., 2016). It seems unlikely to gather wide public support for sustainability policies without broad understanding among the public of the fact that society depends on nature and feelings of attachment to greenspace and nature. In a democratic society such support is needed for public policies to be accepted in city councils and at higher levels of democratic decision making.

international policy goals referring to greenspace and urbanization

The concern for nature and greenspace in urbanization can also be found in the policy texts from the EU and UN-Habitat, and in the UN SDGs (www.undp.org/a). The European Commission describes the importance of urban greenspace in terms of the meaning of Green Infrastructure (GI) and natural capital. "Green Infrastructure (GI) stands to improve quality of life in many ways [...], GI's multi-

¹ Alternative terms are urban consolidation or urban intensification

functionality could contribute to the achievement of a number of policy aims and fulfil the needs of a variety of stakeholder groups [...]. One of its major attractions is its ability to perform multiple functions on the same piece of land and/or water” (European Commission, 2012a p1).

UN Habitat writes: *“Urbanization is a process that profoundly reshapes peri-urban and rural areas and has the ability to both positively and negatively affect their economies, inclusiveness and sustainable development. In order for urban and rural areas to be sustainable, the current discourse of a political, social and geographical dichotomy must evolve to that of collaborative development and function linkages throughout the territory” (UN Habitat III, 2016 p5).* This stresses the importance of linking the urban and rural. UN Habitat focuses on the regional and worldwide scale, and at the local exclusion of the benefits of urbanization within an urban region: *“disparities in spatial development form the crux of why strong urban-rural linkages are essential in distributing equal opportunities and benefits of the urbanization process. Given the global trend of economic growth in cities and towns, urban areas tend to draw the majority of domestic and international resources (public and private). This can have adverse effects on universal access to resources, services and opportunities and warp the equitable distribution of economic and other benefits observed in the urbanization process. Balanced outcomes across urban and rural areas are a vital objective of sustainable development that leaves no one behind” (UN Habitat III, 2015 p4).*

Also the UN Sustainable Development Goal 11 ‘Sustainable Cities and Communities’ draws attention to greenspace and the natural environment in an urban context, referring to the strong urbanization trend, quality of life issues and inclusion of all humans, and urban to rural to peri-urban linkages. Read for instance the following targets:

- *“By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”;*
- *“By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries”.*
- *“Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning”.*

Thus they connect urban development to participation and inclusion in order to make cities safe and sustainable. SDG 11 is both directly and indirectly referring to the importance of greenspace or the natural environment for sustainable development (www.undp.org/b).

object of research for this thesis

This thesis studies greenspace management in urban regions from a governing perspective. It studies this governing with an eye for the above problematic issues. Part of these are the object of governing studied in the articles. The findings from the articles will be discussed to reflect on the governing capacity to solve those problems, and on other issues raised in the international literature.

different meanings attributed to greenspace

The limited access to the multiple benefits of urban greenspace as result of present urbanization does not only play in quantitative terms. It also plays in terms of the way greenspace is understood, can be shaped and used. With increasing urbanization of societies and increasing division of labour, urban societies have over the centuries delegated more and more responsibility for management and development of urban nature to the state, as chapter 2 will show. And this state often develops a restricted type of urban greenspace: parks. These are areas where little free human interaction with nature in the sense of shaping and using greenspace according to one’s own desire is possible. It implies that part of the multiple benefits of nature can not be accessed in a way that certain groups or individuals maybe would like. In the literature the development of a restricted type of urban greenspace is referred to as the ‘parkification’ of nature. (Littke, 2015). Also, classifications, preferences and assessment of urban greenspace appear different between experts and citizens. For example, sites not managed for recreation may be more highly valuated by recreationist users than sites managed for recreation (Nicol and Blake referred in Van Herzele and Wiedemann, 2003 p112), or experts may prefer restoring cultural landscapes where lay may prefer reforestation or agricultural intensification (Buijs, 2009 p40). With this parkification and differences between the meaning that (state)experts versus

citizens attribute to (urban) greenspace, various possible benefits may be foregone and the appreciation of existing greenspace may be less. Whilst hierarchical steering by the state seems necessary to preserve greenspace (article I) it does not necessarily work best at the local level (article II and III).

In The Netherlands, partly as a reaction against how the local state builds or understands urban greenspace (Aalbers et al., 2018), numerous initiatives by citizens and small companies have come up (e.g. Mattijssen et al., 2015). Also elsewhere in Europe citizens have taken initiatives to protect, develop and/or change urban greenspace, e.g. guerrilla gardening (Lohrberg, 2016; Colding and Barthel, 2013), Incredible Edible in Todmorden, England (www.incredible-edible-todmorden.co.uk) and the Black Environment Network (www.ben-network.org.uk) (Figs. 31-37).

a multilevel and multi-actor governance challenge

The upcoming of new parties such as citizens with different understandings of urban nature and who take initiatives, fits in a development which Arts and Van Tatenhove (2004) describe as 'Political modernisation'. "*Political modernisation concerns the shifting relationships between the institutions of state, market and civil society in political domains within countries and beyond, implying new conceptions and structures of governance.*" Before this period of modernization they distinguish a post world war period of modernity with what they call 'etatist' policy arrangements, belief in the manageability of society and nature and a relative insulation of state, market and civil society respectively and of their practices. This is accompanied by rational policy making and comprehensive planning by the state (p343). Following this period, they distinguish the period with unforeseen international developments that exceed, as they suggest, the responsibility of the state.

Leroy and Arts (2006) elaborate on this political modernization and signal changes in institutions in the environmental domain to which they refer with the term 'ecological modernization'. They mention new roles and new parties appearing with 'multi-actor governance' (e.g. including citizens, companies, international institutions) in the domain of environmental governing, and signal a rapid proliferation of these new roles and of new interaction patterns in the environmental field. A term used specifically for governing by parties and authorities from different levels of jurisdiction is the term 'multilevel governance'.

The governance of green space has become very complex with the fragmentation of the Western European states into multilevel and multi-actor governance making the responsibility over green space preservation unclear. Leroy and Arts (2006 p15) ask whether these changes do increase society's capacity to deal with the complex environmental problems we face?

This thesis deals with governing of green space at the regional and at the local level. Preserving greenspace, developing green infrastructure in urban regions, while connecting the urban and rural areas in the broad sense as suggested for instance by UN Habitat, is considered as a multilevel and multi-actor governing challenge in this thesis (Article I). Governing local greenspace as part of the daily living environment, by citizens in interaction with the local state is studied as multi-actor governing. At the local level of greenspace the thesis studies what citizens pursue in greenspace and how they manage and develop greenspace. This is looked into at the local level because that is where citizens are probably most closely connected to greenspace and it is where greenspace can contribute to the quality of their living environment (Article II). Recent reviews of international scientific urban greenspace literature show that until recently little attention has been paid to issues of greenspace governing in relation to the role of citizens. (e.g. Ostoic and Konijnendijk Van den Bosch 2015). Then, by means of a case study, the thesis looks for ways to link the understandings of greenspace by local actors like the citizens, to the public governing of greenspace by local and regional authorities. This is done because the interests of local citizens seem valuable for enhancing the local quality of living environment and for the sustainability of urbanization: their actions consider some of the problems referred above (e.g. inclusiveness, understanding nature). This linking will be theorized as a transition of a socio-technical system², a concept from transition studies (Article III).

² A cluster of aligned elements including technology, regulations, consumer practices, cultural meanings, markets, infrastructure, scientific knowledge, supply and maintenance networks (Kemp et al., 1998; Geels, 2004; Geels 2012).

The thesis formulates insights on which type of governing is best fit for which seeing to which interests in greenspace management on the basis of the articles in combination with the insights from the international literature.

aim of this study

The aim of this research is

1. to gain a better insight in regional governing of greenspace in urban regions, in view of preservation and integration of greenspace in urban development, and
2. to understand what governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level.

structure of this study

In chapter 2 greenspace in urban regions will be defined, related concepts will be presented and the intricacy between greenspace and nature explained. The chapter presents the existing international insights on urbanization in relation to greenspace, its scarcity and effects thereof, and on the importance of urban greenspace and greenspace management. It presents the lacking insight on this management from governing perspective, especially concerning the citizens' role in greenspace management and citizens' understanding of nature. It concludes with summarizing the research gap. Chapter 3 formulates the objectives and research questions. Chapter 4 presents the theoretical framework developed for the original research of this thesis: Giddens social structuration theory and derivatives of this theory: the Policy Arrangement Approach and Transition Studies. Chapter 5 presents the methods used to collect and interpret the data and the involvement of stakeholders in the research. Chapter 6 presents the articles and their results. In chapter 7 these results are discussed in the light of the existing scientific insights, the research gap presented in chapter 2 and the international policy goals referred to here above. This chapter also sets out perspectives for future research and some research questions. Finally, chapter 8 presents the conclusions of the thesis on ways to preserve and integrate greenspace in urban development and to make local governing more responsive to the needs and wishes of citizens. The articles can be found in the appendix.

2 EXISTING INTERNATIONAL INSIGHTS ON URBAN GREENSPACE AND THIS STUDY

2.1 Introduction

This chapter presents and combines international scientific insights on greenspace and its management in a context of urbanization. Section 2.2 is about greenspace, describes related concepts and defines greenspace as medium for interaction of humans with nature. It confines the research to greenspace in functional urban areas³ and presents examples of such greenspace by means of photographs. Section 2.3 describes how greenspace in urban areas is becoming scarce through urbanization by densification and what the effects are. In 2.4 follow an explanation of why nature and natural processes are especially important for urban areas and about the importance of green infrastructure. Section 2.5 looks into the management of greenspace and the call in the literature to study greenspace management from a governing perspective and especially concerning citizens. Public and private interests in greenspace are listed on the basis of the collected literature. Section 2.6 conclusively defines the research gap.

Each section ends with conclusions and indications of how presented issues come back in the articles.

2.2 Greenspace as interface between society and nature

greenspace and related concepts

In the international literature various concepts can be found that relate to greenspace. Ostrom (2009) uses the term social-ecological systems. She mentions that different concepts are in use for social-ecological systems which hinders the coming together of knowledge. By defining urban greenspace in relation to those concepts, the knowledge connected to those concepts can be brought together in this thesis on urban greenspace. Therefore greenspace and the related concepts are first briefly described. After that, greenspace as it is used in this thesis is defined, and the demarcation of urban and examples of greenspace by means of photographs are given.

'greenspace', 'nature' and 'ecosystem'

In research and practice the terms greenspace, nature and landscape are often used without distinctions (e.g. in Van Den Berg et al., 2015; Pütz et al., 2015; Buijs, 2009). Definitions of greenspace are rare in the international literature, even though the term is much used. Fratini and Marone (2011 p9) define greenspace as *"the areas that are naturally or artificially endowed with vegetation"*. They proceed: *"Urban green-space refers to a space entirely covered or covered only above with vegetation, located in the center of a city or in the periphery"*. The authors restrict the definition to Italy. They continue, referring to Iuculano [and] Ubaldo (Fratini and Marone, 2011 p9): *"The term "urban green-space" ... identifies those portions of territory not constructed on, of private character (green-space intended to increase the enjoyment of the owner, a private subject) or of a public nature (green-space intended to increase public use through discharge of functions in favor of average citizens), that coexist with the structures and the manmade features and are intended for enjoyment and health of the citizens on the whole."*

Swanwick et al. (2003) define greenspace as land that consists predominantly of unsealed, permeable, 'soft' surfaces such as soil, grass, shrubs and trees. According to them the term green space is *"a relatively recent term that seems to have its origins both in the urban nature conservation movement and in the arrival in the UK of some of the European thinking about green space planning"* (p97).

³ A functional urban area (FUA) is "an urban core and the area around it that is economically integrated with the centre, e.g. the local labour market. Belonging to a commuter catchment area, FUAs represent common local labour and housing markets" (ESPON 2005).

Together these two definitions allude to the open surface of the earth, vegetation cover, human enjoyment and health, while distinguishing between private and public green and between private and public interests.

The term 'nature' refers to the biotic and abiotic environment and processes (e.g. Hooper et al., 2005; Benton, 2009). The biotic environment comprises the living: flora and fauna. The abiotic environment is formed by soil/rock, water, air and light. Natural processes consist in changes or transformations of this biotic and abiotic environment over time and in place, for instance as result of climate.

Urban nature and urban greenspace are closely interrelated: urban greenspace is the land bound ('plant!') materialization of urban nature. This materialization happens via nature's processes of germination, growth and regeneration of flora producing the vegetation with the chlorophyll that colours the space green. (Soil) fauna also contributes to plant growth, by improving the structure and fertility of the soil with their droppings and subsoil activities and corridors. On the other hand, animal life depends largely on greenspace. Greenspace is not only conditioned by natural factors as air, climate and browsing, but also by artificial factors such as surrounding buildings and other land use and management (!), e.g. farming or pruning. Urban greenspace is only a subset of nature, while simultaneously, natural processes thrive in urban greenspace. So urban nature and urban greenspace are very much interdependent. This is not specific for urban areas and also goes for nature and greenspace in peri-urban and rural areas. By human influence, nature and natural processes in an urban environment can lead to different situations than in non-urban environments. The term 'environment' ports the notion of forming a setting for something or somebody. A reciprocity of the manmade urban environment for nature on the one hand and urban nature as environment for human beings on the other hand, emerges the way it is described here above.

The land-bound dimension of urban greenspace enables human access to nature's services and makes greenspace the medium through which in urban areas a substantial part of nature can be experienced, enjoyed or exploited by citizens or companies. (see 2.4 and 2.5) Access to greenspace or open, fertile soil are conditional to this.

By the interaction with nature, humans can develop a bond or emotional tie (e.g. Jones et al., 2016) with nature. Hartig et al. (2014) refer to a 'longstanding bond' between humans and nature.

Another term for nature is 'ecosystem'. It stands for the natural system, as can be read from Braat and De Groot (2012) who at places use the term nature and natural ecosystems interchangeably (see 2.4). In real life numerous definitions and perceptions of nature exist (e.g. Hartig et al., 2014; Uy and Nakagoshi, 2008; Aalbers et al., 2006; Aalbers and Bezemer, 2005; Van Herzele and Wiedemann, 2003; Timmermans and Buijs, 2001).

'landscape'

The term 'landscape' is also used in literature on nature and greenspace. Landscape is the perceivable output of the interaction between man and his natural environment, Vroom writes (1983 p6). Other definitions of landscape are: "*the interplay between the natural environment and the artificial objects in it*"; "*the perceivable result of the interaction between natural forces and human actions*"; "*a part of space on the surface of the earth, consisting out of a complex of relationships, developed by the workings of rock, water, air, plants, animals and man, and which in its external appearance forms a whole that can be distinguished*" (Vroom, 1983 p6). A similarity to urban greenspace as product of human interaction can be recognized in these definitions (see also Jansson and Lindgren, 2012 and Cameron et al., 2012). Land-scape is also land bound, like greenspace. The term 'scape' in 'landscape' is etymologically related to a social organization ('ship', 'schaft', 'schap', 'skap') (<https://en.wiktionary.org/>). Thus there is a large overlap in meaning between green space and landscape, both being a product of more or less interaction between humans and nature.

Instead of urban greenspace one can also read 'green landscape elements in urban regions'. It are urban greenspaces that together make green urban landscapes. It is a matter of level of spatial scale. Also De Groot (2010) notices this, when distinguishing between 'landscape services' and 'ecosystem services': "*there is not a principle difference between ecosystem and landscape functions or services but mainly a matter of scale*" (p261). Ostrom (2009 p420) also identifies different scale levels in what she refers to as 'social-ecological systems' (see below).

Landscapes can range or change from fully green to fully grey or stony, with gradients in between, depending on the degree of human interference in the natural environment. Swanwick et al. (2003 p97-99) refer to semi-naturalness and present different degrees of interaction in their typology of greenspace. Buijs (2009 p39-41) refers to degrees of management in relation to the human perception

of naturalness of landscapes. Section 2.5 looks into management of greenspace as a form of interaction with nature.

'socio-ecological system' and 'urban forest'

The concept 'socio-ecological system' (Ostrom, 2009; Folke et al., 2005; Berkes & Folke, 1998) also builds on the notion of society-nature interaction. "All human resources are embedded in complex socio-ecological systems". "Socio-ecological systems [SES] are composed of multiple subsystems and internal variables within these subsystems at multiple levels analogous to organisms ... In a complex SES, subsystems such as a resource system (...), resource units (...), users (...), and governance systems (...) are relatively separable but interact to produce outcomes at the SES level, which in turn feed back to affect these subsystems and their components, as well other larger or smaller SESs..." (Ostrom, 2009 p419).

Since the 1980s also the term 'urban forest' is used in Europe (Konijnendijk et al., 2006). The term 'urban forestry' refers to areas with woody and non woody plant species in urban areas and their management (Pütz et al., 2015). The urban forestry discussion can be traced back to the USA in 1894 and revived there in the 1960s as integrated approach (Konijnendijk et al., 2006). Pütz et al. (2015) depict urban forest, urban forestry, urban farm and urban garden as part of urban greenspace. The tree-dominance seems the key factor for distinguishing urban forests from other types of urban green.

definition of greenspace for this thesis

The previous literature shows that greenspace is at the same time a product of human interaction with nature and a medium for access to the benefits of nature that can be enjoyed; there is a bond between humans and nature; there are public and private interests in greenspace; many perceptions or conceptions of nature exist; different spatial scales can be distinguished in relation to greenspace; and finally, a systemic dimension can be identified in nature, with which greenspace is intertwined.

The definition of greenspace for this dissertation is inspired by Fratini and Marone (2011) It adds the interaction with nature in greenspace because this thesis will focus on governing of greenspace as a way to provide or obtain access to the benefits of nature (see 2.4). The definition also includes the spatial scale issue, by referring to isolated and connected parts forming a bigger whole, anticipating 2.4 which motivates the importance of greenstructure. The definition is as follows:

Greenspace is the outdoor area that to a certain extend is naturally or artificially covered or covered only above with vegetation, comprising isolated areas as well as connected areas forming a bigger whole. It is the medium through which people can interact with nature and acquire access to its numerous benefits.

demarcation of the urban

This thesis focuses on greenspace in urban regions defined as functional urban areas. It includes the urban and the peri-urban (Fig. 1). The urban area exists in the inner urban and suburban area. Piorr et al. (2011) define the suburban area as generally lower density contiguous built-up areas, attached to inner urban areas. In suburban areas houses are typically not more than 200 metres apart. The peri-urban area exists in the urban fringe and the urban periphery. Piorr et al. (2011) define the urban fringe as a zone along the edges of the built-up area, which consists of a scattered pattern of lower density settlement areas, urban concentrations at transport hubs and large green open spaces. The urban periphery (next to the exterior ring in the diagram) is under strong influence from urbanization in social and economic terms (Madsen et al., 2010), and thus by definition also part of the functional urban area. The outer and green ring (Fig. 1) is not part of the functional urban area. It represents the rural hinterland.

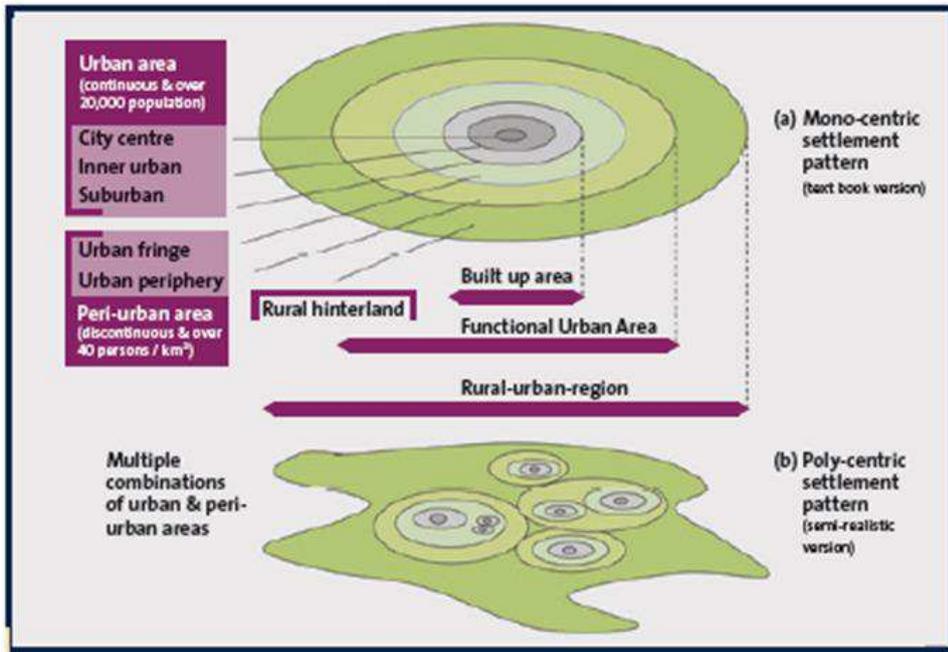
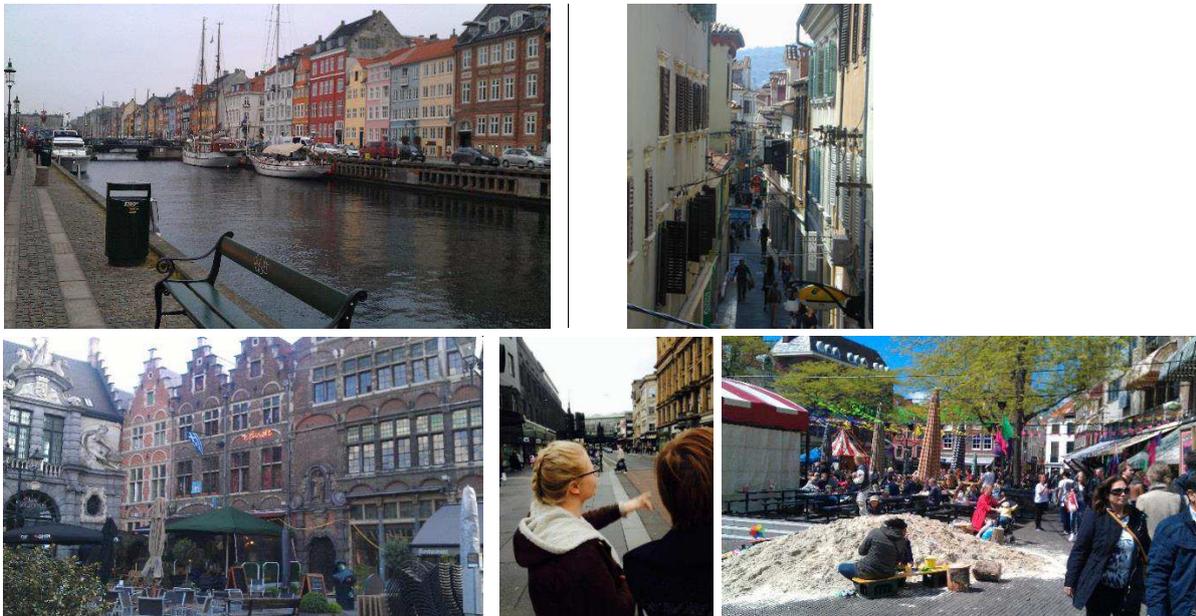


Figure 1. The different parts of a Functional Urban Area (Loibl. et al., 2011 p27).

examples of greenspace in urban regions

Figures 2-21 present examples of greenspace or its absence in the different parts of the functional urban area referred to above. From urban core to urban periphery public greenspace becomes less and in the peri-urban areas public greenspace mainly consists in avenue plantings, verges and nature reserves. Private greenspace can make up a substantial part of greenspace in the urban and peri-urban areas.



Figures 2-6. City centre: scarcity of greenspace, sometimes rather blue than green or no greenspace at all. Pictures are from Copenhagen, Koper, Gent, Glasgow and The Hague.



Figures 7-11. Inner-urban ring: pictures are from Salamanca, Groningen, London, Brussels and Rotterdam.



Figures 12-16. Sub-urban: pictures are from Amsterdam-Osdorp, Amsterdam Nieuw-West (composition), Rotterdam Vroesepark (2x) and Amsterdam Botteskerkpark.



Figures 17-21. Peri-urban area: pictures are from Nijmegen region in The Netherlands; the Hague region (2x) in The Netherlands; Ruhr area in Germany; Greater Manchester in the United Kingdom.

conclusions

This thesis understands greenspace as a medium for interaction between humans and nature and at the same time as result of this interaction. It is a means of access to the benefits of nature for both the public and individuals. There is a complexity related to greenspace that comes forth from this intricacy with nature and the benefits that different social parties can draw from it. There are different scale levels of greenspace. This thesis focusses on greenspace in urban regions defined as functional urban areas with different sub-areas, at different levels of spatial scale.

the articles

In the three articles the management of greenspace within a functional urban area (Art. I) and at the neighbourhood level (Art. II and III) are studied.

Article I is about greenspace at the level of urban regions and especially the urban fringe and periphery. The term 'landscape' is often used for greenspace. The human interactions among public actors and between public and private actors around urban greenspace are concerned as well as the benefits which they pursue and their cognition or understandings of nature.

Articles II and III are about the different meanings that various private parties, especially citizens (Art. II and III) and small companies (Art. II) attribute to nature, and the benefits they pursue through interacting with nature. In article II the impact in terms of the type of greenspace and its use and meaning is described and compared to greenspace developed by the local state.

As concern the areas, the articles II and III are about citizens' and companies' initiatives in The Netherlands, a densely populated, heavily urbanized area (90% urban population in 2014, UNDESA 2015). Article II studies initiatives in the inner city, e.g. the Mobile Garden chart that connects green areas inviting youngsters to engage in talks about social and ecological issues in the city of Amsterdam; in the suburban areas, e.g. Food for Good, Utrecht, about growing food; and the peri-urban area, like the 'farmers' experience path', outside the city of Groningen. The terms greenspace and 'nature' are used, because the initiatives are focusing local and smaller green areas.

Article III is about an initially mostly tarmacked area in the centre of a village in the peri-urban area of the cities of Apeldoorn and Enschede. Two citizens wanted to bring back greenspace into the area at the benefit of especially children so these could play in greenspace and learn from nature. (The actual merits are not studied in this thesis.) This last article approaches the social-ecological system as a socio-technical system (see 4.4).

2.3 Urban development, and urban greenspace getting scarce

tension between greenspace and urbanization

Since early times humans have been dependent on nature for their survival (such as for water and food), while they simultaneously built constructions by using natural materials and to seek refuge and shelter. Fences were built around these constructions and adjacent outdoor living areas and fields, to protect people and produce from the wilderness and other humans. Further construction of liveable environments and over time the combination with concentration of trades and services, accompanied by more concentration of people, brought with it a spatial divide or exclusion of nature, implying a growing divide between urban life and greenspace. But a desire to have greenspace in a more cultivated and safe form nearby remains. The 'hortus conclusus' is an expression of this desire: an enclosed garden where one enjoys the beauty and quietness of nature.

Etymology shows the common origin of both 'town' and 'garden' as 'fenced off' areas (Vercoullie, 1925; Van Wijck, 1936, Pluim, 1911): 'tuin', 'tuun', 'tún', 'town' (Vercoullie, 1925). It relates to the Dutch word 'teen', which is the flexible willow branch used for fencing. Elsewhere the Old High German 'zun', and Middle and New High German 'Zaun' (garden) (Van Wijck, 1936), were used. "Mit hegge betyned", a Saxon chronicle from 547 says about a town (Pluim, 1911).

The above shows the common material origin of garden and town and the human desire for nature (the 'bond' referred to in the literature e.g. by Hartig et al., in 2014 or by Wilson, 1984) while at the same time a divide with nature is being developed.

urban greenspace getting scarce

Today more than two thirds of European population live in urban areas and this proportion is expected to increase at a rate of 0,3% annually to 86% in 2050 (UNDESA, 2015 p. 23). Figure 22 shows the growing proportion of urban population for Europe. The urbanization rate in high income countries worldwide seems to slow down, whereas in low and lower income countries it is increasing more strongly. For the world population it is expected that in 2050 66% will be living in urban areas (UNDESA, 2015). With the increase of urbanization, the divide between urban and nature has become more significant. In Western Europe, wilderness hardly exists anymore. Built-up areas, farmland and managed nature parks have taken over.

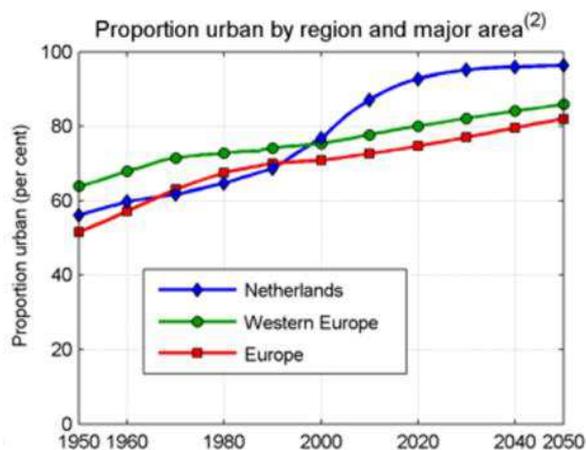


Figure 22 Urban population for Europe (source UNDESA 2015)

The literature shows that greenspace development does not keep up with the current urban development. Pauleit et al. (2005) on the basis of their study of land cover and land use change from 1975 to 2000 in Merseyside UK, observed the gradually filling in of greenspace, with especially the loss of greenspace in the higher income areas where greenspace and gardens are getting built-up. But also in lower income areas in Merseyside this trend, though less strong and happening mainly on brownfields, was observed. The authors refer to similar observations in unpublished data on Munich residential areas. They write that the EEA (2002) on the basis of comparative information on urban development in selected European cities, provided clear evidence for the strong urban growth not being accompanied by the creation of greenspace within the urban areas at the same speed (Pauleit et al., 2005 p296 and

p306). "urban development has led to a decrease of greenspace at the level of the city region, as well as within the city itself", Pauleit et al. (2005 p306) write.

Policies for densification during the last decade, like in the UK (Tratalos et al., 2007) are ongoing. Densification policies can also be found in The Netherlands, e.g. for Rotterdam Zuid and Utrecht. In Rotterdam Zuid greenspaces are filled in with higher income residences to raise the socio-economic profile of the area. The city of Utrecht wants to grow and expects to have 425.000 inhabitants in 2040 (www.utrecht.nl). Now it is at 330.000 inhabitants. Because there is not much space within the city, 2/3 of growth is foreseen to happen in the new district Leidsche Rijn (purple pointers Fig. 23) and 1/3 within the existing city (yellow and red pointers in right part Fig. 23). So further densification is the credo. The city of Utrecht is surrounded by nature conservation parks. The conservation of these parks is constraining the room for building directly outside the city boundaries, leading to further densification, but also putting strong pressure on existing urban greenspace.



Figure 23 Building locations Utrecht (www.utrecht.nl)

Urban population growth jeopardizes urban greenspace development in cities when densification policies are practiced (Wolch et al., 2014; Pauleit et al., 2005; Tratalos et al., 2007 p308-309 referring to Arnold and Gibbons, 1996, McPherson 1998, Simpson, 1998, Xiao et al., 1998, Weng, 2001, and Whitford et al., 2001). Other approaches are also possible: The council of the city of Nijmegen in 2010 has adopted a policy to create greenspaces of at least 0.5 ha within 300 m. distance of a house in case of absence of such greenspace. Also for new urban developments the municipality wants to observe this 'topindicator' (www.nijmegen.nl).

effects of scarcity of greenspace and of urbanization

There are social aspects to scarcity of greenspace in urban areas, such as socio-ecological inequality. "There is evidence that a lack of quality greenspace is an important reason why people move out of inner cities to the suburbs, thus causing urban sprawl", Pauleit et al. (2005 p306) write. Local economic and population shrinkage of neighbourhoods due to insufficient quality of living environment⁴ to keep higher and middle income groups attracted, leads to socio-ecological inequality within cities and a downwards spiral towards inequality. Aalbers et al. (2014) in a study for the EEA defined socio-ecological inequality as "the spatial clustering of socioeconomic deprivation and adverse (physical) environmental circumstances." The majority of studies detected in their quick scan of literature (e.g. Jephcote and Chen 2012, Randall, 2011; Pearce et al., 2010; Glaeser et al, 2008; Kruize, 2007; Naess et al., 2007) on the topic, conclude that such clustering does occur: the presence of socio-economic deprivation is generally associated with an increased likelihood of adverse environmental conditions. The process of economic development and urbanization goes hand in hand with differentiation in living environment according to levels of income (Brueckner et al., 1999; Fol, 2012, Gibbons et al., 2014, Aalbers et al., 2014), coupled to presence or absence of green open space (Brueckner et al., 1999).

Urbanization also brings the diversity of the urban population with inherent variety in terms of needs or interests in greenspace (Kabish et al., 2015). Different urban social groups (age, culture,

⁴ Quality of life is about more than quality of living environment. It includes for instance access to education and to the labourmarket.

lifestyle) have different wishes regarding greenspace (Aalbers et al., 2006; De Ruiter and Aalbers, 2006; Aalbers and Bezemer, 2005).

conclusions

The literature presents a common origin and connectedness of garden/urban greenspace and town. Greenspace development is not keeping up with urban development. Urban development is jeopardizing and leading to scarcity of greenspace, and a divide between humans and nature while on the other hand a human desire for nature is existing. The scarcity also leads to socio-ecological inequality. Urbanization also brings a differentiation in needs or interests in greenspace as result of the diversity in terms of social groups. These are developments with a worldwide dimension, considering the urbanization of the world population.

the articles

Article I looks into the capacity of urban regional greenspace policies to preserve urban greenspace in two growing and one shrinking⁵ urban regions. In article II and III one can read how citizens and small companies are trying to correct the divide between urban life and nature. The issue of socio-ecological inequality and the desire for nature are not studied but are a reason for studying regional governing in urban regions and its performance in terms of preserving and integrating greenspace in urban development.

2.4 Importance of urban greenspace for human life and sustainable urbanization

nature as foundation of human life and the concept 'ecosystem services'

Natural processes are the foundation of life. They provide, for instance, for natural resources, germination, growth of food, purification of water, reproduction, decomposition and mineralisation of waste by soil fauna into organic matter, recycling of nutrients and pollination by insects. Without these processes human life is not possible. These processes together thrive best in greenspace because it provides the natural environment in which ecological systems can fulfil multiple functions at the same time, in the same place. According to Constanza et al. (1997) "*The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system*" (p253). Greenspaces can be considered as such (potential) natural capital stocks. Citizens can harvest fruits, cut branches to make a basket or build a hut, grow flowers or sit in the shade of a tree that cools the air during a hot summer day. They can put a hive and collect honey, saw seeds and grow vegetables, provided that there are space and provisions that regulate its use. Companies can do so on a commercial basis to earn an income. These are rather uncommon at present in Western Europe, but there is a new trend (2.5). Access to greenspace or open fertile soil are conditional to this.

The 'ecosystem services' concept has furthered the notion on the importance of nature or greenspace for society. De Groot et al. (2010) write that "*the concept was mainstreamed by the Millennium Ecosystem Assessment*" (p261). (The later scientific work by ecologists on the Economics of Ecosystem Services and Biodiversity (www.teebweb.org) attempts to link ecosystem services to mainstream economic theory.) To express that nature provides services to society, Braat and De Groot (2012) use the terms nature's services, ecological services, ecosystem services or environmental services interchangeably. "*The concept of ecosystem services dates back at least to the 1970's but gained momentum in the scientific literature in the 1990's (...). Schumacher (1973) used the concept of 'natural capital'*" (Braat and De Groot, 2012 p7). After him other authors started referring to ecosystem-, ecological, environmental or nature's services. Quoting Daily (1997), Luederitz et al. (2015) define ecosystem services as "*the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life*" (2015 p3). In land use and landscape planning literature concern for this sustainability in urban context is expressed (Gustavsson et al., 2005; Houghton, 1997; Payne 2009).

Four main categories of ecosystem services are now commonly acknowledged in the scientific literature (De Groot et al., 2010 p263): supporting and habitat services; productive or provisioning

⁵ In terms of economy and population size.

services; cultural (and amenity) services; and fourthly, regulating services. The supporting/habitat services contribute to the natural system; the regulating and productive services contribute to the natural system and society; the cultural services contribute to society. This difference in targets between ecosystem services can also be found in Tzoulas et al. (2007): Part of the ecosystem services is basic for ecological processes and functions and ecosystem health, and only indirectly servicing human health, whereas other ecosystem services are directly servicing humans.

relevance of ecosystem services in urban context

A survey (Rode and Floater, 2013) among 90 cities across the world (mostly self declared 'green' ICLEI cities in high income (n=57) and middle income countries (n=32)) produced a listing of environmental challenges. The survey question was how significant each listed green challenge was for their city or region. Flooding and storm water management, water pollution, lack or loss of greenspace, ground contamination, decline of natural habitats, water shortages, clean drinking water, heat waves, loss of ecologically productive land, land/soil erosion, food shortage/access to food, forest fires and natural resource shortages were estimated somewhat to very significant environmental challenges by the officials who filled in the online survey. For middle income countries these were more significant than for part of the high income country cities. But even for part of the high income country cities they were significant to a certain degree. The survey shows that cities experience environmental problems. The fact that the cities were ICLEI cities and that officials filled in the online survey may have influenced the outcomes in various ways.

Most of the environmental problems mentioned in the survey (Rode and Floater, 2013) relate to greenspace and the balance between the urban and nature: to prevent flooding and storm water surplus, a sufficient amount of greenspace is important to infiltration of surplus water into the soil. Simultaneously, water infiltration contributes to restoring groundwater and to lessening (drinking) water shortages. The height of groundwater tables is critical to the flourishing of trees, and soil humidity is needed for food production and growth of other plants. Vegetation in greenspace is important to avoid soil erosion, because the roots and cover reduce the impact of water, trampling and wind (e.g. Reubens et al. (2008) referring to e.g. Abe and Ziemer, 1991; Gray and Sotir, 1996; Gyssels et al., 2005; and Vandekerckhove et al., 2001). Soil attenuation capacity is important for reducing ground contamination and multiple times higher in open soils than sealed soils (Wang et al., 2015). Pollution and waste problems are partly very well tackled with technological solutions and the density of urban populations in core areas does not seem to allow for green alternatives. But in less densely built-up environments, greenspace and its multiple functions may offer also to those problems a natural solution (Troy, 2000). Lack or loss of greenspace, heat waves, loss of ecologically productive land are all dependent on the management or preservation of greenspace. Transpiration and shade by vegetation and evaporation by soils can reduce heat waves with several degrees. The Urban Heat Island effect (e.g. Zhou et al., 2013) due to extensive clusters of built-up areas can reach up to 8^o Celsius (Kolokotroni and Giridharan, 2008 p986; Taha, 1997 p101).

The many systems interlinkages between the life supporting functions of urban nature and a human or society as a whole in terms of human health are elaborated by Tzoulas et al. (2007) on the basis of an extensive literature review. As Fratini and Marone (2011 p9), also Tzoulas et al. (2007) distinguish between private and public interests.) Their review identifies: the income and employment; education and lifestyle; and living and working conditions as the socio-economic health benefits of ecosystems. As community health benefits they name: the access to services and housing; sense of community identity; community empowerment; social capital; and culture. For individual physical health they distinguish: the cardiovascular; endocrine functions and immunity; the nervous system; respiratory; digestive; and bone tissue benefits of ecosystems. And finally as psychological health benefits for humans they refer to: the relaxation from stress; positive emotions; attention capacity; and cognitive capacity. Shanahan et al. (2014) and Hartig et al. (2014) in a review of reviews confirm similar importance of urban nature or urban green spaces to physical and mental health benefits. In 2003 positive relations between self-reported wellbeing and greenness of urban areas were already identified (De Vries et al., 2003).

As concerns urban nature, Tzoulas et al. (2007) distinguish between green infrastructure; ecosystem functions and services; and ecosystem health. They position these three in relation to the abovementioned aspects of public health. A parallel with the concepts in section 2.2 can be recognized in terms of seeing human and nature in relation to one another (the human 'bond' with nature). Their conceptual framework presents the complexity of a socio-ecological system by means of the numerous interlinkages and dynamic processes.

Troy (2000) in a book chapter, describes the place of greenspace in fulfilling the important needs of Australian urban communities. He specifies it in terms of the capacity to cope with domestic wastes and opportunities for recycling, to harvest or otherwise cope with rainfall and reduce run-off, to produce much of their own food, space for growth of trees and shrubs that purify the air and cool the urban area, growing wood for fuel and catering to habitats for birds and other native fauna, and less congestion and thus less accidents and energy losses.

Kabish et al. (2015) in their systematic review of 219 peer reviewed papers published on urban greenspace and related social issues from 2000 – 2013, state that the environmental and social benefits related to greenspace are rightly important to mitigate the environmental effects of urbanization and to increase the urban quality of life.

The contribution of greenspace to the quality of living environment is an attraction factor for citizens. At the level of the individual citizen this attraction is observable in the higher price of real estate near green areas (Damigos and Anyfantus, 2011; Morancho, 2003; Poudyal et al., 2009; Luttik, 2000) and the move of higher income groups to greener areas (Brueckner et al., 1999; Grochowski, 2008; Perpar, 2008; Beer 2003). Existing studies underline the growing place occupied by green amenities in the residential choice of households, Choumert and Salanié write (2008 p331), referring to Jim & Chen (2006). See also Kaplan and Austin (2004), Frumkin (2001), Kaplan and Kaplan (1989) and Schroeder (1988) about the importance attributed to greenspace as part of the daily living environment. "*Natural environments are generally more restorative than urban environments ... providing recovery from attentional fatigue and enabling reflection... Access to natural, restorative environments is therefore important to help reduce urban dwellers' stress, alleviate cognitive fatigue and help provide a healthy, sustainable human population,*" according to Payne (2009) referring to Hartig et al. (1991), Kaplan & Kaplan (1989) and Grahn & Stigsdotter (2003).

ecosystem services under pressure, need for integration

As shown earlier, the (potential) contribution of greenspace to urban life is vast. At present cities draw limited benefits of local ecosystem services and more substantial benefits from ecosystems elsewhere, even across the globe. The demand on natural resources by urban population is high because of the number of people, and the urban way of life. The urban way of life is more consumptive than the rural way of life, in terms of e.g. 60-80 per cent of global energy consumption and 75 per cent of global carbon emissions (www.undp.org), a higher percentage than the percentage of urbanized populations worldwide. The resource efficiency of the urban way of life is applauded in some articles while contradicted by others: e.g. Troy (2000) and White (1994) in Jenks et al. (2000).

