‘Dig in’ to the roots of urban community gardening

A study on environmental stewardship in community gardening initiatives

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Tamara Koekkoek | S3531481
Supervisor: Prof. dr. G. de Roo

Faculty of Spatial Sciences | University of Groningen

Colofon

Student:	T.D. (Tamara) Koekkoek tamaradkoekkoek@gmail.com
Student number:	S3531481
Master programme:	Socio-Spatial Planning
Supervisor/First assessor:	Prof. dr. G. (Gert) de Roo
Second assessor:	Dr. W.S. (Ward) Rauws

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"One of the first and universally acknowledged preconditions for happiness is living in close contact with nature ... Being deprived of these experiences has always been seen as a huge misfortune."

Leo Tolstoy (1884) in *What I Believe*

Abstract

The introduction of the *participatory society* in the last decade marked a transition towards a society where citizens are expected to take greater responsibility for their social and physical environment. Growing concerns about the environment since the 1970s have prompted calls for caring for the environment for the greater public good i.e., environmental stewardship, in the decades since. In the context of these developments, this research aims to investigate (1) whether and how citizens participating in green urban initiatives as community gardens fulfil responsibilities on the basis of environmental stewardship (ES), and (2) how the concept of ES can be investigated in a methodologically valuable way. Various leverage points through which ES might be facilitated have been investigated through a document analysis, semi-structured interviews with key actors of five community gardening initiatives (CGIs), and questionnaires among volunteers of these initiatives. Findings from the questionnaires show that through their participation in a CGI volunteers seem to exhibit environmental stewardship beyond the garden's activities, but social desirability may have influenced these results. In most CGIs, the initiator or garden caretaker seems to fulfil the role of steward in different ways: enthusing people (and continuing to do so), sharing of knowledge, and being visible to others. Herein, these actors are driven by ecological concerns i.e., improving biodiversity, to varying degrees. At the same time, often social drivers can be identified, such as the desire to act as a meeting place. This research has empirically shown that environmental stewardship in green urban citizen initiatives should be interpreted in a contextual sense, in which attention is paid to both ecological and social outcomes that are pursued for urban areas in which they are embedded. A direction for follow-up studies is to qualitatively investigate the embeddedness of CGIs in their neighbourhoods to identify the potential of these gardens in supporting local stewardship efforts among both volunteers of CGIs and nearby residents.

Key words: environmental stewardship, stewards, community gardening initiatives, capacity for self-governance, social capital, volunteer motivations

Abstract (in Dutch)

De introductie van de participatiesamenleving in het afgelopen decennium markeerde een transitie naar een samenleving waarin van burgers wordt verwacht dat zij meer verantwoordelijkheid nemen voor hun sociale en fysieke omgeving. Toenemende bezorgdheid over het milieu sinds de jaren zeventig heeft in de decennia daarna aanleiding gegeven tot een roep om zorg voor het milieu voor het grotere algemeen belang, ook wel aangeduid met de term rentmeesterschap. In de context van deze ontwikkelingen wordt in deze studie onderzocht (1) of en hoe burgers die deelnemen aan groene stedelijke initiatieven als gemeenschapstuinen verantwoordelijkheden vervullen op basis van rentmeesterschap, en (2) hoe het concept rentmeesterschap op een methodologisch waardevolle manier kan worden onderzocht. Verschillende factoren mogelijk van invloed op dit concept zijn onderzocht doormiddel van een documentanalyse, semigestructureerde interviews met belangrijke actoren van gemeenschapstuinen en vragenlijsten verspreid onder vrijwilligers van deze tuinen. Uit de antwoorden op de vragenlijsten blijkt dat vrijwilligers door hun inzet voor de tuin ook buiten de activiteiten van de tuin om rentmeesterschap tonen, maar mogelijk heeft o.a. sociaalwenselijkheid hier een rol gespeeld. In de meeste gemeenschapstuinen lijkt de initiatiefnemer of tuinbeheerder op verschillende manieren rentmeesterschap te tonen, namelijk door mensen te (blijven) enthousiasmeren, kennis te delen en zichtbaar te zijn naar de buitenwereld. In verschillende mate worden zij hierin gedreven door een ecologische overweging als het verbeteren van de biodiversiteit. Tegelijkertijd spelen ook sociale drijfveren een rol, zoals de wens om als ontmoetingsplaats te fungeren. Dit onderzoek heeft empirisch aangetoond dat rentmeesterschap wat betreft zorg voor het milieu in groene stedelijke burgerinitiatieven geïnterpreteerd dient te worden in contextuele zin, waarbij er aandacht is voor de na te streven ecologische en sociale effecten voor stedelijke gebieden waarin ze zijn ingebed. Een richting voor vervolgstudies is om de inbedding van een gemeenschapstuin in de buurt kwalitatief te onderzoeken om zo de potentie van dit type tuin in het bevorderen van rentmeesterschap onder zowel vrijwilligers van gemeenschapstuinen als omwonenden te identificeren.

Sleutelwoorden: zorg voor het milieu, rentmeesterschap, gemeenschapstuinen, vermogen tot zelfbestuur, sociaal kapitaal, vrijwilligersmotivaties

Preface

This master's thesis marks the final step towards my master's degree in Socio-Spatial Planning at the University of Groningen, Faculty of Spatial Sciences. The moment I started my bachelor Health & Society at Wageningen University in 2015, I never expected to graduate on a topic in the field of urban planning. Yet, raised in the countryside, the interaction of humans with their (green) living environment has always interested me. And here it is, my thesis focussed on the functioning of community gardening initiatives in the city of Groningen.

Despite the tumultuous times during which this research was conducted, I really enjoyed exploring the topic of community gardening initiatives in combination with environmental stewardship. Especially the unique conversations I had with various key actors of gardening initiatives on-site are true highlights.

I would like to express my gratitude to those people who have been of support throughout this journey. First, I would like to thank dr. Ward Rauws for his guidance during most of the research process. His constructive feedback and enthusiasm was a great help to me. I also want to thank my current supervisor prof. dr. Gert de Roo for this expertise and critical eye, which helped me to successfully finalize this thesis. In addition, I would like to thank my fellow students on the topic of green citizen initiatives. It was very pleasant to talk to each other regularly about our theses and in this way to support each other along this journey.

My gratitude also goes to my family and friends for the support I received from them throughout the writing process. In particular, I would like to thank Neepan Paramajothy for proofreading my thesis and my sister Iris Koekkoek for illustrating the front page of this thesis.

Last but definitely not least, I would like to thank all the participants in this study. I want to express my gratitude for the confidence they had in me as a researcher. It would not have been possible to conduct this research without the experiences, opinions, and personal stories they shared. For now, I hope you enjoy reading it. If you have any questions regarding this thesis, I would be happy to answer them.

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List of Abbreviations

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CGI	Community gardening initiative
GCI	Green citizen initiative
ES	Environmental stewardship
VFI	Volunteer Functions Inventory
VL	Vlindertuin Lewenborg
RT	Remise Tuin
GI	Goudenregenplein initiative
EHS	Ecologische Heemtuin Stadspark
ATVP	Amateurtuindersvereniging Piccardthof

CHAPTER 1

Introduction

1. Introduction

1.1 Background

Citizens joining forces to act in the public sphere is not an unprecedented phenomenon, but certain developments of the past decade have caused a resurgence of citizen-led initiatives in Western Europe. Since the end of the 2000s, increasing attention has been paid to the power of social networks and the self-reliance of citizens, partly under the influence of neoliberal policies across the continent (Hajer, 2011). In the Netherlands, the 'reactive and passive' welfare state was reformed into a more proactive one by the introduction of the *participatory society* (Delsen, 2016). Central to this society is the focus on a citizen's self-organizing capacity and one's responsibility for their social and physical environment (Veen, 2015).

This transition involves rethinking the role of governmental actors. Concretely, it entails that governmental actors retreat to offer more leverage space for citizen initiatives to act. In the field of green space management, authorities recognize the citizens' potential to positively contribute to the governance and management of public green space such as urban green (Mattijssen et al., 2018). Authorities are willing to share responsibilities with citizens. For example, citizens are involved in the delivery or co-production of green space management through co-governance or supporting self-governance (Smith et al., 2014; Van der Jagt et al., 2017; Van Melik & van der Krabben, 2016).

This renewed interpretation of green space management can also play a role in future spatial challenges. At the time of writing, the world is captivated by the COVID-19 pandemic (WHO, 2020). As a result of the accompanied crisis, it is predicted that the vacancy of retail premises in Dutch inner cities will increase enormously in the coming years. It is expected that vacancy will increase by 40% in 2022 (PBL, 2020). Especially large inner cities will be hit hard, likely to result in vacant lots. In rethinking urban transformation, vacant land is perceived as a resource for communities. It offers opportunities for transformative social and ecological processes, turning the inner-city centre into the living room of the city (Németh & Langhorst, 2014). Frequently mentioned sites that can play a role in this redefinition of the public sphere are community gardens (Barron, 2017).

To specify, community gardens can be understood as "social spaces that accommodate a wide range of community activities and perform as a new, or supplementary, civic infrastructure" (Németh & Langhorst, 2014, p. 145). Urban gardens can help to establish a collective identity and are believed to contribute to community building and place attachment (McMillen et al., 2016). Additionally, these gardens have the potential to improve urban biodiversity (Guitart, Pickering, & Byrne, 2012). The study of Fischer et al. (2018) shows that people from five multicultural cities in Europe prefer higher plant species richness in urban greenspaces and agree that this richness allows for more liveable cities. In these ways, community gardens are likely to contribute to a future green, active, social, and healthy city many environmental epidemiologists are calling for (Nieuwenhuijssen, 2016).

A city that seems to score well on these elements is Groningen. In November 2020, Groningen was declared the healthiest city in the Netherlands in terms of built environment, mobility, outdoor space, environment, and community (Arcadis, 2020). For several decades, there has been interest in the ecology of the city, partly driven by the efforts of the city's former urban ecologist, Wout Veldstra (Eetbaar Groningen, 2016). In the 1990s, he worked together with his colleagues on a policy that gives nature a clear function in the city. To this day, the city of Groningen actively pursues a green policy. In 2020, the policy document *Vitamin G* was published, describing the objectives for the greening of the city for the upcoming five years. In this document the municipality mentions its aim to keep stimulating initiatives taken by citizens to design and maintain green space (Municipality of Groningen, 2020).

Through the actions of citizens in (public) green spaces people connect with their environments, potentially fostering stewardship among these citizens (Andersson et al., 2014). Stewardship can be understood as the act of caring for the environment, as individuals, groups, or networks of actors, to enhance the quality of life for the greater public good (McMillen et al., 2016). Likewise, we can speak of environmental stewards as informed citizens with the knowledge, values, attitude, and skills needed to engage in caring for the environment and who may also involve others in this process (Frehm, Gravinese, & Toth, 2019).

It is particularly important to consider the quality of life in urban areas in the context of ongoing densification of many cities as a result of urbanization (Kowarik, Fisher, & Kendal, 2020). It is believed that urbanization processes can result in a removal of perceived and experienced links between people and nature as modern lifestyles are adopted which cease to be entirely dependent on local ecosystems (Miller, 2005; Stokes, 2006). Although there is increasing attention for greenery in the city and the city as a biotope, especially in Groningen, according to the Dutch Living Planet Report biodiversity is not yet fully benefiting from this increased attention. Simultaneously, buildings become denser, garden owners are replacing the greenery with tiles, public gardens are being raked and wasteland with weeds and bushes disappear. These processes cause birds to lose their food (seeds, insects) and butterflies to lose their nectar plants and host plants. (WNF, 2015).

As we have seen at the start of this section, increasingly citizens are inclined to take over the responsibilities of governments under influence of recent developments, and these are especially middle-class citizens (Alexander, 2006). In the context of these developments, it is particularly interesting to examine whether citizens participating in green urban initiatives fulfil these responsibilities on the basis of environmental stewardship, with which ES could be a key process in creating wider public support for commitment to green future-proof cities.

1.2 Problem definition and research objectives

Growing concerns about the environment since the 1970s have prompted calls for environmental stewardship in the decades since (Fisher, Campbell, & Svendsen, 2012). Still, a limited body of research is dedicated to the conceptual meaning of ES, but Bennett et al. (2018) have made an important contribution to this field. These scholars identified various leverage points in an environmental programme or project through which ES can be facilitated and promoted. Specifically, they identified capacity, actors, motivations, and actions as points where an initiative and involved actors can act upon to direct the system in such a way that desirable ecological and social outcomes are achieved (Bennett et al., 2018). At the same time, they recommend a further application of this framework in diverse environmental and social contexts “to refine the elements and develop insights that will guide and improve the outcomes of environmental stewardship initiatives and investments” (Bennett et al., 2018, p. 597). Building on this call, this research aims to examine through empirical research whether and how ES, which is beneficial for biodiversity among other things, is triggered in the context of community gardening. Therefore, in particular the assumption that volunteers exhibit stewardship from an ecological point of view is investigated. Related to this, a second aim of this research is to find a way in which this concept of ES can be properly investigated methodologically.

This results in the following primary research question central to this research:

How do community gardening initiatives impact environmental stewardship, and vice versa, at the level of the collective and the individual?

The following secondary research questions are related to this question:

1. How can environmental stewardship in green urban initiatives be conceptualized?

2. How do capacity for self-governance, social capital and volunteer motivations impact environmental stewardship and vice versa in community gardening initiatives?

3. What is the capacity for self-governance in community gardening initiatives in Groningen and how does this impact environmental stewardship at the collective level?

4. To what extent is social capital present in community gardening initiatives in Groningen and how does this relate to environmental stewardship at the individual level?

5. What are the motivations of participants in community gardening initiatives in Groningen and how do they relate to environmental stewardship at the individual level?

To be able to methodologically investigate the relationship between community gardening and ES, for now the empirical part of this study focuses on the city of Groningen. In particular, the last three secondary research questions entail a focus on community gardening initiatives (CGIs) in Groningen. As we have seen in section 1.1, this city can be characterized by its long-term attention to the ecology of the city and its support to citizen initiatives in public green spaces. Therefore, the city of Groningen is regarded as a suitable spatial context for the investigation of CGIs and its leverage points through which ES might be facilitated.

The first two sub-questions are part of the theoretical framework and are discussed in Chapter 2. For the answering of the three following questions Chapter 3 and Chapter 4 are of importance.

1.3 Relevance

Central to this study is an examination of whether and how the performance of community gardening initiatives on ES is influenced by various leverage points and vice versa. In this way, the study contributes to the need "to further examine under which conditions and to what extent citizen initiatives have the capacity to really meet expectations and deliver the type and amount of services they intended to provide" (Igalla, Edelenbos, & van Meerkerk, 2019, p. 1189). Specifically, capacity for self-governance, social capital and volunteer motivations are the leverage points for which it is considered if and how they affect environmental stewardship in a CGI. In doing so, an empirical contribution is made to the analytical framework of Bennett et al. (2018) who have distinguished capacity, actors, and motivations as leverage points, but these same scholars point out that the effectiveness of these different leverage points needs to be better understood and tested empirically. In this study, this is done from a behavioural point of view. Attention is paid to the valuations of actors in CGIs as well as to contextual differences between these initiatives by applying a case study approach.

In particular, a mixed-methods strategy is used in which a document analysis, semi-structured interviews and surveys are central. In this way it contributes methodically to existing research into citizen initiatives, as a combination of a quantitative and qualitative research design is used less frequently in this research field (Igalla et al. 2019). By means of this research strategy, eventually an attempt is made to make statements about the suitability of these methods for studying the concepts central to this research. In addition, this study aims to contribute to a greater understanding of the concept of ES in the context of public citizen-led community gardening.

Looking into this study's social relevance, there have been growing calls for environmentally responsible behaviour, also in the context of green space management (Aronson et al., 2017). This study examines whether and how ES can be triggered in public citizen-led community gardening. In this way, these findings provide a guide for actors active in communal gardening in a number of areas.

First, insights can be offered into whether and how ES helps to ensure an initiative's continuity by enthusing those involved and how this is influenced by characteristics of the initiative and its volunteers. In addition, it provides a picture under what conditions these efforts also translate into environmentally responsible behaviour outside the initiative in the personal sphere.

Second, a better understanding of the various leverage points identified can be used to strengthen the efforts of already existing green urban initiatives, as well as to support new similar initiatives in their start-up phase. An exploration of the capacity for self-governance in these initiatives offers a lesson for initiatives in how an initiative's organisational characteristics affects one's responsibilities and activities. In case initiatives experience little capacity for self-governance to their discontent, planners can provide a supporting role. This can vary from thinking along about how to realise collective ambitions to sharing best practices (Rauws, 2016). Moreover, an examination of volunteer motivations offers insight into whether an initiative's activities align with these motivations. This results in a better understanding of what is needed to engage people, on the basis of which recruitment strategies can be refined (Sorensen et al., 2018). All in all, these efforts are aimed to explore the potential contribution of ES in realizing sustainable, green, and active urban communities.

1.4 Thesis structure

In this chapter, the research focus has been discussed by introducing its context as well as the research questions that have been investigated. Chapter 2 contains a review of international literature relevant to the theoretical concepts central to this research. Thereafter, Chapter 3 discusses the methodology that has been applied, which serves as both an end and a means in this research. Chapter 4 follows with an exploration of and reflection on the outcomes of the analyses performed. Finally, conclusions, a discussion, and the overall contribution of this research for planning theory and practice are presented.

CHAPTER 2

Theoretical background

2. Theoretical background

This chapter starts with reviewing literature on environmental stewardship. As will follow from the first two subsections, this concept can be defined in a narrow and contextual sense. In the next sections, attention is drawn to how capacity for self-governance, social capital, and motivations for volunteering can potentially influence ES in an initiative. Eventually, the chapter concludes with a conceptual model which shows the connections between these different concepts.

2.1 Defining environmental stewardship

Since the 1970s, the vulnerability of natural systems on which present and future generations depend has gained more public attention and recognition. This led to a considerable interest from social and behavioural scientists in studying public attitudes towards environmental issues (Fisher et al., 2012). Internationally, environmental concerns have prompted calls for the practice of environmental stewardship. In the year 2000, the UN Millennium Declaration called for the adoption of "a new ethic of conservation and stewardship" in all environmental actions (Welchman, 2012, p. 297).

Subsequently, especially throughout the last two decades, more research has been conducted to create an understanding of the concept of ES. But what does the term stewardship stand for? Stewardship is derived from *'stigweard'*, an old English word for "a servant who looks after a hall, manor or landed estate" (Welchman, 2012, p. 299). In terms of meaning, stewardship is also reminiscent of concepts such as *patronage* and *champions* (Edwards, Coombs, & Greener, 2002). Nowadays, the term stewardship can be used for several occupations concerned with caring for things or persons on another person's behalf (Welchman, 2012). Stewardship, which hints at altruism, is an alternative to the rational actor model often applied in mainstream science. Instead of assuming that individuals make decisions in order to maximize their utility, stewardship follows an alternate view in which "organizational actors see greater long-term utility in other-focused prosocial behaviour than in self-serving, short-term opportunistic behaviour" (Hernandez, 2012, p. 172). This line of reasoning corresponds to the dual process theory as proposed by Evans. Instead of always maximizing utility, this theory assumes that human actors also take their wellbeing and that of others into account (Evans, 1984; 2010; Wason & Evans, 1974). Starting from this notion, it is examined what is characteristic of environmental stewardship compared to stewardship. Although ES is defined in various ways, in these definitions recurrent elements emerge that will be addressed below.

To begin with, definitions of ES frequently include the terms *protection*, *preservation* and/or *conservation of the environment* (Beavis, 1994; Bennett et al., 2018; Fisher et al., 2012; Welchman, 2012; Wolf et al., 2013; Worrell & Appleby, 2000). As mentioned in the previous paragraph, an individual or collective might value these aspects out of altruistic motivations in which their behaviour is guided by an other-regarding perspective (Hernandez, 2012). Specifically, in two of the previously cited publications, this other-regarding perspective regarding ES is represented by the next phrase: "for the sake of future generations of human and other life on the planet" (Welchman, 2012, p. 303; Worrell & Appleby, 2000).

The focus on *present and future generations* can also be linked to interacting with the environment in a responsible way. In this regard, both Welchman (2012) and Worrell & Appleby (2000) talk about stewardship as accepting significant answerability (for one's conduct) to society. Nonetheless, there are also definitions of environmental stewardship pointing at responsible use without referring to present and future generations (Beavis, 1994; Bennett et al., 2018). Looking at the various definitions more generally, it is noticeable that almost all definitions contain *action-oriented elements*. Next to (responsible) use, words like 'action', 'work', 'activity', 'conduct', and 'commitment' are applied (Bennett et al., 2018; Fisher et al., 2012; Hernandez, 2012; Worrell & Appleby, 2000).

Another element that frequently returns in various definitions of environmental stewardship is the *connection between humanity and the natural world* (Barthel et al., 2005; Bennett et al., 2018; Connolly et al., 2013; Leopold, 1949; Wolf et al., 2013). From this perspective, humans are not considered part of the natural world and this perspective is particularly a development of recent decennia. Leopold (1949) was one of the first to discuss the meaning of ES and according to him, environmental stewardship can simply be put as the commitment of a person to the land. In more recent literature, authors talk about bringing nature closer to citizens to enhance quality-of-life in cities (Barthel et al., 2005; Connolly et al., 2013). In particular, Wolf et al. (2013, p. 29) discuss the conservation of specific environments "while meeting personal health and well-being goals". In these understandings, ES seems to be looked at from the rational actor model with utility as purpose i.e., how people can personally benefit from taking care of the environment. This does not necessarily mean that personal benefit is a driving force. Still, a conscious concern about the environment can be leading with personal benefit being secondary.

As noted by Contrafatto (2014), differences in terms of definition, focus of analysis, role and purpose of stewardship-based behaviour can occur, for example caused by diverse underlying philosophical or methodological assumptions. This should be taken into consideration when interpreting the following definition of environmental stewardship, which can be established on the basis of the previous mentioned elements:

the actions taken by individuals, groups, or networks of actors to protect, care for or responsibly use the environment for the sake of present and future generations of human and other life on the planet

2.2 Environmental stewardship in green citizen initiatives

In the previous section, different conceptual understandings of environmental stewardship have been discussed resulting in a provision of a definition. As we will see in this section, this concept is more diffuse in the context of green citizen initiatives (GCIs) and this should be taken into account when studying ES in CGIs.

Central to this study are GCIs performing actions that target publicly owned urban green space at the street- or neighbourhood level. The type of GCIs that is specifically looked at is community gardens. In this study, a community garden is understood as "a plot of land in an urban area, cultivated either communally or individually by a group of people from the direct neighbourhood or the wider city, or in which urbanites are involved in other ways than gardening, and to which there is a collective element", following the definition of Veen (2015, p. 1). A collective element is, for example, a shared responsibility for maintaining the garden. Although the term suggests otherwise, the element 'community' in *community garden* does not necessarily involve the formation of bonds between people involved in a garden (Pudup, 2008). In addition, Middle et al. (2014, p. 639) regard a community garden as "a type of public green space created outside of traditional formal planning structures, initiated by the efforts of local residents, and more reflective of a community's specific green space needs". Building on this, it is in the interest of this study to examine whether a community garden is established with the idea of taking responsibility for the wider public good in terms of ecological well-being (improving biodiversity).