Pauleit et al. (2005) note that environmental parameters such as surface temperatures, storm water run-off and carbon sequestration vary between urban land uses and are directly affected by land cover features such as building density and the provision of greenspaces, referring to McPherson et al. (1994), American Forests (1996), Pauleit and Duhme (1995, 2000), Whitford et al. (2001) and Nowak et al. (2002). On the basis of a modelling study in 11 residential areas in Merseyside, UK, they find negative consequences for the parameters surface temperature, rainfall run off and greenspace diversity with increase of densification. Thus not only the relevance of greenspace to urban areas is attested, also evidence of the negative consequences of densification on ecosystem services exists. Due to continuously increasing densification, the regulating functions of ecosystems in urban areas are under stress, which further affects the residents' quality of life, including many health issues (Wolch et al., 2014).

Urban densification poses a challenge in terms of the proper balance between urban greenspace and urbanization, a balance that is crucial to the quality of life, and dependent on that, human health. Considering the strong trend of urbanization of the world population, the neglect of this challenge puts at risk human life. This thesis does not study the proper balance, but looks at governing of greenspace in urban regions in relation to this balance, with other words: the integration of nature in urbanization.

the importance of greenstructure

Several authors have looked into the structural dimensions of greenspace. Tzoulas et al. (2007) identified the importance of greenstructure for ecosystem functions, ecosystem health and human health. Luederitz et al. (2015 p3) write that "*ecological structures generate ecological processes and functions that may be appropriated by humans ... that increase human well-being ...*". Potschin and Haines-Young (2011) and Luederitz et al. (2015) mention the importance of structure as it enables functions that are more generally important for delivering ecosystem services. Structure refers to the spatial connectedness and is the whole of areas and their connections to one another. Together the areas

and corridors or other forms of green (and water) connections can fulfil other natural functions than separate parts can fulfil. According to Opdam et al. (2006) simple core areas or nature reserves face problems, as they are fixed in space and time. They propose that green infrastructure allows development and adaptation through the connections between the areas, and that green infrastructure can combine biodiversity conservation and sustainable landscape development.

Also for humans, greenstructure contributes additional services, e.g. greenstructure offers the possibility for recreationists to move through a network composed of a diversity of different greenspaces that together meet the recreational needs of a variety of users (Aalbers and Bezemer, 2005). Swanwick et al. (2003) provide an example of how a greenstructure can perform many functions at the same time: *"a town park may be linked to the urban edge by a green corridor combining woodland, semi-natural grassland, a cemetery, a linear green space along a river or canal and an area of farmland encapsulated within the urban area. As a whole the corridor will function both as a wildlife corridor, a recreation resource, a landscape feature and a strategic break between adjacent areas of development. It may also contain a linked series of footpaths or private parks which may be further designated as a walk, trail or nature trail"* (p100).

But not all green open space needs to be connected to make a meaningful contribution to quality of life or natural processes. Isolated green spots, such as a green room or a garden can for instance reduce stress (Custers and Van den Berg, 2007) or promote recovery (Ulrich, 1984). Isolated spots can be reached by flying animals who can nourish there or pollinate, or can form islands of endemic species that by isolation are protected from competitors.

Ostoic and Konijnendijk Van Den Bosch (2015) reviewed discourses in peer reviewed urban forestry articles (n=519, from 1988-2014) and identified six main categories of discourses, of which the urban planning discourse and the connected green infrastructure discourses are about protecting existing greenspace and incorporating new greenspace, respectively the structural dimensions of greenspace. Green elements and greenstructure are considered as necessary part of the urban fabric of sustainable cities in the urban planning discourses. *"Main rationale is optimal distribution of UF [urban forests] and green space, physical and functional connectivity for effective and efficient provision of ES [ecosystem services]"*, they write, referring to Ahern (2007). They find that the concept of physical and functional connectivity plays an important role in the articles on greenstructure (p135). Thus a network or infrastructure of connected greenspaces as well as isolated spots of greenspace can have meaning for humans and nature, but for urban nature's processes and efficiency in serving a variety of needs, the presence of green structure is conditional. Stahle et al. (2010) consider efficient greenspace structure design crucial for 'smart growth'.

public understanding of the importance of greenspace in urban regions

There may be another reason for catering for greenspace in the daily living environment of people. The literature refers to other positive aspects of the interaction between humans and nature. Hartig et al. (2014 p209) write *"Nature experience ...carries further the long running exchange between a society and its environment"*. Daily interaction with nature (Colding and Barthel, 2013; Jones et al., 2016) nearby enables the development of a mental bond with nature. Jones et al. (2016) in their article on human values and management of social-ecological systems, define 'relational values' as *"the realm of values that reflect lived experiences known as felt or relational values"*, referring to Schroeder (2013). According to Weick (2011) interaction contributes to cognition.

Luttik et al. (2014) did a survey among eight green neighbourhood initiatives in The Netherlands and 344 persons, including 8% initiators and board members, 18% volunteers, 47% visitors, 17% otherwise involved and 10 % non involved. They found that 26 respectively 28% of those involved experienced 'some' respectively 'a convincingly greater interest in nature' as results of their involvement with the initiative. 22 respectively 24% found that they had become 'somewhat' respectively 'convincingly more inquisitive' about cheap and healthy food as a result of their involvement (p40-41). Research among schools visiting the initiatives demonstrated that children had gained understanding of natural processes, e.g. how long it takes for a pumpkin to grow big (p44).

Thus (daily) interaction with natural processes may enhance the cognition of the meaning and workings of nature as basis for human life and contribute to emotional ties to nature. Bonding (or re-bonding) with nature may be considered important to sustainable lifestyles (e.g. Gilg et al., 2005) as values are the deeper basis (Fulton et al., 1996) for attitude and behavioural choices. This individual level of interaction with nature was reflected with the widely used but rarely defined concept of 'sustainable livelihood' during the Rio 92 discussions, which relates to sustainable lifestyle. Frequent interaction with nature seems also relevant to keep (or develop) the public support to sustainable urban

development policies. That no or a weak understanding of the importance of nature and not having any emotional relation to it, will negatively impact a human's support for nature conservation and (related to that) sustainable urban development, is plausible.

Another effect of interaction with greenspace is found by Krasny and Tidbel (2009). They find that community gardening creates possibilities for learning to create a populace that practices resource stewardship (Colding and Barthel 2013 p160).

With respect to the cognition of nature by the younger generation through interaction with nature, the results of a recent survey in The Netherlands by Kantar (2018) may be worrying. The survey⁶ found the following results: the percentage of grandparents and parents that played more often outside than inside was 69% respectively 63% whereas the percentage of children that now play more often outside than inside is 10%. 24, 26 and 36 % of the grandparents, respectively parents, respectively children played or plays outside as often as inside. The remainder percentages play(ed) inside. From 2013 to 2018 the percentage of children playing more often outside than inside had decreased from 14 to 10 %. 30% of the children never plays outside or once a week. This percentage has been doubling since 2013.

Samways (2007) and Miller (2005) stress the risk of extinction of the experience of nature. *"For everyone to value biodiversity, which is an essential underpinning to its conservation (Wilson, 1984), the closest we can get is to feel nature (Rothenberg, 1989) and to love it (Fox, 1993; Stokes, 2006),"* Samways writes (2007 p1). *"We are on the threshold between a real world and a virtual world, which is disconnecting us and nature. The outcome is a loss of appreciation of our reliance on nature"* (Samways, 2007).



Figures 24-25 Flooding in Hamburg 2013 (left) Arnhem 2014 (right)

conclusions

Ecosystems and their processes and the natural capital stocks, such as greenspace, that produce them are critical to the functioning of the earth's life-support. The complexity hinted at in 2.2, exists in terms of a broad variety of services produced by ecosystems, their multiple benefits and the importance of greenstructure which supports and enhances the ecosystem services for both ecosystem health and humans.

The tension between urbanization and greenspace appears again: While present urban development, and especially densification is furthering the divide with nature, urban societies are meanwhile highly dependent on nature. Greenspace and greenstructure are a necessary part of the urban fabric for sustainable cities. Local greenspace is an attraction factor in the choice of residence.

The human bond with nature also appears in terms of cognition and emotional ties to nature. There is proof of a positive effect of neighbourhood initiatives on the cognition of natural processes and interest in nature and food. The understanding of the importance of nature and the emotional ties may be waning with the growing spatial divide and reduced interaction of humans with nature. This is worrying, because the public support among urban societies for sustainability policies may be expected to depend on this understanding and emotional ties.

The themes in the policy texts from EU, UN SDG and UN Habitat referred to in the introduction (multi-functionality of greenspace; fostering urban-rural linkages instead of a dichotomy discourse;

⁶ Bruto number was representative for sex, age and region. Netto n 86% = 1012. For children of 6 to 12 years old n=495. For parents born between 1955 – 1985, n=365. For grandparents born between 1925 – 1955 n=152.

urban life drawing the majority of domestic and international resources; quality of life and of living environment) can be recognized in the above issues.

the articles

In this thesis the benefits or dis-benefits of nature for urbanites are considered as object of regional and local management of greenspace. In article I the content of regional strategies in terms of the meaning of greenspace gets attention. Article II looks into initiatives in greenspace by citizens and small companies and the benefits or meaning they attribute to nature. Article III focuses on how alternative understandings of nature by citizens taking initiatives to manage greenspace, may be up-scaled in terms of changing the understanding of greenspace by local authorities and other actors.

2.5 Greenspace management from governing perspective

importance of management of greenspace in urban regions

The previous sections spelled out the importance of and complex relations between greenspace, greenstructure and ecosystem services, and how these services and the bond with nature are at risk through urban densification. This section looks into the management of greenspace. To heighten the benefits of nature comes with a certain investment of effort: Braat and De Groot (2012, p8) argue that *"provisioning and cultural ecosystem services are only delivered (and subsequently beneficial and of value) to humans with some investment of energy, e.g. labour, by humans"*. Jansson and Lindgren (2012) refer to this investment in terms of management: *"urban landscapes are ultimately managed to provide user benefits"*. This notion of gaining benefits by actions also speaks from Elmqvist et al. 's (2015) article *"benefits of restoring ecosystem services in urban areas"*. The concern of greenspace management about sustainable urban development can therefore more specifically be understood as about providing urban society with access to the benefits of nature while seeing to a sustainable balance between greenspace and urban development.

In their review of literature on management of urban landscapes and greenspaces Jansson and Lindgren (2012) note the ongoing process character of management and refer to controlling space or people, having no time limits (p140 *"controlling things and people"*, citing the Oxford dictionary). They distinguish it from landscape 'maintenance' which is more delimited and about keeping and preserving (quoting Gustavsson et al., 2005) and technical measures. According to Gustavsson et al. (2005) for management on the strategic level the frames for the activities are set through decisions on allocation of resources, formulation of objectives, targets and time frames; on the operational level the tasks are finally performed. Good management is *"directed by objectives and targets, economic and other frames... and in need of considerable input from various actors, particularly the public"* (Jansson and Lindgren 2012 p147). Considering the previous, catering to a proper attribution of the multiple benefits of urban greenspace over areas and actors forms a coordination challenge, and relates to various fields of expertise and conceptions of nature. The variety in these fields and conceptions speaks from variety of benefits referred by Tzoulas et al. (2007) at the interest of different actors.

Jansson and Lindgren (2012), referring to James et al. (2009), state that management and governance of green space are aspects of sustainable urban development that need more understanding and development. A parallel with land-use planning can be observed. In 2.1 it was already explained that greenspace is a form of surface of the earth and can relate to different uses. Land-use planning is planning of the human modification of the earth's surface, which has strongly affected and will increasingly shape planetary functions, according to Steffen et al. (2007) referred in Müller and Munroe (2014, p133). The latter express concern about the integration of greenspace in urbanization in terms of sustainability referring to Verburg et al. (2013) and point at the inherent importance of both land use planning and governing.

Figure 38 (ch.3) presents the management of greenspace as object of governing⁷ study and refers to this increase of benefits in the human interest. De Groot et al. (2010) and Ostrom (2009) identify similar relations between management and obtaining specific benefits.

⁷ Government is used to refer to the institution or to hierarchical governing. Governance is used for collaborative and market governance. Both government and governance appear in this study and have different merits, as will become clear in the articles.

historical overview on management of greenspace during urbanization

A brief historic overview on the management of urban greenspace gives a good background to better understand the present situation of greenspace governing. The origin of the issue of urban greenspace and its governing in Western Europe dates the time of strongholds. Before medieval times, the early society ('Gemeinschaft') shared the defence of bodily life and chose kings amongst themselves. With the increase of the size of territory and the organizational demands this posed, this changed towards a society where kings and nobles inherited power and defended their land and the feudal population within its boundaries, levying taxes for this service. With this, citizens have delegated important responsibilities to the rulers. (Herzog, 1989). The confines of a state organization (city-states that later on organized into national states) started to take shape in Western Europe. With the establishment of city walls and the cities within, abundant greenspace outside the walls remained. But inside the walls more delimited greenspace - often on the ramparts - and in the form of vegetable and herbal gardens developed. Ornamental gardening for the noble elite, herbal gardens (by the clergy to treat diseases), and vegetable gardens were kept.

In colonial times (17th -18th century) the by then wealthy urban citizenry built country seats outside the city, e.g. in England, Scotland and The Netherlands (Bijhouwer, 1944). They escaped from the urban environment, in search for clean air and relaxation in nature. In the industrialization era, 19th century industrialists noticed the difference between living conditions of the rich and poor and the impact on the health of the poor workers (www.Victorianweb.org). Ebenezer Howard (1902) in England furthered the concept of Garden City (Figs. 26-27). Workers houses were built with large gardens in the back that allowed for the production of food.



Figures 26-27. Workers housing in Saltaire UK (left) and Heveadorp NL (right) (www.Victorianweb.org; Wikipedia).



Figures 28-30. Public greenspace in Rotterdam Zuid.

With the development of the welfare state, governments at various administrative levels (national, regional, local) in various ways (legal, financial, political) made efforts to shape more healthy living and working environments for people. State urban planners as Van Eesteren in The Netherlands, and housing corporations (state or subsidized by the state) felt responsible for good living conditions of workers. Multi-storey apartment buildings were built with spacious green areas in between. These green areas were mostly lawns with trees and some bushes, in the style of the English landscape gardens that until then had only been affordable to the wealthy citizenry. Stahle et al. (2010 p48) hint at the struggle of practitioners of 'modern planning' (Hausmann, Howard, Le Corbusier) to combine 'dense' and 'green'. They quote De Geyter (2002): "*What to do with the open space structures of suburbia?*" The

management by the state produced a rather uniform type of greenspace. This process of managing greenspace is also qualified as parkification of nature (Littke, 2015) (Figs. 7-10, 12-14, 26, 28, 30). Elands et al. (2015 p3363) describe how local greenspace policies in 20 European cities miss out on aspects of cultural diversity.

Hartig et al. (2014) referred to the interaction between humans and nature as a “*long running exchange*” between humans and nature. This historic overview and the fact that greenspace development is not keeping up with urbanization (see 2.3) suggests that in the course of time, the potential of nature to fulfil basic needs has disappeared from sight and control of citizens. The management has moved between the different spheres of society: from civil society in early times to market and state.

proliferation of multilevel and multi-actor governance of greenspace in urban regions

Since the 1980s, in many countries new forms of governing have been developing, implying a less dominant position of the state. Multi-actor and multilevel networks and expanding interference zones between state, market and civil society have been emerging (Van der Zouwen 2006 quoting Pestman and Van Tatenhove 1998; Hooghe and Marks 2003).

Grassroots initiatives in greenspace have been coming up since a few decades: the citizens’ initiative in Uggedal, Gothenburg; Incredible edible in UK; Kersentuin Utrecht; Groenkracht Delft; and Mobile Garden Amsterdam⁸ are examples of such grassroots initiatives. Nature Nextdoor in The Netherlands and the Black Environment Netwerk in England are coalitions with networks that support such initiatives. These initiatives (Figs. 31-37) can be interpreted as citizens somehow trying to take (back) control (Jansson and Lindgren, 2012) over urban nature. Since the 1980s collaborative governance has been promoted by researchers and planners for governing the complexity of nowadays problems by deliberating on objectives and implementations with citizens, because numerous agents being concerned and having a potential role in the solution of problems. E.g. Chambers (1983) suggests ‘putting the last first’, i.e. the citizen or farmer. Healey supports involvement of citizens in urban planning (Healey 1998).

Also companies are involved in or start such local initiatives in greenspace. Market governance understands governing as a cooperation between companies and other parties such as the state. Market parties are first and foremost oriented towards economic benefits. Market governance is now encouraged in for instance The Netherlands where the new law on spatial planning since a decade has been giving much room to market initiatives. Market governance is the market related component of multilevel and multi-actor governance.

This upcoming of new parties as citizens and companies with new conceptions of nature and taking initiatives in greenspace, fits with the notion of ‘Political modernisation’ (Arts and Van Tatenhove, 2004): “*Political modernisation concerns the shifting relationships between the institutions of state, market and civil society in political domains within countries and beyond, implying new conceptions and structures of governance.*” For greenspace management the term ‘ecological modernization’ (Leroy and Arts, 2006) can be applied. Arts and Van Tatenhove (2004) mention new roles and new parties in the domain of environmental governing and signal a rapid proliferation of these new roles and of new interaction patterns.

⁸ The last two are partly small company initiatives.



Figures 31-37. Citizens and small companies initiatives: Incredible Edible Todmorden (2x); Transvaal Amsterdam; Binnenstebuitenbos Diepenheim; Kersentuin Utrecht (2x); Food for Good Utrecht (photo H. Pijls).

different meanings of nature bring different understandings of quality of greenspace

In section 2.2 the existence of different definitions and perceptions of nature was already mentioned (Hartig et al., 2014; Uy and Nakagoshi, 2008; Timmermans and Buijs, 2001; and Jones et al., 2016). Jones et al. (2016) write: "Values are a fundamental aspect of cognition, which have largely been neglected within the social-ecological systems literature. Values represent the deeply held, emotional aspects of people's cognition and can complement the use of other cognitive constructs, such as knowledge and mental models, which have so far been better represented in this area of study." They understand value as a function of meaning (e.g. spiritual meaning, mental health) and of social obligations or responsibilities (provision of food, for example). They use the social science definition that values do not exist within the environment but that "the environment and its attributes have values for people", referring to Reser and Bentrupperbaümer (2005). Values are in their construct (based on Fulton's (1996) cognitive hierarchy model of human behaviour) the deepest layer underlying human behaviour and choice (Jones et al., 2016 p2).

Also among scientists different knowledge, mental models and values of nature exist (e.g. Ostrom, 2009) and one comes across a variety of terms and interpretations in the scientific literature on greenspace or nature (e.g. see 2.2 and 2.4). For practical reasons such as available databases, different categorizations are used and sometimes even mixed up (e.g. Fisher 2005 on mixing up of land cover with land use). Also between countries or world regions a concept or term can apply differently, as for public access (Alm et al., 2002) or for open space. They also come forth from the different functions of

nature and ecosystem benefits mentioned previously. E.g. a waterboard may consider a green areas as important for water storage and filtering whereas bikers may want to use it for motor cross. In the management of greenspace these different meanings bring various insights and can also lead to misunderstandings and different felt interests and values.

Classifications, preferences and assessment of urban greenspace appear also different between experts and citizens. For example, sites not managed for recreation may be more highly valued by recreationist users (Nicol and Blake, 2005, referred in Van Herzele and Wiedemann, 2003 p112), or experts may prefer restoring cultural landscapes where lay may prefer reforestation or agricultural intensification (Buijs, 2009 p40). With parkification and differences between the meaning that (government) experts versus citizens attribute to (urban) greenspace, various possible benefits may be foregone and the appreciation of existing greenspace may be less.

The existence of various understandings of nature or greenspace among parties implies that the quality of greenspace will also be understood differently between governance actors. Jordan and Russel (2014) write that venues at different levels of policy making seek out different types of knowledge. Lindholst et al. (2015) refer to this, in relation to discussions about quality of greenspace: Europe wide the quality and management of (urban) greenspace has obtained attention since the 1980s in relation to both theory and practice, in parallel to the reorientation to quality in the larger public management reform movement. On the basis of a case study Lindholst et al. (2015) conclude *"that adoption of any quality model has both limiting and enabling implications for public participation and decision-making and that a critical stance is needed within both research and practice for the development of quality models that connect to values of broader societal relevance"* (2015). Urban sustainability is such a broader value, considering the EU and UN policy texts and earlier referred authors (Verburg et al., 2013; Steffen et al., 2007 referred in Müller and Monroe, 2015).

different interests in greenspace management

On the basis of the previous sections the interests in ecosystem services which are at stake in greenspace management are categorized according to public or private interest (Tab. 1). The preservation and integration of nature and greenstructure in urban development in functional urban areas are a common, public interest of regional scale, whereas the private interests are local.

public interests	private interests
<p>Preservation and integration of nature and greenstructure in urban development in a functional urban area, e.g. Potschin and Haines-Young 2011, Opdam et al., 2006), countering the dichotomy (UN Habitat III 2016), in view of</p> <ul style="list-style-type: none"> • preserving the earth's life support (Constanza, 1997); • benefits from urban ecosystem services (e.g. Luederitz et al., 2015; Tzoulas et al., 2007); • reducing use of resources from rural areas and across the globe (e.g. Troy, 2000); • countering scarcity and related socio-ecological inequality (e.g. Aalbers et al., 2014; Damigos and Anyfantus, 2011; Poudyal et al., 2009; Grochowski, 2008; Perpar, 2008; Morancho, 2003; Luttik, 2000; Brueckner et al., 1999). 	<p>Local, neighbourhood greenspace in contribution to quality of living environment and daily interaction with nature and enjoyment of its benefits (Choumert and Salanié, 2008 referring to Jim & Chen 2006; Kaplan and Austin, 2004; Frumkin, 2001; Kaplan and Kaplan, 1989; Schroeder, 1988; Grahn and Stigsdotter, 2003; Stigsdotter and Grahn, 2003)</p> <ul style="list-style-type: none"> • material values of nature (e.g. Troy, 2000); • financial value of nature (e.g. Luttik, 2000); • health and wellbeing (Hartig et al., 2014; Tzoulas et al., 2007) • emotional attachment to nature (e.g. Jones et al., 2016) and learning about nature by interaction (Luttik et al., 2014; Weick et al., 2011) • preferences and meanings varying between groups of urbanites (e.g. Kabish et al., 2016; Aalbers and Bezemer, 2005; Aalbers et al., 2006).
<p style="text-align: center;">variety in conceptions of greenspace or nature between scientific fields (e.g. Ostrom, 2009; Tzoulas et al., 2007; Uy and Nakagoshi, 2008; Fisher and Unwin, 2005)</p>	

Table 1. Private and public interests in greenspace.

need for studying urban greenspace governing

Ostoic and Konijnendijk Van den Bosch (2015) reviewed 519 urban forestry articles from 1988 – 2014 and found that "*Studies related to active participation of citizens and partnerships in urban forestry have been missing*" (p129). They state that there is need for more studies on urban forestry governance. In the same year also Luederitz et al. (2015) did a systematic review of some 3266 unique research articles on urban ecosystem services, selecting the urban case studies on benefits and ecosystem services from these. The review shows that ecology and secondly planning (urban form and related issues) are most, and governance of ecosystem services the least published on. They found 16 articles on governance of ecosystem services since 1999, 8% of the 201 case studies. The authors point at the need for research on governance, planning and stakeholder engagement (p100). Quoting Hauck et al. (2013) and Martin-Lopez et al. (2012), they say that examination of synergies and trade-offs need to be based on local knowledge and context (p100). Without the engagement of stakeholders in the governance of management of greenspace, there will be serious knowledge gaps (Luederitz et al., 2015 p100). Kabish et al. (2015) did a systematic review of 219 articles on urban greenspace⁹ and human-environment interactions.¹⁰ They find that five papers were about social cohesion and participation, of which four applied qualitative analyses addressing local residents. In comparison to the challenges set out in section 2.4, this limited number of governance studies is a point of concern.

Ostoic and Konijnendijk Van den Bosch (2015) also identify the need for more evidence on the relation between the benefits of urban forests and existing policies (2015 p129). Concerning the study of the relationship between users and greenspace, Jansson and Lindgren write (2012 p143) that "*Since the majority of users usually do not participate, their perspectives are seldom included in studies... more inclusive participatory methods must be developed. In-depth qualitative studies and case studies are required to deal with these issues and to provide new insights and contextual knowledge useful for the practice of urban landscape management.*"

Jansson and Lindgren (2012) present the interaction between users and the organization of park management in a model including (following Gustavsson et al., 2005) the organizational aspect, distinguishing the strategic and the operational level, with the tactical level as link in between.

conclusions

To reap the multiple benefits of nature, greenspace must be managed. Management of greenspace is also about controlling people and is an aspect of sustainable urban development. The literature calls for study of greenspace management from the perspective of governing. Urban greenspace management over time has moved between the hands of citizens, the clergy, the state and the market. The ongoing ecological modernization calls for study from the perspective of multilevel, multi-actor governance. Different actors bring different meanings and understandings of nature. The interest in nature can be distinguished in public interests to be catered to at the functional urban area level and private interests to be catered to at the local, neighbourhood level. The literature calls for more evidence on local knowledge of actors and the relation between policies and the benefits of greenspace.

the articles

Article I studies regional greenspace governing strategies and their effectiveness. The article looks into the different parties that participate in greenspace management in urban regions and the content of their strategies in terms of meanings and interests in nature. The article approaches strategies as designed course of action, thus including the strategic long term perspective and planning.

Article II studies the initiatives of local citizens groups and small companies in urban greenspace. Collaborative governance and market governance is central in this article. The seeking out of different types of knowledge becomes obvious in article III, where the 'regime' notion is presented. The article studies the initiative of two sisters in urban greenspace as collaborative governance action. Generally greenspace lobbying initiatives are not taken by one person but a core group and a wider network. Articles II and III look into the quality of greenspace that is being created by these multilevel and multi-actor governance initiatives.

The meanings of greenspace and objectives of greenspace management and what it means for the type and use of greenspace and related benefits are compared in Article II and III.

⁹ Urban green, urban greenspace, urban parks.

¹⁰ Quality of life, recreation, justice, social cohesion, social inclusion, integration, social value, accessibility, wellbeing, health and perception.

2.6 Summarizing the insights and the research gap

insights gained from the international scientific literature

The scientific literature on land use planning and urban landscape management expresses the concern for the sustainability of urbanization. This sustainability depends on the balance between or integration of greenspace and urbanization, because greenspace is a basis for ecosystems' functioning which on its turn produces the services which support (the quality of) human life; and these services are especially relevant in urban context. Greenspace management is central for acquiring the benefits of these ecosystem services.

The increasing scarcity of greenspace, resulting from urban development and especially urban densification, also leads to socio-ecological inequality and a growing divide between humans and nature. The divide can be argued against from the perspective of the human bond with nature, in cognitive and emotional terms. Public support for sustainability policies may depend on this non-material bond. The divide also implies that urbanites draw resources from elsewhere, regionally and from across the globe in stead of locally, and for urban people the per capita resource consumption is higher than for rural people. (The UN speak of a rural-urban dichotomy discourse that has to change. Together with the EU they criticize the resulting geographical imbalance in various forms and the relatively high urban resource consumption.)

the research gap and relevant research approach

The scientific literature calls for more research on governance of greenspace and local knowledge, and on the impact of different actors on (the quality of) greenspace. Greenspace development stays behind in urban development and reference is made to the parkification of nature by authorities, and lack of insights in the wishes of citizens in terms of greenspace. There is broad concern about the sustainability of urbanization. Management and governing of greenspace and greenstructure are aspects of sustainable urban development that need more understanding and development.

On the basis of the international literature, two levels of scale of greenspace management can be identified as critical: that of the Functional Urban Area and that of the local level or neighbourhood. Public interests are especially dependent on regional greenspace management, as the urban-rural balance (or dichotomy) between urban development and greenspace and the development and management of greenstructure extend beyond the reach of individual cities. The private interests lay in the local neighbourhood, where citizens (can) interact most directly with nature and which depends on local greenspace management that can tailor greenspace to specific wishes and needs. Greenspace management can be understood as controlling (green)space and people.

Considering the insights on ongoing 'ecological modernization', greenspace management asks for being studied as a governing challenge between state, market and civil society, from the perspective of multilevel and multi-actor governance.

3 OBJECTIVES AND RESEARCH QUESTIONS

the research gap

In Chapter 2 the international research gap is defined, distinguishing between concerns for governing of greenspace at the level of the functional urban area from those at the local level of the neighbourhood. These were identified as public and private interests respectively (Tab. 1). The increasing scarcity of greenspace in urban areas and the urban-rural divide in various ways at the wider regional level and above, are important concerns that were distinguished in the scientific literature and UN and EU statements respectively. Integration of greenspace and urbanization, and green infrastructure, are important for the sustainability of urbanization and quality of life. The literature reveals a research gap where it comes to greenspace management considered from the perspective of governing.

At the level of the functional urban area, the effectiveness in terms of greenspace preservation and integration of greenspace with urban development are questioned in this thesis. At the local neighbourhood level, the literature calls for better understanding the role of citizens in greenspace management and the citizens' understanding of nature, since local initiatives by citizens have been coming up since the 1980s. Important benefits are attributed to greenspace in the neighbourhood: its potential contribution to quality of living environment which is important for human health and wellbeing; its importance for the establishment or strengthening of the human bond with nature (which maybe can enhance the future support for nature policies, as was reasoned on the basis of some scientific insights). In the articles the pursued benefits derived from greenspace or nature (as objectives or content of the greenspace management) will get attention, but the real benefits are not being studied. The latter were reported in chapter 2 on the basis of the existing international literature. Fig. 38 presents the object of research.

Considering the upcoming of multi-actor and multilevel governance, studying greenspace management as governing of people and space between state, market and civil society seems appropriate and relevant in the light of the research gap. This thesis focuses especially the governing between state and citizens and how public and private interests in greenspace in the whole functional urban region can be served better from a governing perspective.

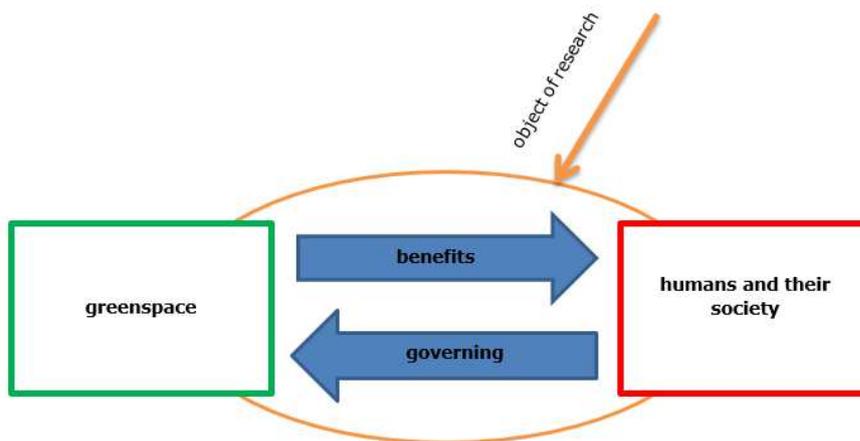


Figure 38: the research focus is on governing of greenspace in functional urban areas considering greenspace as the medium and result of interaction between humans and nature and as source of potential benefits in the public and private interest

the objectives of this study

In response to the research gap and as set out in the introduction chapter, the aim of this research is:

1. to gain a better insight in regional governing of greenspace in functional urban areas, in view of preservation and integration of greenspace in urban development, and
2. to understand what governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level.

research questions

The following research questions are formulated for this thesis:

- 1 **How is greenspace in urban regions governed and what can render this governing more effective in terms of preservation and integration of greenspace in urban development?** (Art. I)
- 2 **What are the practices of citizens who take initiatives in local greenspace and how do these compare to those of the state and in terms of type and use of greenspace they produce?** (Art. II)
- 3 **How could the local state support these initiatives?** (Art. II)
- 4 **What happens during a citizen's initiative in urban greenspace, in terms of transition of the greenspace management by the local authority?** (Art. III)
- 5 **How can these initiatives lead to a change of practices of the local authority?** (Art. III)

4 THEORETICAL FRAMEWORK

4.1 Introduction

Chapter 2 showed that a variety of understandings of the meaning of nature exist between people (especially an urban context), and that (state)expert understandings of nature differ from those of citizens. In urban areas greenspace is under pressure of densification and greenspace policies do not keep up with the urbanization trend. The chapter explained the importance of urban greenspace in urban areas at functional urban area and neighbourhood level respectively, and specified the challenges to greenspace management for these two levels. The different spheres of society were referred: the state, the market and civil society, distinguishing between private and public interests and hinting at competition between various stakeholders in greenspace management, considering the scarcity of greenspace. Greenspace management was understood in terms of controlling space and people. Chapter 2 concluded that therefore there is a need to study greenspace management as a governing issue, with a focus on the effectiveness of preservation policies and the involvement of citizens in greenspace management. On the basis of these international insights and the concerns expressed in the Introduction chapter the research questions were formulated in chapter 3. The current chapter presents the theoretical framework used in the three articles together, to answer these questions.

In social theory the notion of 'agency' and the 'duality of structure' (Giddens 1984) are developed and they are the basic concepts used in this thesis. 'Agency' applies to the effect of means of action that actors use, which is the case when 'controlling space and people' in greenspace management and competing for scarce greenspace. Duality of structure can be recognized in the structured institution of the state as greenspace manager and responsible for the public interest, versus the initiatives for change by citizens managing greenspace in pursuit of their own private interest (which can incidentally be highly relevant to the wider public, as will appear in Article II).

Building on these insights in agency and duality of structure, Leroy and Arts (2006) and Arts and Tatenhove (2004) developed their Policy Arrangement Approach. Also transition studies build on these insights, but they are more focused on and further elaborated for studying and understanding processes of change, holding a set of concepts that are more tuned to understanding change, its origin, and different levels of socio-technical stability. Different understandings and how to spread this understanding finds a place in these two theoretical frameworks, as well as the issue of how to exert influence over space and people (market, citizens, state). Both theories¹¹ are used in this thesis to find answers to the research questions, by understanding the effects of the practices at study, and develop insights that can help practitioners understand complexity of green space governance and the complexity of change in governance systems. The Policy Arrangement Approach and Transition studies are considered as complementary theories (Cairney, 2013 p7-9) for studying greenspace management in urban regions. The theories have the same theoretical basis (Giddens, 1984) but originate from environmental policy studies respectively from socio-technical innovation studies. They will be explained below, but first social structuration, from which the two theories derive, is described.

4.2 Social structuration theory

In 1984, Giddens published his 'social structuration' theory. It was his reaction to structuralism and functionalism which study society as a nature-like system in which social structure is considered as a given that only constrains human action. The basic idea in Giddens' theory goes against this and supposes a 'duality of structure', where social structure not only influences humans, but humans also influence social structure. They do so by what he calls 'agency', the effects (intended and unintended) of

¹¹ These theories are not to be understood as theories in science but as theoretical frameworks or perspectives on social phenomena.

their actions. (Giddens 1984 p xxvi en xxvii). Social structure is not only constraining the possibilities for humans, but also enables humans to act or react. Giddens thus understands systems as 'intersocietal systems'. (Giddens, 1984 p. 377).

Social structure exists in rules and resources. Rules are the normative elements and 'codes of signification' (Giddens 1984, p xxxi) by groups, which are about what matters, what not and what needs to be done. By definition influence over the physical environment takes place through allocative resources (e.g. land that someone owns, finances). Influence over individuals and within groups takes place through authoritative resources (e.g. pre-emption right or statutory land use planning right of a municipality). Here one notices the parallel with Jansson and Lindgren (2012) who write that greenspace management involves influence over space (compares to use of allocative resources) and people (compares to authoritative resources). Giddens theorizes how human actions have an effect (agency), intended or not.

To a certain extent humans can put the rules they apply in their doings (practices) into words, speaking out why they do what they do, what their objectives are and how their actions are to contribute to achieve these. For this Giddens uses the term 'discursive consciousness'. The Policy Arrangement Approach (see below) and Hajer's discourse theory (1995) build on this, with their concepts of discourse and discursive practice respectively. Giddens uses the terms 'production' and 'reproduction' of rules, for this, standing for communication and reconfirmation.

In distinction of discursive consciousness, 'practical consciousness' is not about putting into words, but about doings: the 'routines' and routinization (Giddens, 1984 p376): "*The habitual, taken-for-granted character of the vast bulk of the activities of day-to-day social life; the prevalence of familiar styles and forms of conduct, both supporting and supported by a sense of ontological security*". The latter is the "*confidence or trust that the natural and social worlds are as they appear to be, including the basic existential parameters of self and social identity*" (p 375). It supposes a strong conviction behind what is being done, and discomfort when changing practices and explains the stabilizing character of routines and the underlying rules that they follow.

Arts and Tatenhove (2004) and Leroy and Arts (2006) combine the concepts of rules, resources and discursive consciousness of actors into the policy arrangement approach, see 4.3. (Art. I en II) They look into the public institutional governing. Transition studies also use these concepts, but in addition use the concept of practical consciousness and elaborate them especially for understanding change. (Art. III) They look into the broader socio-technical system, with different groups and social and technical practices.

4.3 'Institutionalisation', 'political modernization' and the 'policy arrangement approach'

In section 2.5 the upcoming of new roles and responsibilities in governing was noticed. This figures among a triplet of concepts which Arts and Van Tatenhove (2004) and Leroy and Arts (2006) elaborated on the basis of 'duality of structure' and 'agency' (Giddens, 1984). The first concept is 'institutionalisation', which stands for social structuration. Secondly, a change in this social structure or institution is referred to as 'political modernization'. Thirdly, they identify four dimensions for agency, together referred to as the 'policy arrangement'.

The upcoming of new roles and responsibilities is covered by the concept of political modernization. Arts and Van Tatenhove (2004) write that it followed a post world war period of modernity with belief in the welfare state and manageability of society and nature and that "*the state machinery ... should have the capacity to solve societal problems by rational policy making and comprehensive planning*". State, market and civil society and their practices were relatively insulated from one another. The following political modernization period, is described as a period with unforeseen international developments that exceed, as they write, the responsibility of the state: "*Political modernisation concerns the shifting relationships between the institutions of state, market and civil society in political domains within countries and beyond, implying new conceptions and structures of governance.*" Leroy and Arts (2006) use the term 'ecological modernization' for these changes in institutions in specifically the environmental domain. They mention new roles and new parties ('multi-

actor governance', e.g. including citizens, companies, international institutions) in the domain of environmental governing and signal a rapid proliferation of these roles and new interaction patterns. For this governing by parties and authorities from different levels of jurisdiction they use the terms 'multi-actor' and 'multi-level' governance. (see 2.5)

When used for analytical purposes they name their approach the 'policy arrangement approach'. The policy arrangement approach combines the rules and resources (see Giddens, 1984) and coalitions that actors form (the "*organisation*"), with Hajer's discourse theory (1995) for the "*substance*" of policies or actions. The previous are the main government components as understood by the traditional institutional perspective, the latter (discourses, norms and values) of neo-institutionalism. They call these means of action the 'policy dimensions'. These dimensions can be described as follows:

- 'Rules of the game': These define the ways actors should behave, and consist in legislation, regulations, legitimate norms, how issues might be raised, policies formulated or decisions made. In general, actors constantly draw upon rules that provide them with guidelines to act properly and legitimately, e.g. upon informal rules, especially cultural norms, for what is accepted or appropriate behaviour, or 'routines' of interaction.
- 'Resources': The allocation of power over land and the mobilization of financial resources are central to explain how agents maintain and transform their environment. The type of landownership and the availability of land resources for expanding urban settlements co-determine land development. The capacity to take decisions (the power over decision making), is an important resource. Knowledge is also a source of influence, providing actors with the insight how to best achieve their objectives.
- 'Policy coalitions': This is a certain grouping of actors who share resources or the interpretation of a policy or policy goal and who mobilize together to reach this or those goal(s). Some actors strategically form alliances with other influential partners in order to complement their means of influence with those of the other.
- 'Policy discourses': A policy discourse refers to '*a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities*' (Arts and Van Tatenhove, 2004 p343 quoting Hajer, 1995 p44). This 'naming and framing', entailing the norms and values, the definitions of problems and approaches to solutions of the actors involved, forms the basis for the design of policies.

The Policy Arrangement Approach is frequently applied in research and comparison of policy or governance arrangements in the environmental field, e.g. in Matijssen et al. (2017), Molin et al. (2014), Lawrence et al. (2013), Van Gossum et al. (2010), Buizer (2008), Wiering and Arts (2006), and Wiering and Immink (2005).

use of the 'policy arrangement approach' in article I and II

In Article I the questions are "*How is greenspace in urban regions governed and what can render this governing more effective in terms of preservation and integration of greenspace in urban development?*" and "*How to compare the performance of these strategies between countries under different policy regimes?*" Following the policy arrangement approach, the regional greenspace management is defined in terms of governing strategies of a regional actor employing means of action: rules of the game, resources, coalitions and discourses, controlling space and people in the 'relational way' (Arts and Tatenhove 2004, p349). The wider context at supra-regional level influencing greenspace is considered as a policy arrangement, as an institution controlling space and people and their decisions, i.e. in the 'dispositional' way (Arts and Tatenhove 2004, p349)¹². Together the supra-regional policy arrangement and the regional strategies influence land use decisions of individual local actors and of municipalities in specific. Different governing arrangement types are studied and compared between three urban regions: hierarchical government in Hangzhou region in China, multi-level horizontal and vertical government cooperation in Montpellier Agglomeration and multi-actor governance in the Leipzig-Halle region, involving state, market and civil society.