However, not all GCIs seem to exclusively focus on contributing to ecologically valuable greenery. Mattijssen et al. (2015) found that a substantial minority of GCIs focuses on more social goals, such as awareness and education, and social cohesion. This focus on social aspects is also reflected in the context of urban environmental stewardship. Various scholars emphasize the community-based character of ES in urban contexts (Bennett et al., 2018; Connolly et al., 2013; Svendsen & Campbell, 2008; Wolf et al., 2013). In this regard, the importance of civic groups in facilitating a social infrastructure necessary for achieving sustained ecological outcomes is highlighted (Kempton et al., 2001). It is mentioned that ES engages citizen volunteers in collective action and improves social relationships through community (capacity) building and collaboration (Svendsen & Campbell, 2008; Wolf et al., 2013). According to Chaskin (2001, p. 295), community capacity building involves "the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community". These three elements hint at the earlier identified leverage points *capacity for self-governance*, *social capital*, and *volunteer motivations* for ES.

The essence of these ideas is grabbed by defining stewardship as "the act of caring for the environment to enhance the quality of life for the greater public good with the underlying assumption that doing so will improve the social-ecological functioning of specific urban areas" (McMillen et al., 2016, p. 1). Thus, this section teaches us that ES should be defined in a more contextual sense to pay attention to the underlying social aspects of involvement in GCIs. The next section will discuss the identified leverage points of ES in the context of CGIs from this perspective.

2.3 Influence of leverage points on environmental stewardship

2.3.1 Capacity for self-governance

In this section, the influence of a community gardening initiative's capacity for self-governance on environmental stewardship is explored. This organizational characteristic is being investigated, as the capacity to self-govern relates to a central characteristic of citizen initiatives. Concretely, Igalla et al. (2019, p. 1182) stated that "citizen initiatives strive for autonomy, ownership, and control regarding internal decision-making". In this regard, it is interesting to examine how the degree to which a CGI succeeds in acting in accordance with this aspiration influences an initiative's ability to organize activities considered important by its volunteers from an environmental or social point of view. First, the meaning of self-governance according to various scholars is described. This is followed by an exploration of the capacity for self-governance in CGIs. Finally, the linkages between this latter concept and ES will be examined more closely for this study.

Following Kooiman (2003), citizen self-governance can refer to the capacity of citizens to take over management of tasks that public authorities used to be responsible for. Various other scholars have emphasized in their definitions of self-governance that actors, whether these are individuals, communities, or non-governmental organizations, have a high degree of autonomy or freedom in shaping the system according to their preferences (Arnouts et al., 2012; Mattijssen et al., 2018; Nunbogu et al., 2017). In an ideal-typical self-governance arrangement, actors are fully able to govern their own affairs. However, governmental actors will probably be involved in a real-life setting, which can be referred to as *shared governance* (Arnouts et al., 2012; De Roo, 2003; Rauws, 2016). A continuous interaction with local governments is stressed in the context of community-based initiatives aimed at the maintenance of public green space (Ubels, Bock & Haartsen, 2019). Therefore, most forms of community self-governance are found to be hybrid forms, in which communities and public authorities collaborate. The intensity of such collaborations can vary and change in time (Bock, 2019; Edelenbos et al., 2018; Nederhand et al., 2016; Ubels et al., 2019).

This characteristic leads us to the first key condition determining the self-steering capacity of CGIs, the *nature of alliances with institutional players* (Ubels et al., 2019). In the context of CGIs, the local municipality is an actor that volunteers often have to work with. First and foremost, in the Netherlands the land on which CGIs operate is often owned by the local municipality. This entails that the municipality is primarily responsible for the management of this public green space. In some municipalities green management falls under sheltered employment (in Dutch: *"sociale werkvoorziening"*), where people with a distance to the labour market are employed by the municipality. Other municipalities outsource the management of public green space to professional maintenance companies. These contractors are responsible for the cleaning of streets, squares, lawns, and parks as well as the mowing and pruning of greenery in the city. Which activities are carried out by whom is documented by municipalities in a so-called picture specification or "*beeldbestek"* in Dutch (Groen Dichterbij, 2015).

Considering these arrangements, it is the question whether citizen initiatives are given the opportunity by the municipality to adopt public green for the creation of a meeting garden or flower meadow. If so, the municipality can have a two-fold influence on the CGI's capacity for self-governance. On the one hand, the involvement of the municipality can be stimulating; for example, through public acknowledgement, financial or practical support (Edelenbos et al., 2018; Nederhand et al., 2016; Ubels et al., 2019). Support might range from allowances or counselling for getting started to a prolonged intensive collaboration (Van Meerkerk et al., 2018). On the other hand, municipal involvement may impede citizen self-governance. This may be the result of conflicts between a CGI and governmental actors, governmental actors pushing a CGI to follow specific pathways by imposing regulation or monitoring, or by withdrawing for example financial or material support (Edelenbos et al., 2018; Nederhand et al., 2016; Ubels et al., 2019).

Next to alliances with institutional players, the self-governance capacity of a CGI can be influenced by its *internal organisational structure*. This structure is determined by the degree of formalization of the initiative (Mattijssen et al., 2015). This formalization process has also been referred to as institutionalizing power (Buijs, van Dam, & Mattijssen, 2015). The formalization of an initiative indicates that the citizens involved have the ambition to continue this initiative for a longer period of time and therefore contributes to a certain steadiness and predictability (Kooiman, 2003).

At one end, a community gardening initiative can decide to become a legal entity in the form of a foundation or association. In this case, responsibilities of the initiative become legally established, which might be necessary to receive a subsidy. This structure also affects the decision-making process. A highly formalized initiative is likely to be characterized by a member-led decision-making process by e.g., the organization of joint (member) meetings (Rauws, 2016). Therefore, this structure increases the representativeness and, hence, the legitimacy of choices, a key condition for self-governance capacity as identified by Ubels et al. (2019).

At the other end, CGIs can have an informal set up. Often small-scale initiatives that require little money are not organized as legal entities (Mattijssen et al., 2015). This can be a conscious choice of the initiator, with the aim to minimize bureaucracy and to avoid the obligation to be accountable for one's actions. These less formalized initiatives are often characterized by an informal exchange of information and views (Rauws, 2016). The decision-making process is less organized and therefore there may be less insight into the legitimacy of choices made about the garden. Also due to its informal nature, such an initiative can also be more easily discontinued than a CGI organized as legal entity (Kooiman, 2003).

Thirdly, a greater understanding of a CGI's capacity for self-governance can be achieved by looking into the literature on *organizational capacity*. It has been found that organizational capacity is positively associated with the performance of other social enterprises and community-based initiatives (Han et al., 2015; Igalla et al., 2020). According to Eisinger (2002, p. 117), organizational capacity is a "set of attributes that help or enable an organization to fulfil its missions". Looking at determinants of organizational capacity more closely, Foster-Fishman et al. (2001) identify human and financial capital as factors determining organizational capacity. These factors will be further discussed in the context of CGIs.

Human capital concerns volunteers who are committed to a community gardening initiative. As citizen initiatives like CGIs operate on a voluntary basis, these volunteers are important for its functioning (Kingsley, Foenander, & Bailey, 2019). Specifically, skilled and competent volunteers with leadership qualities are an important element of self-governance capacity (Mattijssen et al., 2018; Ubels et al., 2019). When a volunteer's attributes and skills (e.g., knowledge about ecological gardening) meet the work that needs to be done, it is likely that this contributes to a greater capacity of the initiative to take control over its activities and therefore to realize its environmental goals.

In addition, financial capital determines organizational capacity. Money can be needed for various ends e.g., for recruiting new volunteers, purchasing new plants or work tools, organising activities at the garden, communication purposes, or pay for buildings (Foster-Fishman et al., 2001; Healey, 2015). Green citizen initiatives can have multiple revenue sources such as municipal grants, donations of funds or the private sector, or contributions from members (Mattijssen et al., 2018). Some initiatives generate income by the selling of products (Bailey, 2012). It is assumed that when an initiative has multiple sources of revenue, an initiative's continuity is less likely to be threatened in case a source of revenue withdraws (Sharir & Lerner, 2006). Concretely, sufficient financial resources ensure the continuation of the initiative and its activities, together with a sufficient number of skilled volunteers.

In conclusion, three overarching factors can be distinguished that are believed to influence the self-governing capacity of a CGI: (1) the nature of alliances with institutional players like the municipality; (2) an initiative's internal organisational structure, and (3) organizational capacity, see Table 1. How these various factors influence capacity for self-governance and subsequently relate to ES is discussed in section 2.4.1.

Table 1 *Factors influencing capacity for self-governance of a CGI (source: author)*

Nature of alliances with institutional players	*Supportive* - public acknowledgement, financial, or practical support *Impeding* - conflicts, imposing regulation or monitoring, withdrawal of support (e.g., financial, practical)
Internal organisational structure	*Degree of formalization* - ranging from an informal exchange of information and views to a member-led decision-making process
Organizational capacity	*Human capital* - attributes, skills (skilled and competent volunteers with leadership qualities) *Financial capital* - one or multiple revenue sources

2.3.2 Social capital

The potential of urban community gardens as social spaces in which social interactions are promoted and facilitated has been recognized (Christensen, 2017). Building on this knowledge, it can be investigated how the degree of perceived social capital within an initiative affects ES among volunteers. Hereafter, attention will be given to the conceptual meaning of social capital, followed by how this concept can be further operationalized in the context of CGIs.

Although social capital has been regarded as an elusive concept and sociological construct, arguably three main schools of social capital can be distinguished (Glover, Parry, & Shinew, 2005). In the 1970s and early 1980s, Pierre Bourdieu defined social capital as: "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition — in other words, to membership in a group" (Bourdieu, 1986, p. 248). In this definition, Bourdieu emphasized the resources that accrue to individuals as a result of a social relationship and in this way described social capital as a 'private good' used by its members to achieve gains. James Coleman (1988) elaborates on this definition of social capital by specifying the resources described by Bourdieu, as he regarded social capital as a set of obligations and expectations as well as a set of information channels linking citizens with each other. The highly influential Robert Putnam builds on these contributions by explaining how social capital can contribute to mutual benefit. He defined social capital as "features of social organizations, such as networks, norms, and trust, that facilitate actions of cooperation for mutual benefit" (Putnam, 1995, p. 67). Social networks can produce both social and economic value, and this collectively produced capital can be used to pursue individual goals of group members (Putnam, 1995; 2000). In this way, social capital can also be a 'public good', as it can be a benefit for communities and/or individuals in that community.

In this research context, Putnam's definition of social capital is applied to describe features of CGIs, such as networks, norms, and trust. As these features suggest, the concept of social capital has a multidimensional nature (Putnam, 1995). Nahapiet & Ghoshal (1998) reinforce this statement by distinguishing three dimensions of social capital: *structural, relational,* and *cognitive*. The meaning of each dimension in the context of CGIs is discussed below.

The first dimension is the structural dimension, related to the concept of structural embeddedness put forward by Granovetter (1992). This concept entails "the properties of the social system and of the network of relations as a whole" (Nahapiet & Ghoshal, 1998, p. 244). In other words, this dimension relates to the *actual* social networks of participation established. According to Claridge (2018), structural social capital entails an individual's network of people whom he or she knows and can rely on for e.g., information and assistance. In this study's context, this includes an exploration of the network of the CGI's volunteers and their role within this initiative. Which roles are present in a CGI depends among others on the internal organisational structure described in section 2.3.1. In case an initiative is organized as a legal entity certain volunteers will be responsible for fulfilling administrative tasks. Likewise, human resources i.e., the number and qualities of volunteers engaged in the initiative are likely to influence the role(s) one will fulfil.