The upcoming local initiatives in greenspace management by citizens and small companies, studied in article II can be understood as the instances of new roles and new parties to which Leroy and Arts (2006) refer. The questions in this article are: "*What are the practices of citizens and small (social) companies who take initiatives in local greenspace? How do these practices compare to those of the state*

¹² The characterization of layers of power in the 'relational' and 'dispositional' way were found in Arts and Tatenhove (2004) after finalization of the articles.

and especially of local authorities in general? To what kind of green open space and use do these local initiatives lead? How do these compare to those which the state and local authorities generally produce? How could the state and especially local authorities support these initiatives?" The practices of the citizens are described by understanding and using the policy dimensions of the policy arrangement approach in an action oriented manner (in the 'relational way', Arts and Tatenhove, 2004 p349). The rules are interpreted as the way the initiators work, the resources as their human labour and knowledge. Their discourse is understood as the meaning which they attribute to nature and which they pursue as objective. As a coalition their cooperation with other parties is understood. Their approach is compared to the greenspace management practices of local authorities expressed in the same categories of means of action. The type and use of greenspace that results from their actions is also compared to those resulting from the management by local authorities.

4.4 Transition theory

Another theory that builds on Social Structuration theory is Transition theory and its 'Multi-level Perspective' (Geels and Schot, 2007) and 'empowerment approaches' (Smith and Raven, 2012). Compared to the policy arrangement approach, transition studies also consider changes outside the public institution and have specific concepts for understanding the mechanisms of change, i.e. of 'transition'. Transition studies include the materiality in their considerations. Transition studies are a specific field within social innovation studies, focusing the world of engineers. Behind the concept of a socio-technical system is the understanding that innovation is dependent on the technical practices of engineers and on those of social groups (Geels, 2005 p367), For these reasons transition theory was used as additional theory for this thesis and used in Article III.

The Multi-level Perspective (Geels and Schot, 2007) distinguishes different levels of social structuration, which are: the most socially structured 'landscape', the less structured 'regime' and the least structured level of 'niches'. *'Structures are rule-resource sets, implicated in the institutional articulation of social systems'*, Giddens writes, and that structure is *'rules and resources, recursively implicated in the reproduction of social systems. Structure exists only as memory traces, the organic basis of human knowledgeability, and as instantiated in action'* (1984 p. 377). The Multi-level Perspective understands the socio-technical regime as an extended version 'technological regime'. Where the latter says that shared cognitive 'routines' in an engineering community explain patterned (see 3.2) development along technological trajectories, the 'socio-technical regime' concept accommodates the idea of a broader community of social groups and their alignment of activities.

The socio-technological 'niche' is the micro-level where "*radical novelties*" (the innovations) emerge. These novelties are initially unstable socio-technical configurations with low performance. Niches act as "*incubation rooms*" protecting novelties against mainstream market selection (Geels 2004, p 912). Niche-innovations are carried and developed by small networks of dedicated actors, often outsiders or fringe actors (Smith et al., 2015). The niches are more new and unstable (Geels, 2004; Geels and Schot, 2007). Practices are relatively new and supposedly there is less ontological security: it feels a bit uncertain whether the new action is the right thing, if it will work out as intended. The innovation is more experimental and one can not yet speak of reproduction of the social system. For example, one can think of the artist who put a small glasshouse with flower pots and tomato plant in it on the sidewalk of a busy street, in the city of Tiel, The Netherlands. She was uncertain whether it wouldn't be demolished or taken away. But it was not and it seemed to work to reduce traffic speed. Such initiatives can be copied or forgotten. If copied, more people will see it and may consider to put up something similar in their street, feeling already a bit more comfortable ('ontologically secure') about what they are doing. They may even refer to others also doing it, when someone asks them what they are doing with this glasshouse on the side walk in front of their house.

When this becomes a more common practice and other residents and the municipality have become accustomed to it and maybe a local firm is starting to produce the glass houses and to market them, one might speak of a 'regime. If a visitor would make a remark about the glasshouses being in the

way, he or she might be told by a confident resident that putting greenhouses on the sidewalk is common in this part of the city.

The highest level of social structuration, the socio-technical 'landscape', forms an exogenous environment beyond the direct influence of niche and regime actors. The 'landscape' is about macro-economics, deep cultural patterns, macro-political developments. It holds the deeper rooted rules and divisions of resources. Changes at the socio-technical landscape level usually take place slowly and take decades. (Geels, 2004). As such, the socio-technical landscape can be considered as the most stable level. (N.B. 'landscape' in the Multi-level Perspective must not be confounded with the landscape as greenspace referred to in chapter 2.) For this highest level of social structuration one can also think of the wider span of for example transport systems, urbanization patterns and economic system. They can not easily be changed and for change, each system depends on a fundamental reorientation of the other systems. These systems to a large extent shape the room for possible daily routines.

The Multi-level Perspective from transition studies is being used to study the co-evolution of technical and social systems. The Multi-level Perspective theorizes the societal barriers that inhibit technological (for this case greenspace and greenspace use-) evolution, e.g. Geels (2012 and 2005) and Verbong and Geels (2010).

Smith et al. (2015, 2016) and Smith and Raven (2012) developed concepts to study the social structuration by parties especially around socio-technical niche innovations in greenspace. In addition to business (as focus of Geels, 2004) they include NGOs in their analysis. Their concepts are about bridging the gap between niche innovators and regime practices: 'strategic niche management', 'niche policy advocacy' and 'critical niche' (Smith et al., 2015). Actors from within and from outside the niche can be involved in upscaling the innovation. The 'strategic niche management' approach looks at the challenges that the niche innovation must overcome: e.g. within the community, issues of ownership, resource access, local developments and policy attention prioritizing on the basis of different criteria than used in the innovation. Smith and Raven (2012) present two strategic niche management approaches to overcome these challenges: 'fit and conform' and 'stretch and transform'. The idea is that initiatives themselves can grow stronger in terms of how they 'fit and conform' to the state and market 'regime' and can become competitive and strong enough to survive the rules and routines of the regimes. It is possible that new groups replicate the innovation.

'Stretch and transform' (ibid p1033) is strongly related to 'niche policy advocacy'. Niche policy advocacy¹³ is outgoing, from within the niche outwards, by communicating or advocating what should be different, i.e. rules. Here the notion of the niche innovation as a critical innovation is central, which is alluded to with the concepts 'critical knowledge' and 'critical niche'. 'Critical niche' is about upscaling in the sense of a regime transformation. Critical niches '... *open up debate about more socially transformative pathways to sustainability*', Smith et al. write (2015 p1). Critical Niches mobilize critical knowledge and provoke debate through shared discussions (ibid p5-6).

use of transition theory in article III

Article III studies an initiative managing greenspace by two citizens living in a village and their encounter with the local authority and existing greensector actors. The research questions are "*What happens during a citizen's initiative in urban greenspace, in terms of transition of local state management and development of urban greenspace? How can these initiatives lead to a change of practices of the municipality?*"

The greenspace management is understood as a socio-technical system in which the social (humans) and physical (nature) interrelate. The social practices are understood as the way people talk about greenspace or how they use it, as part of their lifestyle. e.g. involving neighbors or making a tunnel by braiding willow branches. The two lower levels of social structuration, regime and niche (a critical niche), could be identified in this study. The innovation action of the citizens was considered as a niche innovation. The socio-technical regime in terms of the broader community of social groups and

¹³ Smith and Raven (2012) refer to aligning with policy discourse, but for the critical niche the advocacy is rather about critical issue than about aligning.

their alignment of activities is recognized in the local authority, greensector actors and local users together and their way of managing and using greenspace.

To answer the question about how these initiatives can lead to a change of practices of the municipality, the strategic niche management approaches were imagined. The 'fit and conform approach' could be recognized in the internal (endogenous) resources that the initiators had put in and the external (exogenous) resources put in by the local authority (subsidy and hiring a project manager). The innovators' influence on the local authority and green sector, by policy advocacy (promoting their new ideas in the course of intense cooperation with the regime) could be recognized as a 'stretch and transform' approach: Through the 'policy advocacy' by the citizens the regime's understanding of greenspace happened as a process of social structuration. The transition could be recognized in the form of the gradual change of the greenspace management practices and the understanding of nature by the regime, i.e. the local authority and greensector. Also among the residents in the village regime features could be recognized in how they think about and use greenspace.

5 RESEARCH METHODS AND DATA

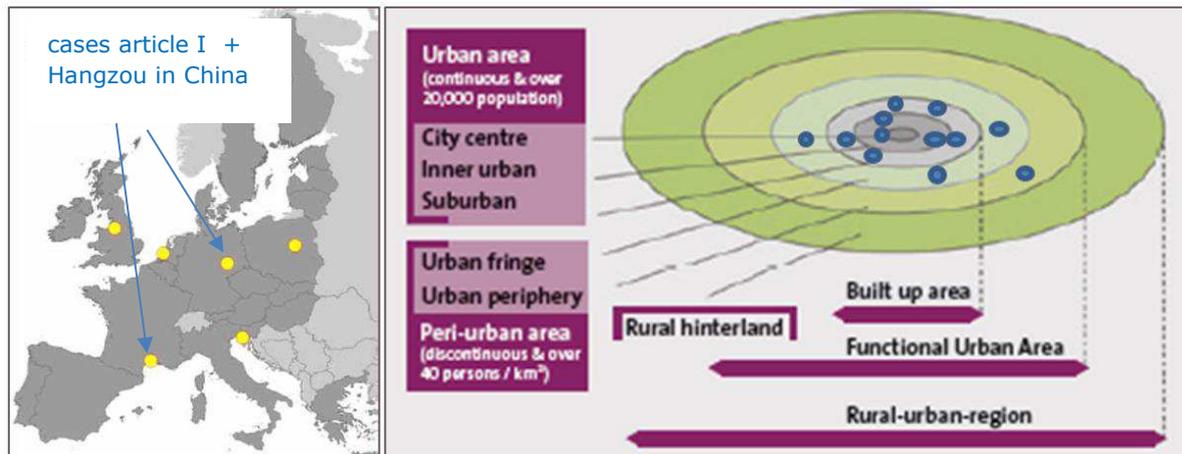
5.1 Introduction

For answering the questions on regional governing of greenspace, a set of cases of greenspace governing at the regional level in Europe and China were chosen and studied because that is the level at which the issue to study occurs and the actors managing greenspace at the strategic level mainly act. The cases were chosen in different green and urban settings and with a different governing culture in order to be able to learn from the differences. The supra-regional level of governing and the sub-regional levels of decision making as result of regional and supra-regional governing have been included as subject of study in relation to the regional steering. Initially 6 European and one Chinese case studies of governing by regional authorities were conducted. This was studied in the context of the large European Integrated Project PLUREL. The PLUREL project comprised the study of global economic, demographic, climate and scenarios and their possible impact on land use; modelling of types of functional urban areas; governing and spatial planning case studies, regional scenario studies, and sustainability impact assessment. Seven case studies were conducted and reported in seven regional analyses and seven assessment reports. For writing article I, the analysis reports and assessment reports of only three cases were used. The article does not specify the details below on the research-practice cooperation and the original research that was initially designed, and coordinated by the author of this thesis.

For understanding whether there are and what are differences between greenspace management by local authorities and by other actors, and citizens in specific, and the differences in how these different parties perceive nature, 40 local initiatives by citizens and companies in urban greenspace have been studied. The choice for local initiatives has been made because it is locally that actors interact directly with nature, shape it and use it. It is locally that citizens and other non-state actors can be found interacting with greenspace directly and with local authorities. It is locally where the differences in understanding of greenspace and how to go about it, come to expression. The ideas and objectives of the non-state initiators, the way they work and the greenspace type and use that they bring about have been compared with the way local authorities manage greenspace and the type and use of greenspace that local authorities bring about. For the research in Article II, 40 local initiatives were studied. The initiatives were chosen in different localities within the urban region, so they present various spatial situations that can be encountered at the local level. The initiatives were identified in three research projects: one was a project for the Nature Next Door Campaign, and the two other projects were for the Dutch Environment Assessment Agency. The author made the design and research of these projects together with two other researchers. 12 initiatives were studied in interaction with the managers, the other 28 initiatives were surveyed by internet scan. The author visited half of the 12 initiatives while conducting the interviews on-site.

The last paper is based on one citizens' initiative identified in the aforementioned Nature Next Door research project. This case was chosen because it showed an obvious change of greenspace management by the local authority in response to a greenspace management initiative by two citizens. Thus it enables to study how a change in public greenspace management, i.e. by the local authority, can come about. The location is within commuting distance of the cities of Enschede and Apeldoorn, in the middle of a village. The study goes in-depth into the differences in greenspace management between local authority and citizens. This was done by the author to develop on-the-job training materials on participatory greenspace management, including films. The study was commissioned by the Ministry of Economic Affairs.

Together the cases cover the level of governing that needs to develop green infrastructure and preserve greenspace at the level of the functional urban area and to integrate greenspace in urbanization; and the local level where wishes and understanding of citizens in relation to greenspace come to expression that may differ from what the local authority offers, and where interaction between local authority as greenspace manager and citizens happens and can change, and diversification of greenspace can come about. Three research articles have thus been produced: Aalbers and Pauleit, 2013; Aalbers et al., 2015; and Aalbers et al., 2018 (see chapter 6 and the articles as appendices). The various commissioners had no role in the writing of these articles.



Figures 39-40 In yellow all PLUREL cases and in blue those selected for article I (left, adapted from Project Description of Work); blue dots indicate the locations of the initiatives in article II and III in the schematized functional urban area (right, adapted from Loibl. et al., 2011 p27)

Figure 39 depicts the cases and initiatives that have been studied. From the 6 European urban regions and 1 Chinese urban region, only three were focused on for article I. The 12 initiatives by citizens and small companies that were studied in Article II are depicted in a schematized functional urban area. Most are in the inner urban area or suburb, part of them in the peri-urban area. No city centre initiatives were included. The localities of the 28 internet scan initiatives by companies are not known. Therefore these are not depicted in the diagram above. Article III studies the Diepenheim Inside Out Forest which is in the peri-urban area of The Netherlands.

When it comes to studying the knowledge and meanings of urban nature, researchers and local planners, actors and stakeholders are all considered valuable sources of knowledge. The reason for attributing importance to local knowledge is that it generally is the knowledge of those who perceive the local or regional situation in a more anchored manner, based on a longstanding interaction in the area and as residents or actors staying in the area, which sharpens (Funtowicz and Ravetz, 1997) their perception.

The coming together of knowledge of social researchers and of practitioners is caught in the concept of 'double hermeneutics'. Giddens (1984 p374) defines 'double hermeneutics' as follows: "*The intersection of two frames of meaning as a logically necessary part of social science, the meaningful social world as constituted by lay actors and the metalanguages invented by social scientists; there is a constant 'slippage' from one to the other involved in the practice of the social sciences*". This 'slippage' of knowledge and meaning between researcher and practitioners and vice versa is intentionally sought in the research for this thesis. The research methods aim at confronting, discussing and enhancing the insights and knowledge of both practitioners and researchers. Thus the study of greenspace management is conducted in a transdisciplinary manner. "*Transdisciplinarity is a reflexive, integrative, method driven scientific principle aiming at the solution or transition of societal problems and concurrently of related scientific problems by differentiating and integrating knowledge from various scientific and societal bodies of knowledge*" (Lang et al., 2012). Funtowicz and Ravetz, concerning environmental problems and policies, write in 1997 that "*The dialogue on quality, along with that on policy, must be extended to all those with a stake in an issue; these we call "the extended peer community"*".

The intention to help solving societal problems and of using the knowledge from the above referred bodies of knowledge was behind the choice of research methods for writing this thesis.

5.2 Research methods in the study of regional governing of greenspace in urban regions in Europe and China (Article I)

enabling the double hermeneutics

This research took place within the context of the above referred large European project PLUREL. Answering the first research question (see chapter 3) of Article I demands a method to study the influence of regional governing on decisions by lower level actors (such as municipal authorities, builders

and citizens). To understand such social relations, interaction of the researcher with those involved in these relations, helps to gain insight in their motives and the circumstances under which they govern. Therefore an approach that facilitates the 'double hermeneutics' (see 5.1) was adopted, in which researchers and practitioners¹⁴ from the regions cooperate in the research, so their knowledge is exchanged and thereby mutually enhanced.

Joint research formulation took place during the writing of the project proposal, by means of a focus group discussion, where the author organized a discussion in which the researchers and practitioners from part of the seven case study regions react to each other's contributions. Challenges of regional governing in relation to the greenspace that they dealt with in their daily practise were: coordinating planning and decision making in complex situations with a large number of powerful actors with competing interests and a competitive attitude; keeping a balance between small rural municipalities and pressures from big cities; and a benchmarking of approaches in different urban regions to be used for exchange of good and bad practices in land use planning and management.

At the kick-off of the governing research focus group discussions were organized again: practitioners and researchers from each region sat together to identify land use issues for their region: land pressure due to housing; agriculture under pressure; high value nature at risk; integration of tourism; traffic; and water management. Later on they would choose governing strategies related to the issue(s) prioritized for their region.

Free group discussions (Van Male, 2012) among practitioners only, were organized before bi-annual joint meetings on more or less defined issues to enable them to formulate their concerns and questions in preparation of the meeting with the researchers. Reviewer sessions by a practitioners' representative were organized, so the representative person could give feedback on the relevance of the research to regional practice. Joint field visits were organized to obtain a shared basis among researchers and practitioners for the discussions.

comparative case studies

To answer the research question, a case study design was applied (Stake, 1995, Flyvbjerg 2006, Wahyuni 2012). In qualitative research, a case study is a "*research method that facilitates a deep investigation of a real-life phenomenon in its natural context*" (Wahyuni 2012 p72 referring to Woodside (2010) and Yin (2012)). The cases were confined to a selection of strategies against the background of the wider policy context. These strategies were more or less spatially confined, e.g. a Green Corridor approach or a comprehensive Scheme of Territorial Cohesion for the whole agglomeration of Montpellier respectively.

For the production of the case studies and assessment of the strategies two frameworks were prepared and discussed between researchers and practitioners, describing the research methodology, data collection methods and assessment criteria (Aalbers and Van Dijk, 2008a and 2008b). This was important because of the benchmark demanding an approximately similar approach in the data collection, analysis, interpretations and assessments. The research questions of the analytical framework can be found in appendix 1. The first, analytical framework asked for identification of the stakeholders within the region in relation to sustainable urban-rural linkages, and about their interests. It asked also for a description of the policy context referring to demographic and economic growth data, main societal discourses and networks between discourse coalitions. It set out the character of the research results to be delivered chapter wise: e.g. a brief history of the city-region; a baseline land use and socio-economic profile and trends for the region; and technical baseline data. These were needed to describe the regional land use relations and to answer the research questions (App. 1 and 2). The strategies were thus studied against the background of what Giddens (1984) would call 'time-space': the historical perspective and the socio-spatial context. Detailed descriptions of spatial planning and governing, a stakeholder matrix and a governing matrix were asked for. The latter were to identify and describe passive versus active stakeholders, main strategies impacting the fringe and to explain why strategies are adopted, in terms of perceptions, discourses and related coalitions, and competing interests.

For understanding how regional governing can be enhanced, an assessment of the present practices and policies is important to see where they stand and where there is possibility for improvement, compared to the performance of the regional governing in the other cases in Europe, and a China case was added for comparison with another planning culture. In preparation of the assessment of the strategies, the second, assessment framework asked about the process and parties involved in the

¹⁴ Local planners and actors.

strategy, discourses, identity, spatial integration, effectiveness¹⁵ and efficiency (App. 3) and the regional context (App. 4). The assessment criteria helped to characterize the outcomes and process of the strategies, and the regional context. The scores per criteria are mainly expressed qualitatively. The full impact of a strategy was assessed, also unintended effects, like displacing a problem. Both actors and researchers were involved in these assessments. This was considered to give a more complete and more true estimate of the performance.

After the analyses and assessments the cases were compared (Aalbers and Eckerberg, 2011). For the writing of the article a selection of cases presenting a maximum variation (Flyvbjerg, 2006) of governing types was chosen among the studies with the best reference base (Buyck et al., 2008 and 2010; Sinn et al., 2008; Jianjun et al., 2008; Spiekermann et al., 2013). These reports had been proofread by regional stakeholders and peer reviewed by other researchers in or outside the project. Governing is complex, with different means of action used between various actors. As previously described in chapter 4 the policy arrangement approach was used to compare the case studies and answer the research questions of the article. To make this complexity more understandable, the 'smallest common denominators' of governing (such as a subsidy, a law, or visualized spatial plan that represents a discourse), if they had been identified in the full set of case studies, were categorized into the four types of means of action, no matter whether in a hierarchical government or multilevel and multi-actor governance situation, and complemented by identified reinforcing supra-regional policy dimensions. The influence per type of means of action was visualized by means of arrow. Each small common denominator was depicted as a length of an arrow part, and for each type of means of action one full arrow depicted the maximum influence that could be exerted. (see article for the illustration). Thereby the four types of means of action are depicted as a sphere of influence that an actor can develop and to which sub-regional actors and especially local authorities are subject. The influence of all levels to which the local actor is subject, are considered to together steer the decisions of this actor. These sets of means of action were later on confronted with the results of the assessment of each strategy, trying to explain the performance by comparison between the cases on means assessed performance.

data and information collection: document study, site visits and interviews

Policy documents, maps and plans have been studied. The documents studied were policy documents from all levels in the various policy domains referred to above (land policies, environmental, economic, etc.), structure plans or visions, studies, evaluations, data sheets and statistics, atlases. Interviews and group discussions have been conducted to collect insight information, perspectives and motivations and access to other data, at local and regional level.

Site visits were made to get acquainted with the area and its different landscapes and grasp the challenges and issues raised by stakeholders in the course of the research.

Semi-open interviews of at least one representative person from each actor group were made, using the indicative questionnaire (App. 1). In these interviews, the key concepts and definitions of the practitioners were investigated and the main means of action and their consequent strategy were identified. A semi-open or semi-structured interview offers the merit of using a list with predetermined themes and questions, while keeping enough flexibility to enable the interviewee to talk freely about the topic raised (Wahyuni, 2012) These interviews of stakeholders in the region were to be done in two rounds: first interviews with organizations, chairs of residents associations, secondly with residents. Eventually focus group discussions with different actor groups together took place. A list with generic research questions was provided in the analytical framework, after which more regional specific questions were to be formulated by the regional researchers depending the prioritized land use issues. (App. 1 and 2)

use of the methods in relation to the results

The research-practice cooperation, and especially the focus groups with practitioners and researchers together which enabled the double hermeneutics in the PLUREL governing research, was at times confronting researchers with the limits of their knowledge and leading to what may be called

¹⁵ Effectiveness was understood as:

The extent to which a strategy contributes to react and influence timely to unsustainable developments in the urban fringe;

The extent to which a coalition is able to react and come to decisions (decisiveness);

The extent to which decisions are implemented effectively;

The extent to which strategies lead to wishful new actions (chain-relations or connectivity).

'ontological insecurity' (compare Giddens, 1984 p375 'ontological security') about one's way of understanding greenspace and research.

The approach contributed to deep and comprehensive insight in regional governing practices, which were also shared by local practitioners. Scholz et al. (2012) write: "*One of the most important outcomes of the project was to get academics to make their work understandable for policy makers.*" The 'slippage' of double hermeneutics also worked in the other direction, from practitioners towards researchers, through their critical questions and through their involvement in the prioritization of governing and land use issues to study in relation to urban greenspace. The same goes for their contributions to the criteria for assessment of the strategies' contribution to sustainable urbanization and their critical reading of research products.

5.3 Research methods in the study of local governing of urban greenspace in citizens initiatives in Dutch greenspace (Article II)

survey of initiatives

The research uses reports from the above (5.1) referred three different Dutch projects that together studied, among others, 40 local greenspace management initiatives. The author was involved in the design, execution and reporting of these projects (Luttik et al., 2014; De Haas et al., 2012, 2013, 2014a and 2014b). These results have been submitted to a secondary analysis for article II, to identify the different means of action in local initiatives and the wider policy context. This method compares to the 'case survey method' with the author as 'reader-analyst' (Yin and Heald, 1975). Interview and internet scan results have been analysed to identify the means of action following the policy arrangement approach. The results of these analyses and a comparison of the practices by citizens and small companies with those of municipalities have been used to formulate recommendations in terms of municipal facilitation of greenspace management by citizens and small companies.

comparison of types and use of greenspace

Pictures were used for studying the type of greenspace and the use when greenspace was managed by citizens compared to those managed by the state. Also citations or descriptions by the interviewees referring to use and type of greenspace managed by local authorities were used for the comparison. These comparisons were used to identify the differences.

data and information collection: semi-open interviews and internet scan

To identify the wishes of local citizens, semi-open interviews of actors closely involved in local greenspace management, combined with a joint site visit to the greenspace they manage were conducted. This deepens the exchange of information: by semi-open interviews the 'double hermeneutics' (see 5.1) are enabled and more profound knowledge exchange is possible; this is even stronger with the object of action at hand. Presence of the greenspace concerned enhances the possibility to ascertain that researcher and practitioner understand each other correctly and to seize the output (agency) and meaning of the action. During such a joint site visit the interviewee is showing the researcher around through the greenspace realized or under construction. It is an occasion for the actor to mention the issues that he or she finds important and to talk about the management process. It is also an opportunity during which the actor can talk about the use and different users and their appreciation of the site, whether positive or negative. The actor can talk about the maintenance and those involved. While walking around, often more details, like on conflicts, events or personal concerns, are communicated.

During these visits the interviews are conducted. The balance between the flow of information from the actor and handling the list of questions is safeguarded by the researcher. It can be more important to profit from information which comes freely and may raise questions or contribute to insights which otherwise might be overlooked by the researcher, than to follow one's interview guide. Some experience helps to judge what is more important, and when to move on to a next question. The interview can change from a semi-open to an open interview (in-depth interview) in which the researchers finally checks whether there are still any important questions left over that need to be raised and answered. Generally one to one-and-a-half hour were used per interview.

A part of the interviewees were expats (students, officer, small companies). They have been asked about differences in greenspace management practices between The Netherlands and other countries they had lived in. They provided an alternative reference base, widening the scope of the researchers who were all Dutch and maybe biased. These interviews helped to understand the social structuration in Dutch greenspace management. It enhances the international relevance of the research findings. The expat interviews were not conducted within greenspace because they were more generally asked about greenspace management differences between countries and they were not involved in greenspace management initiatives in The Netherlands. In total 56 reports of semi-open interviews of different actors mostly (but not all, as explained) involved in and around the local initiatives in greenspace were analysed.

On the basis of an internet scan the discourses and / or type of greenspace and use of 28 initiatives in nature were analyzed. Photographs of the greenspaces managed by the citizens and a few small company were made as well as photos of greenspace managed by the local authority in South Rotterdam, during the interviews.

use of the methods in relation to the results

The wishes and understandings of nature by the citizens in the studied initiatives may be not-representative of those of citizens in general because the survey builds on initiatives only. These citizens may deviate in terms of ideas from citizens in general. However, the initiatives are new and inspiring for getting an idea of how different greenspace and how much broader greenspace use may be.

The internet scan produced only initiatives by small enterprises and some NGOs who organize activities in nature as a commercial side task. Information on their coalition partners or rules they apply could not be found via the scan, but it was useful to identify the meanings and uses of greenspace promoted by the initiatives.

5.4 Research methods in the study of transition in local governing of urban greenspace (Article III)

single case study

For this study a single case study approach has been adopted. This approach is useful to understand social interactions, such as between citizens, the municipality and others, and to do a reconnaissance of the relation between these actions and their social and physical (green, urban¹⁶) context. For gaining deeper insight on the transformation points, a case study, combining the results of several semi-open interviews with site visits, was decided. To identify a transition in the practices of the local government, some time laps between the first and second round of interviews was needed. Eight semi-open interviews were made in two consecutive years, 2013 and 2014. They were done to investigate the understanding that actors have of greenspace and of its management, use and meaning, and to identify any transition of this understanding and of greenspace over time. These interviews again (see 5.3) were conducted within the greenspace. The combination of time interval with site-visits includes the time-space which Giddens (1984) refers to as relevant to social structuration. Part of the on-site interviews were recorded on film. Also the playground design and play sets behind the public school which initially was to be reproduced at the site of the citizens' initiative were observed and put on photograph, in order to be able to compare and observe the impact of the citizens' action.

Text fragments from the interview reports and films that show the 'critical' and 'situated' knowledge and values of the interviewees in relation to nature are used. They are fragments that make clear: why the citizens took the initiative; their knowledge of greenspace; and their relation to the greenspace. These are compared with the knowledge and practices of those who normally manage greenspace and especially playgrounds: officer, alderman, gardener and school. Other text fragments are about the efforts and other contributions of the initiators and of the local state and other socio-technical regimes over time. These texts were analyzed to identify possible traits of 'stretch and transform' or 'fit and conform' transitions

¹⁶ The case is situated in the peri-urban area of the cities of Apeldoorn and Enschede in The Netherlands.

The differences in understanding of urban nature between the actors and its evolution over time especially of those interviewed twice (the officer, citizen and head of school) provide a good impression of how the change of greenspace management has come about.

The case was chosen as a critical case (Wahyuni, 2012, referring to Woodside, 2010; Yin, 2012), i.e. a representation (Wahyuni, 2012; Flyvbjerg, 2006; Scapens, 2004) of citizens' initiatives in urban greenspace where the knowledge and practices of the initiator(s) do not initially align with the local, ruling ideas about greenspace. Eventually this disagreement had developed into a form of collaboration in which the ideas of the citizens were adopted and translated into a green park. In that sense it provides an in-depth example of the critical factors this study aims to look into. The knowledge itself does not have to be representative of knowledge in other citizens initiatives. The study describes in detail how the change of ideas and practices is taking place in reality.

data collection: semi-open interviews, photographs and film

The involved actors were interviewed on-site, using a semi-open interview approach (see Appendix B of the article). During the 2014 interviews the interviewees have been filmed while answering the research questions. The recorded texts have been used and written out for the research, as the 2013 interviews have. The films show the respondents and the green area they made: an alderman, a public officer for greenspace, a public school teacher, one citizen initiator and one of the company gardeners who participated in the implementation. The interviews from 2013 were with the same public officer, two citizens initiators (sisters and both designers) and a head of school for professional green education. Pictures have been taken of the sites during the first round of interviews and in 2017. They show the initial phases and the final greenspace.

use of the methods in relation to the results

A wider time interval between the two rounds of interviews maybe would have enabled to see a deeper change in governing practice (supposing that this change happens gradually and not shock-wise right between 2013 and 2014) and whether this change carries through.

The combination of semi-open interviews with film, formed a rich and accessible source of data, information and knowledge. Its richness helped to gain deep insight on the transition in thinking about the meaning of greenspace and in greenspace governing practices.

6 INSIGHTS FROM SCIENTIFIC ARTICLES

6.1 Insights from article I on regional governing of greenspace in urban regions in Europe and China

“Powerful and large regional authorities are needed to preserve green open space for urban agglomerations.”

How is greenspace in urban regions governed and what can render this governing more effective in terms of preservation and integration of greenspace in urban development?

Within a wider supra-regional policy context, regional authorities develop policies to control greenspace and people (see ch. 2.5). They can do so: by embedding their strategies in legislation, in a binding land use plan/local plan/zoning plan, and in dominant cultural rules to profit of dominant societal discourses that provide tailwind to the policy discourse; by cooperating vertically with higher levels of hierarchical government (multilevel government), horizontally with neighbouring local governments, and with non-state actors (multi-actor governance) such as members of the public, private parties such as developers, builders and farmers; by using land, using finances, and raising the level of knowledge and expertise of those who implement the strategy; and finally by promoting their discourse actively in writing or speech, and in the form of a visualized plan. But not all regional authorities do use all these eleven means of action.

As concerns the meanings attributed to greenspace: the discourses of the authorities and possible coalition partners express these meanings. This answers the first part of the research question about how greenspace is being governed and reveals where to find the meaning that regional governments attribute to greenspace.

For comparing the regional strategies the above list was used as a benchmark. The comparison reveals the stronger impact of the Scheme of Territorial Cohesion (SCOT) from Montpellier Agglomeration, compared to the two strategies in the Leipzig-Halle region. This can be explained by the adding up of legal means of action, constructing a tight web of rules especially controlling land ownership and use, and the financial resources aimed at preserving greenspace in the Montpellier Agglomeration case: Both the SCOT for the Montpellier Agglomeration and the strategies in Leipzig-Halle region promote a discourse that presents the meaning of landscape, nature or greenspace as a resource for both urban and rural development, by words and by visualization (see above). But the Parthe Floodplain protection in Leipzig-Halle does not come with the legal enforcement as the Montpellier SCOT, and the Green Corridors strategy in Leipzig-Halle struggles with the fact that costs and benefits of the strategy are unbalanced between the core city and its neighbouring municipalities: while everyone profits from attractive surroundings, the development options of peri-urban communities are constrained. Because of the economic and population shrinkage local authorities in Leipzig-Halle are competing with one another for investments from companies, for residents and business, which menaces the preservation of the Green Corridors which do not come with finances for their realization. Also for Parthe Floodplain the division of its costs between the municipalities are an issue that impacts the future success of the strategy.

Where in Leipzig-Halle the preservation of greenspace in the rural parts of the urban region withholds the municipalities the income and progress that comes with urban development, the Chinese government on the contrary follows the ‘circular economy’¹⁷ approach: reinvesting tax-incomes in the rural areas and combining the two forms of development. Thus it is strengthening the rural economy in the green areas, which contributes to greenspace preservation.

Also in the Montpellier Agglomeration, economic and urban development are combined with preserving and integrating the environment: the landscape (viticulture and other agriculture, and nature) and its quality is used as a vector for development. In combination with the shared and thrifty approach (sharing development services like collective transport with rural municipalities and preserving resources, identity and heritage) it is successful.

¹⁷ This is a different concept than the ‘circular economy’ around re-use of materials.

The concept of “*landscape as a vector for development*” (Montpellier Agglomeration, 2006) also proved to provide a common ground for urban and rural parties with otherwise conflicting interests. The concept underlines that landscape serves multiple parties: e.g. viticulture, agriculture, recreation and tourism, nature and cultural heritage, linking the urban and rural (see also Donadieu and Aggeri 2011). The comprehensive plan harmonizes these efforts around urban greenspace at the level of the region also with those at lower levels.

Civic society organizations and non-governmental organizations or private companies were not involved in developing the SCOT. The public was informed by communication officers in a professional manner. In the Leipzig case the Green Corridors were originally imposed by the Saxon state, so the result of multilevel government, considering the subsequent involvement of the municipalities.

The above results illustrate the importance of hierarchical government in combination with rules that are finely tuned towards controlling land use developments tapping the jurisdictional powers of the different governmental levels which work in a coalition to manage land use. It shows that the authorities do not have to possess the land resources. National law and policies contribute importantly if they coerce such coalitions at the level of the Functional Urban Area and when helping these coalitions to acquire the necessary financial resources. Strategies without financial resources are weak.

The use of almost all means of action that were identified among the full set of case studies for the PLUREL project, occurs in the Montpellier Agglomeration case. It makes the regional authority powerful. The size of the jurisdiction area appears, however, to be too small to extend the influence of the comprehensive plan over the whole commuting area. Those municipalities that are within daily commuting distance of Montpellier profit of new residents buying land, while they are not obliged to adhere to the comprehensive plan of the Montpellier Agglomeration, which includes the preservation of greenspace ('landscape') as essential ingredient for development. It leads to leapfrogging of construction in the form of urban sprawl beyond the boundaries of the formal association of municipalities of the agglomeration.

The previous answers the second part of the research question about what can render governing more effective in terms of preservation and integration of greenspace in urban development.

6.2 Insights from article II on local governing of urban greenspace by citizens initiatives in Dutch greenspace (Article II)

“Policy-innovation by and for non-state initiatives in green open space.”

What are the practices of these citizens and how do these compare to those of the state and in terms of kind and use of the greenspace they produce?

Article II studies Dutch initiatives by citizens and ‘social enterprises’. For this thesis these last initiatives are not considered. Some initiatives are hybrid (mixed with enterprise) forms and most citizens initiatives involve the municipality in one way or another.

The article demonstrates that in the practices of the citizens all four categories of means of action according to the Policy Arrangement Approach are used. But they are filled in differently if compared to municipalities: Like in article I, the meanings attributed to nature appear in the discourse by the citizens. Their discourses are more integrative than those of municipalities, connecting nature to different aspects of social life, economy and environment. The citizens in the studied initiatives understand nature in a different way than the municipality does: The citizens discourses connect people, promote the notion that food does not grow in the supermarket. They link personal life to nature and are about taking care of the environment and each other: permaculture, organic shapes of plant beddings, gardening together; producing flowers and food for social purpose like a food bank for the poor; involving disabled, addicts or ex-prisoners; raising funds for a ‘good’ cause.

The discourses respond to the ideas of the initiators and sometimes those of (part of) the community. The initiatives were selected by the Nature Next Door campaign on the basis of their bringing people closer to one another and to nature and these aspects can indeed be recognized in the sample. Environment, economy and society are considered by the 11 citizens initiatives of Nature Next Door together. The discourses of authorities focus public interests generally from point of view recreation (watching, sitting, walking and other exercise or playing, but not interacting or interfering with greenspace) and/or from the point of view of nature conservation.

The citizens work informally and cooperatively, combining knowledge and skills of involved citizens. Eight out of the ten initiatives are on municipal land. Some initial target group members over time become core producers, because of the skills and competences they have acquired through their involvement, which can be considered as growth of social capital. The majority of the initiatives uses mainly own finances, material, materials and knowledge, with some exceptions in two neighbourhoods where people with low income and low education live (Tilburg and the Venray case, which have weak participation of residents) and the Diepenheim Inside Out Forest. In comparison the financial it is public money that is spent by municipalities, defined by the council and labelled for prescribed goals; distributed along the lines of sectors. The citizens have good knowledge of the local situation, are aware of wishes, uses, problems and local social needs and try to solve and fulfil respectively the problems and needs by interaction with or in greenspace. In comparison the greenspace knowledge of the authorities is generally more disciplinary, sector related, technically generally more developed and less intensely local.

In the greensector in the NL the idea is that people should rather not change greenspace and only recreate passively. In parks it is generally not appreciated that citizens shape greenspace themselves. This is changing, however, with the downfall (Buijs et al., 2014) of former nature policy. Compared to the non-written rules that favour flexible cooperation between people with different knowledge in the studied citizens initiatives, the rules of the local authority are formal and established by time consuming negotiations between democratic representatives, and disciplinary.

In the studied initiatives coalitions exist at different levels: a core groups of 4-5 people is generally found to get the initiative going and support each other. Around the core exist a second circle of often professional networks who help, but on a less frequent base. In municipal offices the organization is along sector lines which complicates working interdisciplinary.

With the previous the parts of the research question about what the practices of citizens in the initiatives are and how these compare to those of the state are answered.

The citizens in the studied initiatives understand nature in a different way than the state does, and this leads to different urban greenspaces, it is also rather confined in area. Greenspace that the citizens in the initiatives develop has an own identity in the sense that it responds to what the involved (!) local residents desire, it involves people. Often there are no designs or standards behind, which can be read from the appearance of greenspace. The gardens are a bit messy, because of a different maintenance regime, work in progress, or different creativity from that of the state. Variation in types of greenspaces are the result. Uses are exceeding passive enjoyment. It includes active contribution and shaping greenspace and the enjoyment off being active with nature while seeing the results of one's action. The state also aims at serving a wider group of citizens with public greenspace, but in a more uniform and restricted manner. Citizens' managed greenspace is according to interviewed citizens "less boring". The maintenance regime by local authorities generally is more regular or standardized and leading to more tidy areas than was the case in most initiatives in this sample. In various respects (social, shape and use of greenspace, local economy) the citizens initiatives thus innovate greenspace.

With this the last part of the research question about how the type and use of the greenspace by citizens' compares to those by the state are answered.

How could the local state support these initiatives?

Several possibilities to support citizens initiatives emerged. The article recommends municipalities to be clear about overarching principles for all municipal policies together. This will support the more integrated initiatives because it avoids that they are not supported or forbidden because they do not fit a specific sectoral policy. It appeared that a local authority can practice contradictory discourses (also see Aalbers and Eckerberg, 2011). The more integrating character of the initiatives suggest that they are to be considered on the total merits. A second point is to formulate a policy about how to support citizens initiatives. It needs to include the objective to diminish the internal barriers between municipal offices which generally obstruct the initiatives because the initiators need to discuss with each municipal department for approval. Cooperation by municipal officers across office boundaries can simplify consultations with the initiators, helping the latter to make progress and not getting discouraged. In terms of human resources: officers with an open attitude towards non-state initiatives are needed (also see Aalbers, 2002; Aalbers et al., 2018) if citizens' initiatives in local greenspace management are to succeed. Financial support to the initiatives can release the burden on initiators.

Sometimes it can be more effective when the municipality constructs a garden and maintains it itself, the article concludes considering the Venray and Tilburg initiatives which are more municipal than citizens' managed, while the municipality is trying to keep the citizens involved at great costs, hiring experts and organizations.

6.3 Insights from Article III on transition in local governing of urban greenspace

“Critical upscaling. How citizens’ initiatives can contribute to a transition in governance and quality of urban greenspace.”