A dimension that looks more closely at what comprises these social interactions, i.e., its depth, is the relational dimension. This dimension of social capital concerns the nature and quality of relationships that have developed through interaction (Lefebvre et al., 2016). To grasp these elements, it is relevant to consider a particular form of social capital distinguished by Putnam (1995), *bonding* social capital. Bonding social capital can be defined as the strong ties between individuals in similar socio-demographic situations, such as family, close friends, or neighbours, who are committed to a garden based on similar social and environmental beliefs (Kingsley et al., 2019; Putnam, 2000). As the interest of this study is to investigate how the connections of a volunteer within a CGI influence a volunteer's ES, the empirical research will be focussed essentially on exploring bonding social capital.

The relational dimension can less easily be observed than the structural dimension, as it refers to what people think and feel (Claridge, 2018). Specifically, it involves "those assets created and leveraged through relationships" (Nahapiet & Ghoshal, 1998, p. 244). Examples of these assets are trust and trustworthiness (Putnam, 1993), norms and sanctions (Coleman, 1990; Putnam, 1995), obligations and expectations (Burt, 1992; Coleman, 1990; Granovetter, 1985), and identity and identification (Håkansson & Snehota, 1995). In particular, two of these factors are believed to contribute to strong ties between volunteers in CGIs.

Firstly, various studies found that trust can emerge from helping each other in the garden (Baker, 2004; Glover et al., 2005; Teig et al., 2009). For example, Teig et al. (2009, p. 1117-19) found in their study on community gardens in the U.S. that "strong social ties developed within the garden through face-to-face contact with other gardeners and involvement in the garden related activities" and that these relationships even "... developed into genuine friendships and that could be relied upon for support beyond the context of the garden".

Secondly, community gardens are believed to be places where people can identify together as residents of a neighbourhood (Glover, 2003, p. 192). The degree to which a volunteer can identify with another volunteer in the initiative might determine the formation of bonding social capital (Nahapiet & Ghoshal, 1998). Once a volunteer experiences that he or she is similar to other volunteers in terms of socio-demographic factors such as age, gender, nationality, educational level, and occupation, this can positively enhance the actual frequency of cooperation (Nahapiet & Ghoshal, 1998). The research of Kingsley & Townsend (2006) undertaken with members of a Melbourne urban community garden found that despite the local area's diverse population, the gardeners involved are predominantly Anglo-Saxon middle-class, female and in their 50s. Looking into the literature on nature volunteering, these demographic patterns also recur across Western countries including the Netherlands. Specifically, it was found that a significant percentage of nature volunteers are middle-aged, female and have an academic background (Ganzevoort & van den Born, 2020). These findings are plausible examples of how bonding social capital can be expressed. However, for community gardeners it was also found that "strong identification with the focal group may contribute to the fragmentation of the broader whole" (Alder & Kwon, 2002, p. 31). When several people cannot identify themselves with the already existing group of volunteers, the continuity of the initiative is threatened as no new volunteers will join or stay involved in the garden.

The third formulated dimension is the cognitive dimension and refers to "those resources providing shared representations, interpretations, and systems of meaning among parties" (Nahapiet & Ghoshal, 1998, p. 244). Examples of features that belong to this dimension are shared language, codes, and narratives, as well as values, attitudes, and beliefs. For analysing the influence of social capital's cognitive dimension in CGIs, shared values are particularly interesting to include as determinants. Wentink et al. (2018) found that shared norms and values both work as binding mechanisms for establishing meaningful connections in urban citizen's initiatives. For community gardens, the shared enjoyment of gardening is an example of a value shared among volunteers (Kingsley & Townsend, 2006). An overview of the three dimensions of social capital and its features is depicted in Figure 1.

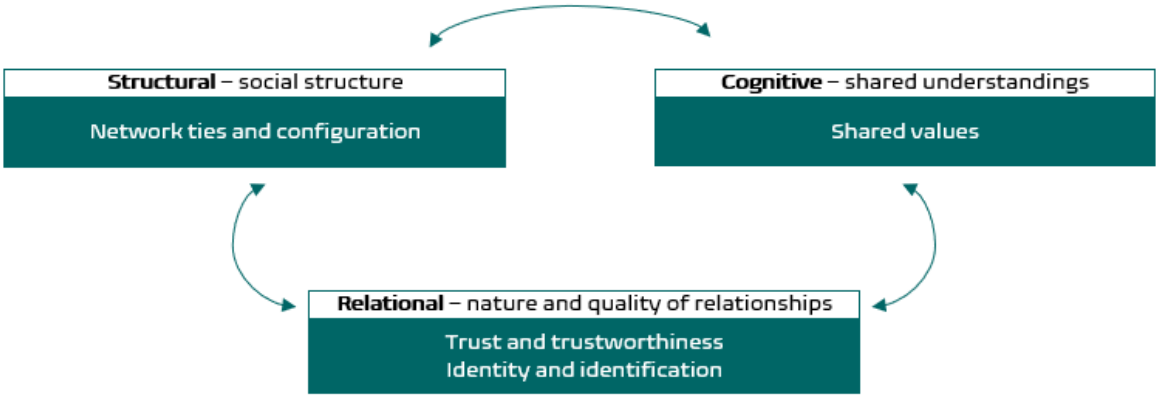


Figure 1. Dimensions of social capital (source: author, based on Nahapiet & Ghoshal, 1998)

This framework is the most widely used and accepted framework for understanding social capital (Claridge, 2018). Despite its useful conceptual distinctions for understanding social capital, in practice complex interrelations between the various dimensions occur (Uphoff & Wijayaratna, 2000). For instance, for determining shared understandings (cognitive) and the nature and quality of relationships (relational), sustained social interaction needs to be facilitated (structural). Likewise, both shared understandings and the nature and quality of relationships reinforce and encourage the development of the structural dimension of social capital i.e., starting new or maintaining existing social interactions. Various scholars consider there is a two-causality between the cognitive and relational dimension (Leana & Van Buren, 1999; Uhlaner et al., 2015). To illustrate, shared values may lead to an enhanced feeling of identity and/or trust. In turn, this feeling of identity and/or trust can also result in an increased shared understanding.

In sum, investigating the interplay between the various features accompanying these dimensions helps to understand social capital in a given context (Lefebvre et al., 2016). Therefore, all three dimensions will be investigated. In the context of this research, the structural dimension concerns an exploration of the existing connections between volunteers in a CGI. Specifically, the existence of these connections will be further operationalized as the frequency with which volunteers have contact with others, whether they are satisfied with this, as well as the number of volunteers they have contact with. Also, the activities in which a volunteer is involved is being looked at to determine his or her role in the initiative's volunteer network. Whether there is a high level of bonding social capital between volunteers in CGIs is determined by the level of perceived trust and the level of identification with others. Additionally, the perceived degree to which norms and values are shared is also believed to affect the degree of bonding social capital. In the empirical part of this study, the perceived level of social capital among volunteers is investigated for various CGIs and an attempt is made to examine its influence on an initiative's and volunteer's ES.

2.3.3 Volunteer motivations

As discussed in Chapter 1, motivations are leverage points through which environmental stewardship can be influenced and therefore are important to understand (Bennett et al., 2018). Nonetheless, an understanding of what motivates volunteers working in greenery is more limited (Woosnam et al., 2019). It has been suggested that the motivations of an individual strongly influence one's willingness to involve in stewardship actions, as well as the duration of one's involvement (Cecere, Mancinelli, & Mazzanti, 2014; Cetas & Yasué, 2017; Ryan, Erickson, & De Young, 2003). Therefore, an exploration of volunteer motivations for undertaking stewardship actions in CGIs is central to this subsection.

A foundational approach that provides an understanding of motivations is offered by the strategy of *functional analysis* (Snyder, 1988, in Clary, Snyder, & Ridge, 1992). This strategy has a long and distinguished history in psychology and involves "the personal and social motives, needs, goals, and functions that are served by an individual's beliefs and actions" (Snyder, 1988, cited in Clary et al., 1992). Central to the logic of this strategy is the assertion that persons can perform the same behaviour for very different reasons. In this way, acts of volunteerism that appear to be the same on the surface can actually reflect different underlying motivational processes (Clary et al., 1992). Therefore, the focus of this strategy is to identify the motivations volunteers seek to satisfy, for example through their participation in a CGI.

To this end, Clary et al. (1992) developed an instrument called the *Volunteer Functions Inventory* (VFI). The inventory measures six primary functions of volunteering: *values, understanding, career, social, enhancement* and *protective* (Clary & Snyder, 1999). This inventory has been widely used for understanding motivations for volunteerism, also with regard to environmental volunteering (Moskell, Allred, & Ferenz, 2010). The various functions mentioned give insight into what end an individual decides to volunteer. However, different volunteers pursue different goals, and the same volunteer may be pursuing more than one goal. Therefore, volunteering is characterized by a multi-motivational nature (Clary & Snyder, 1999). Nonetheless, this categorization of motivations is by no means exclusive. Since the emergence of the ES concept, several other authors have made suggestions in the field of ES motivations. These will be considered along with the functions of the VFI, all of which are discussed in the context of CGIs.

To start with the VFI, the function of *values* stands for the potential of volunteers to express or act upon values that are important to them. In the context of environmental volunteerism, this function has been redefined by various scholars as *helping the environment* (Asah & Blahna, 2012; Bruyere & Rappe, 2007; Ryan, Kaplan, & Grese, 2001). For CGIs, helping the environment could entail enriching the city's biodiversity by planting and taking care of certain types of greenery. It can be noticed that the scholars just mentioned merely interpret the *values* function in ecological terms to explore the ES concept. However, we have seen in section 2.2 that this concept can also be viewed from a more social perspective. Therefore, I would like to handle these contributions as hypotheses, which are tested in the empirical part of this research.

Understanding relates to the potential of volunteering in learning a volunteer more about the world or exercising often unused skills (Clary et al., 1992). In studies focussing on environmental volunteering, this function has been translated into *learning about the environment* (Bruyere & Rappe, 2007; Measham & Barnett, 2008; Ryan et al., 2001). In this context, it refers to using the volunteer opportunity to learn new things about the environment, for example about a diversity of plants and animals. The practice of community gardening involves various opportunities for learning (Krasny & Tidball, 2009). For example, Hale et al. (2011, p. 1858) found that "gardeners also learn by watching each other, asking each other questions and experimenting and then sharing the results". Again, various scholars focused on learning in ecological terms instead of learning in a social sense, such as getting to know neighbours. Therefore, this ecological focus is also taken as a hypothesis that is empirically tested.

Thirdly, the VFI identifies the *career* function, involving the goal of gaining experiences through voluntary work that might benefit one's career (Clary et al., 1992). The improvement of job skills and employment opportunities might also be achieved through community gardening (Armstrong, 2000). One can put these experiences on one's resume, so that, for example, future employers can deduce from this that someone has social skills and is willing to take action. In this way, voluntary work such as community gardening functions as a signal to the professional field about one's work attitude and personality.

Fourthly, the *social* function of volunteering involves the building of new and strengthening of existing social relationships with others (Clary et al., 1992). Ryan et al. (2001) found that volunteers may also be drawn to the social benefits provided by participation in stewardship activities. Through the various activities performed within a CGI, such as working in the garden but also administrative activities, people get the opportunity to meet like-minded people (Kingsley, Foenander, & Bailey, 2019). Also, participating in community gardening might be motivated by the desire to contribute to a feeling of community and to strengthen social cohesion in a street or neighbourhood (Veen, 2015).

The latter two functions of the VFI show how volunteering is motivated by the desire to feel better about oneself (Clary et al., 1992). *Enhancement* relates to achieving psychological growth and development through the act of volunteering. In this way, volunteering serves to enhance a person's esteem by making someone feel needed and important, for example through the maintenance work a volunteer performs at a community garden.

Lastly, the *protective* function relates to the use of volunteering as a means through which negative feelings can be reduced or personal problems can be addressed. A person volunteers as it helps themselves to forget about or escape from negative qualities and feelings (Clary et al., 1992). A motivation that might drive environmental volunteers is to feel less guilty about problems to the environment, which is empirically tested in the context of CGIs (Asah & Blahna, 2012).