What happens during a citizens’ initiative in urban greenspace, in terms of transition of the greenspace management by the local authority? How can these initiatives lead to a change of practices of the local authority?

The article identifies how the responsiveness of the state to the wishes and interests of citizens in terms of greenspace in urban regions can be enhanced, by means of a case study on Diepenheim Inside Out Forest. It describes how the understanding of greenspace by citizens taking an initiative, is transferred to the level of the local authority in the course of communication and especially cooperation. The article studies the case with two alternative strategies (Smith and Raven 2012) in mind: the empowerment or ‘fit and conform’ strategy which is about bringing in resources, and the ‘stretch and transform’ strategy¹⁸ which about policy advocacy. In this last strategy, the policy advocacy by the citizens transforms the thinking of the local authority by broadening it with the understanding that greenspace is important for the development of children. Thereby it leads to the development of different greenspace functions than the usual playground with playing sets (which the municipality had in mind) does. Both strategies can contribute to more multifunctional greenspace, but the first type (‘fit and conform’) does not change the way of thinking of the local authority itself. The ‘stretch and transform’ type does and can change the greenspace management (as ‘regime’ or routinized practice) by the local authority: e.g. involving children in the making of the park, more open soil, no playing sets from artificial tubes but natural materials to play with. It is more complicated, demands conversation and organization and is more expensive, in this case.

The critical knowledge is the cause for the initial disagreement over what matters and the driver for the greenspace innovation that comes about once the policy advocacy of the citizens has worked out. The critical knowledge in this case also carries the values of members of the local community. Both strategies (combining resources and widening the understanding of greenspace) demand the societal parties and the municipality to be in contact with each other to cooperate and communicate. Herewith the above two research questions are answered.

What governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level?

The article explains how the apparently impossible demands by the citizens can be understood as a lack of capability of the actual regime to respond to the demand, because it is organized on the basis of a different understanding of greenspace. The case study explains how benefits of greenspace relate to the knowledge of the actor managing greenspace. The quality of greenspace is very much the result of that knowledge.

Citizens can play a role in diversifying the benefits of greenspace by setting criteria for different practices. All actors can, however, conduct policy advocacy, e.g. within one’s network of gardeners, officers and politicians to support this diversification.

Upscaling of greenspace management innovation can exist in a change of regime, leading to different greenspace managed differently by the local authority and the green sector. It can also be realized by involving innovating citizens who like to manage greenspace. A combination of these two is also possible. A change in greenspace management by the local state and the green sector would be more in line with the public management approach, an approach that conceives park administrations as

¹⁸ Actually the term ‘empowerment’ does not seem right, as it is based on a transitive verb. It is rather the niche actors themselves who are to develop and deploy their power in this ‘stretch and transform’ strategy.

'new, modern and effective enterprises' (Randrup et al., 2009 p31) aiming for division of work and efficiency in serving the citizen as a client.

The article notices that it needs to be seen where citizens and local authority parties can share the work, and suggests a municipality to discuss with citizens in neighbourhoods the division of work and find complementarity.

The study illustrates how values, knowledge and practices of different actors do or do not come together. It also shows the practical challenges for citizens to bring their local and (in their eyes and eventually those of the municipality) meaningful innovation to a success. The routinized practices of the regime demand a lot of work i.e. resources put in by innovators, to overcome the resistance of a regime. It is through this work that the change of rules that dominate the practices of greenspace management by the municipality is enacted. But citizens may also need to adapt their own routines and values. Innovation calls on all parties, not only the municipality.

With these insights the main question of this thesis about what governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level in terms of greenspace quality are concerned, is answered. However, the article notices that paying attention only to initiators carries the risk of a democratic deficit. Not all parties have the communicative skills or time to conduct policy advocacy or the resources to run an initiative. Thus the responsiveness to citizens wishes only expressed by citizens' initiatives may miss out on certain groups.

7 DISCUSSION

7.1 Introduction

The aim of this research is to gain a better insight in regional governing of greenspace in urban regions in view of preservation and integration of greenspace in urban development (countering the urban-rural divide or dichotomy); and to understand which governing approaches can make greenspace more responsive to the multiple needs and wishes of citizens at the local level. Chapter 6 presented the answers to the five research questions, delivered in the three articles. This chapter (7.2 and 7.3) discusses these answers and additional insights from the articles in relation to these two research objectives and related issues (see ch. 2) raised in the international literature.

7.4 presents perspectives for further research, based on the insights gained.

7.2 Regional governing of greenspace in urban regions, in view of preservation and integration of greenspace in urban development

coordination capacity to preserve and integrate greenspace in urban development

Land use planning, urban landscape planning and urban greenspace literature expresses concern for the sustainability of urbanization (e.g. Verburg et al., 2013, Steffen et al., 2007 both referred in Muller and Munroe 2014; Gustavsson et al., 2005; Haughton, 1997; Payne, 2009; Ostoic and Konijnendijk van Den Bosch, 2015). Leroy and Arts (2006 p15) ask whether the ecological modernization (multi-actor and multilevel governance) does "*increase society's capacity to deal with the complex environmental problems we face?*" Chapter 2 identified the importance of ecosystem services (e.g. Braat and De Groot 2012; De Groot et al., 2010) for human health and wellbeing (Tzoulas et al., 2007) and its special relevance to urban areas (e.g. Luederitz et al., 2015; Pauleit et al., 2005; Troy, 2000), while greenspace development (and thereby access to the benefits of nature) is staying behind urban development (Pauleit et al., 2005; EEA, 2002). Also socio-ecological inequality exists (Aalbers et al., 2014; Brueckner et al., 2009), and there is evidence of a waning bond of urbanites with nature (e.g. Kantar 2018) while interaction with nature can enhance the cognition and emotional bond with nature (e.g. Weick, 2011; Jones et al., 2016; Luttik et al., 2014). These aspects all relate to the sustainability of urbanization.

Article I studied the integration of greenspace in urbanization from governing perspective. It shows that, to keep up greenspace development with urban development, powerful and sufficiently large regional authorities and multilevel government (type I, Hooghe and Marks, 2003) are needed, and not the ideal type II, one issue multi-actor governance (Hooghe and Marks, 2003).¹⁹ The combination of this hierarchical government (type I) with a comprehensive plan and integrative discourse on landscape as vector for development (the case of Montpellier Agglomeration) is essential for the coordination, facing the complex environmental challenge (see ch. 2 and also Arts and Tatenhove, 2006) of supporting (urban) ecosystem services (Luederitz et al., 2015; Braat and De Groot, 2012; De Groot, 2010) in view of the quality of life (Tzoulas et al., 2007; Hartig et al., 2014). Also the capacity to implement a comprehensive plan that includes greenspace is required.

Insights from article II and III show that multiple meanings of greenspace are attributed to it by citizens. In establishing a regional comprehensive plan it is recommendable to reconsider the more current understanding of greenspace that rather separates the urban and rural. Article I provided evidence that the vertical cooperation between governments is important to combine the legislation of

¹⁹ In The Netherlands, such coordination and power of decisionmaking was called for by the manifest of the provincial governors and the mayors of the main four Randstad cities (Adviescommissie Versterking Randstad, 2007): to preserve progress and avoid the confusion that comes with the multiple levels of governance at which there is no power to decide, and to be effective and efficient at the level of the Randstad.

the multilevel government with horizontal cooperation between municipalities together forming the regional authority of which the jurisdiction area needs to comprise the commuting area around the urban area, to be able to effectively steer greenspace preservation and control the decisions of lower level actors such as individual municipalities. The latter is important to plan urban and green land uses in relation to each other and to develop a greenstructure throughout the urban regional jurisdiction area. This responds to the need explained in chapter 2: greenstructure is a public interest. The whole population in an urban region depends on it for the multiple benefits of ecosystem services (climate and flood regulation, mental health, etc. etc.) for quality of life. The underlying ecosystem needs development of structure to be resilient and to deliver services optimally (e.g. Luederitz et al., 2015; Potschin and Haines-Young, 2011; Tzoulas et al., 2007; Opdam et al., 2006). Plans like the Scheme of Territorial Cohesion (SCOT) that come with finances, rules and a shared discourse of landscape as a vector for development, and preservation of resources, heritage and identity (the 'thrifty' component) can provide for such greenstructure. Brueckner et al. (2009) found that the presence of cultural heritage and greenspace together can explain for the wealth of central Paris and the poverty of urban Detroit. It confirms the importance of the greenspace factor.

As concerns the horizontal association between neighbouring municipalities: it is obligatory by law in France and supports the horizontal government cooperation. This helps avoid that the areas of peri-urban municipalities are mainly considered as areas for solving urban problems (Aalbers and Eckerberg 2011). Keeping up of greenspace development with urban development (Pauleit et al., 2005; EEA, 2002) depends on the use of all means of action that the case studies documented, only the land does not necessarily have to be owned by the state, as it can also regulate land use with its national, regional and local legislation established via democratic processes. It also requires that the jurisdiction area comprises the commuting (functional urban area. In Montpellier Agglomeration, the members of the regional authority (the Association) for some time now, are directly elected by citizens within the jurisdiction area from among the municipal delegates.

The above not only offers evidence on how to go about the coordination but also confirms the complexity involved in environmental problems to which Leroy and Arts refer (2006).

In relation to the problem of socio-ecological inequality: scarcity of greenspace, especially in the more densely built parts of the urban region, brings the risks of competition between actors and land uses (see in 5.2 regional planners' questions), with actors having unequal means of influence, some being much more powerful than others. In addition, market groups and environmental groups may miss out on catering to socio-ecological equality (see also Theys 2002). Aalbers and Eckerberg (2011 p59) find: "*The strength of the developers in land acquisition for housing and industry development stands out as a difficult – as well as economically disrupting element in the creation of powerful policy coalitions in support of public interests. For example, the onset of postsocialist transformation in the Leipzig Halle region beginning in 1989 eventually led to a huge oversupply on the markets of housing, office space and developed land in general (Nuissl and Rink, 2005). Speculation in the agricultural economy in the fringe is mentioned to be profound in several of the case studies, and causes major problems in asserting public access to green areas.*" The previous not only underlines the importance of powerful regional authorities for preserving greenspace, it also demonstrates the inequality between parties which underlies the idea of procedural inequality that also can lead to socio-ecological inequality (Aalbers et al., 2014).

multiple ways of integrating greenspace in urban development

The international literature asks for attention to spatial integration of greenspace in the urban fabric (Ostoic and Konijnendijk Van Den Bosch, 2015) and for countering the urban-rural dichotomy (UN Habitat III, 2016 p5). It signals differences in meanings attributed to greenspace, by the state and citizens (e.g. Buijs, 2009; Van Herzele and Wiedemann, 2003) and calls for more research on the wishes and role of citizens. Several authors (Jansson and Lindgren, 2016; Elmqvist et al., 2015; Braat and De Groot 2012; De Groot et al., 2010; Ostrom 2009) indicate that greenspace management is needed to reaping the benefits of greenspace. This thesis departed its research with among others these two perspectives (integration and meaning) and finds that integration of the urban and rural can happen spatially, functionally and economically. Existing international insights provide evidence that it can also

happen mentally (e.g. Jones et al., 2016; Stoll-Kleeman, 2001; Fulton, 1996; Samways, 2007; Miller, 2005).

The urban-rural integration discourse 'landscape as vector for development' goes against the compact city discourse in that it spatially integrates greenspace in urban areas, while enabling villages in the green peri-urban areas to develop economically. The accompanying investments by the regional authority in local planning and in public transport supports also the peri-urban villages and helps to avoid the negative aspects of commuting.

Concerning functional integration: A basic idea behind the SCOT is to valorise the green landscape and its places as part of urban life (see also www.projectsdepaysage.fr): by food production for regional consumption, viticulture, tourism and recreation (see article I). Article II and III provide further examples of functional integration of greenspace in urban life: e.g. for connecting people, social inclusion, as a school for children to become independent and self-confident. Recent research by Aalbers et al. (2018) shows that local initiatives by companies and citizens can lead to functional integration of greenspace in urban development and can make greenspace or urban nature part of other policy fields: by food provision, enhancing quality of living and working environment, by attractiveness to young and educated employees, and social integration. The attractiveness of greenspace is confirmed by the international literature on prices of real estate near green areas (Damigos and Anyfantus, 2011, Morancho, 2003, Poudyal et al., 2009, Luttik, 2000), the move of higher income groups to greener areas (Grochowski, 2008; Perpar, 2008; Pauleit et al., 2005; Beer, 2003; Brueckner et al., 1999) the growing place occupied by green amenities in the residential choice of households (Choumert and Salanié 2008) and on greenspace as part of the daily living environment (Kaplan and Austin, 2004; Frumkin, 2001; Kaplan and Kaplan, 1989; and Schroeder, 1988). *"It is easy to free up money in a municipal council when you combine greenspace with economy"* an interviewed local officer says (Aalbers et al., 2018). This corresponds to the finding from the Montpellier study that the policy discourse of 'landscape as a vector for development' brings parties together with otherwise competing interests. The multiplicity of benefits that can be derived from ecosystem services enables this (see also Reubens et al., 2008; Wang et al., 2015; Shanahan et al., 2014; Kabish et al., 2014). These examples that combine the urban and rural, together strengthen the integration of nature in development of urban regions. The challenge for regional governments seems to steer activities by developers (see above), in bringing this combination of nature and urban development to full realization.

Concerning the economic integration of greenspace in urban development, article I provides evidence of the importance to invest in the peri-urban areas to compensate these areas for the economic development that comes with urbanization when they are excluded thereof. Finances are an important means of action. The 'circular economy' concept from Hangzhou, reinvesting tax money in the peri-urban or rural areas supports these areas that are missing out on the profits of urbanization. The shared approach of Montpellier, sharing development and its profits, with the villages in the peri-urban areas counters the urban-rural dichotomy in an economic manner.

For the mental integration, the international literature refers to the emotional and cognitive relation between humans and nature (Jones et al., 2016; Stoll-Kleeman, 2001; Fulton, 1996; Kellert and Wilson, 1993; respectively Weick, 2011; Luttik et al., 2014) which, as was reasoned in 2.5, may be important for the future support to policies for sustainable urbanization. It is a fourth way of integration of nature with urban development. This interaction depends on the above three forms of integration and is often the object of citizens initiatives studied in article II who make greenspace part of personal life (see 6.2 and 6.3). Jones et al. (2016) write: *"Values are a fundamental aspect of cognition, which have largely been neglected within the social-ecological systems literature. Values represent the deeply held, emotional aspects of people's cognition and can complement the use of other cognitive constructs, such as knowledge and mental models, which have so far been better represented in this area of study."* They understand value as a function of meaning (e.g. spiritual meaning, mental health) and of social obligations or responsibilities (provision of food, for example). In their construct (based on Fulton's (1996) cognitive hierarchy model of human behaviour) values are the deepest layer underlying human behaviour and choice (Jones et al., 2016 p2). Integrating greenspace in urban development in the three ways referred above, enabling interaction between humans and nature across the urban region, may

offer a basis for establishing values among urbanites that are more supportive of sustainable choices and lifestyle patterns.

framing local management of greenspace

Concerning the politics of managing the quality of greenspace Lindholm et al. (2015) conclude *"that adoption of any quality model has both limiting and enabling implications for public participation and decision-making and that a critical stance is needed within both research and practice for the development of quality models that connect to values of broader societal relevance"* (2015). Urban sustainability is such a broader value, considering EU and UN policy texts (e.g. European Commission, 2015; UN Habitat III, 2016; www.undp.org). The research for this thesis demonstrates the importance of regional government for the promotion of sustainability of urban development (Article I) and also lifts up the level of thinking beyond that of involvement of citizens and other parties in local participatory processes to respond to just any private wish (Article II and III). The argumentation for this has been given already in the section on coordination: regional coordination needs to frame local greenspace management to preserve and integrate greenspace and with it nature, in urban development and thereby render it sustainable in the public interest of the whole functional urban area.

The international literature refers to the fact that the process of economic development and urbanization goes hand in hand with differentiation in living environment according to levels of income (Brueckner et al., 1999; Fol, 2012; Gibbons et al., 2014; Aalbers et al., 2014), coupled to presence or absence of green open space (Brueckner et al., 1999). It referred to the departure of wealthier residents to more green living environments (Pauleit et al., 2005, Brueckner et al., 1999) leading to socio-ecological inequality and possibly commuting. Making greenspace available throughout the urban fabric, including locally in all neighbourhoods as in the SCOT of the Montpellier Agglomeration probably helps to avoid such problematic developments. It is probably also reducing the 'escape' traffic (Grosse, 2016) by residents in search for greenspace for recreation.

Jansson and Lindgren (2012 p143) and Randrup et al. (2009) identify a strategic level in greenspace management. Regional greenspace management can be considered as this strategic management level. Article I promotes the understanding that greenspace management at this level is of more strategic importance for catering to the public interest in greenspace than at the local level. And it is about land use planning, landscape planning, land policy and investment policy (Art. I).

Section 7.2 started with the reference to the benefits of greenspace management. Article II and III provide the evidence that the different management, built on different understanding of nature, produce a different greenspace and uses. This may also be expected to happen in the peri-urban areas. But it is yet uncertain what to imagine differently from agriculture or nature reserves. The image of integration of functions such as food production, employment promotion including manual labour for the practically educated, recreation, biodiversity and water management, come to the mind. These need to be developed locally (see next) and managed between parties in the peri-urban areas and parties in the urban areas.

7.3 Collaborative governance of local greenspace to respond to the multiple needs and wishes of citizens

within the regional strategic frame

The results of article I suggest that urban regional greenspace management needs to be guiding greenspace management by local authorities, especially city authorities, in contribution to a regional greenstructure. Without it, the staying behind of greenspace development compared to urban development (e.g. Pauleit et al., 2005, EEA 2002) can not be countered.

Article II provides evidence of the multiplicity of meanings of greenspace attributed and developed by citizens. In chapter 2, after the short history on urban greenspace development since early times, it was suggested that the initiatives by citizens can be interpreted as an attempt of citizens to regain control over urban nature/greenspace. The articles II and III show that it is more precisely about controlling the function of greenspace: The initiatives develop a more varied and differently used type of greenspace than the state does. Elands et al. (2015) use the term 'biocultural diversity' for this richness in human-nature interactions. The combination of multiple ways of greenspace integration locally,

possibly makes it more resistant to building pressures because more interests are related to it than to the in terms of meaning more restricted 'parkified' nature. One sees a possible parallel to the 'landscape as a vector for development' idea at the regional level: broadening the meaning and involving (the economic activities of) multiple sectors around local greenspace helps to gather the support of more parties for the greenspace policy.

The recent study by Aalbers et al., 2018, however show that some initiatives (e.g. Hoekwierde, Vijfstromenvallei) are about regaining control over local greenspace in terms of preservation as well. These initiatives react to what is sketched as the continuously building of greenspace by local authorities. A focus group discussion with five initiators raised the issue that greenspace has no value in the eyes of municipalities especially if compared to the money made by building. This was confirmed by part of the local officers interviewed by the researchers, but not by the interviewed members of the executive board (Aalbers et al., 2018). The integration of greenspace as a vector for development presents a different understanding of the meaning of nature than open space for building.

how local collaborative governance can make greenspace more responsive to the multiple needs and wishes of citizens at the local level

The international literature mentions parkification of nature by authorities (Littke, 2015), lack of insights in the wishes of citizens in terms of greenspace and asks for (more) attention to the role or participation and perspectives of users/citizens/stakeholders (Ostojic and Konijnendijk Van Den Bosch, 2016; Luederitz et al., 2015; Kabish et al., 2015). The research for this thesis also looked into the role of the local state in making greenspace more responsive to the needs and wishes of citizens at the local level. Articles II and III demonstrate that citizens wishes are different, that these relate to a different understanding of nature than the more sectoral and general understanding of nature by municipalities who predominantly aim at preserving and recreation in greenspace without interfering with nature. The citizens discourses on nature connect people, promote the notion that food does not grow in the supermarket and link personal life to nature. They are about taking care of the environment and each other: permaculture, organic shapes of plant beddings, gardening together; producing flowers and food for a social purpose like old people or the poor; involving disabled, addicts or ex-prisoners; raising funds for a 'good' cause. Their wishes differ however, and their initiatives are not always representing the wishes of the (whole) neighbourhood. So responding to the initiatives positively, does not mean that the wishes of the whole neighbourhood are satisfied.

Citizens are playing a role in countering the parkification. Article III looks into this and finds that municipality and citizens can together seek for complementarity in managing greenspace, making use of the means of action available on both sides. Municipalities can enhance their responsiveness to local wishes and needs of citizens. Article II finds that working on more general municipal policy principles for greenspace leaves room to delegate greenspace management to local parties such as citizens who can provide for local adaptation of greenspace in terms of management/interaction, shape and use. This finding is confirmed by municipal respondents interviewed by Aalbers et al. (2018) who indicate that working on more general principles in terms of policy objectives leaves more room for such local initiatives. Article II also mentions how financial support to initiatives can release the burden on initiators, and this is also evidenced by Aalbers et al. (2018). Also article III finds that adding resources can be useful. The complementarity that the articles suggests for identifying modes of cooperation between municipality and citizens, aligns with the idea that Bock (2016) suggests for developing rural non-state initiatives: a 'nexogenous' approach as a form of support to initiatives in which the own resources of the initiative are combined with those of others (Bock, 2016). Aalbers et al. (2018) find that not only municipalities, but also companies support citizens' initiatives: the latter is a form of multi-actor governance in or around initially individual initiatives at the local level.

Offering a listening ear to citizens who advocate other meanings of greenspace is also found to be an important condition for a municipality being able to adapt greenspace to citizens wishes, and this fits more with the public management approach in the relation between state and citizens. Communication between municipality (officers/members of the executive board/mayor) and residents, article II and III find, is conditional to coming to agreements on an eventual transfer of greenspace management to citizens and exchanging and complementing each others' understanding of nature.

Aalbers et al. (2018) also find that officers with an open mind are important to communicate with citizens and companies to see how they can turn an idea of an initiator into a success in one way or another together with the initiator. Such exchange and consecutive integration of specific meanings that citizens attribute to greenspace also emerged in the collaborative park design process Botteskerkpark in 2005 with different social groups in West Amsterdam (Aalbers et al., 2006). Especially in this multi-cultural environment involving citizens in such design processes seems relevant, for people in a neighbourhood getting to know each other and to include their wishes and understandings into the design and realization. For Botteskerkpark, the standards current in the municipal greensector made it quite difficult for the planner to include a number of ideas by the citizens. And difficulties with agreeing on the management responsibilities for the new semi-public spaces, between the housing corporation and the municipality postponed the realization of the plan. Such difficulties in changing management practices are also evidenced by Article III and the concept of 'regime' that applies so well in the studied case. These insights demonstrate that transition in greenspace management is not simply about doing things differently: the organization needs to change: the rules, the finances, sometimes the staff (Aalbers et al., 2018), the partners in the coalition, and this all because the understanding of nature or greenspace that first needs to change. (The rules, resources, coalition and discourse of the policy arrangement approach can be recognized in these.) And part of the citizens themselves is also subject to routinization in the way they go about greenspace.

But sometimes it can be more effective in terms of developing greenspace, when the state constructs a garden and maintains it itself when local citizens are not capable of managing greenspace, article II finds. Aalbers et al. (2018) find municipalities who are careful not to engage with citizens who do not have the needed capacity to bring an initiative to a success. These are procedural aspects of socio-ecological inequality: Aalbers et al. (2014 p9) write that "*socioeconomically deprived neighbourhoods may have less 'voice' in trying to persuade local politicians to improve (or not deteriorate) their environmental conditions. They may be less aware of planned changes, less knowledgeable with regard to procedures, less inclined to be involved in participation (or legal) processes, and less successful when involved. Secondly, once environmental deterioration has taken place, socioeconomically weak population segments may have fewer opportunities to move out of the now less attractive neighbourhood.*" Some groups do not have the capacity to take an initiative in greenspace: e.g. no knowledge, skills, attitude, time, money, network or other means of influence. However, growth of social capital, as identified in article II where target groups became managers of greenspace, renders it relevant to neighbourhoods with less educated groups (see also Colding and Barthel, 2013; Schukoske, 2000).

With the 24/7 economy it is unlikely that many citizens will take charge of greenspace for free on longer term, unless they find an income from the activities. Article II and Aalbers et al. (2018) find hybrid forms of initiatives that had been started by citizens, that have turned into (partly) commercial initiatives by these same citizens, making an income with it: Diepenheim Inside Out Forest, Stevensbeek, Mobilegarden, TielCentrumXL.

The local state (municipality) and higher level state are considered as one in Article II, which they are obviously not, but the nature conservation discourse is present at both levels and behind the idea that people should not interfere with nature. This discourse is however changing (Buijs et al., 2014) and official attitudes are becoming some more flexible in The Netherlands, especially with the 'new nature' policy (Ministerie van Economische Zaken, 2014). This was the cause for commissioning the research by Aalbers et al. (2018) which should contribute to evaluating the success and failure factors of initiatives by companies and citizens in urban greenspace. Articles II and III and Aalbers et al. (2018) not only demonstrate that the transition is confronting all parties with substantial challenges, but also that greenspace gains additional meaning.

greenspace based local economy

Important public interests lie with the regional authority: for developing greenstructure, seeing to investments in peri-urban economies and sharing urbanization/built development with peri-urban areas, all in the interest of the wider society in an urban region. To counter the urban-rural dichotomy these investment are required, as article I shows. The resources for investment in urban development

are with this same coalition of market parties and city authority. A more integrative discourse on greenspace as vector for development accompanied with the necessary means of action (Art. I) may be expected to be more profitable at the long term because a city with a good quality of life remains attractive to residents, tourists and thereby investors. This insight was a motivation behind the 'landscape as a vector for development' discourse in Montpellier Agglomeration (Art. I). At the short and long term it is in the interest of the urban regional population as documented by the multiple benefits derived from (urban) ecosystem services (e.g. Luederitz et al., 2015, De Groot et al., 2010, Tzoulas et al., 2007).

7.4 Perspectives for future research

research of the socio-technical 'landscape' level

The socio-technical 'landscape' level (Geels, 2011; Geels and Schot, 2007) was not studied in this thesis. The wider span of for example transport systems, spatial urbanization pattern and economic system can be considered as this deep structure that makes up this landscape level of socio-technical systems. They probably influence the urban lifestyle to a large extent, because they are conditional to how citizens can live their life: e.g. needing electric air conditioning because of urban heat in a paved and built environment or buying food from across the globe because there is no affordable, regional alternative or urban consumers can not reach regional farmers. This is interesting in relation to the relatively consumptive urban lifestyle referred to by international organizations in relation to sustainability (ch. 1). (Article II shows citizens who are concerned about such wider aspects in relation to nature and society and who seek to contribute to an alternative perspective.) To what extent do regional transport systems, labour market, social values, the housing and development market, subsidies and the economy, via their impact on the presence, affordability and access to nature for different actors, influence citizens' choices and lifestyle? What is their combined influence and what are options for improvement per sector, to facilitate access to the benefits of nature in urban regions? Differently formulated: What systemic conditions at the local and regional level can facilitate citizens in adopting a less resource consumptive urban lifestyle? What systemic conditions can enhance the peri-urban share in enjoyment of urban development benefits, make it more attractive to live in peri-urban (or even rural) areas and reduce urbanization? The main orientation of article I was not in terms of facilitation but influencing.

Important questions related to more urban - peri-urban integrated development are about which combinations of greenspace use appear economically more resistant to built development and why are they? What land market policies can support a development that weakens the economic pressure on urban greenspace and responsibly enhances the development of urbanization in peri-urban areas? And to what extent does the compact city paradigm hold if the integration of urban and peri-urban becomes part of the considerations?

What transport solutions can support peri-urban development and avoid traffic related negative environmental impacts? It is generally forgotten that present transport by car brings a high percentage of soil sealing with it. Its replacement over time by different transport modes and infrastructure (lightrails, skytran, hyperloop) may possibly contribute substantially to greenspace integration into dense urban fabric. But this issue was not investigated. Schwanen et al. (2011) considers the social structuration in relation to difficulties of decarbonisation of transport. De-sealing transport is another issue to look into.

bridging the urban/rural dichotomy?

For ecologists bringing greenspace and urban together, it would mean to consider ecosystems also from this perspective of combining, instead of considering nature as something to be kept out of the urban. How to integrate the biodiversity and resilience conditions of ecosystems in urban context with other uses of greenspace that enhance the preservation of greenspace? The earlier referred issue of how to design greenspaces locally in order to combine the multiple ecosystem services is also a question that needs interdisciplinary research to answer it. Landscape ecological urbanism (Steiner, 2011; Thompson,

2012) may be only just at the beginning to understand the scientific and practical challenge of integrating greenspace and nature with urban development. The wildlife conservation paradigm is rather oriented towards a divide of humans from wildlife. The broader meaning of urban greenspace extends beyond those of the current nature or wildlife reserves, farmers areas and recreational parks.

The proper balance in quantitative and qualitative terms is hard to identify and requires substantial research effort. How can loss of green space quantity be offset by increased green space quality, Haaland and Konijnendijk (2015) ask. Can it be, and if yes, up to what level? That at present there is too little greenspace in dense urban areas speaks from the social ecological inequality and sorting out of socio-economic groups' access to quality of living environment. It is demonstrated by urban heat, by the incidence of flooding, and identified health benefits from greenspace, to which numerous groups do not have access, or only by long commuting times.

How strong is the relation between cognition of nature, cultural values (Weick, 2011; Jones et al., 2016; Fulton, 1996 and Luttik et al., 2014) and consumptiveness of lifestyle and what mix of vicinity to nature and socio-technical structuration may influence individual choice and render urban lifestyles less consumptive?

8 CONCLUSIONS

Greenspace and the services of nature (ecosystem services) to which it provides access, are the basis for human life. The ecosystem services are especially relevant in urban areas: such as groundwater and drinking water restoration, attenuation of pollution, production of fresh food, reducing urban heat, contributing to mental restoration, education, and employment in greenspace management. These contribute to the quality of life and long term development. But greenspace development in urban areas does not keep up with urban development, which leads to scarcity of greenspace. This also renders it exclusive, which contributes to socio-ecological inequality when wealthier people depart for greener areas, leaving the lower income groups behind.

Based on an international comparison of urban regions, this thesis provides evidence that to preserve greenspace in urban regions, and to coordinate and control space and people in the public interest, hierarchical government at the scale of the urban region is needed, equipped with a powerful set of means of action: a tight web of rulings between the regional and supra-regional hierarchical governments and their close cooperation are critical. It also requires resources to support municipalities and steer lower level actors (especially municipalities and developers) and a strong integrative greenspace discourse accompanied with a spatial vision, that is shared among the municipalities. The policy discourse needs to include the natural system as basis for human life into the urban development discourse. Regional authorities do not necessarily have to own the land.

Research in The Netherlands of citizens' initiatives in (urban) greenspace (although rather exclusive in terms of percentage and character of population involved) shows that these citizens demonstrate a multitude of values of nature and desire for more interaction with nature. They point at the possibility for a different position of greenspace in urban areas, such as less exclusive greenspace by engaging more vulnerable groups, more diversified greenspace, non profit handling of produce and nature as a school for life for children.

Locally tailoring greenspace to local interests of citizens is to happen within the frame that is set by the public interest in terms of greenspace preservation and integration, and related socio-ecological equality (inclusion), ecosystem services and biodiversity targets. This thesis finds that the integration has multiple dimensions: spatially, financially (to stimulate new management practices), functionally (and here much can be enhanced considering the meanings attributed to nature by citizens), and economically (to make new practices resistant against the building economy). There is evidence that this will enhance the cognition of and emotional attachment of citizens to nature.

The frame of public interests in the benefits of nature that needs to be seen to and which is conditional for further local infilling of the quality, requires a strong government approach by municipalities to see to the development of greenstructure, avoid departure from areas by adding greenspace and avoiding procedural injustice inherent to market and collaborative governance. For adaptation to local and private needs, pursuing complementarity between what local parties (citizens, companies) and the municipality can do is a workable strategy. For innovation, also offering a listening ear to citizens with specific ideas, even if they seem impossible, is important. This demands an open attitude, the skills and organization to cooperate and possibly some supporting finances and allocation of staff by the municipality.

The preservation of urban greenspace depends on integration of the urban and peri-urban. New urban developments are to be made much more into the peri-urban instead of by urban densification at the cost of urban greenspace. Urban development into the peri-urban supports the sharing of the benefits of urban development with more remote areas and more quality of life for all citizens in the urban region.

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Article I

“Powerful and large regional authorities are needed
to preserve green open space for urban agglomerations.”

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errata:

page 506: the score should read '(9/11)'.

page 508: caption: 'photograph 2' should read 'figure 6'; 'photograph 3' should read 'figure 5'.

page 509: the score should read '(7/11)'.

page 510: the score should read '(8/11)'; in the diagram, for 'Rules' the 'L' should be replaced by a 'Z',
for 'Coalition' the 'VG' should be replaced by 'MA'.

page 511: the score for Xixi wetland strategy is missing and should read '(5/11)'.

page 513: second section: the highest score should read '9 out of 11' instead of '8 out of 10';

last section: the score should read '7 out of 11' in stead of '7 out of 10'.

Powerful and large regional authorities are needed to preserve green open space for urban agglomerations

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Abstract

Identification and assessment of strategies for the conservation and multifunctional development of green open space in the urban fringe of European urban regions is a challenge to both the academic and the real life world. Within the EU funded research project PLUREL – Peri-urban land use relationships – ‘Strategies and sustainability assessment tools for urban rural linkages’, we developed a methodology for international comparison of regional strategies that considers the policy context at supra-regional level. This methodology helped to explain the reported impacts of strategies. For this we further elaborated the theoretical concept of policy arrangements and policy dimensions by Van Tatenhove et al. (2000) and Arts et al. (2006). Strategies and policy contexts referred to are from Montpellier Agglomeration, a formal coalition of now 31 municipalities, Leipzig-Halle region, a functional urban region (FUR) with governance coalitions around green open space preservation strategies, and Hangzhou in China, a very large city with hierarchical formal government. Results showed how the means of influence from different government levels can complement and reinforce each other and raise the effectiveness of the strategies. A combination of hierarchical government with a horizontal coalition between local authorities covering the full FUR can be very effective for managing the land use developments in the urban fringe, even when private business, CSOs or other NGOs are not included in the coalition. Supra-regional authorities do not have to possess the land resources, but setting the Rules of the Game is a powerful means of influence to coerce local municipalities to preserve green open space in the urban fringe.

Key words

governance, green open space, urban fringe, urban region, policy evaluation, policy regime, spatial concept, multifunctional development, international comparison

1. Introduction

Urban growth has increased pressure on green open space globally and especially in the urban fringe. For the EU, it has been predicted that peri-urban areas will grow four times faster than the urban cores for the coming decades (Nilsson et al., 2013). Peri-urbanisation causes, among other things, the loss and degradation of valuable natural areas and farmland alike and it leads to an increase of traffic due to low density development patterns (SCATTER 2004). On the other hand, carefully planned and managed green areas in the urban fringe can link the city with the countryside to provide multiple benefits such as opportunities for recreation, supply of local food, clean air and fresh water, and spaces for management of stormwater and biological wastes from urban areas. Therefore, urban containment by adopting a compact city strategy needs to be broadened into regional perspectives to steer peri-urbanisation in a sustainable manner so that benefits can be reaped while negative impacts are minimised.

Main policy challenges in the urban fringe which are an impediment to the development of sustainable land use systems are in particular the lack of coordination between adjacent local authorities, interference between different national and EU-level sectoral and regional policies, and implementation deficits of sector-based strategies. (Nilsson et al, 2013).

While there is an increasing body of research on the causes of urban sprawl and peri-urbanisation (e.g. Champion, 1999; Caruso, 2001; SCATTER 2004; EEA 2006; Couch et al., 2007; Bruegman, 2008), little is known on suitable strategies for more sustainable development of land use systems in the peri-urban, and specifically the conservation and multifunctional development of green open space. To reduce this gap was one of the main aims of the research project PLUREL funded by the EU (Piore et al., 2011; Nilsson et al., 2013). In the project, overall six European and one Chinese case study regions were chosen for comparative analysis.

In Europe, different policy, legal and spatial planning families can be identified (Newman & Thornley, 1996; CEC 1997; CULTPLAN 2007; Knieling and Othengrafen, 2009; Tosics, 2013). These contextual differences are considered as complications for comparing and drawing policy lessons between regions. In this paper, we compare the governance in three urban regions from France, Germany and China. These governance cases present the two ideal types of multi-governance according to Hooghe and Marks (2003): general purpose jurisdictions with non-intersecting borders and where each next sub-level is nested within the previous level (Hangzhou); governance addressed at particular tasks or problems, not comprehensive (Leipzig-Halle region); and a mix of these two ideal types (Montpellier Agglomeration) where hierarchical government is combined with horizontal coalitions between local authorities. Thus we discuss the different scales and levels to which Termeer et al. (2010) refer as complicating the study of governance: the institutional, jurisdictional and spatial scales.

2. Comparison between strategies under different policy regimes

As central concept we used the 'strategy', a designed course of action that an actor makes to achieve his goals, employing certain means of influence. The concept assumes a unity of decision making and actions, which can be a single actor, but also a group of actors organized in a regional authority, sharing objectives and means of action, governed by a decision making body. The selected strategies were developed by regional actors to preserve green open space in the urban fringe. Since green open space often forms the border area between different local authorities, the regional authorities were chosen as central unit of decision-making. The definition of a strategy fitted more comprehensive policies but also policies for

actions concerned with one specific theme, which made it apt for the comparison of the different types of governance.

To describe the means of influence employed in the regional strategies within the supra-regional policy context, we adopted the Policy Arrangements Approach (PAA). The PAA was initially developed to depict structural political changes. Van Tatenhove et al. (2000) and Arts et al. (2006) defined it as the temporary stabilization of the content and organisation of a policy domain. They described and analysed the design of the environmental policy domain with the aid of four dimensions: rules of the games; resources; actors and their coalitions; and discourse. The first three represent the organization of environmental policy, with organizations as social systems comprising sets of agents that are nested in structures of rules and resources (Giddens 1984). The second aspect of the policy arrangement concept, substance, operates through so-called 'policy discourse' (see also Dryzek, 1997; Hajer, 1997 in Van Tatenhove et al., 2000). These four different dimensions allowed us to describe both the policy context and the means of influence employed in the strategies. We assumed that the supra-regional policy context together with the means of influence used in the strategy, influences the land use decisions of actors at the subordinate levels. In line with the definitions of Van Tatenhove and Arts we theoretically consider the supra-regional context as temporary stable, against the background of which regional strategies perform, adding up their influence.

While the PAA provided a theoretical framework it still needed to be operationalized for comparative assessment of the strategies in the selected case studies. Inspired by Van Gossum's evaluation of governance capacity and his use of a 4-point Likert scale (Van Gossum et al., 2011) we explored ways to quantify – even though in relative terms – the influence that a strategy exerts as a result of the means it employs. From the study of the about 20 regional strategies the main constituents or elements were identified. We categorized these constituents under each of the policy dimensions. When all types of constituents were used by a regional strategy we attributed the maximum number of points to the strategy. If the strategy did forsake on a constituent we looked whether the supra-regional policy context did make up for it. Thus, the supra-regional policy context completed the picture into that of the full policy arrangement in support of the objective(s) of the strategies.

Figure 2 visualizes the scoring system for the regional strategies. With each extra constituent the length of the arrow for a specific policy dimension increases, i.e. each point that has been scored adds a next segment to the arrow. The figure shows how much a dimension adds up to the power or influence of the strategy over land use actors at the sub-ordinate levels. In the following we specify these constituents of each of the four main policy dimensions.

Rules of the game

These define the ways actors should behave, and consist in legislation, regulations, legitimate norms, how issues might be raised, policies formulated or decisions made. In general, actors constantly draw upon rules that provide them with guidelines to act properly and legitimately. These can also be informal rules, especially cultural norms for what is accepted or appropriate behaviour. To give further practical significance to this dimension we examined whether a strategy was embedded in legislation (1 point), in a binding land use - or zoning plan (1 point) and culturally embedded (see under 'Policy discourses' how this criterion was applied) (1 point).

Resources

The allocation of power over land (1 point) and the mobilization of financial resources (1 point) are central to explain how agents maintain and transform their environment. The type of landownership and the availability of land resources for expanding urban settlements co-determine land development. Knowledge is the third source of influence (1 point), providing actors with the insight how to best achieve their objectives. When the case studies reported that the knowledge resource was deliberately strengthened by the strategy, we considered this an extra source of influence of the strategy.

Policy coalitions

A policy arrangement can also be characterized by certain groups of actors who share resources or interpretation of a policy and policy goals and who mobilize to reach those goals. Some actors strategically form alliances with other influential partners in order to complement their own means of influence with those of the other. In agreement with the two ideal types of governance by Hooghe and Marks (2003) we distinguished three types of coalitions: of regional governments with higher or lower level governments (vertical governance, between nested levels, ideal type I) (1 point); between neighbouring governments (horizontal governance) (1 point); with the public, NGOs or private partners for thematic actions (multi-actor governance) (ideal type II) (1 point).

Policy discourses

A policy discourse refers to 'a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities' (Hajer, 1995: 44 in Arts and Van Tatenhove, 2005, 6). This 'naming and framing' of issues forms the basis for the design of policies. The concept 'discourse' was earlier elaborated upon by Foucault (1971). He describes 'discourse' as a spirit of the age. When such dominant societal discourses provided tailwind to the policy discourse, we considered this as cultural embedding of the strategy under the dimension 'Rules of the game'.

In our study we used the concept of discourse only to briefly characterise the communication of arguments and objectives of a strategy as a way to obtain consent or support from the public or other parties (1 point). When in addition a spatial concept was used to visualize an issue we gave this dimension an extra point. Spatial visions can work as a means of influence, as already suggested by Auclair (2003, p. 63) and as indirectly acknowledged by Vervoort (2011) when warning against the influence of oversimplified visions of reality entailed in spatial representations.

Impact assessment

Table 1 shows the conceptual relation between a strategy and its effectiveness. The impacts of the different strategies were assessed by both practitioners and researchers in each case study region, based on a set of criteria (Aalbers and Van Dijk, 2008 PDF). Since they contain inherent uncertainties in time and space no final conclusions on the outcomes can be made. Instead, indicative findings based upon observations from the case study research will be presented which may then be related to the characteristics of each strategy.

Rules	Embedding of a strategy in legislation (L)	Laid down in binding land use -/local - or zoning plan (Z)	Cultural embedding (C)
Resources	Financial resources (F)	Land resources (L)	Special attention to raising the level of knowledge and expertise of the human resources (K)
Coalition	Vertically with governments at higher or lower level (V)	Horizontally with neighbouring governments (H)	With multiple types of actors, e.g. members of the public, private parties (MA)
Discourse	In words actively used by the actor to raise awareness and support for the strategy from other parties (W)	In visualized form, actively used by the actor to raise awareness and support for the strategy among other parties (V)	

Table 1
Constituent means of influence of the different dimensions that make the strategies powerful

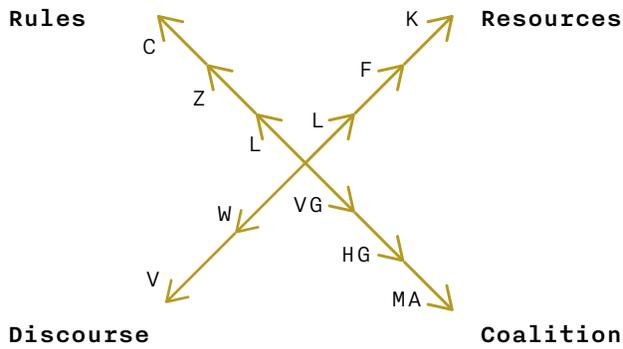


Figure 1
Visual representation, the arrows depicting the relative strength that the strategy obtains from each constituent policy dimension or type of means of influence. With each extra constituent the related arrow increases with an extra segment. Capitals refer to table 1.

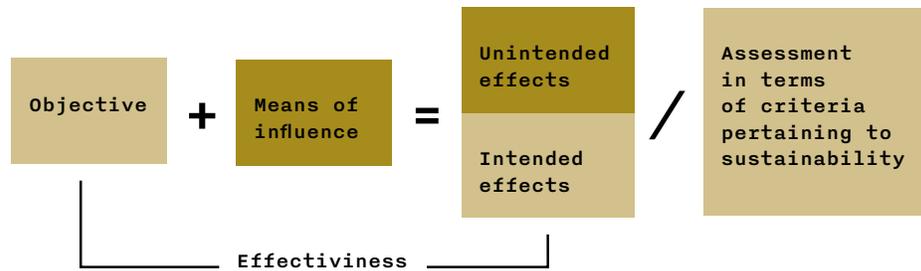


Figure 2
A strategy, effects, effectiveness and assessment

Material:

Six case study regions were chosen, reflecting different geographic settings, urban regional types and dynamics of growth and shrinkage. In addition, one Chinese case study was included to explore peri-urbanisation in a very different policy context.

Based on identification of the most pressing issues for conservation and sustainable development of open spaces in the peri-urban in workshops, five different types of strategies were examined in the case studies (Aalbers and Eckerberg, 2013). These were strategies for:

- Comprehensive land use planning at the regional level
- Strengthening agriculture in the urban fringe
- Protecting biodiversity areas at risk
- Reducing housing and business building pressure
- Integrating tourism and recreation in development.

The data were collected by desk study of policy documents from regional and higher level, of plans, maps and statistics. We did field visits, semi-structured interviews and panel discussions. The strategies were described by regional research teams and reviewed by actors from within the regions and state level. Researchers and practitioners also formulated the impact assessment criteria and assessed the strategies, distinguishing between processes and outcomes. For this paper we selected three case studies and overall four strategies.

3. The three regions and their regional strategies

The following analysis is based on Buyck et al. 2008 (PDF), 2009 (PDF (2010)), Bauer 2009, Sinn et al. 2008 (PDF), Jianjun et al. 2008 (PDF) and grounded in a joint analytical framework and a joint assessment framework (Aalbers and Van Dijk 2008a, b).

Montpellier Agglomeration, France and the Scheme for Territorial Cohesion



Figure 3

Montpellier is the capital of Languedoc-Roussillon in the south of France. Since the 1980s it developed from a quiet town, mainly based on the wine industry, into a strong economic centre based on high tech industries and services. Since then it experienced strong population growth. In 2005, the Montpellier urban region counted 450,000 inhabitants. This growth led to widespread urban sprawl and erosion of the regional landscapes. Concerned policy-makers adopted in 2006 the 'Scheme for territorial cohesion'. The photograph shows recent housing development alongside the lagoon. (Springer Verlag)

Policy-makers in Montpellier had become increasingly concerned with the urban sprawl and the erosion of the regional landscapes. In 2006 they adopted the 'Scheme for Territorial Cohesion'. This scheme changed the way spatial development was conceived. The scheme was accompanied with the delegation of significant parts of planning powers from the municipal level to that of the newly formed Association of Montpellier Agglomeration. Today this Association consists of 31 municipalities.

The Scheme for Territorial Cohesion and rating of this strategy and its policy environment (9/10)

National law obliged municipalities to associate with other municipalities, and consequently the Association of Montpellier Agglomeration was formed. It coordinates planning procedures related to economic development, spatial planning and transport through the Scheme. All local plans and decisions on municipal housing and urban mobility, site developments and housing standards need to comply with the Scheme. Important instruments of the Scheme are the setting of minimum housing densities for new urban extensions, a spatial framework for natural and agricultural areas where development is strongly restricted

and setting of clear boundaries for urban development at the urban fringe. In addition, different types of land pre-emption rights strengthen public control over development. A score of 2 out of 3 was assigned to the Scheme for the policy dimension Rules of the Game as it is clearly embedded into legislation and it is a binding plan for the municipalities. No information was available on its cultural embedding.

Montpellier Agglomeration obtains resources for development and execution of the Scheme from local taxes on land, buildings and economic activities, and national and European funding. The Association also advises and provides competent staff to the municipalities in order to develop local plans. Means and skills are dedicated to communicate the Scheme and make it accepted and shared by the citizens of Montpellier Agglomeration. As the Scheme is well resourced in terms of finances, knowledge and human resources, and can control land resources through its cooperation with the Department, it scored 3 out of 3 for the policy dimension of resources.

The Scheme is developed by the Association of Montpellier Agglomeration, a horizontal coalition of now 31 municipalities. Also vertically the Association forms a coalition, i.e. with the Département where both national state officers (e.g. from the Ministry of Agriculture) and the local governments are represented in the Conseil Général to protect farmland in peri-urban areas and to promote environmental issues. An opposing policy coalition includes developers and landowners, with other state authorities supportive of economic development. Farmers, though key stakeholders in the peri-urban areas of Montpellier, are not organized nor involved in these coalitions despite being the biggest landowners. Neither are the NGOs and CSOs. The public is consulted through public enquiry and formally represented through the elected politicians in the Association's Council and through the Association's Economic and Social Council. Thus the implementation of the Scheme takes place only in coalition with governments at higher and lower level and with neighbouring governments. The Scheme scored 2 out of 3 for the dimension of coalitions.

In the Scheme, discourses of territorial cohesion and sustainable development are predominating. In particular, landscape quality is promoted as a vector for sustainable development, a new idea in French thinking on the subject. It served as an integrative concept allowing actors to converge on the idea of preservation, linking between the urban and peri-urban territory. Simultaneously, demographic growth is appreciated as source for economic growth. The 'shared city' – hinting at social relationships – and the 'thrifty city' – preserving resources, identity and heritage – are other concepts that complement these discourses. Use of collective transportation is considered as a lever of urban development. It is concluded, that the Scheme promoted and actively used discourses both in word and in the form of a spatial i.e. landscape vision in order to raise awareness and create support for the strategy among other parties. A value of 2 out of 2 was assigned to the Scheme for the dimension of discourses.

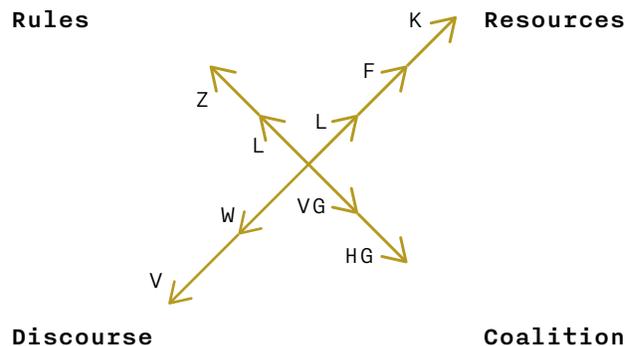


Figure 4
Policy dimensions of the Scheme of Territorial Cohesion

Impact of the Scheme for Territorial Cohesion in terms of management of green open space

Case study practitioners and researchers concluded that the Scheme performs very well. The shared learning process of developing and executing the Scheme has led to a considerable mind opening and joint vision among the local authorities and even among citizens. Local politicians both in speech and actions adhere to the Scheme and it stimulated the Agglomeration to spread development in a more sustainable manner. In combination with the landscape discourse the position of agriculture in the urban fringe is strengthened and increase of land prices is limited. The strategy restricts free riding behaviour of local authorities. However, it is problematic that the FUR (the urban core and its surrounding commuting rings) is not entirely contained in the scheme and that urban development leapfrogs over the jurisdictional boundaries of the Association.

3.1 Leipzig-Halle region, Germany and the strategies of The Green Corridors and Parthe Floodplain protection



Figure 5
(photo by D. Haase)



Figure 6
Leipzig-Halle is a polycentric region of approximately 1 million inhabitants and 4,390 km². The City of Leipzig (2010: 511,000 inhabitants) is an urban centre challenged by shrinkage due to outmigration and decline in the urban fringe. Although the population has declined over the last decades, urban land has increased. Therefore, Leipzig's surroundings, which belong to the most productive agricultural areas in Germany, are under pressure. The photograph 2 shows the recent urbanization and photograph 3 shows the perforated city centre where a brownfield has been replaced with pocket park and playing ground. (photo by S. Pauleit)

The Green Corridors strategy and its rating (7/10)

The Green Corridors strategy aims to link urban and peri-urban open spaces for ecological and recreational functions. These areas should be kept free of development and disruptive land uses (RPA Western Saxony 2008). The corridors are included in the Regional Plan, which provides the framework for further plans at lower levels such as the municipal land use plans. The plan is adopted by the Regional Association, which consists of a coalition of mayors, district administrators and other authorities. Its elected planning board prepares the plans for the general assembly of the Association. We attributed 2 out of 3 points for the Rules of the game: for the embedding in legislation and in a binding land use plan. No data were available on cultural embedding.

The corridors restrict urban development. This may lead to conflicts with municipalities, as – without compensation – the Green Corridors can constrain local economic development. Regional development funding is only available indirectly through informal instruments such as the Green Ring around Leipzig-Halle where the development of walking and cycling paths and education is funded. The strategy obtained no points on the Resources dimension.

Plan making involves stakeholder participation of local authorities, organisations for inter-municipal cooperation and nature NGOs. Public involvement occurs at the occasion of the presentation of the draft plan twice, before it becomes statutory within the Regional Plan of Western Saxony. The strategy obtained 3 points for Coalitions.

The strategy builds on the discourse of the floodplain forests that are highly valued by the public. This contributes to branding of the Green Corridors and awareness raising. The Green Corridors concept is easily understandable and convincing. For its Discourses, both in words and in the form of a spatial vision the Green Corridors scored 2 points.

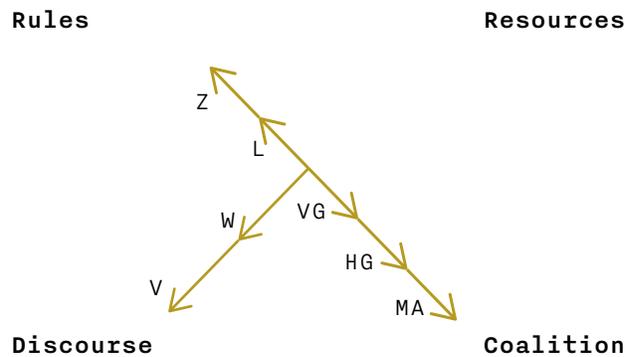


Figure 7
Policy dimensions of the Strategy of The Green Corridors according to the Regional Plan for Western Saxony.

Impact of the strategy of the Green Corridors

Investors seem to be capable of developing pressure against the Green Corridors. For example, building permits have been granted in the Northern Leipzig Green Corridor. Nevertheless the strategy contributes to preserving valuable landscape identity and natural habitats and agricultural land uses. However, the distribution of costs and benefits of the strategy is unbalanced between the core city and its neighbouring municipalities: while everyone profits from attractive surroundings, the development options of peri-urban communities are constrained. In particular in the context of population shrinkage, municipalities emphasise investments in urban development and compete for residents and business with other municipalities, thus menacing the preservation of the Green Corridors, a strategy that does not come with resources of its own.

Strategy for Inter-municipal Cooperation Parthe Floodplain protection and rating (8/10)

This second strategy on green open space in the Leipzig-Halle region is developed by an inter-municipal coalition between the municipalities of Leipzig, Taucha and Borsdorf in the peri-urban area north and north-east of Leipzig that was formed in 1992 to preserve the Parthe Floodplain and its riparian forests. The agreements of the Parthe floodplain coalition are binding for these municipalities by contract. The strategy is implemented into their preparatory land use plans. For Rules of the game: the strategy scored only 1 point, which was for its embedding in a binding land use plan. On cultural embedding no data were available.

Measures taken by the Parthe floodplain coalition are funded by the municipalities and the State on a project basis. Financial resources are also obtained from the Green Ring budget of the city of Leipzig, thus linking the planning and implementation of these two important approaches to the development of green space networks in the region. Land is made available by pooling compensation areas. The coalition shares professional personnel in landscape planning. The strategy obtained 3 points for Resources. Landowners like farmers are involved in the coalition as well. By the involvement of these landowners the strategy indirectly arranges for influence on the land resources. Cooperation also occurs with the tourist association, local inns, NGOs in the field of nature conservation, and neighbouring municipalities. Coalitions: The strategy obtained 2 out of 3 points: 1 for horizontal and 1 for multi-actor governance.

'Parthe Floodplain protection' and 'Green in between' are the main discourses. These are combined with activities such as art exhibitions along the river to link parks and green spaces. For instance, there is a permanent exhibition on the floodplain's flora and fauna, guided excursions for schools, guided walks e.g. for bird watching, as well as recommendations for individual excursions. There is a clear spatial entity: the Parthe floodplain, which is synchronised with the Green Ring Strategy of Leipzig. The strategy's aims are tangible, like constructing cycling paths. Participating local authorities are constantly reminded of the importance of natural and landscape values for quality of life and as a soft location factor for investors. A value of 2 was attributed to Discourses, they are there in words and in the form of a spatial vision

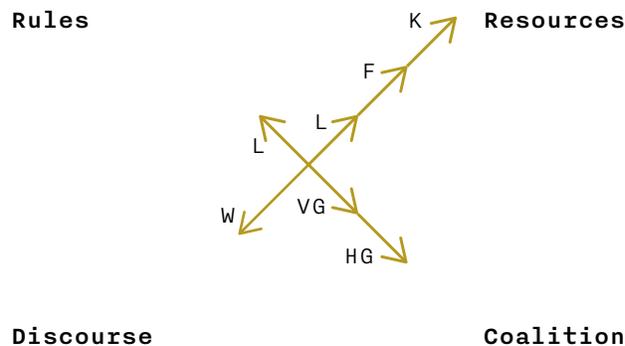


Figure 8
Policy dimensions of the Strategy for inter-municipal cooperation in Parthe Floodplain protection

Impact of Parthe floodplain cooperation

The recreational and nature conservation value of the area are enhanced by the projects implemented through the Parthe floodplain cooperation. However, there are no means of enforcement and decisions are based on consensus. Generally, commercial development in the floodplains is not prevented and the Parthe floodplain cooperation restricts itself to measures concerned with landscape while overall land use decisions are left at the discretion of the individual local authorities. Despite this limitation, the strategy is considered successful by local interviewees for the time being, while its sustainability in the long term is not secured and depends on the effectiveness of the strategy in the eyes of the participants. Agreements on division of costs between the local authorities are important for its legitimacy.

3.2 Region of Hangzhou City, China and Xixi wetland strategy



Figure 9

Hangzhou region is one of China's three economic powerhouses. The densely populated region of 16,596 km² is undergoing extremely rapid and large-scale urban development. Between 2001-2005 the population grew with an average 5 % per year in the city proper of Hangzhou. Its current population of 4.4 million inhabitants is expected to peak in 2030 when it will have reached 6.7 million inhabitants. Growth concentrates in the urban cores and the surrounding peri-urban areas. The photograph shows the recent urbanization and Xixi on the foreground. (photo by S. Pauleit)

Hangzhou is the political, economic and cultural centre of Zhejiang province, and the second largest city after Shanghai in this region. Urban planning in Hangzhou City is still considered mainly from an economic perspective whereby its main task is to provide the corresponding spatial allocation for independently developed economic plans (Spiekermann et al., 2013).

Local governments are under pressure to sell land, especially in peri-urban areas, as a major revenue that stays locally to make investments into infrastructure (Ding and Song, 2009). Inefficient use of land and land speculation further fuel urban land expansion leading to the loss of most valuable farmland and nature areas. One of the strategies employed by the City of Hangzhou in this context of extreme population growth is to protect and restore green open spaces in Xixi, a wetland area in the West Lake district of Hangzhou city. Historically, the area was renowned for its scenery and natural wetlands. However, most of the wetlands were destroyed due to strong and uncoordinated urbanisation processes in the 1990s. In an attempt to reverse the process, China's first national wetland park was established in 2005 with a total surface area of 10 km².

Rating of Xixi wetland strategy and its wider policy environment

The Hangzhou region represents the ideal type I governance in terms of Hooghe and Marks' (2003) classification of governance, where the lower level government institutions are nested within those of higher level. The lower-level governments should obey higher ones. In practice, higher-level governments always impact and intervene in local businesses. The strategy of Hangzhou city for Xixi area combines landscape and ecosystem restoration, tourism and recreation with development of up-market housing areas. West Lake district administration, hierarchically a level right below Hangzhou municipality administration, applies to Xixi area. Detailed regulatory planning was conducted by Hangzhou municipality. The New Town of Jiangcun in Xixi is developed according to a comprehensive town development plan including the development of supporting infrastructures (Spiekermann et al., 2013). For Rules of the Game

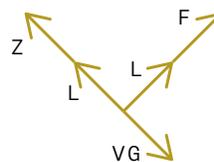
we attributed 2 points for respectively embedding in legislation and in a binding land use plan. On cultural embedding no data were available. As was the case in Xixi, the state can requisition collective-owned land for public purposes and compensate farmers in China. Land is then leased to private investors and land use rights can be sold on the land market.

In total, 2,500 rural households involving 13,000 farmers were removed from the protected area and resettled into new residential areas nearby (Spiekermann et al., 2013). The expropriated farmers were reimbursed with new homes and compensation ground but they cannot continue to be farmers. Compensation rates were reported to be high in Hangzhou by Chinese standards, since land prices are also high. However, the rates were far below the value of the land when sold for commercial development (Spiekermann et al., 2013) 2 out of 3 points are given for Resources. On knowledge and expertise no data were available. There is a strong competition between the city and adjacent towns, as well as between districts and villages at the next lower levels of the planning hierarchy to attract investments. They compete rather than forming alliances. Coalitions with other than governmental actors involved in the Xixi-Wetland strategy could not be observed. The Municipality and Real Estate Developers cooperate and there is cooperation with tourist business, universities, research institutes and invited experts. But these are not forms of coalitions in the political sense to acquire influence over developments. A value of only one point out of 3 was given for Coalitions, for vertical governance.

In Hangzhou region the challenge is to reconcile three competing discourses on 'land-use efficiency', 'social harmony' and the 'ecological city' expressed in the planning documents. However, these themes in terms of substantive orientation are not used as political discourses to invite partners to support the discourse and add up to the political influence of a coalition. At the level of Xixi-wetland strategy: the strategy has adopted a win-win principle of commercial development during the protection process as well as environment protection during the development process. It uses the identity of the historical landscape in vicinity of residential areas to improve the image of the area and its attractiveness to potential up-market residents. Various events are used to reinforce the park's image as a scenic area and to educate the public about wetland protection. The strategy is also meant to ease tourist pressure in other parts of Hangzhou, namely the famous West Lake area. The political meaning of a discourse does however not apply to the Chinese cases. The government does not engage in governance approaches with discourses to create coalitions for joint strategies. The government alone decides. (Discourses: Score 0/2).

Rules

Resources



Discourse

Coalition

Figure 10
Policy dimensions of the Xixi-Wetland strategy.

Impact of Xixi-Wetland strategy

In the past the important wetland ecosystem was reduced from 60 km² to small and degraded remnants. This process came to a halt and has been partly reversed. Xixi area now represents the highest quality of life

area in China attractive to up-market residents, bringing development opportunities and benefits to local people. The branding of recreation and tourism has created opportunities for private business and positioned New Jiangcun Town as tourism service base and as service base for Zhejiang University. The urbanization of farmland has not only led to a loss of eco-environment quality but also to social losses. Farmers, though reimbursed for the expropriation of their land, have no competitive skills at the labour market. They are only to a limited extent employed in garden development and management. They are the vulnerable group in this process.

4. Explaining performances of the strategies

The main aim of this study was to compare the performance of strategies for preservation and sustainable development of green open spaces in peri-urban areas between countries under different policy regimes. The concept of policy arrangements was adopted for this purpose and further operationalized by developing a simple scoring system.

The approach allowed to identify differences between the three regions and the four strategies analysed. The highest overall score was achieved by the Scheme of the Montpellier Agglomeration (8 out of a total of 10 points). Only for multi-actor governance and cultural embedding the strategy did not score. Simultaneously the Scheme was considered very successful by the case study researchers (Jarrige et al., 2013). The complementarity between regional and supra-regional governments in terms of means of influence over local municipalities, which are all in support of the objectives of the Scheme, can explain the success of the strategy in steering urban development towards preferred locations. The Association of the Agglomeration has become the most powerful government body, even more powerful than Montpellier city. It is a sign of this strength that the Association now consists of directly elected politicians. Involvement of the public and business was limited to public enquiry and representation in the Social and Economic Council, on the other hand. However, this did not seem to hamper the success of the Scheme.

Compared to the Parthe Floodplain coalition and the Green Corridor strategy, the stronger impact of the Scheme can be explained by its strong vertical governmental adding up of legal, land and financial policy dimensions aimed at preserving green open space. Both the Scheme of Montpellier and the strategies in the Leipzig-Halle region promote the landscape discourse, putting green open space central as a resource for both urban and rural development.

The reference by the regional planning association for the Green Corridors to the discourse of the Strategy for the Floodplains of Parthe river helps to gain support for the Green Corridors from the public. The case study researchers named this 'synergy', which we can interpret as complementarity between strategies in a same region, or making use of the means of influence of another strategy.

The absence of farmers in the Parthe Floodplain coalition may, like in the Montpellier Agglomeration case, be an explanatory factor for the negative developments for the farming sector in the region. We expect that a wider coalition, involving other types of actors than the governmental ones only, can contribute to better care of the interests of these actor groups.

The Green Corridors strategy obtained a score of 7 out of 10, being weak on financial and land resources. On knowledge and human resources no data were available. Funds can be obtained indirectly via regional development funding, but this financial support of Green Corridors is not sufficient to release the pressure from industrial/commercial investors, in particular under the conditions of a shrinking population. On the other hand, the Scheme comes with the financial resources and this might explain a great deal of the difference in success between the two.

The Parthe floodplain cooperation strategy is also not equipped with lasting financial resources and competences, for land use planning are still in the hand of the individual municipalities. However, the strategy creates synergies in terms of sharing qualified personnel and providing services in the field of landscape conservation and management, project management and application for funding, involving non-governmental organizations and business. The floodplains are valued by the general public, which can be explained by the constant reminding of its nature values, the discourse that accompanies the strategy. However, resilience of the strategy and protection of the Parthe Floodplain are not ensured due to the absence of embedding of the strategy in legislation. The consensus base and contractual agreements do not seem sufficient. Moreover, the Parthe floodplain did not form a coalition with higher-level government and lacks integration. In comparison, the Scheme of Montpellier Agglomeration is embedded in a multilevel hierarchical government, which seems to make it more influential and to coerce spatial integration between sectors

European partners in the PLUREL project were amazed by the radical approach taken for wetland restoration in Xixi enabled by the top-down planning of Hangzhou government. The displacement of the urban core of Hangzhou city to the other side of the river is another striking example of the power of Hangzhou government (Spiekermann et al., 2013). These outcomes are impressive. The protection and restoration of the wetland area will provide long-term benefits to the strongly growing city region. The successful (ab) use of the rules deprived farmers from their traditional livelihood, but provided Hangzhou City with the necessary land to promote polycentric development. Financial resources were invested, paying relatively high compensation rates to farmers, to reduce negative consequences for them. Yet, European partners wondered whether another model for development should have been adopted to integrate part of the farmers in the wetland park with ecological farming, instead of creating a museum like landscape. Certainly, the win-win discourse contributed to the integration of environmental and economic development standards but it was not politically used to increase influence by allying with other groups.

For Hangzhou, the circular economy provides for financial sources whereas Parthe Floodplain is weak in this respect. It might contribute to resilience of the Xixi strategy, compared to uncertainty of success of the Parthe Floodplain strategy for the long term.

5. Conclusions

European research on governance of environmental problems faces a scientific challenge when practitioners from different member states of the EU ask for comparison between case studies from different regions. Various attempts have been made to distinguish between planning families, landscapes and/or cultures for this purpose. Yet, also approaches are required for analysis of strategies that are employed in the various political and cultural contexts. We propose that the adoption and further elaboration of the policy arrangements approach (Van Tatenhove et al., 2000, Arts et al., 2006) can contribute to social learning in the field of land use policies for preserving green open spaces in the peri-urban. We used the concept to both describe the wider policy environment and the regional strategies and explain their influence at the level of municipalities.

The approach used in this research allows identifying the actors, rules, resources and discourses to influence land use decisions at different levels (e.g. regions, state). This all makes the concept suitable for comparative research of strategies for spatial planning between countries with different policy regimes where these means of influence are often differently spread between government levels.

The distinction of different constituents per dimension and their rating allowed to express differences in strengths of each policy dimension between the strategies. Of course, the scores had mainly illustrative meaning. However, they facilitated comparison between and understanding of the different and often complex approaches to governance adopted in the case studies. In particular, they allowed to explain the performance of regional strategies and how this was influenced by the horizontal or vertical adding up of policy dimensions.

The PLUREL case study research was designed to find out which modes of governance and communication between the relevant parties across different levels of decision-making are effective to develop sustainable land use systems in the peri-urban. The Montpellier case showed that the horizontal and vertical coalition/cooperation between governments and adoption of a Scheme for Territorial Cohesion, following a tight web of rules and regulations has effectively limited sprawl and steered urban development, even though coalitions between governments and CSOs, NGOs or business were absent. These groups are just informed by competent communication officers. Also in the Leipzig case the Green Corridors were in fact imposed by the Saxon state. Again this linkage between government levels, where the higher level or wider policy environment is very meaningful in steering land use developments at the regional and sub-ordinate level.

The results stress the importance of a governmental way of planning in which the Rules of the Game are finely tuned towards control of land use developments and with coalitions between governments that tap the jurisdictional powers of the different governmental levels. They do not have to possess the land resources. National law and policies should coerce such coalitions at the level of the FUR and enable these coalitions to acquire the necessary financial resources. Moreover, we recommend a comprehensive plan at the level of the FUR for managing the land use development of the urban fringe and its green areas as binding guidance to lower level zoning plans. It can coerce integration between sectors as seen in the Montpellier case in relation to green open space: it enables spatial and substantive linkages between housing, infrastructure, sources of economic growth and creates win-win situations in relation to green open space. Importantly, awareness among the public is raised.

In terms of substance of the strategies and wider context different discourses were developed and purposely combined to gain influence, inform the public or raise awareness. In particular in the Montpellier case the discourse on landscape as a central vector for sustainable development proved to provide common ground for parties with otherwise conflicting interests. While discourses thus need to be considered as an important dimension of strategies for protecting and developing multifunctional landscapes in peri-urban regions, the case studies also show that resources and means of enforcement are required, to effectively protect green areas.

Based on the above studies we are tempted to say that the misfit between environmental problems and governance scale concerning urban growth and the preservation of ecosystems is rather a result of inadequate policy in real life – such as the Agglomeration of Montpellier not covering the FUR – and not a result of failing knowledge. With the increase of daily commuting distances, the FUR increases and with it the size of the area for which regional cooperation between local municipalities is needed. Therefore, new municipalities should join the regional authority. This demands a flexibility that cannot easily be achieved, considering the vested interests of established authorities.

We showed how the concept of policy dimensions can be further related to actions that are well known to practitioners: legislation, establishing procedures, investing budget, attracting personnel with specific skills, using visualisations of plans and attractive writings to promote policies. The approach is rather practical and easy, provided that the necessary data are collected. This makes the concept of policy dimensions meaningful to bridge a communicative gap between theory and practice, a gap that is mentioned by Kok and Veldkamp in 2010. The policy dimensions pay attention to the institutional, jurisdictional and spatial scales at the different levels, as shown in the case studies, and provide insight in the complexity of governance, for which Termeer et al. (2010) suggest new knowledge is required. We suggest further experimentation with a rating approach to explain impacts, to compare and to ultimately suggest policy improvements in practice.

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“ Policy innovation by and for non-state initiatives in green open space”

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Tables and illustrations can be found after the list of references and appendix.

errata:

The headings of table 2 and 3 have been exchanged:

The heading of table 2, on page 135 should read “Results internet scan Designing Nature Project”.

The heading of table 3, on page 138 should read “Citizens initiatives and their means of influence”.

Policy innovation by and for non-state initiatives in green open space

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Abstract

Short tile: Non-state initiatives in green open space

The aim of this work is to compare initiatives by Dutch citizens and 'social enterprises' for nature to those of the state and to identify how the state can support such initiatives. We base our analytical framework on the Policy Arrangement Approach (PAA) and formulate recommendations for policy support and innovation by authorities. The study shows that compared to the state, the citizens and social enterprises almost naturally integrate between sectors. They contribute and share own resources, adopt not-for-profit principles and share benefits. They attribute a broader variety of values to nature and enrich the meaning and use of green open space, responding to their own wishes and those of (part of) the local community. We recommend a formal policy discourse that includes non-state local initiatives, to diminish internal barriers within the authority offices and not to support initiatives that can only be sustained at high costs or don't have the support of the neighbourhood. The PAA shows useful for explaining the differences in outcomes between non-state developed green open space and that by the state, and to formulate recommendations.

Keywords: Green open space, nature, governance, policy innovation, policy arrangement approach

1. Introduction

Over the last centuries, more and more responsibilities have been entrusted upon the state and a specialization of policies has taken place in Western Europe, also for green open space. More recently, at least in the Netherlands, there is a counter development to share part of these state¹ responsibilities with companies and citizens and their organisations. Over the last thirty years thousands of initiatives of citizens and small social companies in green open space have emerged in which these non-state actors take responsibility for developing and managing green open space and use. Aalbers (2002), Aalbers and Bezemer (2005) and Ruiters de and Aalbers (2005) found that part of the citizens –children, immigrants, mothers with children and less mobile citizens –would appreciate other types and spatial layout of green open space in their neighbourhood, than what was

offered by the local authorities. They prefer more colourful green open space, less 'natural', less 'general' in appearance and use, and more accessible. From 2011 to 2013 we have studied initiatives that citizens and small social companies² have taken to develop and manage (urban) green open space, and the formal policy context for those initiatives.

Our goal is to contribute to a deeper insight into the practices of non-state initiatives at local level and what can be learned from this to promote policies that are both inspired by these initiatives and that support or enable them. We answer the following questions.

- a) What are the practices of these citizens and (small social) companies? How do

¹We use the term state interchangeably with authorities; it can be the national or local authority.

²We define social companies or social enterprises as companies that adopt not-for-profit principles or use their resources, benefits or profits made via commercial activities, at the benefit of nature or society. In our examples it was mostly one-person firms.

these compare to those of the state and especially of local authorities in general?

- b) To what kind of green open space and use do these local initiatives lead? How do these compare to those which the state and local authorities generally produce?³
- c) How could the state and especially local authorities support these initiatives?

2. Material and methods

2.1. Material: three studies into local non-state initiatives

We base ourselves on the material of three research projects, subsequently: *a non-state actor research (Nature Next Door)*, *a scenario study (Designing Nature)* and *a policy advisory study (Nature in the Hands of People)* and some sixty in depth interviews performed in the context of these three projects (Table 1). *Nature Next Door* (Luttik *et al.* 2014) is an in depth study of 12 citizens' and social companies' initiatives in green open space. These initiatives were selected in 2012 by the Nature Next Door campaign on the basis of two criteria: Does the initiative unite people? Does the initiative bring people closer to nature? The interviews (Appendix 1) were semi-structured. Among the 25 interviewees were the 'initiating'⁴ citizens or social entrepreneurs, local municipal officers, employees from housing corporations, a care organization, and a home for the elderly, as well as a social worker and teachers of a local and a regional school. This project material helps to answer the question what the practices of these citizens and companies look like and to what kind of green open space and use these initiatives lead.

Also the second project, the scenario study *Designing Nature*, provides insight in practices and in what types of green open space and use can be realized or imagined. *Designing Nature* focused on two scenarios of the Netherlands Environmental Assessment Agency. In one scenario the citizens' perspective is central, in the other the business' perspective. An internet scan by this project provided insight in the number and character of existing business' initiatives in relation to nature and uses of green open space (Table 2). Interviews of different actors revealed what meanings nature can have for different people with different cultural backgrounds: a forest officer; foreigners living in the Netherlands; Dutch expats living abroad; and initiators of green projects. We reflected upon new meanings that a

different type of green open space and nature policy could have in solving problems in three Dutch regions –a rural region, a national nature reserve and a low-income urban district. E.g. for the low-income urban district: urban agriculture, fishing in a drainage channel, wood production in the city could contribute to food, fuel, materials and employment. We discussed these with local authorities and other experts, including a national civil servant, during a workshop (Anonymous, 2012). Again we interviewed companies and citizens, inquiring about their wishes and needs for green open space and the division of roles between the state and themselves. Finally, we reflected on the policy context needed for these different forms and uses of green open space that depart from the citizens' and business' perspectives. We conceived different policy contexts: the current policy arrangement in which local authorities are (still) central; an arrangement in which local authorities facilitate initiatives of citizens and companies; and an empowerment arrangement in which citizens and companies obtain far reaching means of influence from authorities or lay hold on these means: they (are permitted to) define rules, use resources (especially land, own money, paying less taxes) and they form coalitions to their needs within their own neighbourhood, developing and managing green open space according to their own wishes. We interviewed five senior officers and experts to evaluate these settings. These last materials together with those of the following project help to answer the question how to support the non-state initiatives (De Haas *et al.*, 2012, De Haas *et al.*, 2013, De Haas *et al.*, 2014a).

The third project, *Nature in the Hands of People*, is a policy advisory study, focused on the development of skills, knowledge, tools and methods needed to facilitate a transition from state driven nature management towards nature developed and managed by citizens and companies. We interviewed eight persons, mainly representatives of ministries and state organisations but also of a national volunteers' Civic Society Organization (CSO) and an entrepreneur (De Haas *et al.*, 2014b).

2.2. Method: analysis on four dimensions

To compare the three studies we used the four dimensions of the Policy Arrangement Approach (PAA) as analytical framework (Arts *et al.*, 2005). The PAA is a method for integrated policy analysis that distinguishes and combines four distinct dimensions of the allocation of power over different actors in a network. We use the four dimensions to analyse and compare the various practices of citizens and social enterprises as well as the policy context. The policy arrangement approach is more often used for environmental policy and management studies, e.g. by Stassen *et*

³We use the terms 'nature' and 'green open space' interchangeably in this article.

⁴In two cases the word citizen's 'initiative' might be considered incorrect since the intense involvement of formal parties dominate and the ownership of the initiative rather lies with the latter.

al. (2010), Van Gossum *et al.* (2011) and Wiering and Arts (2006), Aalbers and Pauleit (2013), and Buizer (2008), but also in the field of health and other policies. We apply it here to citizens and business initiatives and their policies for local green open space, which is new. Green open space (or '*landscape*') is the result of the interaction of actors with their natural environment. In this interaction the actors employ means to change their environment and to influence the actions of others.

Arts and Tatenhove (2005) define a *policy arrangement* as the temporary stabilization of the content and organisation of a policy domain. They describe and analyse the policy domain with the aid of four dimensions: the rules of the game; the resources; the actors and their coalitions; and the discourses. We use these dimensions for describing a temporary state within a dynamic situation of social practices of continuously rearranging power balances between actors. Moments of rest are only temporary and the points of departure for next steps, i.e. an evolving arrangement. For this, especially the dimensions of the PAA are relevant. We interpret them as means of influence in an action situation, as means of power between all actors. We use the four dimensions to spell out the practices of the non-state actors and to compare these to those of the (local) authorities. Over the past centuries responsibilities to develop and manage green open space have been entrusted upon the state and it shapes the context for citizens and social companies' to act in relation to this space or nature. Herewith the state defines the room for initiatives in terms of developing, managing and using this space. Thus, both the means of influence of citizens and business as well as of authorities can be described by using the four dimensions. And finally we can also use these to describe how the state can change the context in order to support non-state initiatives.

For answering the questions about the kind of green open space and use which the citizens and small companies produce, and for comparing these to that which the state produces we make use of descriptions, photographs and existing literature. (Aalbers, 2002; Aalbers and Bezemer 2005; Ruiter de and Aalbers 2005).

We now briefly describe the four dimensions of a policy arrangement:

Rules of the game define the ways actors should behave, and consist in legislation and regulations. They include the rules imposed by the (local) state that enable or forbid citizens and companies to develop, manage and use green open space. They also define how issues might be raised, policies formulated or decisions made. In general, actors constantly draw upon rules that provide them with

guidelines to act properly and legitimately. Rules can also be informal, like cultural norms for what is accepted or appropriate behaviour between participants in an initiative (e.g. what they are allowing each other to do or not in a garden? what the working hours in the garden are?). They represent the way the citizens and social entrepreneurs cooperate, the cultural dimension of their practices and, they help us to identify the room for action for actors and how responsibilities for space are organized between the state, citizens and entrepreneurs.

The second dimension includes the *resources*, such as the control over land on which green open space is developed, managed or used (e.g. in ownership, in lease), financial resources (own money, crowdfunding, subsidies from the state). We also include knowledge (expertise or skills), labour (digging ditches, pruning) and materials (own gardening tools) as a resource that citizens can use to realize their initiative.

The third dimension is the *policy coalition*. It represents a group of actors who share the resources or the interpretation of a policy (see under '*policy discourse*') and policy goals, and who come into action to reach those goals, for our cases in terms of shaping and using green open space. Some actors strategically form alliances with other influential partners in order to complement their own means of influence with those of the other, for instance with journalists, experts in green management or landowners. The coalition comprises the citizens or social companies and their contacts that cooperate to develop and use green open space.

Policy discourse refers to the policy goals, the wishes and attribution of meanings to green open space, '*a specific ensemble of ideas, concepts...*', produced and reproduced through media and transformed in a '*particular set of practices through which meaning is given to physical and social realities*'. This '*naming and framing*' of issues forms the substantive dimension of the practices and describes the wishes of citizens and companies with regard to green open space and how they think this green open space should be realized.

This description is based on Arts and Tatenhove (2005), but reformulated and added to. We see the four dimensions as aspects of dynamic social practice, more than aspects of static arrangements. In this way we reinterpret the PAA as an action oriented method (Aalbers and Pauleit, 2013) In the following text we will therefore use the terms '*means of influence*' and '*means of action*' instead of '*dimension*'.

3. Results and discussion

3.1. Results (Tables 2 and 3; Appendix 2)

We now describe the four means of action used by the citizens and social enterprises. The interviewed citizens and social entrepreneurs also referred to the formal policy context within which their initiatives take place, especially in terms of rules of the game and resources offered by the authorities. Therefore we also describe these dimensions of the formal policy context below. They are shaping the room for action for non-state actors but also relevant for the comparison between state and non-state practices.

a) What are the practices of the citizens and social enterprises?

The *discourses* of the initiators promote sustainability, connecting people, and the notion that food does not grow in the supermarket. They couple (events in) personal life, experiences and skills to nature. Other notions in the discourses are about taking care of the environment and each other; gardening together; permaculture, organic shapes of plant beddings; producing flowers and food for a social purpose; involving disabled, addicts or ex-prisoners; and raising funds for a good cause. The 28 business initiatives in green open space studied by the Designing Nature project furthered a variety of meanings of nature through different uses, but nature was also promoted for being cool, for excitement and to be preserved and respected. Environmental protection was often suggested in parallel to this, coupled to uses like nature walks and other forms of education. The interviews in the Designing Nature project confirmed this variety in wishes and experiences with nature. Some citations: i) we don't go for the quantity but the quality, quality of life, liveability, a meeting place for the village, a school, beautiful landscape scenery, recreation facilities...; ii) the ecology of the plant goes also for a human being...; iii) Nature is internal balance, quietness; iv) As a child, I climbed in the trees in the wild backyard of the neighbours...; v) I was attracted by the quietness, the fun, the challenge of nature...; vi) Nature was important for my personal development vii) Doing, thinking and being able, the processes of the natural system, the fine motor skills needed when you want to determine what the type of plant is, but also the psychological side of nature...; viii) How vulnerable you are, about your strength getting through life...; ix) A forest is very big, it gives you shelter, but you can also be afraid if you enter it about whether you won't get lost; x) I prefer to not interfere with nature and take it as it is. And finally, by a Dutch gardener in Italy: *"Here in Italy people collect much from nature, everyone is mad about mushrooms. These are collected from the verges along the roads. Also wild asparagus and pine tree seeds are collected. In the Netherlands, I have never seen this. In the Netherlands each tree in the street is registered.*

Here they pass by only once in ten years and they cut all branches that are in the way..."