Next to the categories discussed above, the study of Bruyere & Rappe (2007) on environmental volunteer's motivations identifies two additional motivation categories. The first motivation that emerged was called *user*. This captures the idea that a volunteer contributes to an area that the volunteer uses or enjoys, because this person likes to see this area preserved or enhanced. An example of this motivation is a mountain biker volunteering on a trail he or she uses for riding (Bruyere & Rappe, 2007). In the context of a community garden, the plot on which the community garden is established can have a central place in the neighbourhood so that many people like to stay there or pass it.

The second motivation reported by volunteers to participate in ES programs in the research of Bruyere & Rappe (2007) relates to *getting outside*. The 'get outside'-related comments in this research can be interpreted as volunteerism motivated by an opportunity to simply be in nature, away from their home or workplace, and in a setting with open spaces and natural sounds. Kingsley et al. (2019) observed that volunteers regarded community gardens as a de-stressing, serene and quiet environment. Therefore, *getting outside* might also be a likely motivation for people to commit themselves to a CGI.

In general, motivations can be dived into intrinsic and extrinsic ones. This distinction stems from the Self-Determination Theory (SDT) developed by Deci & Ryan (1985). Concretely, this distinction is made based on the different reasons that give rise to an action (Ryan & Deci, 2000). Intrinsic motivation refers to doing something from one's own will or desire because it is inherently interesting or enjoyable. People can be intrinsically motivated by their underlying ethics, morals, values, and beliefs (Ryan & Deci, 2000; Bennett et al., 2018). On the other hand, an extrinsic motivation is regulated through something or someone else i.e., an external regulator. For example, the external rewards for volunteering in a community gardening initiative (reward-seeking) or external sanctions one risks when one decides not to participate (risk-avoiding) are considered in the decision to volunteer (Ryan & Deci, 2000).

It has been acknowledged that generally a combination of both intrinsic and extrinsic motivations leads to the promotion of stewardship actions among stewards (Asah et al., 2014; Krasny et al., 2014; Stern, Dietz, & Kalof, 1995; Tabernero & Hernández, 2011). Specifically, intrinsic motivations might be more constant in promoting environmental action than extrinsic motivations (Ryan et al., 2003; Cecere et al., 2014; Cetas & Yasué, 2017). This finding will be examined in the context of CGIs. For this purpose, the intrinsic and extrinsic motivations community garden volunteers might have are explored.

Five of the six functions of the VFI (all but *career*) can be regarded as intrinsic, since these motivations stem largely from one's own desires or beliefs and may find fulfilment in volunteer work itself (Finkelstien, 2009). The same line of reasoning holds for the motivations suggested by Bruyere & Rappe (2007), *user* and *getting outside,* and therefore these can also be categorized as intrinsic. On the other hand, the *career* function as discussed can arise from an externally imposed need for status and requires an outcome outside the behaviour in order to be satisfied, i.e. the recognition of one's experiences by future employers which benefits one's career (Finkelstien, 2009). For these reasons, this motivation is considered extrinsic in this research.

Next to gaining experiences that might benefit one's career, other extrinsic motivations are conceivable as to why people are committed to a community gardening initiative. A widely established measurement instrument to gain insight into one's motivations for environmental behaviour is the Motivation Toward the Environment Scale (MTES) (Pelletier et al., 1998). This instrument contains four items used to measure *external regulation* i.e., a type of extrinsic motivation that arises from the earlier mentioned external stimuli (Sass et al., 2018). Based on these items, the following extrinsic motivations can be defined: *visibility, recognition, meeting expectations*, and *avoiding criticism.* In the context of community gardening, *visibility* involves that a volunteer participates in the garden to show to others that one cares about a green environment. In this case, the external stimulus is gaining status. The same stimulus is responsible for a volunteer participating because one wants to gain *recognition* from others, for example neighbours or other visitors of the garden. A third motivation for volunteering, *meeting expectations,* might be driven by the influence felt by neighbours, friends, or acquaintances, when they have clearly shown that they would like to see him or her commit to the initiative. Fourthly, a person can decide to become a volunteer to avoid the criticism of others when one does not comply. These four extrinsic motivations are also listed in Table 2.

Related to *meeting expectations* and *avoiding criticism* is a fifth extrinsic motivation, the *desire to fit in*. This motivation explicitly entails that one wants to become or stay part of a particular group to strengthen social relationships with other members of a group or to prevent a potential decline in social capital with other group members (Bennett et al., 2018). These three motivations all have in common that one acts according to assumed group norms (Basurto et al., 2016).

A last extrinsic motivation that can be considered relates to *financial incentives* e.g., obtaining a fee for the work one performs (Bennett et al., 2018). In this way, individuals act out of the self-interested goal of receiving money. Still, this motivation can lead to altruistic behaviour i.e., an ecologically diverse and pleasant living environment that is enjoyed by others (Schenk, 1987). In the Netherlands, volunteers are eligible for a volunteer's allowance when they perform work that is not performed by way of profession for a public benefit organization or an organization that is not subject to or exempt from corporate tax (Platform Vrijwillige Inzet, n.d.). A formalized gardening initiative (e.g., a foundation or association structure) can therefore opt to pay such a fee to its volunteers. When one knows this information beforehand, this might be a motivation to become involved in a particular initiative.

A list of the discussed intrinsic and extrinsic motivations is represented in Table 2. As we have seen, various scholars argue that intrinsic motivations might be more constant in promoting environmental action than extrinsic motivations (Cecere et al., 2014; Cetas & Yasué, 2017, Ryan et al., 2003). In section 2.4.1, the expectations that can be formulated on the basis of this finding are discussed.

Table 2 *Volunteer motivations categories in community gardening initiatives (source: author)*

	Motivation category	Meaning	Adopted by
Intrinsic	*Helping the environment*	Doing something that enhances the natural world	Ryan et al. (2001) derived from VFI
	Learning about the environment	Observing nature, learning about specific animals, plants, and the environment	Measham & Barnett (2008), Bruyere & Rappe (2007), Ryan et al. (2001), derived from VFI
	Social	Allowing participants to meet others who share their ideas and values	Clary et al. (1992) in VFI
	Enhancement	Achieving psychological growth and development	Clary et al. (1992) in VFI
	Protective	Reducing negative feelings	Clary et al. (1992) in VFI
	User	To be able to continue enjoying greenery	Bruyere & Rappe (2007)
	Getting outside	Opportunity to be simply in nature	Bruyere & Rappe (2007)
Extrinsic	*Career*	To gain job-related experience/explore possible career options	Finkelstien (2009), Clary et al. (1992) in VFI
	Visibility	To show others one cares about greenery (status)	Pelletier et al. (1998) in MTES
	Recognition	To get recognition from others	Pelletier et al. (1998) in MTES
	Meeting expectations	To meet expectations of neighbours/friends/acquaintances	Pelletier et al. (1998) in MTES
	Avoiding criticism	To prevent others from criticizing one's (lack of) actions	Pelletier et al. (1998) in MTES
	Desire to fit in	To become or stay part of a particular group	Bennett et al. (2018)
	Financial incentives	To obtain a fee for the work one performs	Bennett et al. (2018)

2.4 Expectations and conceptual model

Based on the previously discussed body of literature, expectations can be formulated that are empirically investigated in this research. Additionally, the various linkages between the mentioned concepts are shown in a conceptual model.

2.4.1 Expectations

Based on the questions central to this research and the literature discussed, the following underlying expectations can be formulated for this research:

1. Community gardening initiatives characterized by a high degree of self-governance have a great ability to keep organizing activities that are considered important by its volunteers i.e., environmental stewardship at the collective level. Concretely, supportive alliances with institutional players and sufficient human and financial capital are expected to contribute to a great capacity for self-governance. The degree of formalization may have different effects on this capacity. Whereas for initiatives characterized by a formalised organisational structure the continuity of an initiative can be guaranteed to some extent, initiatives with an informal set-up might also be regarded as attractive by people because of its non-binding nature and therefore might stimulate (continued) involvement of volunteers.

2. It can be hypothesized that under the influence of perceived bonding social capital among an initiative's volunteers, volunteers feel more involved and part of the initiative, as a result of which an initiative's and volunteer's ES is fostered. Determining factors for bonding social capital are the existence of a social connection, a high level of trust, high degree of identification with the other as well as a high perceived degree to which values are shared. In turn, it is assumed that through ES, social connections can be formed and bonding social capital can be enhanced.

3. As intrinsic motivations are perceived to be more constant, it is expected that an intrinsic motivation compared to an extrinsic one is more likely to result in sustained volunteer commitment, thereby contributing to the ES of an initiative. Additionally, it is expected that those volunteers mainly driven by intrinsic motivations also show ES beyond the garden's activities. In turn, it is assumed that volunteer motivations can be positively or negatively influenced by an initiative's ES, for example when the activities performed do or do not meet one's expectations, respectively.

2.4.2 Conceptual model

The previously mentioned concepts are integrated in the following conceptual model depicted in Figure 2.

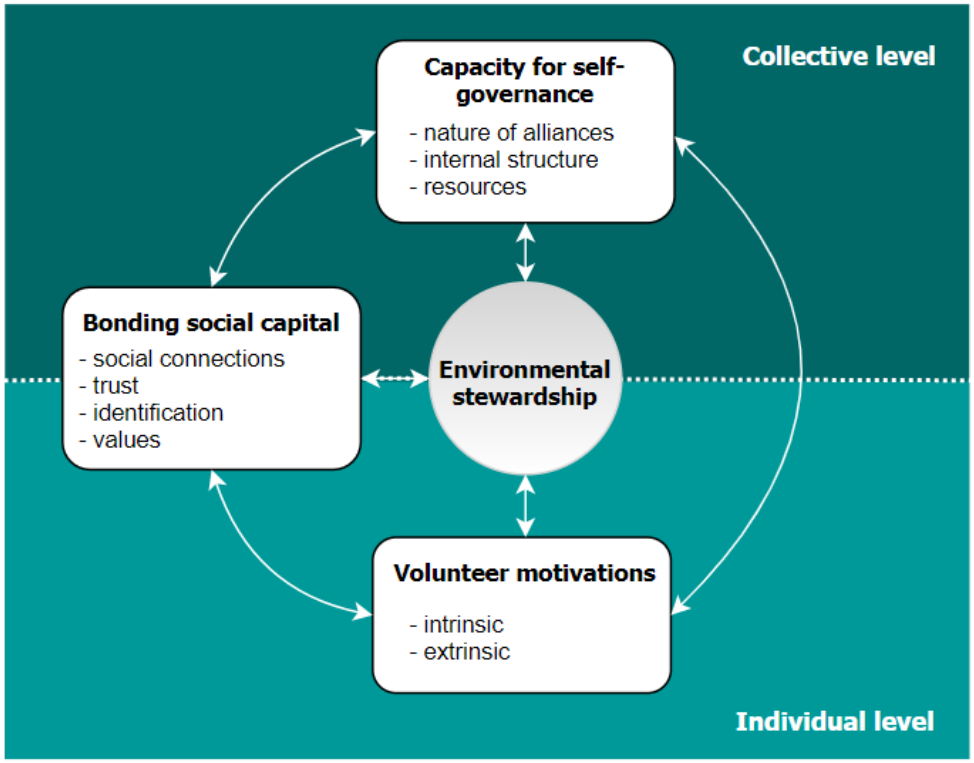


Figure 2. Environmental stewardship in community gardening initiatives (source: author)

Figure 2 depicts bidirectional relationships between all the three outer elements capacity for self-governance, bonding social capital, and volunteer motivations. Specifically, each arrow represents an enabling relationship. For instance, a degree of self-governance entails among others a joint coordination of activities (formalization), which might strengthen bonding social capital. In turn, bonding social capital can potentially influence the capacity for self-governance, since e.g., trust and shared values are essential for volunteers to stay active in the initiative (resources i.e., human capital). The relationship between social capital and volunteer motivations is also reciprocal. The presence of strong bonds can form an additional motivation to keep participating in the initiative or can strengthen an existing social motivation. Likewise, when motivations of volunteers to participate in an initiative are very similar to each other e.g., based on shared values, this can lead to a high degree of connectedness (social capital). Looking into the relationship between volunteer motivations and capacity for self-governance, the capacity for self-governance of an initiative can either positively or negatively influence the initial motivations of volunteers to engage in the initiative, considering the volunteer's expectations about the organization of the initiative beforehand. In turn, the motivations of volunteers for engaging can positively or negatively influence the capacity for self-governance. For instance, it can be assumed that volunteers with intrinsic motivations to participate in an initiative might want to commit themselves for a longer period of time than volunteers acting out of extrinsic motivations. This affects the human resources and thus the capacity for self-governance of the initiative. Additionally, Figure 2 shows a directional relationship between capacity for self-governance and ES. The relationships between social capital and ES as well as volunteer motivations and ES are bidirectional. The expectations regarding these relationships have been discussed in subsection 2.4.1 of this chapter.