In all three projects the interviewed state officers expressed the meaning of nature for quality of life. A health insurance officer said: *"Quality of life is part of our mission. We try to raise people's awareness about the impact they can have themselves on their own health and their living environment and the food they eat, with the hope that they will pollute less their own environment, and this impact on their environment also works out positively for society. Nature offers children the possibility to discover and to play. The value of nature is immaterial and not always easy to identify."*

In terms of *resources* in general: 9 initiatives of the Nature Next Door project predominantly lean on resources of the citizens or small social enterprises. The knowledge resources and labour in terms of construction-, management-, fundraising and communication work, facilitation of group visits and organisation of events, are all taken care of by the citizens or social companies. They also contribute own materials or re-use materials (Mobile Garden, Care Garden, Railway Garden Delfshaven, Inside-out-Forest). In these initiatives the authorities are hardly involved or just one partner within the coalition. 3 initiatives of Nature Next Door were however highly dependent on especially financial resources provided by the (local) state, housing corporation and/or care organizations. E.g. the Inside-out-Forest obtained a LEADER subsidy of several hundred thousand Euros, which by-the-way increased the burden on the initiators. In the Tilburg and Venray cases there is –in contrast to the Inside-out-Forest– weak participation of residents. In Venray the external institutions are numerous (Table 3) and the initiative depends heavily on public money, being subsidized by the municipality and supported by employees of companies also paid by the municipality. It also contributes materials like tiles and plants and own staff and awards the initiative. In addition the housing corporation is intensively supporting the initiative. Thus, in the Tilburg and Venray cases the ownership lies for a substantial part with these external actors and less with the citizens who only started the initiative by expressing their ideas.

Further, as concerns the *financial resources*, some social enterprises (e.g. those involved in the Mobile chart, Food for Good, Inside-out-Forest) say they have a social approach: they do not intend to make profit and will go on with the initiative in this way *'as long as we can pay our bills at the end of the month'*. Internet research on the coalition partners of the other initiatives showed that also profit oriented companies, e.g. with market tariffs, strict and formal contracts

with commissioners and clients, and well paid staff are involved in some of the initiatives. They are contracted by (groups) of local authorities, also for finding paying employers for the disabled. At the same time also some of the companies who say they are more socially motivated –and we don't put this in doubt– also (try to) make use of external funding, like from care organizations, local authorities or national programmes. Thus the companies are paid for their involvement, but some with (more) profit (than others). From the interviews it appeared that voluntary initiatives can also evolve into commercial activity when the initiators find out that the initiative takes so much time and work that he/she needs to get an income from it. Thus the initiator becomes dependent on the financial resources of others for continuing and bringing the initiative further. In some initiatives, like the Garden in Town, the initiators are averse of paid employment because they fear it will distort the initiative and make them dependent. Interestingly, the Railway garden initiators develop a revolving fund from which new citizens initiatives can be started. (De Spoortuin, High Five, 2013). It makes citizens less dependent from financing organisations like authorities.

Concerning the *land resources*, 8 out of the 12 initiatives are on municipal land and, generally, leased by contract. In Diphooorn a farmer lends out his land for free to the citizens. In Gorssel it was not disclosed who owns the garden. For the mobile chart: it is parked on the premises of an old school leased by the initiating company. The gardens connected by the events around the mobile chart, are all on municipal land. In Makkum the land is lent out for free to the initiators, by the care organization who on its turn hires it from the housing corporation. The Garden in Town case is under pressure, now that the municipality wants to use the land on which the garden lies for other purposes. The initiators are now campaigning to raise support and preserve the garden.

As concerns the *human resources* the initiatives display a strong sense for the need for involvement of human resources with complementary knowledge or skills. They combine communicative talents with knowledge of plants, of green management and construction, and creativity. The availability of these human resources within the core group or second circle of citizens or companies, and the direct and informal communication habits enable the initiators to tackle problems rapidly. In four initiatives the creative capacity was contributed by artists and designers within the core group (Figure 1). We noticed that the relations between vulnerable persons initially involved as target group and the initiators can evolve. The boundaries between them can fade when the first feel more self-

confident as a result of their involvement and work in the project. Thus they gradually start to contribute labour, knowledge and ideas themselves and instead of target beneficiaries become contributors. This is quite a positive development in terms of social capital and growth.

When it comes to the different resources in the initiatives inventoried by the internet scan of the Designing Nature project, these initiatives do not sprout from the creative capacities of the users, but they are organized by entrepreneurs who expect the users to pay money for enjoying the services. Sometimes the initiatives take place on farmer's land, but often in nature areas that we expect to be mostly state owned.

In terms of *rules of the game*: among themselves the core group citizens and social companies hardly use written rules. Non-written rules are common: about time slots for working together in the garden, about avoiding bureaucracy, about the '*activist*' attitude of coming to action rapidly and avoiding barriers, about trying to solve problems via cooperation, not wanting to tell people what to do. Cooperation is appreciated, respecting each other's ideas and different capacities, sharing, caring for each other including those with handicaps or other problems, connecting people and avoiding prejudices. The local authorities, like in Venray and Tilburg, are also attentive to some of these rules or values but delegate their application to commercial partners.

Concerning the rules emitted by the local authorities: in the Railway Garden case a piece of land that residents wanted to manage was owned by another district local authority. This was a reason for the area not yet being developed nor used. When the residents pointed out that they wanted to develop and manage the area, this was allowed. A local officer took care –as '*ambassador*'– of part of the internal communication with the municipal sector offices to avoid regulatory and cultural obstacles by these offices. The officer used the argument that higher policy objectives of greening the city and participation of several aldermen can override the '*sector*' ambitions of one alderman who keeps land for profit making for the city. Another example of an intermediary officer making the way for an initiative was found in the Venray case. Here, a housing corporation officer took care of the communication with the different offices of the local authority, to the relief of the initiator who found this communication, the specific claims and procedures, demanding. The need for intervention of intermediary officers in both Venray and Railway Garden case illustrate that rules of local authority offices can hinder citizens initiatives.

Formal regulation of the use of municipal land by contract is common practice in the initiatives on

municipal land. Also, the municipalities stress the rule of public access to the gardens. In Venray, municipal rule demands a minimum of 70% public support among neighbours for the initiative, if initiators want to obtain funding from the municipality. The housing corporation in the Venray initiative suggested establishing additional rules, for the use and management of the garden. Another rule to which citizens have to adapt is the condition of funders or sponsors that the funds are handled properly which makes that the citizens need to start a foundation. The Designing Nature project did not study the rules applying to the activities promoted by internet. It is probable that in these initiatives rules do exist in terms of the conditions by the supplier and the legal rules applying to the nature area where the initiatives take place.

When it comes to the *coalitions* that the initiators develop: in most cases a core group or inner circle of approximately 4-5 people around one or a few initiators exists. Speaking in terms of Stone (2003) and Stone and Hughes (2002) this group can be qualified as the group within which bonding takes place and that fulfils a role to get *'through life'*, or for our cases, to get *'through the initiative'*. Several initiators expressed the burden that an initiative can become for an initiator: *'I have grown ten years older in three years' time'*. Also a second circle exists; it comprises the –often professional– networks of those in the inner circle, which contribute directly to the initiatives but less frequent and looser. (Figure 1) They do not carry the initiative but they help *'to get it further'*. They provide the connections to wider networks and initiatives elsewhere in the country or even abroad, and form the bridge towards other actors such as experts, funding organizations and media. For Tilburg and Venray this is not the case. Here the social workers of the institutions and companies paid by the municipality, and the housing corporation do this networking for the residents. Both Venray and Tilburg initiative are located in urban areas with low income groups and below average house prices (www.funda.nl). The local residents might not have the competences and contacts to get through the initiatives or bring them further on their own. Food for Good Utrecht is located in a similar environment and also presents a coalition with social workers paid with public means as well as care organizations. For several initiatives we found it difficult to define whether municipalities or housing corporation (for the Venray case) were part of the coalition or not, i.e. whether they shared the discourse. This was the case for Mobile Garden, Food for Good, Tilburg, Venray and Railway garden, all neighbourhoods with a below average income and house price level.

The twelve initiatives thus reveal different degrees of cooperation with local authorities and/or housing corporations. These range from hardly any involvement or tactical *'making use'* of the means of influence of these organizations by the initiators where the authorities or corporation become part of the coalition, towards strong dependency on them. Problems within the core group of actors were caused by initiators or supportive neighbours moving out of the area; by stress related to cooperation between individuals that have no experience with design, construction or management; stress related to uncertainties; the unexpected amount of work the initiative brings; and conflicts with neighbours disagreeing with (parts of) the initiative. These problems could partly be explained by sometimes (initially) limited knowledge and communicative competence⁵ and where at times solved when the initiative matured.

As concerns the actors that initiated the activities found on the web by the Designing Nature project, these are mostly small enterprises or NGOs who organized the activity as a commercial side task. Trainers, coaches, gurus, healers and artists but also conservation organisations offered the activities. Generally these are not working in a coalition but enterprises or NGOs acting on their own. New was the emergence of organizations that do not belong to the traditional nature conservation NGOs, e.g. health care organizations. The scan probably provides a select sample, as we presume that the non-commercial initiators invest less in communication via internet. Besides these commercial service providers we did not find information on any coalition partners in these initiatives.

Appendix 2 gives a more detailed description of the Garden in Town and the Food for Good projects, in order to obtain some more flavour of citizens and social companies' initiatives.

...how do these practices of citizens and social entrepreneurs compare to those of the state or more specifically, those of the local authorities in general?

The *discourses* of the citizens and social entrepreneurs differ largely from those of the state. Citizens and social enterprises' discourses on green open space are more integrative; they combine a variety of meanings and uses of green open space, and respond to their own wishes and often those of part of the local community. Discourses are centred on personal experiences with or in nature, linking between young and old and involving social groups with problems, like addicts, people with burnout or autistic spectrum problems. The citizens and social companies

⁵Competences = Capacity and skills

promote different values and approaches of nature at the same time, for one location. In contrast, according to one interviewee (expat state officer) Dutch authorities interpret “*nature in the sense of a habitat for plants and animals which has to be protected against the negative influence of human practices*”. Also, the state discourse generally refers to public interests in a sector way, though this is changing over the last years with the downfall (Buijs *et al.*, 2014) of the former nature policy that focused mainly on nature in terms of biodiversity and conservation.

Citizens contribute own *resources*, adopt not-for-profit principles and share resources and benefits and re-use materials. State financial resources are defined by law and strongly restricted to politically accepted goals. The resources are distributed along the lines of sectors. They use public money, not own money. Citizens and social entrepreneurs have good knowledge of the local situation, they have the knowledge in their place, the shared place of their everyday actions (Birgersson *et al.* 2001), e.g. they are aware of wishes, uses, problems and local social needs. The knowledge of the authorities is generally more disciplinary or related to one sector only, technical and less intensely local.

The *rules of the game* in the citizens and social enterprises’ initiatives are informal and cultural. They are generally non-written and favour cooperation, coming to action rapidly and solving problems through cooperation. Those of the authorities are written and formal, established through the time consuming consultation processes that come with representative democracy and along sector and technical lines.

Concerning the *coalitions*, citizens and social enterprises involve different expertise which helps them to almost naturally integrate between sectors: people with pedagogical background, artists, communication specialists, plant experts, etc. They combine different capacities in their core group. They involve weaker groups in such a way that they start to feel better, sometimes even become contributors of resources, developing and using a green open space in response to their needs. For authorities and their sector departments it is much harder to cooperate since sector lines and sector heads dominate. The sector-organized (local) authorities’ offices were said to work alongside but not with each other, and to hinder innovative initiatives, according to the interviewed state officers.

The above described different discourses, rules, resources and coalitions employed by the citizens and social enterprises can be seen as a bottom-up form of policy innovation for nature or green open space.

b) *To what kind of green open space and use do the initiatives of the citizens and social entrepreneurs lead?*

The initiatives awarded by the *Nature Next Door* project produced a variety of green open spaces, such as an automobile chart with a green house on top that is driven from one garden initiative to another, evoking interactions between young and old people and different cultures; a modern farmyard where children can practice crafts with products of nature and gain confidence in their own problem solving and creative capacities; beddings or planters with vegetables and herbs at working level for the less mobile people; vegetable gardening for and by residents of a home for the elderly where new residents can come and transplant their own fruit tree; vegetable production for the food bank; and tunnels made of willow branches. These areas are mostly developed with no documented design, details or budget: just ‘*finding a place for a new idea*’ or ‘*plant*’ (e.g. Makkum, Inside-out-Forest, Railway Garden), without budget (Railway Garden). In the home for the elderly there’s the idea to let the elder cook with the vegetables they grow themselves (Makkum). The initiatives link the elderly with children through encounters in and around the garden and young parents can come and plant a tree when a baby is born (Makkum).

In the project *Designing Nature* (Table 2) we did not collect data on the kind of green open space that was created by the initiatives. Concerning the kind of use we could however identify six categories on the basis of the internet scan: 1) nature as source of information, 2) as source of mental restoration or recovery, 3) as source of production of food or material, 4) nature as environment for physical exercise, 5) for study and 6) for education. The first category includes the use of nature as source of inspiration to come to creative expressions, self-reflection and thinking about the existence and being of man. Under this category we could also include the thinking about the alliance and the struggle between man and nature. We distinguished study from education as sixth category, since the latter implies a teaching situation between the ‘*knowing*’ and the ‘*receiver*’ which can imply that the authentic experience of nature by the receiver is limited to that of the ‘*knowing*’. The use of green open space in these initiatives exceeds passive enjoyment. It comprises also active contribution and shaping and the enjoyment related to being active, seeing the results of one’s action. The green open spaces are used by a diversity of groups: young, old, parents with children, indigenous people, immigrants, and people with physical or mental problems. And often they use the green open space together at the same time.

... And how do the green open space and use in these non-state initiatives compare to those of the state?

Some interviewees state that they want to develop 'less boring' green. The citizens' and business' initiatives in the three projects are integrative: they link nature to society, connect people and involve different expertise in their core group. They promote a discourse on society, on nature and on non-profit cooperation and apply it to one and the same place. It seems especially the difference in discourse that leads to the different type of green open space that the citizens and social enterprises develop. It differs in terms of scale, identity, it responds to what the involved local residents' desire, developed in a generally low cost approach, involving and serving people, often without designs, nor technical standardized specifications. Often the gardens are a bit messy, because of the work in progress or a different maintenance regime from that of the state.

In Tilburg, Venray and Food for Good cases (see photographs 1-4) we saw a more substantial role of the municipality and Housing Corporation and in the Venray case the more general type of green open space with much stony surfaces. The fences that can be seen on the photographs for Venray and Food for Good were delivered by the housing corporation respectively the local authority. Photographs 14-18 show public green open space in Rotterdam-Zuid developed by the local authority. The photographs 5-13 show the green open space from the initiatives of which the ownership lies predominantly with the citizens or social enterprises. In contrast to these, green open space by the state is more a decor, with less variation in species of shrubs and trees, more fencing, lawns and pavement. Thus the citizens and social enterprises contribute to an innovation in terms of green open space.

c) How could authorities support these initiatives?

The respondents we interviewed on the policy context for non-state innovative initiatives have in common that they think that there is a need for a more supportive policy context for citizens and social companies and their actions (Table 4). The remarks hint at all four means of influence that the state has at its disposal. But they are predominantly related to the formal policy discourse. Its main objectives are disputed. Communication is central to policy innovation around green open space, since (new) ideas and visions are expressions of culture and culture comes through the process of communication. 'Social power' [influence] in the network society operates primarily by the construction of meaning in the human mind through processes of communication. When local authorities however hire firms to intervene on their behalf, the

opportunity for shared construction of meaning between authorities and public is foregone (Castells, 2011). The support of local authorities to citizens and companies' initiatives in green open space provides an opportunity for improving the legitimacy of local authorities in the eyes of the citizens and social companies involved. We suggest that, in order to support non-state initiatives in green open space, the formal policy discourse includes the support to initiatives of citizens and social enterprises. Secondly, the local state should be clear in what the overarching principles for all municipal policies are. Now the moment the benevolence of one officer willing to overrule a sector policy can be essential for an initiative to proceed. Thirdly, the initiatives we studied show plenty of details that can be drawn from for policy discourse innovation, especially concerning green open space at neighbourhood level, in terms of values and use, in terms of rules of cooperation. And fourthly, a formal policy discourse that supports non-state initiatives should also include the objective to diminish internal barriers within the authority offices. This can help initiatives, like shown by the Inside-out-Forest, Railway Delfshaven, Venray Bach garden, that bounce into internal cultural rules and procedural barriers within the authority. In the in depth study on citizens management of green open space in Utrecht (Aalbers, 2002) this was already noted. The usual division of responsibilities over different sectors and different politicians should be reconsidered with an eye on integrating the different meanings of nature in local policy. The internal barriers should be broken down. Between the offices *coalitions* should be welded under the heading of shared discourses between offices that are consistent with each other and not contradictory. At present one local authority can practice contradictory discourses (Aalbers and Eckerberg, 2011). The citizens and social enterprises can feel excluded and authorities can form coalitions with them instead of hiring consultants, to formulate a policy discourse together that integrated both the local knowledge and other resources of the citizens and social enterprises with those of the authority.

In terms of human *resources*, officers with an open attitude towards non-state initiatives are needed (Aalbers, 2002; Attwell and Jensen, 2002). In several of the Nature Next Door initiatives we noticed that officers took care of the internal communication between the different municipal sector offices, to avoid regulatory and cultural obstacles to the non-state initiatives. This can be considered positively, but it is also a waste of human resources. Better would the offices be working in a consistent and constructive manner 'with each other' and not needing ambassadors for the public they should serve. Aalbers (2002)

describes in detail how this has been properly arranged in Utrecht by the instalment of district offices where the districts officers are easily accessible for the public. The non-state actors easily use different human resources in terms of expertise and competences. It helps the initiators to gain momentum and tackle difficulties rapidly. Such cooperative practices of people with different human resources should inspire and teach authorities.

Also financial resources, like subsidies or spending on materials or management activities that can release the burden on initiators can be considered to support the non-state initiatives. This can be the share of the authority in the coalition. It is however recommendable that local authority assesses the viability of citizens and companies initiatives and their benefits and identifies the required resources needed to support them, comparing the latter with public spending on the traditional design and management practice and its benefits. We recommend not supporting initiatives that can only be sustained in a costly manner or that don't have sufficient support of the neighbourhood. Especially in the case of Venray, organizations seem tumbling over one another and the local authority is paying, rewarding and supporting the initiative and contracting companies to support the initiative as well. We wonder whether in the end it would not have been more effective just to have municipal officers construct the garden and maintain it. The Right to Challenge in the UK provides an opportunity to non-state actors to prove that they can provide more value for money than the state. If this is the case –and this should be assessed by an independent body, not the state itself –then resources can be entrusted upon these non-state actors.

When the legitimacy of the actions of the state is at stake, the rules as means of power of the local authorities are also at stake. Several respondents feel that the *rules of the game* are now at times abused by individual officers to block initiatives, are too demanding and reverted to because of lack of trust in citizens. The state should avoid that the specific claims and procedures become too demanding for any initiative. In a trustful coalition between the state and the non-state parties, rules might be reconsidered and the partners can informally agree on sharing or delegating responsibilities, as shown in for instance the Inside-Out-Forest, Railway Delfshaven or Cupidogarden. Officers in Inside-out-Forest and Railway Delfshaven cases take a flexible and open stance and try to find ways to avoid the application of regulations. In this respect, Flyvbjerg (2009) hints at *'what a culture, including cultures of planning, becomes capable*

of when it ceases to define itself in terms of explicit rules...'

3.2. Discussion of the Action Oriented Approach

The action oriented use of the PAA has helped us to describe daily practices of actors in a systematic and understandable manner. The four means of influence are meaningful because they helped to explain the different types of green open space and use that result from these initiatives, compared to those from authorities. The discourse, the rules and the composition of the coalition and the knowledge resources in this coalition, were very useful for this. We could also use the means of influence to explain why certain actors have difficulties to get through an initiative or bring it further, linking the concept of coalition to for instance the theory of Stone (or to Healey's *'Relational Webs'* or Innes and Booher's *'Networking Power'* (Innes and Booher, 2010).

The Action Oriented Approach (AOA) can help to identify which means are within reach of different parties: e.g. we saw that in neighbourhoods with low income and low education essential means of influence for taking initiatives in green open space are unlikely to be found among the residents. These neighbourhoods are not only weak in terms of the required knowledge and financial resources; they are even dependent on the state for forging the coalitions needed to take an initiative further. By the way, this puts the citizens' initiatives in another light: returning responsibilities for development and management of green open space to local residents can lead to social exclusion of quality of life in certain neighbourhoods where the residents aren't able to develop and manage green open space. And finally the means of influence have helped to explain the performance in terms of Sustainable Development of the non-state initiatives in comparison to those of the state: being able to rapidly link different knowledge resources from different sectors, compared to the absence of interdisciplinary coalitions between the state offices, as mentioned by the respondents. Also, the absence of formal rules in the non-state initiatives, whereas they form hindrances in the formal practices of the state, gives the non-state initiatives a competitive advantage. Hence we expect that the categories are useful for systematic evaluations of chances to success of non-state initiatives. We could also use the approach to specify the needed support to non-state initiatives in a systematic manner.

For some of the initiatives of the Nature Next Door project we had difficulties in deciding whether we should consider the municipality as part of the coalition of the citizens or social company initiative. If we include local governments in the citizens' initiative it is not

sound to make a comparison with governmental initiatives. This problem solves itself, because the local government cannot be seen as one single actor. Local authorities can present many faces (Aalbers and Eckerberg, 2011), which should be an integral part of the coalition dimension of the Policy Arrangement Theory. When political interests and one or more sectors of the state hinder initiatives of residents or social companies or when formal community interests at higher level differ from interests of local citizens, a communication officer can contribute to overcome these institutionalized barriers, as several of the cases showed (e.g. Railway Delfshaven, Makkum, Garden in Town, Nature in the Hands of People). In these situations an individual officer can be considered part of the coalition with the citizens/social enterprises. When the state and non-state actors however share the central values of the discourse, their interests coincide and their means of influence can naturally merge. In this situation it becomes difficult to divide between the state and the coalition. In fact the logic of political action between authority and public than become irrelevant. This is of course a desirable situation in which the responsibilities are divided between authorities and non-state actors and the subsidiary principle applies: doing at each level what best can be done at that level: citizens and companies taking care of part of the responsibilities where they can, the state playing its role only where it is needed.

The discourse relates very closely to the cultural rules: culture comes through the process of communication. And, what is allowed, or considered legitimate, depends on the discourse and the values it communicates (Castells, 2011). Nature gains in terms of meaning for the public if it expresses or realizes the values that people adhere to. The sharp inclusion of culture under the rules of the game tightens the discourse to the rules. The sharp distinction between substance and organization in the PAA might be relevant for the study of relations of power and become irrational if parties share values and interests: all are in the coalition; coercion of rules becomes unnecessary since they are culturally shared, together with the resources and benefits are shared. Within the citizens initiatives this situation can be recognized between the citizens in the coalition.

4. Conclusions

The initiatives of citizens and (social) entrepreneurs have clearly a unique character. Their practices can be seen as bottom-up policy innovation for nature or green open space. They innovate green open space and the use of green open space. On the four dimensions of the policy arrangement these initiatives differ from the general state's actions in green open space or

nature management, i.e., on discourse, resources, rules and coalitions. The citizens and companies formulate discourses that integrate the three pillars of sustainable development. They adopt and apply different cultural rules that are more informal. They share resources and integrate more diversity of human resources into the coalition. The authorities shape the policy context within which these initiatives can develop and at the moment the rules and the lack of internal cooperation between offices are still forming barriers to part of the non-state innovations. The formal policy discourses do not fit with the values and objectives of the non-state initiatives and hired consultants cannot replace the local knowledge of citizens and social enterprises. A (local) government can innovate its policies in order to create good conditions for local initiatives, e.g., in terms of improved cross sector cooperation, communication and flexibility in the handling of rules and procedures.

Local initiatives lead to a specific kind of open space, which is different from the open space managed by the (local) state. The open space from local initiatives is a used open space, differs on a small scale and sometimes a little bit messy. In contrast to these, open space by the local state is more a decor, with more lawns, fencing and pavement. The non-state innovations demand for policy innovations by the state that support them.

The action oriented use of the Policy Arrangement Approach has shown to be useful to describe the four dimensions of local initiatives. To study the dynamics between actors in and around local initiatives, we propose to develop it further into an action oriented approach (AOA).

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Appendix 1. Interview topics Nature Next Door

Interview questions Nature Next Door were centred on the employment of the four means of influence by the initiators.

1. Developing your own idea (on the own identity and objectives of the idea) (Discourse)
2. Make sure you have the support of neighbours (Use of the discourse to gather a coalition)
3. Own organisation (Coalition, resources)
4. Coping or cooperating with the local authority, the housing corporation (Coalition)
5. Cooperating with other organisations to stand strong (Coalition)
6. Working for specific groups (Discourse and resources)
7. Good leadership (Coalition)
8. Financial means for your initiative (Resources)
9. Tools and other materials needed for the initiative (Resources)
10. Land (Resources)
11. Technical knowledge about gardening (Resources)
12. Knowledge about rules and legislations and liability (Rules of the game)
13. Literature sources

Appendix 2. Detailed descriptions 'Food for Good' and 'Garden in Town'

Food for Good

Food for Good is an initiative of two foundations -Wending and Stadsbrug- and the municipal office for Nature and Environment Communication of the city of Utrecht. Foundation De Stadsbrug aims at the mobilization and re-integration of (ex)homeless and (ex)addicted persons in the city through the development of labour projects and services. The foundation Wending initiates and creates social green projects in several places in the Netherlands. Food for Good in Utrecht exists among others in a farm, an educative garden, an eco-zone, beehives, a toad pool and a garden house. The different parties share their objectives in terms of creating a vegetable garden in which vulnerable groups and neighbours can produce. At the same time the social objectives are important. The produce is delivered to the Food Bank where people can obtain food for free and a restaurant called Resto van Harte. Also the volunteers obtain part of the vegetables they produce.

Finances are obtained from several foundations, financial management corporations and other funding organizations and programmes, including a subsidy of the municipality. Part of the budget exists in health budgets from the state and the sale of vegetables and fees for excursions or the hiring of a meeting room.

It took quite a long time to find a proper piece of land for this initiative. Now the initiators have access to its use for an unlimited period. Foundation Wending is the main contractor for the land, measuring 7000 m². The project started end 2012. In order to enable the production and the guidance of all volunteers, including the vulnerable groups, a gardener is paid as coordinator.

From 2014 onwards vegetables will be sold or services will be demanded in return from the Food Bank and the Restaurant Resto van Harte. This way the project will become a social business at district level. These changes are needed because financial support comes to an end in October 2015 and from then onwards the project must be self-sustaining. Thus a new business model is needed around the creation of multiple values, which are the human scale, integration, contact with nature and food, a withdrawal of authorities, demolishing sector organization, do-democracy, circular economy, bio-based building, bio-mimicry and social entrepreneurship, e.g., obtaining social funds from the local authority for participation of unemployed and selling the harvest.

Garden in Town

The idea for Garden in town (Tuinindestad) in Groningen rose when a local garden centre, located on the edge of the centre of the city of Groningen, closed its doors. The two initiators approached the council to ask if they could use the site and the green house on it, to develop a neighbourhood garden and meeting place. Their initial plan has three core elements: green fitness, green playground and eco-building. After a series of meetings with the council they got permission to start in 2010. The initiative developed gradually. People dropped by, brought in their ideas and were given space by the initiators to develop these. One of the initiators focuses on the coordination of the internal activities, the other specialises in external networking. The volunteers contribute what they want to, each according to their own preferences and capabilities. The coordinating initiator checks if everything which needs to be done – such as watering plants –is done properly. Three organisations for after-school child care, a primary school and a community playground organization participate in the initiative. Also actively engaged are an environmental NGO, the council of the city of Groningen and various other (small) organisations and individuals. The initiators did not start out with a particular purpose; they wanted the initiative to develop freely. They attract visitors from neighbouring districts as well as the rest of the city of Groningen. They did not do anything specifically to attract people, they just started. People became curious; they passed by to see what was happening and joined spontaneously. This resulted in a wide range of activities such as gardening days, children coming to play, plant sales and exchange and cooking. They have a website and a newsletter posted on the website; they also communicate via social media. They have received a lot of attention in local newspapers and other media, especially since their site was claimed by the council as a building site. After a lot of debate, they were given permission to stay at least until 2015. This has seriously threatened their plans for Eco building: they were offered funding for building but could not proceed given the insecurity of the situation. The initiative receives financial support from the council of Groningen and surrounding neighbourhoods, from the participating child care organisations, from the Nature Nextdoor campaign and from citizens. Funding was also provided by the initiators themselves, who are strongly opposed to paid employment in their initiative because they believe this will shift focus from spontaneous activities towards protecting paid employment. They spend a great deal of time in Garden in Town, but do not want to be paid for their efforts.

These more elaborate descriptions show that the Food for Good project depends to a large extent on external funding, also by main economic actors such as financial management organizations. The

development of the initiative was more planned compared to the Garden in Town case. The initiators pursue social objectives and adopt both commercial and not for profit practices. The initiators of the Garden in Town project also obtain financial support from schools, organizations for post-school activities and individuals but they do not want to be paid for their efforts. They do not want to become dependent on the initiative for their income, because they do not want job dependency to take over as a motive for the initiative. Their way of working seems less formal and more adaptive to new ideas. The initiators also pursue social objectives, but they do not apply commercial practices.

Table 1. Numbers and types of interviewees⁶ per research project

		Citizens	Social companies	Care / health / housing organization, school, farmer land owner, companies	Civil servant national level	Civil servant local level
Nature Door, research	Next actor	11 ⁷	3	8	--	5
Designing Nature, scenario study		11	2	3	3	4
Nature in the Hands of People, advisory study		--	--	2	6	--

Table 2. Citizens initiatives and their means of influence

28 Initiatives in nature, their discourses and/or kind of green open space and use and website
The farmers' experience path (P/B). Finding intelligent and creative combinations between cultural history, nature, agriculture, recreation and water. Farmer's experience-walk connecting three farms; walk through the meadows; orchard picnic; little water critters experience; excursion on the farm; herbal tour; making your own apple juice; cuddling lambs; etc (www.belevingsboerderij.nl).
Natures Gift (B). Choose from the jolly experiences in nature, like a canoe-trip along the waving reed, a daring and informative birds of prey show, spending a night outside in a nature park; horse riding on the beach, etc (www.naturesgift.nl).
Naturally Cool (I). Project for youngsters 14-18 yrs. To discover that nature is all around us and can inspire us to design your favourite chilling, meeting or sports place. What do nature and the city mean to you? Make a miniature design; do a neighbourhood research; how to present you plan to the authorities? (www.naturallycool.nl).
Coaching in nature (I/R). Wildlife is a pleasant environment for finding answers to your questions. Often people are living too much in their 'minds'. In wildlife you can earth yourself and give yourself the space to gather your thoughts and come to new insight (www.indigo.nl).
The artist-gardener (I). Reinier Legendijk tries to influence natural growth processes into predefined shapes. Therefore he also goes by the title of 'bio-artist' (www.reinierlegendijk.nl).
Since the nineties wood-artist (I). Frans Giesen makes wooden statues in his workshops on location. His love for wood comes forth from his respect for wildlife and its materials. The artist tries to use the colours, shapes and deviations, to enlarge these to increase their esthetical values (www.houtenbeelden.info).

⁶For the Designing Nature project these include also a few workshop participants.

⁷Two of these citizens are also social entrepreneurs and appear as well in the next column.

Table 2. Continuation

28 Initiatives in nature, their discourses and/or kind of green open space and use and website
Art and nature (I). Laurens Morsink is passionate about imitating nature and its processes. Nature creates an unlimited number of variations with simple means and economic use of resources (www.laurensmorsink.nl).
My vicarage garden (I/R). Artist Erik van Ommen and writer Wilma Brinkhof put themselves before a special task: to restore a former vicarage and its garden in the picturesque village of Vries. The site presents a loving account of this ambitious project (www.inspirerendleven.nl/blog/).
Land Art Initiative (I). Foundation in cooperation with the state, nature organizations and private landowners organizes a biannual exposition of Land Art by (semi) professionals and amateurs (www.landartinitiatief.nl).
The Nature Experience Walk (I). Existentialism, concerning the relation man-nature, man-environment, like in a battle. A mix of storytelling by Abe the Storyteller and experience walk opens people's eyes for the beauty of nature. Themes: night walk; looking for the elves; man in a tree, tree a man; contact with mother Earth (www.abedevverteller.moonfruit.com/#/).
Goddess Holda (I existentialism). Workshops and training in spiritual wildlife experiences, conscience and self-deployment for women. Named after the German Goddess. Exploring while staying with two feed on the ground. Runes workshop; tree workshop; annual festival; Lorelei Women's festival (www.vrouwholda.nl).
Raphael farm (B/R). When the host and site join forces, special activities emerge. At the Raphael farm there are plenty of possibilities for experiencing nature, since nature is the biggest healer. Workshops, walks, festivals, fire walk, mountain biking, cuddling ponies, magic forest experience (www.natuurbeleving.nu).
Youth Federation for Nature and Environment (S). For all juveniles 7 and 26 yrs interested in nature and environment; federation with local branches in Belgium and the Netherlands. Organizing projects and discussion meetings on nature studies, management and environmental protection. Summer camps, excursions for free, web shops, magazine (www.jnm.nl).
Foundation Paardebloem (Dandelion) (B/S/R/I). Nature has much to offer: relaxation, inspiration, and discovery. But also clean water and fertile land. The foundation promotes respect for each plant or animal in nature and admiration of nature. It promotes encounters between man and nature in and around Utrecht. Children parties in the wood; building huts with the whole family; stimulating nature experiences for companies; nature education for municipalities and schools (www.paardebloem.org).
The preserved land (I/B). Nature experience program at different locations to bring children into contact with nature. Inviting them to discover, sense, smell, taste nature in real. Also a program for company excursions, children parties, walks (www.hetbewaardeland.nl).
Ecokids (supporting organisation). A non-profit foundation developed this ecokids program directed towards getting in touch with nature and experiencing nature. Helps initiatives that want to do so. Exchange program to connect children from different cultural background in an attempt to convince them of the importance of global protection of nature (www.ecokids.nl).
Eco-climbing park (I through B). Adventure sports have developed the concept Eco-climbing park, trying to get children back into the wildlife. Visitors get in touch with nature in a playful manner (www.ecoklimpark.nl).
Climbing Woods Veluwe (I through B/battle with nature). Climbing Woods Veluwe is an enervating experience for young and old people. Get to learn your own limits and feel the adrenaline rushing through your veins. Six different routes and 80 transfer points with different heights and degrees of difficulty (www.klimbos.nl).

Table 2. Continuation

28 Initiatives in nature, their discourses and/or kind of green open space and use and website

Nature photography walks (I/S). Photography as a means to experience nature, coupled to stories. Photographer Meindert van Dijk offers the possibility for group walks in a relaxed atmosphere and for enjoyment. During these walks he advises on how to make better photographs of landscapes and wildlife. Not abroad but in your own country (www.meindertvandijkfotografie.nl).

Nature and Landscape at Groeneveld Castle (I existentialistic, P using rural areas). Foundation Castle Groeneveld endeavours to raise the future generations' awareness of the meaning of nature and landscape and the development of recreation and culture in green open space. Animal lovers path; nature experience à la Groeneveld; music and landscape; exploration of the property; GPS tour on the property; different tailor made programmes for multiple days (www.kasteelgroeneveld.nl).

Outdoor inspiration (I /R /I through B). Using nature as source of inspiration and teacher for children, citizens and organizations. All activities are directed towards reconnecting participants with nature. Point of departure is the conviction that nature is the basis for a happy life, successful organisations and a sustainable society (www.outdoorinspiration.nl).

Outside.Naturally (I existentialistic/R/S). Keerpunt (Turning point) started at Sintmaheerdt with the project 'Outside Naturally', a nature experience project for clients who need extra counselling.

Bushcraft Weekend (S/I existentialistic, survival). A meeting by and for people with an interest in survival, primitive techniques and nature in general. They meet to get to know each other and exchange information and learn from each other. Participants organize workshops for each other (www.bushcraftweekend.nl).

Nature Adventure (E). Wildlife and unknown nature can be discovered in your immediate environment. Nature Adventure offers experiences in nature to educate children and adults concerning nature and the environment. Theatre acts; school excursions; authentic acts on environment markets or exhibitions; sea lessons, children expeditions; Jacob the Garbage man (www.natuuravontuur.com).

Nature adventure Stoere Stuiver (E/B). There's a lot to experience in nature. Are you an explorer? Then come and discover the Dutch Dune area with Stoere Stuiver. Stoere Stuiver is an exciting adventure through forests and dunes, where you can walk, read, have fun and learn a lot of interesting things about nature with a funny assignment booklet (www.stayokay.com/index.php).

Come and visit the farmer and his fields. Examples of an accessible rural area. A brochure of the former recreation research institute and the governmental taskforce on multifunctional agriculture that lists a number of farms that open up their farm to visitors (www.stichtingrecreatie.nl/kicproj.nsf).

Moods & food (wildlife as decor). Moods & food organizes luxurious outdoor lunches and dinners, parties and receptions and presentations outside, in the middle of nature areas, away from the build-up world, on unexpected sites. The feel of a luxurious safari, in the Netherlands (www.moodsandfood.nl).

Table 3. Results internet scan Designing Nature project

Initiative and kind of green open space and use	Discourse	Resources ⁸	Rules	Coalition(s) ⁹	Policy context ¹⁰
Mobile garden, Amsterdam Greenhouse and kitchen on chart. 'Less boring' green. Citizens now talking about gardening and how to grow plants. Social events connecting young, old and different cultural groups with nature, in and around green open space.	Connecting, enthusing people and initiatives, also immigrants, exchanging knowledge, raising awareness on environment and green open space in an unconventional way. Not telling people what to do. Stimulate curiosity and engagement.	Commercial (art) activities, 'as long as we can pay our bills end of the month'. Core group of one-person companies. Plant knowledge volunteers. Knowledge how to connect people.	Internal non-written code of cooperation and connecting people. Not for profit principle.	Use social media, internet, flyers, email alerts to reach other actors. Prefer oral communication. PR seen as demanding but important. Second circle individuals and their networks. Gardening citizens. Documented network.	Municipal officer for communication. Municipal and housing corporation funds. Reduced fee garden centre, free bulbs, ... Municipal condition public accessibility.
Care garden Makkum (village) Vegetable and fruit garden in backyard home for elder. Village agriculture plan for province. Project planting a tree for a baby born. Children practicing gardening. Need to adapt to gardening preferences elder. Reintegration of individuals.	Sustainability, including social development. Farming is healthy and connecting people within society. Food doesn't grow in the supermarket. 'Baby-boom' (Dutch 'boom'= tree)	Knowledge from voluntary initiator. Mix of capacities of the core group in gardening, art, communication, policy formulation. Initiator spent 12 h/wk at the start.	Informal cooperation and informal agreements with home for the elder. Values of sharing produce, caring for each other and trust.	Communication oral and via written media. With management of the home, nature NGOs, shops, schools. Transition towns. Nature education organization.	Municipal subsidy. Land on 30 year lease for free and subsidy from home for the elderly.

⁸All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

⁹We also specify the communicative actions they use to promote their discourse and find partners.

¹⁰Also in terms of resources, rules, policy discourse and coalitions, but now concerns the formal ones setting the context for the initiatives.

Table 3. Continuation

Initiative and kind of green open space and use	Discourse	Resources ¹¹	Rules	Coalition(s) ¹²	Policy context ¹³
<p>Care garden Gorssel (village) Labour and capital intensive park and fencing, suited for wheelchairs and reception of groups. (include toilets and kitchen). Honey production. Some 800 visitors/year. Schoolchildren plant trees and grow plants, follow their growth, harvest, bring products to social food distribution centre.</p>	<p>A beautiful 'care' garden for the local and regional community; care for yourself, people and nature. Connect youth and elder; producing flowers and vegetables for elder and poor and with people wanting to reintegrate or to recover by gardening.</p>	<p>Private land on lease for free from a not disclosed owner. Higher educated voluntary managers, paediatrician, child-therapist, gardener, etc. Work with schoolchild labour and education. Foundation collects money. Initiator spent 12 h/wk at start</p>	<p>Internal agreements for fixed days for work and visits; no one works alone in the garden; Board of the foundation three persons.</p>	<p>Communication and discourse promotion via media, lectures, inviting local politicians. Core group's second circle. Networks of core group members. Artists, other cultural elites. Primary school.</p>	<p>Funds housing cooperative, cooperative bank, or companies also in kind or labour contributions.</p>
<p>Inside-out-Forest (village) Natural playing environment in the village for all generations, activities with natural materials for dying, cooking, fire. School lessons outside. Also for handicapped kids, depressed, autistic persons. Reviving old cultural practices, like maypole, but also beach-forest-ball.</p>	<p>Developing the creative capacity and skills of the youth by working/playing with nature. Open space design through the eyes of children. 'Modern Farmyard'. Taking care of your environment. Own creativity as a capacity for life.</p>	<p>Creativity. Expertise in design, pedagogy, wildlife. Students. Initiators spent 30-40 h/wk. School mailings and working hours. Expertise national CSO and Designers Org.</p>	<p>When the bowl is out you can come and play; activity calendar. Honesty and constructive criticism. Initiators foundation.</p>	<p>Oral, regional newspapers and e-mail communication, communication plan. Primary school. Professional school. Green Management. National CSO for natural playing grounds.</p>	<p>Municipal prefunding and land. LEADER funds, initially for external project manager and gardening firms. Management contract land 5-10 years.</p>

¹¹All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

¹²We also specify the communicative actions they use to promote their discourse and find partners.