CHAPTER 3

Methodology

3. Methodology

As discussed in Chapter 1, the aims of this study are (1) examining through empirical research whether and how ES plays a role in the context of CGIs, and (2) investigating how this concept can be properly investigated methodologically. This methodology chapter is not only a means but is also an end in itself of this study as methods of data collection are reviewed to operationalize the conceptual model described in Chapter 2. Additionally, deliberate choices in defining the type of study (section 3.1 and 3.2), the logic of research design (section 3.3), approaches to data analysis, interpretation, and reporting (section 3.4) are discussed, as well as ethical considerations (section 3.5).

3.1 Case study approach

Central to this research is a case study approach. This approach is particularly fruitful for understanding urban phenomena with the following characteristics: causal questions about a contemporary set of events, little control over events, difficulty in separating the phenomenon from its larger context, and multiple sources of evidence (Rowley, 2002). These characteristics can also be recognized in the focus of this research on how CGIs impact ES at both the collective and individual level. This research focus entails a "how" question and is therefore causal. Additionally, it is impossible to adhere to the scientific requirement of *ceteris paribus* (other things being equal) in studying how various leverage points impact ES in CGIs, as the (varying) influence of these elements in different initiatives is the subject of research. The context in which these initiatives operate is highly influential and needs to be considered in an in-depth investigation of a contemporary phenomenon (Yin, 2018). In conclusion, case study research is very suitable for this research focus.

The cases studied are CGIs in Groningen. As several initiatives were examined, a multiple-case design is central to this study. The added value of this type of design compared to a single-case design is that studying multiple cases, for which similar results can be predicted, allow the researcher to make cross-case comparisons. After all, the conclusions derived from two cases, as with two experiments, are more powerful than those from only one case (Yin, 2018). This contributes to a study's external validity and therefore the quality of a case study's research design. External validity relates to whether and to which domain research findings can be generalized (Rowley, 2002). However, one must consider that this study does not necessarily focus on whether the findings for the city of Groningen can be generalized to other contexts, but instead focuses on finding a way by which the concept of ES can be thoroughly researched and substantiated. The unit of analysis in this study contains people volunteering in CGIs. Therefore, this study is characterized by a multiple-case holistic design, as shown in Figure 3. The units of observations are both key actors of the CGIs and other volunteers involved in these initiatives.

Figure 3. Visualization type of research design: multiple-case holistic (source: author)

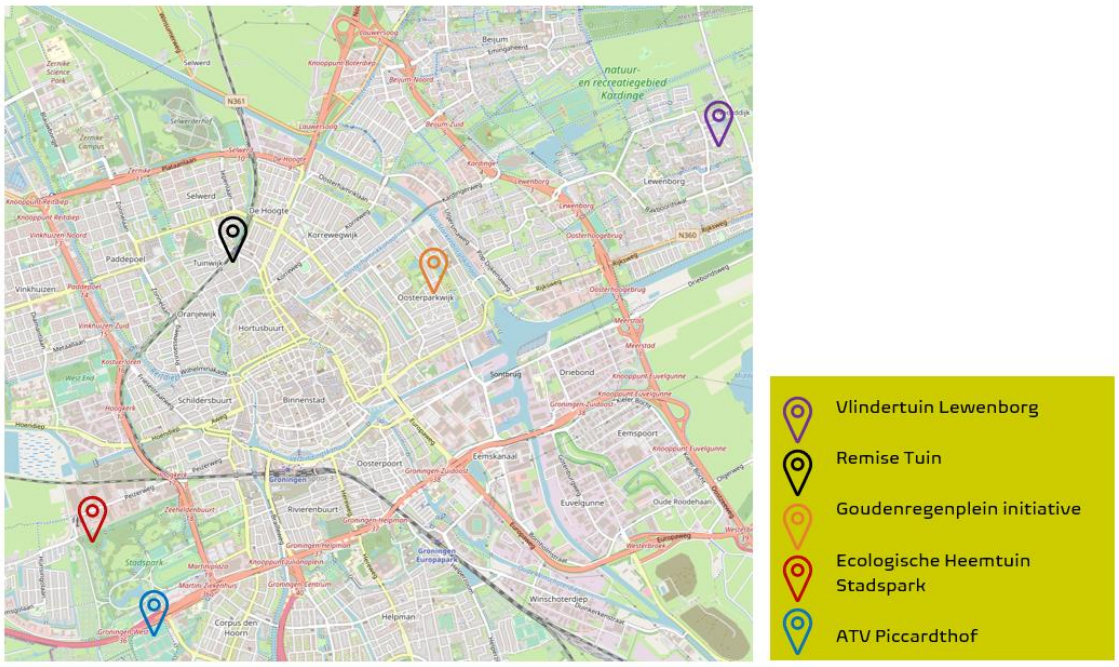
3.2 Case selection

To meet the research objective of examining whether and how ES plays a role in CGIs, an in-depth investigation of the functioning of various elements in these initiatives was required. The study consists of a select number of cases (initiatives), five in total. There are different types of cases one can select. The most common are typical, extreme, most similar, or most different cases (Seawright & Gerring, 2008). Central to this research are *typical* cases, which enabled the researcher to investigate key aspects of a phenomenon as they are manifest under ordinary circumstances and based on which cross-case comparisons could be made to some extent, as we will see at the end of this section. In this research, the selected typical cases involved citizen initiatives active in urban green space through the act of community gardening. The complete set of criteria that initiatives had to meet is described in Table 3.

Table 3 Criteria for selection of community gardening initiatives (source: author)

Criterium	Description
City of Groningen as spatial boundary	The municipality of Groningen has been paying attention to greenery in the city for several decades. This resulted among others in attention for citizen-led initiatives targeting publicly owned urban green space. From this context, it is considered interesting to see if and how ES is triggered in initiatives in this city.
Initiatives with a biodiversity-focus	To test the hypothesis that ES in CGIs is mainly driven by ecological concerns as improving biodiversity, initiatives merely focussed on vegetable gardening were excluded from this study as common vegetables are known to contribute less to the diversity of species and therefore to biodiversity. Instead, initiatives with activities focused on, among other things, improving biodiversity were included. These activities could include the collective planting and/or maintenance of plants and trees in urban space.
Potential to influence to some extent goals and activities of the initiative	To study how an initiative's degree of capacity for self-governance influences ES, the citizens involved in a CGI should have the potential to influence at least to some extent the goals and activities of the initiative. In this regard it was particularly important that activities for improving biodiversity were initiated by citizens themselves.
Initiative comprising of at least two volunteers	To study the influence of social capital on ES, a citizen initiative had to consist of at least two volunteers to be able to speak of a connection that could be empirically investigated.
Street- or neighbourhood level	Citizen initiatives could be active at the street- or neighbourhood level, as long as the aforementioned criteria were met.

Taking these criteria into account, an internet search for CGIs was conducted. Subsequently, an attempt was made to arrive at other initiatives via a snowballing approach, but the proposed initiatives did not meet the above criteria. Eventually, the following initiatives were selected: Vlindertuin Lewenborg, Remise Tuin, Goudenregenplein initiative, Ecologische Heemtuin Stadspark and Amateurtuindersvereniging Piccardthof. A description of the core characteristics for each initiative follows in Chapter 4 and can be found in Appendix A. Map 1 shows the locations of these initiatives in the city of Groningen.



Map 1. Locations of CGIs in the city of Groningen, source: OpenStreetMap & author

3.3 Mixed methods approach

Next, it is important to determine the data collection methods that are used for answering the research questions of this study (Verschuren et al., 2010). In this regard, Yin (2018) speaks of the logic linking the data to the propositions. Central to this research is a mixed methods approach, in which both qualitative and quantitative research methods are applied. It has been noted that this strategy offers a better understanding of research issues than either method by itself (Jick, 1979). Concretely, the use of multiple sources of evidence contributes to identifying correct operational measures for the concepts under study i.e., construct validity (Rowley, 2002). Moreover, it helps in realizing this study's second research aim of investigating how ES in CGIs can be properly investigated methodologically.

Literature research, document analysis, semi-structured interviews, and questionnaires were used as data collection techniques in this study. A document analysis and semi-structured interviews helped to understand the capacity for self-governance of an initiative and its influence on ES. Questionnaires among volunteers were distributed to examine social capital, volunteer motivations as well as ES. An overview of these data collection techniques is shown in Table 4.

Next to external validity (see section 3.1) and construct validity, the quality of the case study design is determined by reliability. Reliability refers to the extent to which a researcher demonstrates that the operations of a study can be repeated and yield similar results (Rowley, 2002). This study has aimed to ensure reliability by documenting the proceedings and raw data of the research in a case study database (Yin, 2003). This digital case study database stores the collected data of the literature research, document analysis, interviews, and questionnaires. These data collection techniques will be discussed in more detail in the next sections.

3.3.1 Literature research

A literature research has been conducted from May 2020 until September 2020. This literature research had different purposes, among others identifying areas of prior research to prevent duplication of effort and identifying literature to which the research can contribute (Fink, 2019; Rowley & Slack, 2004). This literature research revealed a call for a further examination under which conditions and to what extent citizen initiatives have the capacity to really meet expectations and deliver the type and amount of services they intend to provide. Another contribution by Bennett et al. (2018) offered insight into different leverage points where people can intervene to achieve an initiative's goals. Based on these and other insights from literature research, research objectives and questions were formulated. Literature research was used to build an understanding of capacity for self-governance, social capital, and volunteer motivations in the context of green urban initiatives (CGIs), which is discussed in Chapter 2.

To find relevant sources that could answer these questions, the following main keywords were used: '(urban) (environmental) stewardship', 'self-governance', 'organizational capacity', 'citizen initiatives', 'social capital', 'volunteer motivation', and 'environmental volunteering'. The literature studied consisted of English or Dutch peer-reviewed scientific articles, complemented by professional literature contributions on green urban citizen initiatives. Scientific articles were used when these provided insights into a concept's understanding and operationalization. The concept of ES in combination with civic action roughly gained scientific attention from the year 2008 onwards and therefore this year was used as a starting point for discussing literature on this concept. Literature from before 2008 was used only if these articles introduced influential concepts on which various other scholars have based their articles. The articles were collected by using different search engines, such as SmartCat (University of Groningen) and Google Scholar. Referencing has been used to provide transparency and avoid plagiarism.