¹³Also in terms of resources, rules, policy discourse and coalitions, but now concern the formal ones setting the context for the initiatives.

Table 3. Continuation

Initiative and kind of green open space and use	Discourse	Resources ¹⁴	Rules	Coalition(s) ¹⁵	Policy context ¹⁶
Cupido-garden Almere Playground for children and other green functions: football, lawn for sunbathing, vegetable garden, hedges to separate functions. Together working and eating in the garden.	Green as place for social encounters and cohesion.	Hedges, pavement and machinery by constructor. Expertise core group, labour many weekends at the start, 5-10 persons second circle. One monthly joint working day. Means, materials individuals.		Informal mouth-to-mouth communication and social media. 25% of neighbours involved intensively, neighbours further away ¹⁷ .	Municipality draws attention to public accessibility condition.
Food for Good, Utrecht A food garden in Kanaleneiland, involving vulnerable groups and professionals.	Using food production / working in green open space to connect very different people. Cooperation. Ultimate goal is a district company for local food and for and by vulnerable people with professional guidance.	Funding Foundation. Organizational structure put into place by coalition. Expertise green, financial and political management; work with and by vulnerable groups. Voluntary labour two times a week.		Oral communication, newsletter, e-mailing, attending all local events! Time consuming, continuous effort. Use Park nature newspaper. Regional public healthcare organizations Municipality. ¹⁸	Municipal land and fencing. Contract with municipality for lease of the plot.
Railway garden, Delfshaven Garden for the neighbourhood along the railway track on former wasteland.	Gardening together with the neighborhood, light care and involving lonely elder.	Labour, ideas, organizational capacity, architect, journalist; small own expenses.	Open attitude towards others and ideas; anarchistic approach not telling others what to do. Learning by doing.	Local volunteers with municipal district manager.	Municipal land Material for re-use. Fencing railway company Canal boundary ¹⁹

¹⁴All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

¹⁵We also specify the communicative actions they use to promote their discourse and find partners.

¹⁶Also in terms of resources, rules, policy discourse and coalitions, but now concern the formal ones setting the context for the initiatives.

¹⁷Upon request municipality. Local authority district manager. Constructors.

¹⁸Food Bank. Foundation. Restaurant of volunteers.

¹⁹Water Board. Land contract one year with few details. Sector rules avoided by municipal officer. Municipal rule not to exclude any groups.

Table 3. Continuation

Initiative and kind of green open space and use	Discourse	Resources ²⁰	Rules	Coalition(s) ²¹	Policy context ²²
Tilburg Vegetable garden by multitude of local state organizations with public funding, involving some neighbours who can take products home.	Not referred to.	Funds bank and state health organization, 'Mooi zo Goed zo' network of companies and local authorities, media and societal organisations; Viviant.	Not referred to.	Project 'Beter Groenewoud' of MOM @work and K18 company. Foundations Twern and Sustainable Tilburg ²³ .	Municipal funds and land.
Venray Bach garden Initiative of a citizens and a company working for commercial care organizations and local authorities.	Garden for the neighbourhood to enjoy being outside, to read, to have a barbecue with the family. For the residents and adjacent children day care centre (www.wonenli mburg.nl)	Housing corporation: technical knowledge, communication to municipality, fencing, is trying to involve other organization to support the initiative. Green management by another formal organization; Coaches Go4it. Idea, labour, management initiators and few residents. Labour youngsters.	Daily opening hours upon consultation. Foundation, four citizens board to obtain subsidies. House rules are under development for garden management, by housing corporation.	Municipality and its partners. No info on own coalition of initiators.	Municipal land and financial programmes include prefunding. Pavement.

²⁰All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

²¹We also specify the communicative actions they use to promote their discourse and find partners.

²²Also in terms of resources, rules, policy discourse and coalitions, but now concern the formal ones setting the context for the initiatives.

²³Company by Nature; Mother centre; local welfare Foundation; Municipality; regional state health care organization; schools.

Table 3. Continuation

Initiative and kind of green open space and use	Discourse	Resources ²⁴	Rules	Coalition(s) ²⁵	Policy context ²⁶
Middelburg lawn front yard house elder. With paths, pergola, fencing, bench, planters at working height, water, electricity, X-mas lights, toolkit, etc. Contacts between elder and children.	Turn lawn of house elder into something special and bring people into contact with each other. Green open space as a means not as objective.	Initiative's employee health care centre labour; Voluntary labour and schoolchildren, money from fundraising on site, partly supervision from school staff. Tools and plant materials garden centre. Voluntary contributions from care organization and neighbours. Gardening knowledge neighbours and elder.	Not referred to.	Health care organization; 2 primary schools, 3 childcare centres, municipality, 2 regional care centres (foundation), welfare organization, extracurricular primary school care. Communication via newspaper and monthly meeting.	Municipal land, design, civil engineering knowledge and earthwork.
Diphoorn village garden Communal vegetable garden in rural and (for Dutch standards) remote area where villagers work together and can come and collect against voluntary financial contribution.	Cooperation in the village and with surrounding villages through contact with and among people. Informing young generation about origin of food, eating healthy and investing in sustainability of rural areas. For those who like to garden and those who want to buy the produce at voluntary price.	Local bank office and regional housing corp. funds for the well, notary for founding papers, compost from recycling centre; farmer's land and irrigation pipes and pump. By citizens: plants, seeds, tools, picnic table. knowledge of soil preparation and fertilization, planting schemes, crop rotation and combinations, pest management.	Not referred to.	The core group of volunteers from the villages and the farmer who lends his land. Newsletter	

²⁴All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

²⁵We also specify the communicative actions they use to promote their discourse and find partners.

²⁶Also in terms of resources, rules, policy discourse and coalitions, but now concern the formal ones setting the context for the initiatives.

Table 3. Continuation

Initiative and kind of green open space and use	Discourse	Resources²⁷	Rules	Coalition(s)²⁸	Policy context²⁹
Garden in Town Garden in and around a green house. Gardening days, children coming to play, plant sales and exchange and cooking.	Green fitness, green playground and eco-building.	Volunteers contribute what they want to, each according to their own preferences and capabilities. Own money and from neighbourhoods, citizens.	Start freely without fixed targets in advance.	Organisations for after-school child care, primary school, community playground organization environmental NGO, the council ³⁰	Subsidies from City council, child care organization; Old green house from garden centre.

²⁷All initiatives have received 20,000 Euros from the Nature Next Door campaign in 2013.

²⁸We also specify the communicative actions they use to promote their discourse and find partners.

²⁹Also in terms of resources, rules, policy discourse and coalitions, but now concern the formal ones setting the context for the initiatives.

³⁰Of the city of Groningen, various other (small) organisations and individuals. They have a website and a newsletter posted on the website; they also communicate via social media.

Table 4. Citations on the relation state - initiators of innovations

Citation	Policy dimension	Our observation
Authorities should be more open to new ideas and constructive criticism.	Discourse	Need for innovation of the formal discourse, at the level of the state.
Authorities should be more responsive to needs of businesses and citizens as integral part of sustainable development	Discourse, Coalition	Need for facilitation and an active attitude, fitting with a Sustainable Development discourse. Maybe the desire that the state cooperates more with the public
Authorities should act as facilitator between the social parties given the variety of values and images of nature	Discourse, Coalition	Need for facilitation
Authorities and officers work alongside and not with each other	Discourse, Resources	Inconsistent policy context, possibly inefficient use of resources and lack of communication
Dutch nature policies and nature NGOs depart from the point of view of abuse and therefore they want to regulate. There is very little trust in citizens.	Discourse, Rules	Need for discourse innovation and use of other means of influence by the state then rules of the game
It is easy for authorities and officers to use regulations to block an initiative	Rules	Abuse of rules, indolence at the level of the human resources invested by citizens or social enterprises
The problem is that the needs of the people are not responded to by what the municipality is used to offer.	Discourse	Disagreement with objectives of the formal policy discourses or the level of performance
If we have to wait for the municipality, they hire consultants who come and tell us what to do.	Resources, Coalition	Allusion to waste of resources, but maybe also the desire that the state rather cooperates with citizens and social enterprises (forming a coalition) instead of hiring consultants who don't know the place
We know much better what needs to be done here.... we don't always need the municipal officers. This here, is not their world. Most of them don't live in the municipality. They pass by twice a year.	Discourse, Resources	Disagreement with objectives in the local policy discourse, and allusion to use of wrong knowledge resource; Citizens have own resources. This seems a legitimacy issue: disagreement with objectives in the local policy discourse, allusion to waste of resources, citizens think they can do it better themselves.
Authorities should invest in initiatives that bring people together, money remains always important.	Resources	Need for financial resources as important part of the supportive policy context
The personal stance of an officer can make a difference, not necessary the regulations and policies	Resources	Human resource interfering and at odds with formal policy content: rules and values of one officer dominate over the formal policy discourse of the authority

Note: In the third column we have interpreted the remarks in terms of the different means of influence that the state has at its disposal to support the non-state actors in their actions in green open space.

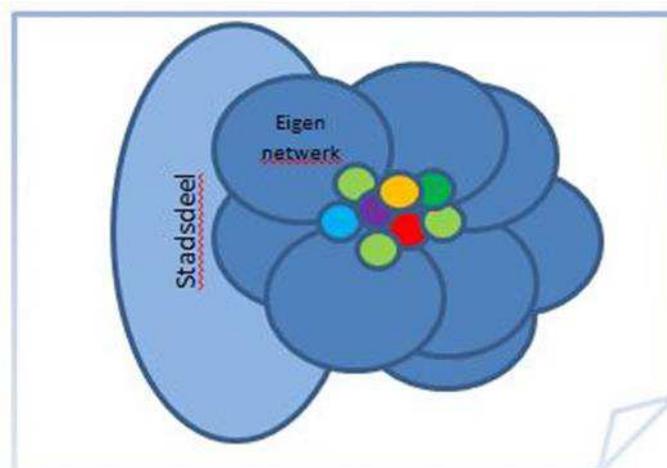


Figure 1. Possible coalition in a citizens or social enterprise initiative

Note: Coloured dots form the core group with different expertises. Each core group members has its own network (dark blue circle) from which it can draw. The light blue oval to the left signifies the city office or officer that can be part of the coalition as well.



Photo 1. Venray Bach garden, formal opening of the garden



Photo 2. Venray Bach garden, all being fenced



Photo 3. Tilburg, vegetables and herbs are growing



Photo 4. Food for Good, Utrecht, ready for starting to sow and plant



Photo 5. At work in the garden



Photo 6. Care Garden Makkum, permaculture and organic shaped planters



Photo 7. Care garden Makkum, children have just sown



Photo 8. Mobile Garden: recycled materials, organic shapes, high planters



Photo 9. Mobile Garden initiative: mothers preparing for the school children to come and start planting, drinks are available



Photo 10. Mobile Garden: Plant nursery on the office table

Photo 11. Mobile Garden: The chart



Photos 12. Inside-Out-Forest: walls build by children from the village



Photo 13. Inside Out Forest: tunnel made of willow branches



Photos 14-18. Public green open space Rotterdam Zuid

Article III

“Critical upscaling. How citizens’ initiatives can contribute to a transition in governance and quality of urban greenspace”

By: Carmen B.E.M. Aalbers and Karina Sehested

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Critical upscaling. How citizens' initiatives can contribute to a transition in governance and quality of urban greenspace

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ABSTRACT

Studies show that municipalities often develop a type of urban greenspace that is rather uniform in its shape and use. Citizens' initiatives develop different types of greenspace. This article uses concepts from transition studies and identifies what happens during a citizens' initiative in urban greenspace in the Netherlands in terms of transition of municipal management and development and how these initiatives can lead to a change of practices of the municipality. A single, qualitative study of Diepenheim Inside-Out-Forest in the Netherlands as a critical case is presented, based on 8 semi-open interviews. The study gives insight in how the municipality has changed in relation to this one case, and how such transition of 'regime' takes place. The study explains how the different benefits that arise in a greenspace development and management initiative relate to the 'critical knowledge' and 'situated knowledge' of the actors involved and that the quality of urban greenspace is very much the result of that knowledge. 'Fit and conform' and 'stretch and transform' are usable strategies for the empowerment of such initiatives through sharing of resources, and policy advocacy by 'critical niche' innovators.

'Regime' is not uniquely a feature of the local state but also of market parties and citizens themselves with their own values and routines. A change among all parties seems needed if greenspace is to be developed, managed and used differently.

1. Introduction

1.1. Disagreements on (urban) greenspace

There is strong evidence for the fact that strong emotional and cultural drivers divide nature conservationists, and local land users and residents. (e.g. Jones et al., 2016; Reser and Bentrupperbäumer, 2005; Satterfield, 2001; Satterfield, 1997; Kleeman, 2001). Buijs (2009a) explains that citizens protest against urban development plans by the state because of their feelings of attachment to greenspace and their disagreement with the changes. Not only do citizens and the (local) state at times disagree about developments, but classifications, preferences and assessment of urban greenspace also differ between state and citizens (Dakin, and Huntziker both cited in Buijs, 2009b, p40; Nicol and Blake, and Harrison and Burgess both cited in Van Herzele and Wiedemann, 2003). Municipalities often develop a type of urban green that is rather uniform in its shape and use: parks. These are areas where little free human interaction with nature is possible. In the literature this limited shaping of greenspace is referred to as 'parkification' of nature (Littke,

2015).

Numerous management and development initiatives in greenspace taken by citizens and small companies¹ have emerged in Europe over the last decades (e.g. Lohrberg et al., 2016, p.7). Fors et al. (2015) observe that studies of these initiatives have focused on the process factors and impacts of participation, rather than the physical impact on greenspace. However, Aalbers et al. (2015) analysed 40 initiatives by citizens and small companies in greenspace in the Netherlands and interviewed some 50 citizens and entrepreneurs. They described the discourses, practices and photos of the greenspace of these initiatives and compared them with those of municipalities. The authors found that the initiatives develop a kind of greenspace that differs in scale and identity from state developed greenspace and which responds to the desires of locally involved residents. It is generally developed at low cost, often without designs nor technical specifications. The gardens often give the perception of being 'a bit messy', because of work in progress or a different maintenance regime than that of the municipality/local state (Aalbers et al., 2015, p128). A further series of studies preceded the research: joint site visits to public greenspaces by

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¹ 'Small companies' refers especially to the one person companies active in greenspace development and management. Those involved aren't always green professionals and can have another job or business aside.

researchers together with citizens of different age and cultural backgrounds in two urban districts (Aalbers and Bezemer, 2005); photo-shoots by teenagers of greenspaces they find ugly or beautiful (Ruiter and Aalbers, 2005); and a joint design process with different social groups of a neighbourhood park in Amsterdam (Aalbers and Haars, 2006). These studies demonstrate the discrepancy between existing public greenspace developed by the municipality and the wishes of citizens in terms of use, access and shape of greenspace. Furthermore, views on the future (design, use and management) of greenspace also differ between citizens themselves (e.g. Ruiter and Aalbers, 2005; Aalbers and Haars, 2006). Various studies also point out the pros and cons of greenspace developed or managed by citizens and set out the factors hindering their participation. (Appendix A) The discrepancy between citizens and the state in relation to what matters (knowledge, emotional ties/values) when developing, preserving and managing urban nature, can be considered to be a problem in terms of the lack of legitimacy of these policies. Initiatives by citizens and small companies present the interests and values of the different initiating parties in terms of how they want to relate to urban nature, and the knowledge and efforts they have been willing to put into its management and development (Aalbers et al., 2015). It also means that the state policies do not always acknowledge the multiple meanings of urban greenspace for the urbanizing society (e.g. Luederitz et al., 2015; De Groot et al., 2010; Hartig et al., 2014) which may result in foregoing the benefits of urban nature for the city. Poulsen et al. (2014) refer to benefits that should be promoted as a tool for creating healthy urban environments.

1.2. State and citizens management of greenspace

Europe wide the quality and management of (urban) greenspace has obtained substantial attention since the 1980's in relation to both theory and practice (Lindholm et al., 2015). Studies include not only the role of the state, but also of local communities in management, 'place keeping' (Dempsey et al., 2014) and development of greenspaces (Fors et al., 2015; Jansson and Lindgren 2012; Buizer 2008; Buijs et al., 2017; Poulsen et al., 2014; Schukoske 2000; Lohrberg et al., 2016; García et al., 2014; Ernwein, 2014; Barron 2017; Kurtz 2001). In the Netherlands a change of nature policies has taken place: from a formerly heavy accent on biodiversity and conservation (Buijs et al., 2014) via a conservation/development discourse towards more inclusive policies. The policies 'Nature for People, People for Nature' (2000), 'Nature-vision 2014' (Dijkma, 2014) and numerous 'Green Deals', for example for 'New Urban Nature', are in favour of a broader understanding of nature, including nature as contributor to human wellbeing (so-called 'ecosystem services' (e.g. Luederitz et al., 2015; Braat and De Groot 2012; De Groot et al., 2010), and a larger role of citizens and companies in developing and managing greenspace. A study by De Boer et al. (2014), part of a longitudinal series of 4 surveys since 1996 among a representative group of 1500 respondents, concludes that among the Dutch population nature has a low priority as a state policy field, though respondents generally see the state as responsible for nature. Simultaneously, the recent vision (Dijkma, 2014) by the Dutch national state gives much attention to enhancing the role of citizens and business in nature management. According to De Boer et al. (2014) 11% of citizens are very actively involved with nature: in decision making and in actively using and protecting nature, which at its simplest level can be the act of hanging up a bird nest box.

Though the total area of, and number of citizens involved in green initiatives is limited (De Boer et al., 2014) and the execution of these initiatives is demanding (Aalbers et al., 2015), improving the connection of these initiatives to state practices may render urban development more inclusive of a broader meaning of nature and of the more diverse relations between humans and nature that these initiatives express (Aalbers et al., 2015). This broadening could contribute to increasing the services and benefits of urban greenspace. Furthermore, citizens who feel attached to greenspace are more likely to protest

against its loss (Buijs 2009a; Kleeman, 2001) and thus may help to preserve it. Finally, citizens often contribute their own work, which can help reduce management costs (e.g. Aalbers, 2002).

1.3. Bridging the gap

In the governance literature collaborative and deliberative approaches are promoted in urban and greenspace management. For instance, network governance (Hajer and Wagenaar 2003) and collaborative planning (e.g. Innes and Booher 2010; Healey, 2006, 1997) have largely influenced urban planning research and practice in Europe (Sehested 2009). Recently, 25 years after the argumentative turn (Fischer and Forester 1993) and the emergence of collaborative and deliberative governance as a paradigm in theory and practice, reference is being made to the legitimacy and credibility deficits of these types of governance (e.g. Sørensen and Torfing, 2016; Metzger et al., 2014). This article searches for alternative theory in relation to bridging the gap between public authorities and local innovations by citizens, especially concerning the knowledge and values of nature in these innovations which are different from the institutionalized knowledge at the level of the state. The latter are the object of social innovation studies (e.g. Moulaert et al., 2013, 2016; Bock 2016; Mayer 2012, 2013) and transition theory (e.g. Smith and Raven 2012; Smith et al., 2015, 2016; Rip and Kemp, 1998; Geels 2004). The application of transition theory to the issue of participation in development and management of urban greenspace is new. Transition theory has assembled a body of knowledge to offer concerning upscaling of small innovations to changes in larger governance regimes in society. It also offers knowledge about barriers to sustainable development innovations, such as socio-cognitive processes, market processes, sociological processes and structures that form a selection environment for technical innovations (Smith and Raven, 2012, p1026). These barriers hinder innovations that do not fit these processes and structures. Only those which fit go through. The multilevel perspective in transition theory in particular builds upon social structuration theory with its duality between structure and agent (Giddens, 1984) which may be expected to be relevant to initiatives of citizens as agents encountering the structure of the local state. Socio-ecological systems, namely agents interacting with urban greenspace, can be considered as socio-technical systems where the ecological part of the system obeys physical law, as for technical systems. Transition theory studies how innovative socio-technical systems can survive, be strengthened or mainstreamed and conceptualizes the barriers that initiatives face. This article aims at a reconnaissance of the applicability of transition theory by means of a case study for deeper understanding of what happens in a citizen initiative in urban greenspace and in relation to its context. It investigates how municipal management and development of urban greenspace can become more reflective of citizen's ideas and relationships with nature.

Values and knowledge in so-called 'niche innovations' that have to face the local-state practices in the form of a so-called socio-technical regime, are central in transition theory, and are conceptualized as 'critical' and 'situated' knowledge. The change of practices in niche-innovations and of the socio-technical regime are conceived as (micro) social innovation or a transition. With help from these and more concepts from transition theory, this article will try to answer two research questions by means of the case study: What happens during a citizen's initiative in urban greenspace, in terms of transition of local state management and development of urban greenspace? How can these initiatives lead to a change of practices of the municipality?

The study is a qualitative case study and aims at making a significant theoretical and practical contribution (Tracy, 2010) to the research and practice of initiatives by citizens in urban greenspace.

1.4. Previous studies on citizens involvement in urban greenspace management

Reviews of international scientific urban greenspace literature show that little attention has been paid to issues of urban greenspace governance and citizen's participation in urban greenspace governance. [Ostoic and Konijnendijk Van den Bosch \(2015\)](#), in this journal) reviewed 519 urban forestry articles from 1988 to 2014 in four leading journals. They write 'Studies related to active participation of citizens and partnerships in urban forestry have been missing' (p129). They state that there is a need for more studies on urban forestry governance. In the same year also [Luederitz et al. \(2015\)](#) conducted a systematic review of urban ecosystem services research of 3266 unique articles from ISI Web of Knowledge and Scopus, selecting the urban case studies on benefits and ecosystem services from these. They came to a similar conclusion: of the final selection of 201 articles, only some fifteen studied the governance of urban ecosystem services. [Ostoic and Konijnendijk Van den Bosch \(2015\)](#) and [Luederitz et al. \(2015\)](#) use the terms urban forestry and urban ecosystem services. These are in fact about urban greenspace and the services of urban greenspace to society. [Kabish et al., \(2015\)](#) also did a systematic review of 219 articles on urban greenspace. Five papers were about social cohesion and participation, of which four applied qualitative analyses addressing local residents. Hence, the number of scientific articles on participation in urban greenspace governing is still rather limited. Initiatives by citizens, the focus of this paper, is a specific type of participation where the initiative does not lie with the state.

Citizens involvement with greenspace is paralleled by a wider re-orientation towards quality and management of (urban) greenspace since the 1980's in theory and practice and broader attention being given to the quality of public management ([Lindholst et al., 2015](#)). It coincides with ongoing urban densification ([Stähle, 2010](#); [Swanwick et al., 2003](#); [Pauleit 2003](#)). Several authors refer to the importance of management of urban greenspace or urban landscape for the sustainability of urban development (Chiesura, James, and the Council of Europe, quoted in [Jansson and Lindgren 2012](#); [De Magalhães and Carmona, 2009](#); [Auclair and Vanoni 2003](#); [Konijnendijk, 2003](#)).

In existing studies on initiatives by citizens, a specific field of urban greenspace management and participation, various terms are used for these actions: urban gardening (e.g. [Poulsen et al., 2014](#); [Schukoske 2000](#)), urban agriculture ([Lohrberg et al., 2016](#); [García et al., 2014](#)) ([Ernwein, 2014](#)), community gardening (e.g. [Barron 2017](#); [Kurtz 2001](#)) and 'place keeping' ([Dempsey et al., 2014](#)). These studies highlight that different benefits ([Poulsen et al., 2014](#); [Schukoske 2000](#); [García et al., 2014](#); [Ernwein, 2014](#); [Dempsey et al., 2014](#); [Kurtz 2001](#)) exist in different fields or are alluded to in studies ([Ernwein, 2014a, 2014b](#); [Barron 2017](#)) and that case study research is needed to identify how they lead to higher quality of urban greenspaces ([Fors et al., 2015](#)). Quality of urban greenspace however exists 'in the eyes of the beholder' ([Aalbers, 2002](#)) as is also suggested by [Lindholst et al. \(2015\)](#) when they hint at the embedding of institutional and discursive implications when developing models for the quality of greenspace (p377-378). These institutional and discursive aspects are issues considered within this study.

2. Theoretical framework

2.1. Concepts from transition studies

Social innovation scholars study local innovations or 'micro-innovations' ([MacCallum et al., 2009](#)) by citizens or enterprises and look into how these can be related and up-scaled to the wider level. Transition studies is a specific field within social innovation studies which originates from market innovations but has developed and now also includes innovations by citizens. We use transition studies to conceptualize practices in initiatives by citizens compared to existing local

state practices; and further to examine the change of local state practices into practices that are more reflective of the ideas and relationship to nature of citizens.

A concept developed within transition studies that is used for the local innovation and which emphasizes the limited or demarcated scale of these small innovations is 'niche' ([Smith and Raven, 2012](#); [Smith et al., 2015, 2016](#)) and for the innovation within the niche: 'niche innovation' ([Rip and Kemp, 1998](#); [Geels, 2002](#)). Niches act as incubation rooms and niche innovations are carried and developed by small networks of dedicated actors ([Geels and Schot, 2007](#)). For a niche innovation to reach momentum and lead to innovation at wider level, [Bijker \(1995\)](#) cited in [Geels and Schot 2007 p400](#) argues that scientists, policy makers, users and special-interest groups contribute to a process of patterning of the development. The 'socio-technical regime' forms the 'deep structure' that accounts for the stability of an existing socio-technical system' ([Geels, 2004, p910, 911](#)). 'Regime' refers to the semi-coherent set of rules that orient and coordinate the activities of the social groups that reproduce the various elements of socio-technical systems'. ([Geels, 2011, p27](#)). As they become more widely accepted, these rules gradually turn into deep structures and become taken-for-granted. According to [Geels and Schot \(2007 p400\)](#) 'socio-technical regimes stabilise existing trajectories' by 'cognitive routines', 'regulations and standards, adaptation of lifestyles to technical systems, sunk investments in machines, infrastructures and competencies'. Regimes lead to routine practices with repetition of rules from the deep structure, which reconfirm existing values and insights over new values and insights. Regime can be used as a term for a set of rules, or as the group of actors that hold these rules and whose practices are dominated by these rules. In this article both meanings are being used. Common to social innovation studies is that they make mention of the difficulties the citizens encounter in developing and spreading their initiatives under the dominant regime of state and market. They mention the conditional support by the regime that pulls niche development towards the aims of the more powerful organizations in the regime, and away from original aims ([Clausen and Yoshinaka, 2007](#) in [Smith et al., 2015, p5](#)).

Concerning the new insights and values contained by actors in local initiatives [Smith et al. \(2015\) p18](#) use the terms 'situated' and 'critical' knowledge: 'The critical point, born of situated knowledge, is not served by current governing structures. Moreover, it is critical knowledge that could usefully inform deeper-seated reforms in governance' ([Smith et al., 2015, p18](#)). 'Critical knowledge' and 'situated knowledge' are concepts that highlight (that there exists) a distinctive knowledge at the level of parties that initiate the niche innovations, which is not existing at the level of the regime. It expresses insights and values that are not existing, considered or responded to by the regime.

2.2. Concepts of upscaling

[Smith et al. \(2015, 2016\)](#) and [Smith and Raven \(2012\)](#) together present three main and partly-related concepts of upscaling approaches which represent the bridging of the gap between niche innovators and local state practices: 'strategic niche management', 'niche policy advocacy' and 'critical niche' ([Smith et al., 2015](#)). Here it is useful to distinguish between the origin of resources employed to protect and develop innovations: from within or from outside ([Smith in Geels and Schot, 2007, p400](#); [Bock, 2016](#)), or from both sides ([Bock, 2016](#)) because actors from within and from outside the niche can be involved. In the 'strategic niche management' approach, research focuses on the challenges that the niche innovation must overcome. [Smith and Raven \(2012\)](#) present two approaches to empower the innovations and which help them to overcome these challenges: 'fit and conform' and 'stretch and transform'. The initiatives themselves can grow stronger in terms of how they 'fit and conform' to the state and market 'regime' and are competitive and strong enough to survive the rules and routines of these regimes ([Smith and Raven, 2012](#)). It may be possible that new

groups replicate the innovation but there's no regime change. 'stretch and transform' (ibid p1033) is strongly related to 'niche policy advocacy'. Niche policy advocacy is outgoing, from within the niche outwards, by communicating or advocating what should be different. Here the notion of the niche innovation as a critical innovation is central, which is alluded to with the concept 'critical niche'. 'Critical niche' is about upscaling in the sense of a regime transformation. Critical niches '... open up debate about more socially transformative pathways to sustainability' (Smith et al., 2015, p1). Critical Niches mobilize critical knowledge and provoke debate through shared discussions (ibid p5-6). A critical niche can be considered as a niche containing innovation from which a regime can learn. 'Critical niches [...] see reason in demanding the impossible [...] point to limitations under current policy discourse [...] projects that are a poor fit [...] under current [...] regimes can orchestrate debate about restructured [...] regimes under which the same projects are very sensible' (ibid p21-22). In 'stretch and transform' the initiatives gain influence ('stretch') and ultimately succeed in transforming the regime, specifically the state and market practices. This includes upscaling in the sense of spreading of the innovation to other areas via changes of the socio-technical regime. It implies an institutionalisation of the agendas and criteria suggested by the local initiatives in state policies and practices. This transformation is taking place as impact of the communication by niche actors on their critical ideas.

2.3. Relevance of theoretical framework to local innovations in urban greenspace by citizens

Development and management of greenspace can be considered as a 'socio-technical' activity: the social system of humans and their ideas and values is interacting with the physical system of nature when enacting different technical and social practices in urban greenspace. Initiatives by citizens that develop and manage greenspace differently can be considered as niche innovations in niches. According to the literature niche actors are often outsiders of the regime or actors at the fringe of it (Geels and Schot, 2007). This can be observed in urban greenspace initiatives where, for instance, artists or social academics develop greenspace.

The green sector, comprising gardeners and their companies, garden centres, green education institutions; municipal green- and parks officers; aldermen for green-, open- and or public space; ecologists and nature conservation NGOs, together with their rules constitute a socio-technical regime that develops and manages parks and nature reserves which residents and visitors use (or do not use!) routinely. An alderman's² position and those of non-green public officers can also be considered as part of a socio-technical regime, though not necessarily that of the green sector. This article does not go into defining very precisely whether the routines of politicians and public officers belong more to the one or the other regime.

2.4. Data collection method and analytical approach

A case study was conducted in which the above theoretical framework was applied to analyse an initiative in urban greenspace. Diepenheim Inside-Out Forest was chosen as example of such an initiative. It is an initiative by two citizens who also have a main role in the development and management of the initiative. At the same time, they have a design bureau. In the later phase of their initiative they managed to obtain some remuneration for their work. The site of their intervention is situated in a village (2631 inh.) within the commuting

ring of the cities of Apeldoorn and Enschede in the heavily urbanized Netherlands. The citizens developed a green area in the centre of their village, amidst terraced houses. The case was chosen as a critical case (Wahyuni, 2012; Woodside, 2010; Yin, 2012), i.e. a representation (Wahyuni, 2012; Flyvbjerg, 2006; Scapens, 2004) of citizens initiatives in urban greenspace where the knowledge and practices of the initiator (s) do not initially align with the local, ruling ideas about greenspace and because it showed that eventually this disagreement had developed into a form of collaboration in which the ideas of the citizens were adopted and translated into a green park. In that sense it provides an in-depth example of the critical factors this study aims to look into. The knowledge itself does not have to be representative of knowledge in other citizens initiatives. A single case study is a good method for qualitative research, that facilitates a deep investigation of a real-life contemporary phenomenon in its natural context (Wahyuni, 2012 referring to Woodside, 2010 and Yin, 2012). A singular case study approach is appropriate for answering questions in terms of why and how (Yin, 2009), thus for answering how the transition happens in detail and how citizens initiatives can lead to a change of practices. The study describes in detail how the change of ideas and practices is taking place in reality by a secondary analysis of semi-structured interviews of different agents that were actively involved in the case. Semi-structured interviews allow the practitioners in the field to pass on their ideas and perspectives to the researcher during the interview (Boeije, 2010) who, for this study, can verify the applicability of theoretical concepts and further insights and develop policy advice. This is exactly what is needed for investigating differences in ideas and perspectives in relation to greenspace, its management, development, use and meaning and their transition over time.

Data on this case was available in the form of three interviews in 2013 and five in 2014 with the initiators and other parties with different roles, including the local municipality. The 2014 interviews were filmed (www.youtube.com 1–5). The films show the respondents and the green area they made. The case study gives insight into how the municipality has changed in relation to this one case, and how such transition takes place, the role of the networks and the barriers. The questions that were posed during the interviews can be found in Appendix B. An alderman, a public officer for greenspace and a public school teacher were interviewed as representatives of the local state. The citizen initiators/designers and a company gardener who participated in the implementation were interviewed. The interviews from 2013 were with the same public officer, the two citizens and a head of school for professional green education. The municipal officer, the alderman, gardeners and school for green education can be considered as part of a socio-technical regime (as will appear below).

The films were approved by the respondents who were answering the questions while being filmed. The content of the interviews from 2013 were also approved by the respondents, but are kept confidential (as promised). The films and interview reports are now submitted to a secondary analysis. Text fragments that show the critical and situated knowledge and values of the interviewees in relation to nature are used. They are fragments that make clear: why the citizen-designers took the initiative; and their knowledge of and relation to the greenspace they contributed to. These are compared with the knowledge and practices of the socio-technical regimes. Other fragments are about the efforts and other contributions of the initiators and of the local state and other socio-technical regimes over time. Next the texts are analysed to identify possible traits of 'stretch and transform' or 'fit and conform' transitions.

Interview fragments from 2014 are quoted; the confidential interviews are only referred to. Both give the subjective findings of the actors that are used. By the detail of their findings, the documentation in interview reports and films (both approved by the interviewees), and by the methodological approach behind the interviews (Appendix B) they are considered reproducible and valid for a qualitative analysis of the case.

² An alderman ('wethouder' in Dutch, 'schepen' in Flemish) is elected by the city council and in charge of the daily administration of one or more policy fields. He or she works within the legislative frame given and is controlled by the city council who elects the aldermen. An alderman is at the same time representative of a political party, thus combining a political and administrative role.

3. Material

3.1. Case 'Diepenheim Inside Out Forest' (DIOF)

DIOF is a citizens' initiative in greenspace in the centre of the village of Diepenheim situated in the municipality Hof van Twente. In 2007 the municipality issued a competition for proposals to redevelop the old tarmacked roller skate area in front of the primary school. The winning proposal consisted of installing a number of playsets, together costing approximately 10,000 euros. This would exactly fit the available municipal budget. The municipality simply had to select the sets from a catalogue, order them and have them installed. 'Their usual practice', according to one of the initiators, mother and designer Bovenschutte. She came up with an alternative plan. The Bovenschutte children had also submitted a proposal to the competition, but this proposal 'was of course not possible' the municipality told them. Afterwards the initiator and her sister saw children playing in the small green fringe left over beside the tarmac site. The kids were digging in the earth and putting-up small hills for cycling over. The two mothers deplored the situation and the fact that there was little room for playing with nature for children. They decided to elaborate their children's proposal. The mothers had themselves grown up on a farm, always playing outside in the farmyard. They felt they had learned a lot from that and wanted to offer a similar experience to the children of the village.

With their design the two mothers went to see the director of the primary school. The school was quite happy with the other, winning, proposal. The sisters referred to the fact that behind the school there were already similar playsets (Fig. 1) and asked them whether the school really wanted to reproduce the same concept in front of the school? When the sisters showed their design, 'the eyes of the director of the school and teaching staff opened wide', one of them says. Together with the school director the sisters went to the municipality. The alderman liked the idea and, since citizens' initiatives 'were hot' at that time, said 'good, go ahead!'

With this approval the sisters were given more responsibility than they had anticipated; but they accepted it and took up the challenge. They met and organized as a group with other citizens and the director of a regional school for professional education on greenspace. To obtain the required budget for their plan, the municipality communicated with the province and found that, as authorities, they could together submit their proposal to LEADER, a European funding program. They submitted a successful bid and the municipality engaged gardeners and a project leader to contribute to the realization of the site of 2100m². The sisters organized numerous meetings with citizens and volunteers.

Together with school children, a local officer, the commercial gardeners, the project leader and an NGO with expertise on children and nature interaction, they built the Inside-Out Forest. (Figs. 2–4, www.youtube.com 1–5)

At the time of the interviews the sisters were still involved in the management of the site. They organized its use together with other users. The site was intensively used by different social groups, young and old, and also less able children. The sisters worked with the project leader and additional experts on the specific needs of these different groups in order to make the site attractive and usable to all of them. The different parties learned a lot. However, the sisters felt that they had worked too hard. 'Though the project was a success, the process was not', one of them said.

In the following section the theoretical framework is applied to DIOF in order to answer the research questions.

4. Results

4.1. Critical and situated knowledge in DIOF-case

Situated knowledge refers to the local site and its uses. According to the citizen that was interviewed there was no place for children to go to play on their own with nature. 'This was a barren parking site.' She refers to the importance of the centrality of the site within the village. 'Here greenspace can be used.' She was aware that there were already playing sets in the school yard and that providing more of them wouldn't respond to a need. She also knew that young adolescents didn't really have a place to go to and meet each other. She and her sister identified the daily needs of the younger generation and saw children playing in the small green fringe of the barren site. It made them look for better alternatives.

Criticisms of the state routines or practices related to green space can be identified in the following selected texts drawn from the interview of the citizen. She thinks that nature is important for children to develop their capacity to solve their own problems and to think on a higher level than what is usually required in daily life. According to her, their smart phone only calls for reflexes and the deeper layer of thinking is not evoked by life nowadays. The system un-teaches children to help and rely on themselves. She thinks that by playing with nature children can learn to become more independent. She therefore criticizes the practice of installing playing sets because these do not teach children to think at this higher level and to rely on themselves. She says 'The municipality thinks in apparatus' and therefore the municipality chose the other design as the winner because the different



Fig. 1. the kind of playsets suggested earlier for the site.

Fig. 2. DIOF under construction, April 2013.



Fig. 3. DIOF, August 2017.



Fig. 4. DIOF, August 2017.



playsets in it fit with the practice of the municipality to outsource work and simply select a few apparatus from a catalogue. ‘The municipality doesn’t allow you to use green, it is more decoration, background.’ ‘We looked at the children and community life and wondered how you can make a place where people don’t know yet that they have these needs? Now the municipality is enthusiastic...they could never have come up with this themselves’. Other critical knowledge of the citizen designer towards the routines of other actors concerns the school. She states that the system of the school does not leave enough room for using green-space as part of training.

The niche innovation at the level of the critical niche consists of (as the initiator formulates it): ‘Everything coming together – across seasons, ages, types of children – in the Inside Out Forest. Old traditions like the maypole are reinstalled and organized with the community in and around DIOF.’ She continues: ‘It is about balancing needs, but also about re-establishing old rituals, like the maypole’. The citizen initiator shapes nature by designing and constructing while involving neighbours, children and the school. As designer, she took care of creating different spaces where there’s place for different types of children and from different ages, so as she says: ‘all of them can find a place that fits them and the way they want to play and interact (or not) with other children’.

The municipal officer confirms that the knowledge of the sisters is critical: ‘These kind of initiatives are very dependent on people who know what is needed. With playsets like bouncing chickens, children can never have this experience.’ ‘The initiators knew so well what is needed nowadays in public space’, the officer says. ‘They wanted to make this a multifunction place, for playing, for children to develop their own creativity.’

The school teacher refers to the site as ‘a super place’ where the children prefer to play. According to the teacher: ‘It has a very important function. The insect-hole in the park is being used for biology lessons... All green things are to play with. You may not destroy it, but otherwise everything is allowed here’.

4.2. Regimes in DIOF case

The initiators in DIOF encountered difficulties posed by the local state practices that require persistence and patience to cope with and overcome. The citizen designers refer to the local state as organized in sector silos, bureaucratic and which should be approached with perseverance, endurance and tactics; a state that doesn’t easily change its practices and can hide behind its rules. This is what social innovation studies refer to with the concept of ‘regime’. It appears from the following parts of the interviews: The officer says that the municipality is somewhat rigid in the use of public space. The interests of the house owners, the kids, the elderly people, needed to be included in the whole process. The officer also sees it as his task to check whether the parties ‘stay within the main conditions for the use of this area’, i.e. according to the prescriptions of the zoning plan. He also offers advice and helps to overcome barriers: From his perspective and capacity as green officer he pointed out to the citizen designers how vegetation in green spaces grows, the room it needs, the hindrance it can cause to neighbours. He also gave design suggestions to the initiators that deal with the specificities of plants as living objects. He says ‘I suggested that they [the sisters] should keep in mind the maintenance needs of urban green-space... The citizens often don’t see what green needs in terms of development and room, and potentially negative consequences for neighbours. I suggested that they should work with certain heights of flowerbeds and to keep an eye on the impact of tree crowns on what grows underneath.’ When there were disagreements between two municipal officers about the initiative because their policy goals were contradictory concerning the way in which they should be considering the initiative, the officer intervened. He helped to identify ‘what matters’, i.e. the overall goal of the policies within which the initiative fitted very well.