Table 4 *Data collection techniques for each sub-question* (source: author)

How do community gardening initiatives impact environmental stewardship, and vice versa, at the level of the collective and the individual?				
Sub-question	**Which information**	**Sources**	**Method of retrieval**	**Method of analysis**
1. How can environmental stewardship in green urban initiatives be conceptualized?	Insights from literature about the conceptual understandings of environmental stewardship, complemented by insights about how this can be linked to green urban citizen initiatives and CGIs in particular	Scientific and professional literature about environmental stewardship, green urban citizen initiatives and in particular community gardening initiatives.	(Academic) digital search engines (SmartCat, Google Scholar)	Literature study, snowballing and critical reading
2. How do capacity for self-governance, social capital and volunteer motivations impact environmental stewardship and vice versa in CGIs?	Insights from literature about citizen self-governance, dimensions of social capital and volunteer motivations in green urban citizen initiatives	Scientific and professional literature about self-steering capacities, social capital, and volunteer motivations	(Academic) digital search engines (SmartCat, Google Scholar)	Literature study, snowballing and critical reading
3. What is the capacity for self-governance in CGIs in Groningen and how does this impact environmental stewardship at the collective level?	Information from a content-analysis on how community gardening initiatives are governed through time	Policy documents, articles from neighbourhood newspapers, municipal documents, movies	Digital search engine (Google), social media platforms (Facebook)	Coding (and transcription for movies) in *ATLAS.ti*
	Information from key actors about how community gardening initiatives are governed	Residents who initiated the garden or fulfil another important role in the CGI (e.g., garden caretaker or board member)	Semi-structured interviews	Transcription and coding in *ATLAS.ti*
4. To what extent is social capital present in CGIs in Groningen and how does this relate to environmental stewardship at the individual level?	Information from respondents about the frequency of contact with other volunteers, satisfaction in contact, as well as perceived trust, identification, and shared values	Citizens volunteering in community gardening initiatives	Survey questionnaires	Descriptive statistics, regression analyses in *IBM SPSS Statistics*
5. What are the motivations of participants in CGIs in Groningen and how do they relate to environmental stewardship at the individual level?	Information from respondents about (additional) motivations to volunteer and whether these are mainly intrinsic or extrinsic	Citizens volunteering in community gardening initiatives	Survey questionnaires	Descriptive statistics, regression analyses in *IBM SPSS Statistics*

3.3.2 Qualitative research

The influence of capacity for self-governance was investigated by conducting a document analysis and semi-structured interviews with key actors of initiatives. As the name suggests, document analysis involves the examination and interpretation of data to "elicit meaning, gain understanding, and develop empirical knowledge" (Bowen, 2009, p. 27). The purpose of this analysis was to get an overview of how CGIs are governed through time. Information was retrieved from policy documents, websites, articles from neighbourhood newspapers, municipal documents, movies, and social media platforms (e.g., Facebook).

This documentary evidence obtained in a nonreactive way has been combined with data from semi-structured interviews. A strength of this latter qualitative data collection strategy is that participants have the chance to explore issues they feel are important (Longhurst, 2003). Specifically, semi-structured interviews were chosen as it allows the researcher to gain insight into the views of key actors on their capacity to self-govern an initiative by asking mainly predetermined open-ended questions. These questions are specifically asked to key actors because it is expected that they have a broader overview of the organization of the initiative.

Since self-reported data is retrieved with this instrument, a risk of common method bias exists i.e., bias introduced by the measuring instrument used (Campbell & Fiske, 1959). In the case of semi-structured interviews, the fact that these often take place face-to-face tend to produce more socially desirable responses than e.g., surveys (Podsakoff et al., 2003). In this regard, the positionality of the researcher must be acknowledged. The topic of CGIs was chosen because the researcher is fascinated by these initiatives. Hypothetically, this could mean that as a researcher I tend to pay more close attention to the initiative's (successful) contributions while paying less attention to potential difficulties an initiative faces. Concretely, interviews were conducted while trying to be reflexive, meaning that a researcher is self-critical and self-conscious (Flowerdew & Martin, 2005).

The confidentiality of an interviewee's responses was guaranteed by an interview permission statement, see Appendix B. This statement was signed by the interviewee and the researcher before the interview took place. By signing this agreement, the interviewee is aware that the researcher is obliged to treat data about the interviewee confidentially. In this way, an attempt was made to increase the likelihood that interviewees answer questions truthfully.

The interview guide used for conducting the interviews is shown in Appendix C. All interviews were held in Dutch. Key actors of the initiatives were asked to participate in these interviews by email or via the initiative's Facebook page when no email address could be found. Also, they were asked how they would like the interview to take place. The semi-structured interviews were conducted in October and November 2020. Despite the measures regarding the COVID-19 crisis, all interviewees indicated that they would like the interview to take place physically and this could be done safely by keeping a 1.5 metres distance from each other. For the five initiatives, six semi-structured interviews have been conducted with various key actors, see Table 5.

Table 5 *Overview of key actor(s) interviewed for each CGI*

Community gardening initiative	Type of key actor
Vlindertuin Lewenborg (VL)	Garden caretaker/initiator
Ecologische Heemtuin Stadspark (EHS)	Garden caretaker and board member (2 separate interviews)
Remise Tuin	Initiator
Amateurtuindersvereniging Piccardthof (ATVP)	Prospective board member at the time of the interview (member > 14 years)
Goudenregenplein initiative (GI)	Current initiator + board member of residents' organization (1 interview)

3.3.3 Quantitative research

Social capital and volunteer motivations were investigated by executing a largely online non-experimental cross-sectional questionnaire among volunteers of CGIs. A survey such as a questionnaire is particularly useful to measure a situation in a population at one time point (Bethlehem, 1999). It is an easy and efficient way to collect information from a large number of individuals and the obtained data can be used directly for the analysis after some minor adjustments. Nevertheless, various disadvantages of this data collection method have also been considered. There is a potential risk of common method bias, involving that respondents might interpret questions and response options differently. This limitation was accounted for as much as possible by piloting the questionnaire on a small group of people with different demographic characteristics i.e., age and educational level. To reduce the number of respondents who are not motivated or willing to give true answers, the questionnaire started with questions that are easy to understand and related questions were grouped together to make the questionnaire more enjoyable to complete.

The online questionnaire was created using Qualtrics survey software. An advantage of this software is that it provides various question types, which can prevent the completion of a questionnaire from becoming monotonous. The software also offers the possibility to export results to statistical software such as *IBM SPSS Statistics*. The used questionnaire protocol can be found in Appendix D. In this questionnaire, first questions were asked about demographic characteristics. Then, questions were asked on a volunteer's participation in the initiative. Items were included on the following variables: duration, frequency, and type of activities a participant performs. The next section involved items on social capital: frequency of contact, number of contacts, satisfaction with the frequency of contact, as well as items that relate to whether a volunteer trusts the other and identifies or shares values with the other.

In the interviews with key actors, it was asked whether the COVID-19 crisis had influenced the extent to which volunteers have contact with each other. In four of the five initiatives this appeared to have no influence. Only in the case of ATV Piccardthof, when the questionnaire was to be distributed, the joint working mornings could not take place due to aggravated corona measures that were installed since the 15th of October (the ban on going outside with more than four people from different households). For the other initiatives, this measure was not a problem, because it appeared that usually less than four people were working in the garden. Volunteers of ATVP were asked to fill in these questions considering the situation before the introduction of these measures. After this section on social capital, respondents were asked to rate seven intrinsic and extrinsic motivations derived from the literature on their importance for participating using a five-point Likert scale. Subsequently, volunteers had the possibility to give motivations not yet mentioned.

Hereafter, it was examined how respondents perceive the ES of the initiative by asking them to rate items which together indicate (1) the extent to which the activities of the initiative are believed to contribute to biodiversity and (2) the extent to which it is believed that there will be enough volunteers for the continued existence of the initiative. Lastly, respondents were asked to rate three items to examine whether their participation in the initiative had triggered ES beyond the garden's activities in ecological terms. At the end of the questionnaire, respondents were given the opportunity to mention matters one would like to see improved within the initiative to identify potential bottlenecks.

Respondents were recruited using a gatekeepers recruitment strategy (Hennink, Hutter, & Bailey, 2020). This strategy involved that key actors of initiatives were asked whether they could digitally share these questionnaires among the other volunteers. Respondents could be recruited in this way for all the initiatives. In addition, the researcher went to two of the gardens physically to have the volunteers present there fill out the questionnaire. Answers to the questionnaire were collected in November and December 2020. In total, 29 volunteers completed the questionnaire, of which four volunteers completed the questionnaire on location. Only one respondent completed the questionnaire for the Goudenregenplein initiative, resulting in a response rate of 14.3%. Therefore, this initiative was not included in the quantitative analysis, resulting in n=28. For the other initiatives, a response rate between 25% and 87.5% was achieved. In section 3.4.2 it is described what this entails for the analysis.

3.4 Data analysis and interpretation

A final important step in formulating a research design involves describing criteria for the interpretation of the findings (Yin, 2018). A clear picture of these criteria provides a basis for answering the research questions of this study. Hereafter, an explanation follows of the data analysis techniques that were used.

3.4.1 Qualitative data analysis

The documents collected for the CGIs and the semi-structured interviews held with key actors of these initiatives were analysed using the qualitative data analysis software *ATLAS.ti*. Verbatim transcripts were created, and data was anonymized by removing any information that might reveal the identity of the interviewee. The transcripts of the interviews can be found in Appendix E. The CGIs did not remain anonymously as the interviewees did not insist on this. A first step in analysing documentary evidence and interview data was the development of codes: "tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study" (Miles & Huberman, 1994, p. 56). Some codes could be developed a priori from existing theory or concepts. These are deductive, theory-driven codes. Other inductive, data-driven codes emerged from the data from documents and interviews, which offered insights into new areas of interest or patterns. The set of codes developed for exploring the context of CGIs and capacity for self-governance can be visualized in a hierarchical structure called a code tree, see Appendix F.

Hereafter, a detailed description of issues found in the data was developed to identify the depth, breadth, context, and nuance of issues to understand their meaning (Hennink et al., 2020). Next to description, comparison was used as an analytical tool to identify possible existing links between different issues and in this way added richness to the description of issues (Hennink et al., 2020). The description and comparison of issues found in initiatives for capacity for self-governance and ES are discussed in sections 4.2 and 4.3 and Appendix G. Quotes of the interviewees were used to illustrate and clarify the findings.

3.4.2 Quantitative data analysis

The mostly quantitative cross-sectional data derived from questionnaires filled out by volunteers of CGIs necessitate a largely quantitative data analysis. As mentioned earlier, 28 volunteers completed the questionnaire, spread over four initiatives (GI excluded). We have seen that these initiatives are likely to show diversity and n=28 is too low to be able to substantiate findings statistically. Looking at all five initiatives, altogether these initiatives include a total of 72 volunteers. A statistically correct interpretation of the linear regressions performed requires at least a sample size of 40 volunteers, assuming a large effect size ($f2 = 0.35$). Still, the results will be analysed in a quantitative way to answer the following question related to one of the research objectives: when meeting a sufficient number of respondents for more similar-typed gardens, can a statistical analysis of quantitative data be used to provide insight into ES in CGIs?

The following statistical analyses were performed. First, to analyse the relationship between dimensions of social capital and an initiative's and individual ES, 6 multiple linear regressions were performed. Prior to these analyses, respondents' answers for all initiatives were combined ($n = 28$). Independent variables are frequency of contact within initiative, trust in other volunteers, identification with others and same norms and values as others (ratio). Since the latter three variables are measured using Likert-scales, these variables could be included in the regressions as ratio variables. The three items indicating the continuity of the initiative in terms of volunteer involvement (ratio) as well as three items indicating individual stewardship actions (ratio) are the dependent variables. The preparation and analysis of the data was performed using the software program *IBM SPSS Statistics 26*.

To find answers to the fifth sub-question on motivations, respondents were asked to rate seven intrinsic and extrinsic motivations derived from the literature on their importance for participating using a five-point Likert scale. Thereafter, for each CGI the average scores for motivations to participate could be calculated and compared with each other. Potential additional motivations of people to participate were also coded, see Appendix H. The relationship between volunteer motivations and ES is made clear using descriptive statistics and regression analyses. Descriptive statistics were used to show how volunteers of different initiatives rated items that were included on the influence of ES on volunteer motivations. Four linear regressions were performed using the total score on motivations as independent variable (ratio). The three items on individual stewardship actions and the item on perceived personal involvement in the initiative were dependent variables (ratio).