The alderman says that the municipality has to be an ‘effective facilitating company’, that it should also support the initiative with a single officer and that it should not confront it with all the different aldermen with various related responsibilities. They had to see how the administrative apparatus can support an initiative. ‘How for instance we could engage the province for subsidies... and involve other parties.’ They want to fully support initiatives from society, inhabitants, leaving the initiative to the residents. They facilitate it from one position, i.e. a project leader or responsible alderman, aligning the other sectors, while actually many aspects have to do with several goals of the different sectors or departments of the municipality.

The alderman mentions the passion and energy that the citizens put into the reconstruction of the parking area to turn it into greenspace, ‘... of course their passion..., we could never have matched that as a municipality’. He also says the municipality wouldn’t either have the capacity to maintain it the way the citizens do. Responsibility for the initiative is with the initiators. If they wouldn’t have kept ownership of the initiative, it wouldn’t have succeeded, according to the alderman. This sets out the restrictions of the local state’s regime in terms of which residents’ wishes it can meet or not.

The gardener states that most of the hired gardeners had no experience with such initiatives and were rather reluctant to cooperate with citizens in the construction, because it may lead to delays in execution and a different appearance of the site than what is standard. They want to avoid the heavy demand of citizens participation in greenspace construction, the gardener says.

4.3. ‘Critical niche’ and ‘stretch and transform’ empowerment in DIOF

Though in 2007 the municipality had disregarded the children’s plan as such, in 2015 after DIOF was realized the Alderman says in the interview ‘We want to see how we can get an initiative realized, and not why it is not possible...’. The sisters demand what [Smith et al. \(2015\)](#) refer to as ‘the impossible’; and that was in the first instance also what the municipality said: what they wanted was ‘of course not possible’. A change of rules on what matters, what should be done with it and rules of practice had evidently taken place. The sisters had convinced the municipality by proposing their alternative discourse about the relation between nature, children and teaching and with their design, first going to the school, then to the municipal alderman. The alderman agreed with the implementation of their innovative plan. This ‘niche policy advocacy’ by the sisters had, so far, been successful. The implantation of the critical ideas and values of nature as lived knowledge in the minds of the local politician, the officer and the school also, and maybe even more importantly, took place during the implementation process and upon its completion, when the area could actually be used and become appreciated by the children and other residents.

The green officer says he has learned a lot. Over time he has adopted knowledge and values of the initiators concerning the importance of nature for the development of children. Also at the level of the school, ideas have changed. Where the director was initially happy with the promised playing sets, the new plan convinced him. The teacher has internalized knowledge of the citizen-designers in relation to using the site for education.

The interviews show that each of the actors refers to meanings in relation to DIOF from the perspective of their own daily routines. The knowledge of each of the five actors remains linked to their daily practice. Meanwhile they have learned from the critical niche innovation and adapted their practices. The sceptical neighbours also developed their thinking and became positive towards the initiative when the construction fences were removed and they could see the results and enjoy and appreciate them. This shows that users also have their routine, in the literature referred to as ‘lifestyles’, that have been adapted to existing ‘technical systems’ ([Geels and Schot, 2007, p400](#)). With the change of system, the lifestyles start to change as well. The policy advocacy by the critical niche innovators has led to a change of

practices by multiple parties: greenspace developers, managers and users.

The two citizens also promote their initiative elsewhere in the Netherlands and several of the actors contributed to the films that were later put on www.youtube.com. The policy advocacy thus reaches further than just the local context. At the same time the initiative itself may have profited of policy advocacy from within society towards the local state, since the initiator said that citizens initiatives ‘were hot’ at that time. It means that there has been wider communication already going on in favour of citizens initiatives.

4.4. ‘Fit and conform’ empowerment approach in DIOF

The sisters worked in close interaction with the local state, gardening companies, regional experts and national NGOs. These actors all contributed resources: The local state drew in the finances from LEADER via its cooperation with the province. The gardener contributed his labour and knowledge to green construction pursuing a certain ‘standard of appearance’ of the site based on professional insights – on how green grows and needs to be taken care of, how to prune and braid the willows. The officer also contributed his professional insights. The national NGO ‘Nature Next Door’ provided subsidy and another NGO contributed specific knowledge about the children and nature interaction. An expert taught the sisters how to adapt places for use by disabled and less able children. The sisters integrated these distinctive contributions from multiple directions into the design and realization of the greenspace. The empowerment of the innovation DIOF consists of endogenous and exogenous contributions of resources by the various actors mentioned: endogenously by the initiators, exogenously by the local state, gardener, officer, experts and NGOs.

The making of the Inside-Out Forest of Diepenheim was ‘too hard’ as a process according to the initiating citizens, who estimate that they spent about 10 h of their free time a week on it (2013). The initiative’s concept of nature and way of developing and managing greenspace was not yet common for the local state, nor for all gardeners. The local regimes were not prepared for such initiatives. The sisters had to face these ‘regimes’, which made it an arduous task to complete the initiative. The contributions from all sides however made the project a success.

5. Discussion

5.1. What happens during a citizens’ initiative, in terms of transition of state management and development of urban greenspace?

In this case, the innovation of urban greenspace developed on the basis of critical knowledge and situated knowledge that lead to different criteria than those that were used by the local state before the initiative took off. The criteria in DIOF are about the meaning of urban nature for society, especially the younger generation, and various past social practices that can be revived, such as the maypole. When groups demand ‘the impossible’ it can be interpreted as the actual regime not being able to respond to the demand, because it is organized on the basis of other knowledge or values.

The local residents that take the initiative bring in a situated knowledge, which the local state and other actors may not have. It is a specific knowledge because it is the knowledge of locals and users of the greenspace (Jones et al., 2016; Reser and Bentrupperbäumer, 2005; Satterfield 2001; Satterfield, 1997; Kleeman, 2001). Communication (policy advocacy) and collaboration enact the transition in the mind of the local state parties and initiate a necessary change of practice. Various parties have difficulty in changing their routines, not only the municipality but also gardeners and residents. The wider community is invited to join in this initiative. The initiative draws knowledge and resources from multiple directions (Bock, 2016). Multiple parties contribute and matter in order to render this initiative successful, because

of the (for Diepenheim) new ambitions.

The case study explains how the different benefits (Poulsen et al., 2014; Schukoske 2000; García et al., 2014; Ernwein, 2014; Dempsey et al., 2014; Kurtz 2001; Ernwein, 2014a, 2014b; Barron, 2017) that arise in a greenspace development and management initiative relate to the knowledge of the actors involved and that the quality of urban greenspace (Fors et al., 2015) which has been developed (Lindholm et al., 2015) is very much the result of that knowledge. This confirms the idea that quality of greenspace is a quality in the eyes of the beholder (Aalbers, 2002, Jones et al., 2016). De la Barrera et al. (2016) find a similar relation between perception and use of urban greenspace comparing different socio-economic groups; Janson and Lindgren refer to landscape management and planning processes differing depending on who is dealing with them (2012 p140).

5.2. How can these initiatives lead to a change of practices of the local state?

The change of state practice is taking place through both empowerment approaches: stretch and transform, and fit and conform. Fit and conform takes place by the combination of internal and external resources: the skills and assets of the sisters, of the gardeners and the state, the responsibility and legitimacy to govern on the part of the local state, knowledge contributed by experts from elsewhere in the country. The most closely involved parties referred to the need for ‘a lot of work’ and this seems to be required if the resistance of a regime is to be overcome. Regimes were identified not only at the level of the local state, but also with the gardeners and the school. With these multi-directional contributions the initiative became a heavy load for the sisters to carry, but at the same time it may be considered as the way in which the change of practices, or rather the rules that dominate the practices of the local state and others, is actually enacted.

All parties depart from their core competences, and a certain complementarity between state, market and citizens seems logical, and practical because of the efficiency of the division of work that takes place. It can be the core of the fit and conform notion. But it is not the same as stretch and transform. Eventually, it is the policy advocacy that the sisters conduct while collaborating with the regime actors, that leads to the transformation of insights. Without this advocacy the regime transformation can’t be expected to be of the same intensity as now, when the alderman says that they no longer want to focus on what is impossible. It may be considered as the power of strong and exemplified argumentation that led to the conviction of the other parties.

Both approaches, fit and conform and stretch and transform, matter for the upscaling and are entwined. The extent to which the state can take over the practices of such initiatives in greenspace (the output of stretch and transform), needs to be looked into, because part of the meaning of greenspace for the initiators exists in being active in nature oneself (Aalbers et al., 2015).

It seems logical that a next green initiative by a citizen in Diepenheim does not have to overcome the same barriers, at least not to the same extent. The rules that hindered the innovation have been changed from outside by the actions of the sisters who criticized them and from inside by the change of understanding by the actors through which these could reformulate their own rules. A change of rules used by the local state, green sector actors and the school could be observed between 2007 and 2014.

The transition means that gradually the distinction between the rules that make the socio-technical regime and the rules in the innovation becomes less. The local state, teacher and gardener internalize part of the new critical knowledge and adopt new ideas. It becomes less obvious that there is or are socio-technical regime(s). But in fact there’s a new regime that better fits the innovations and the innovation is or no longer needs to be critical, is no longer that new anymore.

5.3. State and citizen-designers bound to each other, all can be policy advocates

In the introduction potential wider benefits, legitimacy of policies, defence of greenspace and welcoming of contributions by citizens and other issues were raised as societal challenges. Eventually both of these approaches to empowerment are a matter of societal parties and the state having to be in contact or needing to get in contact with each other to communicate and cooperate. They need to become partners if upscaling of the initiatives is to become a success. A critical communication and collaborative approach is needed if a socio-technical regime wants to reflect the values and interests of citizen initiators in its policies. Insights into types of conversations (Pearce and Littlejohn, 1997), ‘frames’ (Dewulf et al., 2009; Arts and Van Woerkom, 2005) and the development of frames (Pearce and Littlejohn, 1997; Weick, 2011) are useful when state officers and politicians want to learn from the insights of the initiating parties and for successful policy advocacy by these initiating parties.

Grasping the critical knowledge of innovations can’t be met by one-way communication during public hearings, because such hearings are too limited for the in-depth exchange of critical knowledge.

The critical knowledge in local initiatives also carries the cultural values of members of the local community. It is therefore important that the local state recognises these values when legitimacy of state policies is an issue in the eyes of the public; though of course the representation of other members also requires attention.

Niche policy advocacy can be conducted by all actors, e.g. within one’s network of gardeners, officers or politicians. Networks within the Netherlands, like Nature Next Door, Springzaad, supportive state officers at the various levels, researchers involved in communities of practice with state officers and journalists, can all play a role in the policy advocacy. This is also what is going on, and often the benefits of these and similar innovations get more attention than the disadvantages of these local initiatives.

5.4. Wider use and meaning of urban greenspace and sustainability

From the critical niche perspective, eventually, the critique contained in initiatives like DIOF and the multitude of other initiatives (e.g. in Aalbers et al., 2015) can be seen as a critique towards the current regime of the green sector, the local state and even the school and their practices, how they build up urban greenspace and make green areas and playgrounds for children. Citizens can play a role by setting criteria for different practices.

Among the difficulties that the DIOF initiative faces is the problem of the local state’s sectoral silo’s, also alluded to in the interviews in the study by Aalbers et al. (2015). Smith et al. (2015) p1) observation about critical niches opening up debate about more socially transformative pathways to sustainability aligns with that of Aalbers et al. (2015) about the integration of the 3 pillars of sustainability (e.g. www.gehlarchitects.dk) in the non-state initiatives. Several authors have mentioned the importance of management of urban greenspace for the sustainability of the urban landscape (Chiesura, James, and the Council of Europe, quoted in Jansson and Lindgren, 2012; De Magalhães and Carmona, 2009; Auclair and Vanoni, 2003; Konijnendijk, 2003). A more cross-sectoral integrated approach is likely to produce wider benefits of urban greenspace than parkification (Littke, 2015) does. Indeed, if urban greenspace is more responsive to the wishes of local residents it may be expected that they also attach more to it and are willing to defend it and (support policies) to invest in it. At the same time the notion of critical knowledge does imply that not all routines need to be changed, except those that are limiting the responsiveness to needs of (members of) the public and in relation to sustainable urban development.

5.5. Combining change of local state practices with local initiatives

All parties refer to a ‘lot of work’ that needed to be done to get the site developed and managed. The municipality has its regular staffing for green projects, the sisters had to take this task in addition to their work as professional designers and mothers. At first the sisters contributed most of their time, up to 10 h a week, for free, whereas the hired gardeners and appointed project manager were paid per hour. Management costs of urban greenspace are often high and management and development by non-state parties can reduce municipal costs. It seems somewhat awkward though, to divert the burden to some voluntary parties and not to look for more structural solutions. The initiatives are born out of discontent with the existing situation or the missed opportunities for creating meaningful urban greenspace. This critique can be translated into a change of local state and gardener practices, in order to more structurally create urban greenspace that is more meaningful in the eyes of the local residents. For DIOF the municipality hired a resident living nearby to do the maintenance. The sisters who initiated DIOF have shifted interests and are no longer profoundly involved (personal communication 2017). It needs to be realized that differences in ideas and wishes between residents about greenspace can also exist, and that wishes evolve over time and with the change of residents in a neighbourhood (Aalbers, 2002).

A change of local state practices need not be restrained by limited implementation capacities at the level of the local state, but local state capacities can be developed to meet the demand. Not all urban greenspace has necessarily to be run by citizens. The local state can learn from the other actors through cooperation and subsequently seek ways for itself to develop green that is more varied and offers more possibilities for interaction between humans and nature. Upscaling of the innovation can exist in a changed regime, leading to the making and managing of different greenspace by the local state and the green sector, and in involvement of citizens who like to develop and manage urban greenspace, or a combination of these two. The first would be more in line with the public management approach (Randrup and Persson, 2009; Grey 1996 and Miller 1996 in Randrup and Persson, 2009, p36; Lindholm et al., 2015).

Fig. 5 and Table 1 depict these approaches and the potential meaning of their combination. The images express the strength and coherence, but not necessarily the geographical extent of the initiatives; though geographical expansion may be a consequence if policy advocacy is conducted by initiators and converted regime actors together. Once the critique in terms of different rules contained in the local innovations is integrated in a regime, it may contribute to a different type of greenspace in urban regions with a broader meaning of urban nature than is realized now by the parkification (Littke, 2015) of urban nature. It remains to be seen where citizens and state parties can share the work, discuss the division of work and find complementarity.

It needs to be said that local initiatives are not a panacea for urban greenspace development and management. They can be a heavy burden on the initiators, some initiatives may be at the interest of the initiator only, and many people are not interested in developing or managing urban greenspace. On the other hand, some initiatives are high quality in terms of professionalism and produce important benefits for the local society. A parallel can be observed with insights from urban planning where Theys (2002), Reichen and Peter (Buyck et al., 2010) and Gehl (www.gehlarchitects.dk) draw attention to the social dimensions of urban development. According to Gehl ‘it is now time for a lively, liveable, sustainable and – again – healthy city... Looking carefully after people in city planning will efficiently address all three issues’. Newman and Beatley (2009) draws attention to the combination of appreciation for local places with global responsibility. Local initiatives in urban greenspace may contribute importantly to local places with an environment that better fits the local residents.

Regime is not uniquely a feature of the local state but also of market parties and citizens themselves with their own values, and lifestyles as

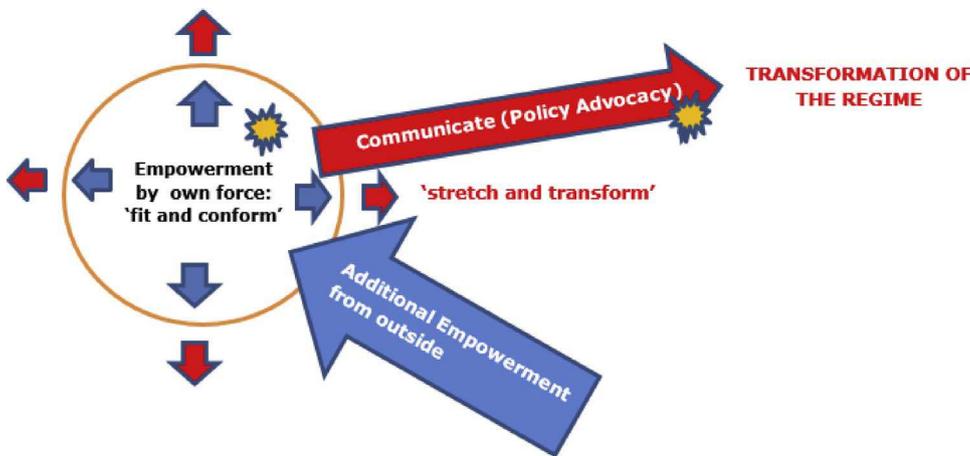


Fig. 5. Empowerments (blue arrows) by endogenous and exogenous resources and Policy advocacy (red arrows) of critical knowledge (yellow star) to transform the regime. The orange circle depicts the niche-innovation. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

routines. A change among all parties seems needed if greenspace is to be developed, managed and used differently. There is a parallel with the focus on a change of consumption and production patterns in relation to the achievement of sustainable development (e.g. Gilg et al., 2005).

5.6. Reflection on theoretical framework, data collection method and approach and related findings

In this article stretch and transform is developed along the policy advocacy line and fit and conform along the ‘resources from multiple directions’ line. These and the other concepts used are applicable to local initiatives in urban greenspace in relation to the local state practices. The concepts allow the identification of two different approaches to upscaling and their benefits, what to focus on when upscaling, and an understanding of the regime notion, including that it can be identified in relation to all actors and not exclusively in relation to the state.

Whereas Smith et al. (2015) do not discuss the difference between critical knowledge and situated knowledge but state the first is born out of the second, some distinction could be useful. Situated knowledge can be related to the local situation and practice whereas critical knowledge seems appropriate for identifying the crucial difference between forms of knowledge and inherent values in the innovations when they are compared to the regime practices. Hence the critical knowledge is relevant to the stretch and transform strategy, because it contains the critique in relation to what needs to be changed in the current practices of the regime (Fig. 5). Situated knowledge can be critical, and not all

critical knowledge has to be situated. The innovator’s knowledge, which differs from the regime knowledge and which has importance to the initiator(s) or stakeholder is the ‘critical’ knowledge. In other circumstances it can be that of local elder, a health expert or biodiversity specialist, depending on the felt or argued need of the elder, expert or specialist for a different greenspace. The critical knowledge of citizens could possibly be defined as more specific in terms of stakeholder demand or from another field of expertise that is judged relevant for the greenspace. Perhaps the term critical knowledge would be best used to distinguish that it makes a difference to currently used knowledge, and matters importantly to the innovators.

Transition theory brings with it the attention to discourse in the form of policy advocacy, to resources and to the barriers that routines in knowing and acting can form to upscaling. The management and quality of urban greenspace are influenced by the knowledge and practices of the responsible actor(s). At present it is the local state which is generally held responsible for the management of greenspace. The resources focus, combining those of the initiators with those of external partners, shows that resources of different parties can be shared in managing and developing greenspace. It does not have to be exclusively the local state which has to carry all responsibilities. If different managers appear, they carry different knowledge and wishes and will produce a different type or quality of greenspace. Governance literature generally focuses on the government that needs to change. Transition literature however, points at the existence of routines at the level of all parties and using the critical knowledge concept reveals that there’s not a better knowledge of greenspace, but different understandings of greenspace spread over different actors. This suggests that

Table 1
Different potentials of transition of non-state initiatives in urban greenspace.

<p>Transition by ‘Fit and Conform’ to the regime</p>	<p>Transition as multiplication of ‘Fit and Conform’ initiatives</p>	<p>Transition by ‘Stretch and Transform’ of the regime</p>
<ul style="list-style-type: none"> ● Niche gets stronger but innovation remains restricted to the niche ● Burden on initiators ● Weak coherence non-state and local state managed initiatives 	<ul style="list-style-type: none"> ● Innovations multiply ● Burden on initiators ● Weak coherence non-state and local state managed initiatives 	<ul style="list-style-type: none"> ● State regime integrating critical and integrated knowledge through Policy Advocacy by critical niches ● Local state managed greenspace reflects knowledge and interest non-state parties’ initiatives

all actors are limited in their knowing and management of greenspace.

Actors who conduct policy advocacy need sufficient communication capacity. There are groups who do not have this capacity (time wise or as skill) and may remain silent. In terms of resources (e.g. time, finances, skills, land ownership (Arts and van Tatenhove, 2005; Giddens, 1984) there are also strong differences between groups which is a point that needs attention.

Further application of insights and concepts from transition studies to niche innovations in greenspace development and management is recommended; not least because decades of transition studies have yielded generic insights that can prove useful for accelerating the change of the socio-technical regime of the local state and the green sector towards practices that contribute to a broader meaning of urban greenspace. This can be crucial for legitimacy of actions and ascertain public support or maybe involvement for a more sustainable urbanization.

The data on the DIOF case are limited to the 8 interviews with a relatively short time span in between the first and second rounds. A survey of other activities of the socio-technical regime of the municipality towards initiatives by citizens in greenspace would have allowed a better identification of whether the socio-technical regime has altogether changed its practices towards greenspace initiatives. Furthermore, the accounts by the actors may to a certain extent have been promoting their own ideas. The public officer was rather open in terms of admitting that he learned from the initiative, the alderman, gardener, schoolteacher and initiators accounts were somewhat more 'advocative' of the innovations and knowledge.

6. Conclusions

6.1. In relation to the societal challenges mentioned in the introduction

Critical knowledge is the driver for greenspace innovations and is the cause of disagreement over what matters and discrepancy or even tensions between state policy and citizens' niche innovations in development and management of urban greenspace. Wider benefits of greenspace as shown in DIOF fit with sustainable urbanization. To understand and develop those the critical knowledge needs to be identified within the initiatives. This requires critical listening or, better, collaboration with niche innovations.

Regime features can be identified in relation to all parties, not only the local state. Transfer of tasks to citizens may thus also demand that the latter adapt their own routines and values. Innovation calls on all parties, not only on the local state.

Supporting local initiatives (fit and conform) of citizens is not the same as adopting new practices and integrating critical knowledge of critical innovators. Policy advocacy (stretch and transform) can be done by initiators but also by their networks and those of others involved. This may lead to wider regime change at the level of regions, provinces or country, where the management and development of greenspace is more reflective of people's relations with nature. The extent to which the state can take over the practices of initiatives in greenspace should

be investigated further, because part of the meaning of greenspace exists in being active in nature oneself.

Concerning the management and quality of greenspace: desired qualities can differ substantially between actors, depending on the critical perspective. Collaboration is a means to deeper understanding of the perspectives of the critical innovators. Further investigation is required into whether and where greenspace management and development can be transferred to citizens, and when and where not. The innovations may contribute to a more sustainable urbanization. In relation to this, the process aspects in the initiatives are as relevant as the physical aspects of greenspace.

6.2. On the transition concepts

Transition studies provide an applicable set of concepts to study how initiatives by citizens can contribute to a change of the local state and green sector regime, as demonstrated by the analysis of a case of urban greenspace development and management by two sisters, mothers and trained designers in *peri*-urban Netherlands. The stretch and transform, and fit and conform concepts and the notion of critical niche and of critical knowledge and situated Knowledge contained by initiators are particularly helpful in analysing and understanding the potential of transition in terms of realizing a more multiple benefit urban greenspace. The concepts shed a different light on governance, not only pointing at the local state as regime in terms of knowledge and resources. The insights into the various stabilizing features of regimes that transition studies present (Geels and Schot, 2007) may be used to study and develop recommendations for a transition of local state policies on urban greenspace towards this multiple benefit urban greenspace.

Further use of transition concepts in the study of local initiatives may demonstrate possibilities where initiators can have an effect outside their niche, and show regime actors like the green public officers how to support and communicate more effectively with local innovators and how to incorporate their knowledge and values in the local state's practices. But paying attention only to initiators carries the risk of a democratic deficit, since not all parties have the communicative skills and time to conduct policy advocacy or the resources to run an initiative.

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Appendix A. Advantages, disadvantages of citizens initiatives and barriers to their success, according to the literature

Advantages

- enhanced quality (Aalbers, 2002) and value (Jones et al., 2016) of greenspace in the eyes of the involved citizens;
- more rapid adaptation of greenspace to wishes of citizens when population changes (Aalbers, 2002);
- better understanding of planning issues among citizens, less opposition from citizens (Auclair and Vanoni 2003);
- social cohesion (Veen, 2015; Van Dam, 2016);
- cognitive resilience (Colding and Barthel, 2013);
- equal citizenship and public reason (Birnbaum, 2016);
- improved public management (Aalbers and Haars, 2006);
- trust between municipal officer and citizens in case of a positive cooperation (Aalbers, 2009, Aalbers and Haars, 2006), new production and consumption patterns in urban agglomerations (García et al., 2014);

- innovations in public space shape and use (Alm et al., 2002; Auclair and Vanoni, 2003);
- a more integrative interaction between society and nature (Aalbers et al., 2015);
- positive psychological benefits for the individuals (Aalbers et al., 2015; Poulsen et al., 2014);
- connection with nature (considered positive), trust and shared learning among neighbours, cleaned up degraded lots, created gathering places, and improved food environment (Poulsen et al., 2014);
- capacity of citizens to organize (Dempsey et al., 2014).

Disadvantages

- shift of workload onto citizens in times of financial crisis, generally heavy workload for initiators, disagreements among citizens, workload for officers to manage complex participatory approaches (Aalbers, 2009; Barron, 2017)
- in case of less skilled initiators, citizens withdrawing from taking care at the longer term (Aalbers, 2002)
- discontinuity of partnerships due to change of jobs or loss of interest (Aalbers, 2002);

Barriers

- different time horizons municipal versus citizen actors procedures (Aalbers and Haars, 2006);
- unfamiliarity of officers with communication with citizens (Auclair and Vanoni, 2003, p 16);
- rules and lack of internal cooperation between [municipal] offices (sector silos) are forming barriers to part of the local innovations and formal policy discourses do not fit with the values and objectives of the initiatives (Aalbers et al., 2015; Aalbers, 2009)).

Appendix B. Interview questions

Interview questions 2014

Questions to citizen initiator and designer	<ol style="list-style-type: none"> 1. What was the reason for you and your sister to come into action on this place? 2. How different is the greenspace that you are making (in terms of kind, quality, or meaning or identity) from other greenspace that the municipality usually develops? 3. What was your contribution or role? 4. What was the contribution or role of the others? Who were these others? 5. How much time have you spent on this initiative? 6. Are you still contributing to the initiative? If yes, how and what? 7. What is the meaning of this place to you? 8. What does it mean to other residents in the neighbourhood? 9. What about the support for the initiative?
Questions to alderman	<ol style="list-style-type: none"> 1. For which portfolio are you in charge as alderman? 2. What did the initiative by the citizens mean for the municipality? Were there any administrative or governing particularities? 3. Did the citizens' initiative fit with the goals of the municipal policy? 4. How do the wishes of the initiators for the site relate to portfolios of other aldermen? 5. What do you expect from the officers when inhabitants take an initiative? And from the green professionals of the municipality? 6. Is the greenspace which citizens develop different from what the municipality makes? If yes, what is the difference? 7. How does it fit into the municipal maintenance? Can you explain? 8. Who is responsible for the process? and for the final result? And from juridical point of view? if something happens, for instance a branch from a tree falls on the head of a child? 9. What about the democratic content of this initiative? Was it talked about during the process?
Questions to municipal officer	<ol style="list-style-type: none"> 1. What do the citizens who took the initiative want with the site? 2. What does the initiative by the citizens mean for the way of working of the municipality? 3. How did the process go? Were there administrative and governing particularities? 4. Did the citizens' initiative fit with the goals of the municipality? Did you adapt your goals because of this initiative? 5. What did personally think of the wishes of the citizens? Could you still make use of your own knowledge? What was your role: leading, accompanying, facilitating? What capacities did this require from your side? 6. Is there a difference between what the citizens have made, and what otherwise would have happened on this site? If yes, what is the difference? 7. How is the maintenance of the greenspace going? Can you explain? 8. How bears which (juridical) responsibilities for the process? and for the final result? 9. How about the democratic content of the initiative? Was this an issue that was discussed during the process? 10. How did the municipality enable this project?

Questions to commercial gardener	<ol style="list-style-type: none"> 1. How do the wishes of the citizens initiators relate to your ideas and professional knowledge of greenspace? 2. And how did their wishes compare to your assignment? 3. What was your role in realizing the Inside-Out Forest? Was it a leading, coaching or facilitating role, or yet different role? 4. Which capacities does such a project demand from you as gardener?
Questions to teacher	<ol style="list-style-type: none"> 1. How often to you come to this site of the Inside-Out Forest with your class? 2. Is this place the same or different from other greenspaces or parks elsewhere in the municipality? In which respect? 3. What does this area mean to the school, to the kids? 4. How is the school involved with this initiative?

Interview questions to initiators, 2013

Introduction: For the Nature Next Door campaign we investigate what turns green neighbourhood initiatives into a success. Projects can learn from each other's experiences. Therefore we would like to ask you a couple of questions concerning your project, your role and that of the people around you. We think the interview will take an hour. Your experience, ideas and opinion are important for the success of the Nature Next Door campaign.

1. How did the idea for the initiative start?
2. What is or are the objectives of your initiative?
3. When did you start the initiative and what have you achieved since then, per objective? Did you adapt the objective along the way, for what reason? What are you most proud of?
4. What is your role in the project? What feels as your own organisation? How does the cooperation within that own organisation go? Have you an agreed division of roles or a division of roles that developed by itself? Which? How do you appreciate this division? Is it noted down on paper? [to check whether not all depends on one person]
5. Who else outside of this own organisation are involved with the project (volunteers, companies, institutions, etc.)? What is their role? How have they become involved? And how goes the cooperation with them?
6. Whom do you want to reach with your initiative – in your direct environment and in the wider environment? (help question: Do you want to engage them as volunteer or do you want them to use the greenspace?)
7. What activities do you develop for that?
8. Did you check what other neighbours' desires for greenspace in the neighbourhood are? How did you do that? Did you change your plans in reaction to the conversations with the neighbours? (help questions: Do the other neighbours share your enthusiasm for the initiative or do they have other wishes for neighbourhood greenspace?) If they are also enthusiast, what shows this enthusiasm?
9. How did your project start? Did you first orientate yourself extensively or did you just start?
10. How do you communicate your initiative inside your own organisation, any target groups or users and others involved and the wider environment? (indicate per group)

- newsletter?
- contributions to local newspaper
- via website
- via conversations with participants/neighbours

Do you communicate regularly? How often? Do you spend a lot of time, money or effort on it? How many hours?

11. How does the cooperation with the municipality go? What does the municipality do in relation to your initiative?
12. Are there any other organizations with whom you seek for help? What kind of help do you ask? And are you eventually helped? What do you miss?
13. Do you have the knowledge and experience needed for your initiative? Which knowledge is important for your initiative? Where do or did you get that knowledge? (if they involve special groups (see Q. 3) then ask: Do you also have the knowledge needed for working with your target group? (Help question: Does knowledge of gardening or rules and regulations matter here? If yes, which knowledge?)
14. What qualities do you need as initiator?
15. Are financial means important for your initiative? If yes, how? What did you have to do to obtain the necessary finances? Did you find this easy or hard?
16. How do you obtain the materials and equipment for the initiative? What did you have to do to obtain these? Did you find that easy or hard?
17. Concerning the land: who is the owner of the land? What did you do to be permitted to use it? How is the use of the land arranged? Did you find this easy or hard?
18. Where there ... for you as initiators? If yes, which? Why? And what went more easily than expected? Why? Which support could take away obstacles?
19. Are there events or circumstances that rather helped to turn your initiative into a success?
20. Do you cooperate with other green initiatives (in own location or elsewhere)? If yes, how? And what does it bring you in addition?
21. Do you observe that others (neighbours, visitors) get inspired by your initiative and also want to start something?
22. Do you have tips for other initiators? if yes, which?

At the end reflect on who they consider as partner, target group, volunteers, participants, users, etc.

Interview questions to municipality, housing corporations, welfare organizations, schools, etc. (external partners to the initiative) 2013

Introduction: For the Nature Next Door campaign we investigate what turns green neighbourhood initiatives into a success. Projects can learn from each other's experiences. Therefore we would like to ask you a couple of questions concerning your project, your role and that of the people around you. We think the interview will take an hour. Your experience, ideas and opinion are important for the success of the Nature Next Door campaign.

- 1) You know the initiative DIOF. In which way did you get to know it?
- 2) What is your involvement with it?
- 3) How does the initiative relate to the policy of the municipality/the school/(depending what applies) (Help question: does the initiative contribute to the objectives of your organisation/municipality?)
- 4) Which role do you see apt for your own organisation/municipality?
- 5) How do you see the future of the initiative?
- 6) Which specific contributions can you provide to the initiative in the future?
- 7) Which responsibilities does the municipality/the school have for the initiative? Which responsibilities are carried by other parties?
- 8) What would you advice to the initiators?

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Web links

- you tube 1 The citizen-initiator and designer: <https://www.youtube.com/watch?v=5ACG-lbT5Rs> (Accessed 15 August 2017)
- you tube 2 The alderman: <https://www.youtube.com/watch?v=eATYXHYKFTY> (Accessed 15 August 2017)
- you tube 3 The public officer: <https://www.youtube.com/watch?v=P42SdJgr8Ik> (Accessed 15 August 2017)
- you tube 4 The commercial gardener: <https://www.youtube.com/watch?v=1JheEblB6hU> (Accessed 15 August 2017)
- you tube 5 The primary school teacher: <https://www.youtube.com/watch?v=w6BisvKgSdU> (Accessed 15 August 2017)
- www.Gehlarchitects.dk 'Cities for People' (Accessed 2014)

Appendix 1 Objective and questions of the comparative case study research of the PLUREL project

(Aalbers and Van Dijk, 2008a)

Provision of insight into the land use relations that are the object of the actor's strategies:

- a. What is the general regional development situation in social, economic and physica/ecological terms?
- b. Which developments have an impact upon the urban fringe and how in terms of sustainability?
- c. Are these developments perceived by the different stakeholders? If yes, how? If not, what are the perceptions of the different stakeholders on the developments in the urban fringe? (see question 2)

2 Description of spatial planning and governance strategies for the urban fringe

- a. What stakeholders can we distinguish within the region in relation to sustainable urban-rural linkages. What are their interests?
- b. Which of these stakeholders are active (actors) which are passive?
- c. What are the main spatial planning strategies of international, European, national, regional and local authorities and stakeholders in the region, at the relevant scale, that influence the urban fringe?
- d. What are the main governance strategies of international, European, national, regional and local authorities and stakeholders in the region, at the relevant scale, that influence the urban fringe? And what are their main characteristics?
- e. Why are specifically the regional strategies adopted: what are the problem perceptions, expectations and discourses behind these strategies? And how are they reacted upon by the different municipalities and other local actors? What were the circumstances and interactions in policy networks leading to their adoption and further development?

Ex post evaluation of spatial planning and governance strategies for the urban fringe (year 2)

- a. Which are the useful criteria based on the aforementioned expectations - in question 1b - for assessing and comparison of the performance of the three main strategies?
- b. How do the main strategies perform in terms of the developed criteria? (year 2!)
- c. How can we explain this level of performance by looking at the content of the strategies, the policy process, the policy organization and 'external' trends?

4 Improvement and ex ante evaluation of spatial planning and governance strategies (year 3)

- a. How can the information on explaining factors for performance and experiences in other countries be utilized to improve current spatial planning and governance strategies to maintain green land-use in the different case study regions?
- b. What new strategies are suitable to meet new institutional, political, economic, social, cultural developments in the different case study regions?
- c. How will the improved and new strategies perform in terms of the developed criteria?

Appendix 2 Generic interview questions for the analysis of regional governing

(Aalbers and Van Dijk, 2008a)

1

To officers and politicians of the region:

What area do you consider as peri-urban areas within the region? (Let them indicate it on the map 1:50.000 and take it with you after the interview).

To officers and politicians of municipalities, if relevant:

What area do you consider as urban fringe of your municipality, can you indicate mark it on a map.

What areas do you consider as urban fringe of the region? (let them indicate it on a map and take it back with you.)

To residents:

Describe the type of area you have in mind: open areas around the build up areas, outside the city centre, where you still find forests, farms, recreational areas and where urbanization might occur in the foreseeable future.

2

What is the meaning of these areas to you, as officer, as politician, as enterprise, cooperative, or as resident.

What are your wishes, ideals or objectives now, or for the near/far future for the urban fringe.

How does your organization plan & act to realize your objectives? How is this formulated?

What financial or personnel investments do you / or your organization / or your firm make.

At what aspects of the green open space are the focuses/what aspects / areas are they oriented, which have your attention or concerns?

3

Do you cooperate with partners on this issue, which partners? What form does this cooperation take?

Which successes did you achieve until now?

What problems or threats do you experience or foresee to the achievement of their objectives?

To what extend are citizens/residents acknowledged, given influence on the formulation and/or execution of your actions, plans or policies? What is your opinion about this and why?

Region-specific questions

Questions to ask subsequently, after the generic questions above, zooming in at the relevant land use issues for the region.

Appendix 3 Table to assess performance of the regional strategies in terms of outcomes and process

Assessment criteria	Answer (Tick the right answer in this column)					
Concerning field of action of the strategy: more choices possible:						
a) Reducing land pressure due to housing/ industry						
b) Strengthening agriculture in the urban fringe						
c) Protecting high biodiversity nature areas at risk						
d) Integration of tourism and leisure						
e) More comprehensive overarching policy						
f) Awareness raising						
g) Monitoring and Evaluation						
Concerning outcomes of the strategy:						
(blue boxes are to be answered for all strategies, white boxes only for the regions for which the subject is specifically formulated)	We fully agree	We agree	We are	We disagree	We very much disagree	We do not know
1) The strategy is resilient – robust and flexible enough to cope with changes in its context and stays effective at the long term (>25 years)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) It serves multiple objectives – it employs synergy to create maximum effect (PP or PPP ¹) or creates many ‘winners’.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) The strategy is effective – it actually produces the outcomes it was designed for.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) The strategy pushes land use away, creating new land use conflicts elsewhere or at another level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) The strategy pushes land use away, not causing new land use conflicts elsewhere nor at another level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) The strategy strengthens the unique qualities of the area it pertains to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) The strategy contributes to a sustainable dispersion of land use at a regional level, with a balance between resource availability and use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹ People, Planet, Profit.

Assessment criteria	Answer (Tick the right answer in this column)					
8) The strategy enables existing rural types of land use to stay or to develop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) The strategy creates new or additional urban economy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) The strategy leads to accessibility for city people to peri-urban, open landscapes/agricultural land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) The strategy protects land with best agricultural production capacity, based on soil quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concerning the process comprised by the strategy						
12) The strategy helps the process of decision-making by making a complex situation more clear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) The strategy raises awareness among (more choices possible)	<input type="checkbox"/> Business	<input type="checkbox"/> Developers in	<input type="checkbox"/> Scholars	<input type="checkbox"/> Citizens	<input type="checkbox"/> Other sectors of authorities	
14) The strategy involves different actors (more choices possible)	<input type="checkbox"/> Individual Business	<input type="checkbox"/> Business interest groups	<input type="checkbox"/> Individual citizens	<input type="checkbox"/> Civic soci. Groups	<input type="checkbox"/> Nature NGOs	<input type="checkbox"/> Other Authorities
15) The strategy enables bottom up initiatives by citizens or business, semi-private organizations (more choices possible)	<input type="checkbox"/> Individual Business	<input type="checkbox"/> Business interest groups	<input type="checkbox"/> Individual citizens	<input type="checkbox"/> Civic soci. Groups	<input type="checkbox"/> Nature NGOs	<input type="checkbox"/> No
16) There is a clear time span for meeting the objectives contained in the strategy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) The objectives of the strategy are clearly defined and in a comprehensible manner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18) There's legal, statutory, financial or cultural commitment to support the process.'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) The strategy provides for monitoring and evaluation of its internal and external consistency and impacts over time, using existing available data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessment criteria	Answer (Tick the right answer in this column)					
20) The strategy empowers ... (more choices possible)	<input type="checkbox"/>	<input type="checkbox"/> develo-pers	<input type="checkbox"/> citizens	<input type="checkbox"/> Local gvt.	<input type="checkbox"/> supra local gvt	<input type="checkbox"/> nat. govt.
21) The strategy restricts free riding behaviour / costs incurred with those who carry the benefits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) The design of the strategy is area based, tailored to the specific actors, land use pattern, land market and legislation and timewise, influencing the right decisions at the right moment. (more choices possible)	<input type="checkbox"/> no	<input type="checkbox"/>	<input type="checkbox"/> To spec. actors	<input type="checkbox"/> To land use patt.	<input type="checkbox"/> To landmrkt	<input type="checkbox"/> To legislatio

Appendix 4 Table to characterize the urban region

Describe the context of your region						
1) Real estate prices in the urban fringe are very high and negatively impact rural types of land use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Non-urbanized land in the fringe is typically owned by:	<input type="checkbox"/> Private owners	<input type="checkbox"/> State organisation	<input type="checkbox"/> Envir. NGOs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) The peri-urban/open landscape/agricultural landscape just outside the city is appreciated by our citizens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) The peri-urban/open landscape/agricultural landscape just outside the city is accessible for outdoor recreation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) All social groups have equal opportunities to enjoy the fringe landscape.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Our city region structure is	<input type="checkbox"/> polycentric	<input type="checkbox"/> monocentric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Our city region's core population density is						
8) Our city region's fringe population density is						
9) Our city region's core growth is	+ ... or - ...					
10) Our city region's fringe growth is	+ ... or - ...					
11) The standard of living in the urban core is higher than in the fringe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) There is a formal planning system that enables governments to be influential.						
13) There are immigrant communities in our city region.						

To issue 13: Define what you consider immigrant communities. See for instance definition in the Hague regional report, chapter 3.