Despite the fact that no statistically substantiated statements can be made about the findings resulting from the analyses described here, in Chapter 4 extra attention will be paid to the methodology. It looks at the way in which questions have been asked in the questionnaire and in particular attention is drawn to the extent to which the essence of the concept of ES emerges from these questions. Altogether, a critical reflection on the methods that have been applied is central to this chapter, which offers handles for how a future study aimed at ES in CGIs can be designed.

3.5 Ethical considerations

In a study in which people's experiences, perceptions and motives are central, different ethical principles have been considered, following the three ethical principles and guidelines identified for research involving human subjects: *respect for persons*, *beneficence*, and *justice* (United States National Commission for the Protection of Human Subjects of Research, 1979).

First, *respect for persons* involves that people respect the autonomy of individuals and that those with diminished autonomy are safeguarded. This right to self-determination was carefully considered in the semi-structured interviews and questionnaires. Prior to each interview, the researcher informed the interviewee of his rights and obligations by means of a declaration of consent. By means of this statement it is pointed out that an interviewee has the ever-present possibility to not answer certain questions or withdraw from the interview. Also, respondents could decide to opt out at any time.

Second, *beneficence* entails that a researcher is obliged to not harm human subjects and to try to maximize a person's well-being. In the case of the interviews, the interviewee chose how the interview would take place. Moreover, questions have been prepared thoughtfully. For example, when a question was potentially sensitive, the researcher emphasized that one could choose not to answer this question. Non-verbal communication was also considered to determine whether people felt comfortable enough to answer a question.

Third, *justice* requires that research procedures should be fair, not exploitative, and well-considered. For example, this was guaranteed by telling the interviewee beforehand how long the interview would approximately take place and by asking how one feels about this. In addition, the participants' anonymity was guaranteed in the transcription of the interviews and throughout the analysis of questionnaire responses. Interviewees were also asked whether they agree with an audio-recorded interview. It was emphasized that all collected data and information is kept confidential i.e., documents protected digitally by means of a password, and only used for this research.

CHAPTER 4

Results

4. Results

In the first section of this chapter, the interview findings for a CGI's capacity for self-governance are discussed while considering the distinctiveness of each initiative. Additionally, insights from the interviews on environmental stewardship are presented followed by statistical analyses for this concept. The last two sections provide a quantitative interpretation of social capital and volunteer motivations in relation to ES in CGIs.

4.1 Capacity for self-governance

As highlighted in Chapter 3, the community gardening initiatives show diversity in terms of size, activities, and structure, among other things. These differences, but also any similarities, are discussed in the context of capacity for self-governance. For each initiative, the nature of alliances with institutional players, organizational structure as well as human and financial capital are discussed in relation to an initiative's ability to organize activities considered important by its volunteers.

4.1.1 Vlindertuin Lewenborg

A desolate piece of land resulted from a fire that had taken place at a primary school in the neighbourhood Lewenborg. In 2001, on the initiative of neighbours and with the support of a local social welfare institution, the construction of an ecologically managed butterfly garden started at this place, called *Vlindertuin Lewenborg*. After several unsuccessful attempts to maintain this garden, the year 2012 was a turning point with the arrival of a new garden caretaker. Over the years, this garden has been further expanded with e.g., extra plots and a garden house. In 2016, an eponymous foundation was established, which is currently led by two board members. Currently, the garden consists of over two hundred plant species and eighteen butterfly species have been observed. About six volunteers work in the garden on Tuesday or Friday.

Figure 4. Description Vlindertuin Lewenborg (source pictures: Facebook Vlindertuin Lewenborg)

Regarding potential alliances of Vlindertuin Lewenborg with institutional players, the interviewee (garden caretaker) mentions the contact of the Vlindertuin with the district manager of the municipality. In 2012, the district manager at that time played a supporting role in the reconstruction of the garden by supplying equipment and giving the garden caretaker the freedom to design the garden:

"Well, then uhh ... at least I tackled a case together with the municipality. [name district coordinator], he has become a very important person for me, of the municipality. That was the district coordinator then, we worked together, "[name garden caretaker]", he just said uhh .. "well, today or tomorrow there will be a small excavator. Go ahead and tell us how it should be done"."

In subsequent years, the garden remained dependent on the municipality. A garden house is placed on behalf of the municipality and the municipality itself is responsible for its major maintenance. In addition, the garden receives an allowance for the fixed costs associated with this garden house. Next to that, the Vlindertuin received an annual subsidy from a housing association. This financial compensation comes to an end when it is decided nationally that housing associations can no longer donate money to things that are in the sphere of influence of the municipality.

The disappearance of this financial resource threatens the continuity of the Vlindertuin and leads to a further formalization of the initiative i.e., the establishment of a foundation in 2016. As the volunteers described on the initiative's Facebook page: "For all activities that we would like to undertake (such as solar panels on the garden house, professional website, solar fountain, theatre in the garden, etc.) we now have the option to raise funds and have our own account managed."

This administrative decision led to the belief of the municipality that the Vlindertuin can stand on its own two feet. At that time, in 2017, the foundation did not have a fixed income and therefore this occurrence posed a second threat to their survival. This financial deficit was offset by the residents' platform of the neighbourhood Lewenborg who guaranteed to financially support the initiative for the next three years, provided the Vlindertuin maintains regular contact with them.

Looking into the initiative's organizational capacity in terms of human capital, the establishment of a foundation meant the appointment of board members. For the past one to two years, the Vlindertuin has been diligently looking for replacement of board members who took office in 2016. Several recruitment strategies have been adopted. Asking around within one's own social network, advertising in the neighbourhood newspaper, posting messages on the website and Facebook page, and participating in recurring activities that attract volunteers like neighbour's day (*Burendag)* and NLdoet. Still without success to date, entailing that the board members of that time feel compelled to continue fulfilling their duties. In general, the garden caretaker is the point of contact for both the board, the volunteers at the garden and visitors of the garden. Knowledge about gardening among volunteers varies; there are volunteers with little knowledge about gardening and volunteers (including the garden caretaker) who have experience working with green. For certain tasks where the necessary knowledge is not available, for example carpentry, the contacts of the garden caretaker are often consulted. To date, the Vlindertuin lacks someone with expertise in organizing guided tours of the garden for e.g., children from the schools nearby. Nowadays, this task is taken on by the garden caretaker, but it costs considerable time and energy. The garden caretaker would like to see this as a paid position, but the initiative does not yet have the means to do so.

4.1.2 Remise Tuin

A lost corner of the courtyard between Parellelweg, Koolstraat, and Akkerstraat (Noorderplantsoen neighbourhood) in the city of Groningen had turned into wasteland as it had not been pruned for years. This courtyard that used to serve as a station for trams (in Dutch: remise) started to become a landfill for green waste. On the initiative of a resident living near this place and with the approval of other nearby residents, a flower garden was planted at this place by the municipality in 2016. From this moment on, the initiator together with a maximum of 10 other local residents maintain this garden called the *Remise Tuin*.

Figure 5. Description Remise Tuin (source picture: Facebook Remise Tuin)

In 2016, the municipality conceived the idea of replacing a corner of a playing field with new bushes, on a place where overgrown bushes stood at that time. This intended action created a window of opportunity for the interviewee, whose house is adjacent to this corner, to propose to the municipality to plant flowers here instead of new bushes. The municipality agreed with this proposal provided that other neighbours agreed to it as well and residents would take care of the maintenance. After this was agreed, the municipality made a planting schedule and supplied and planted the flowers. Since the planting of flowers six months after the idea was born, the municipality still comes by to check how it looks every now and then, but in principle the residents are free to design the garden.

The Remise Tuin is characterized by an informal set-up, whereby the course of the initiative and its activities take place organically. This entails that the initiator informs neighbours about the garden via a joint app group and asks them for help when the initiator believes that maintenance needs to take place. The initiator is aware that this informal structure may hinder the continuity of the initiative, but he does not bother about the increased likelihood the garden can cease to exist at some point.

"Because you hear people say: "yes, uhh.. such a garden, that will disappear of course eh and then uhh.. within a few years it will be rubbish again". I say, "well, it disappears when it disappears and then we'll see". I mean, now it is fun and that is how you should see it."

This informal structure can also lead to a lack of clarity about *ownership* of the garden. The interviewee tells an anecdote about a neighbour who at one point came to him and asked: "God, do you mind if I put zucchini there, because you are the boss of the garden." The initiator said that this was not the case as neighbours are free to plant their own plants in the garden, but the neighbour did get this impression. As far as knowledge is concerned, the interviewee argues the maintenance of the garden remains a matter of *pioneering* together with neighbours.

4.1.3 Goudenregenplein initiative

The Goudenregenplein is a lawn surrounded by houses, located in the Oosterpark neighbourhood. The initiative's vision is to turn this grass field into a place contributing to biodiversity, a natural way of playing, meetings of neighbours, and nature education. The idea for this initiative arose in 2017. The current initiator was also involved back then and is now the driving force behind this initiative. This person is supported by a team consisting of five to six people who provide support in the form of advice or the implementation of activities. In the second half of 2020, the first plants have been planted on this lawn.

Figure 6. Description Goudenregenplein initiative (source picture: Stichting Operatie Steenbreek)

The idea for the Goudenregenplein initiative arose around 2017. Following an article in the local newspaper, the residents' organization Oosterparkwijk became aware of the initiative and contacted the interviewee to see if they could provide support in the form of advice, contacts and/or money. The residents' organization was able to support the initiative financially and helped the initiator to get money for plants, for example from the council area team. The interviewee stressed that the initiative's dependency on these parties for finances leads to the pressure to continue organizing activities and showing that the initiative is in motion and not a one-man project, also to be able to acquire future financial resources for designing the garden.

"Yes, we organized that planting day, and we were very aware of it, this must be a success. So, we have done our best so that uhm … huh, somebody like the area team is sure to see "this is part of the neighbourhood," huh. And fortunately, it was a success, and we assume that the moment we show that it is not a one-man project and that it works, that there will always be a bit of money."

Last year, with the help of the residents' organization, a planting day was organized to meet these expectations. Nonetheless, the organization itself states that there are limitations to this support. Support is provided with the aim that the initiative is "strong" enough at a given moment to function independently. According to the organization, this entails that sufficient residents are involved in the initiative to guarantee the garden's maintenance in the future. The need for serviceability is a strong requirement set by the municipality to prevent that the municipality will be held responsible for any neglected maintenance in the future. Nevertheless, the municipality will continue to be responsible for parts of the maintenance, for example mowing, and this should be considered when designing the garden.

Currently, the initiator makes decisions and implements ideas together with someone from the residents' organization Oosterparkwijk. More help from local residents is asked for, but despite various recruitment attempts (organizing a physical meeting, going door-to-door, publishing articles in the local newspaper) these residents are unwilling to commit themselves to the initiative. The Goudenregenplein initiative is characterized by an informal set-up. Besides the input from the residents' organization, the initiator is surrounded by a group of five to six people consisting of friends, someone from the WIJ-team and the municipality who are willing to think along with her. In addition to the knowledge obtained from input from this group of people, the initiator also seeks contact with various other persons active in the field of green space in the city.

4.1.4 Ecologische Heemtuin Stadspark

This garden is located in the northwest corner of the Stadspark neighbourhood. From the year 1970 onwards, the area has been used as a botanical garden. After municipal budget cuts on the maintenance of this garden and its subsequent discontinuation, a volunteer who had worked at this garden volunteered to manage this garden since 2001. Together with other volunteers, he started to transform the highly ravaged landscape into a species and flowery garden which has now led to a diversity of flora and fauna present in this garden. Since 2017, the foundation *Heemtuin Stadspark* has been established, which is led by two board members. Nowadays, about six volunteers are responsible for the maintenance of the garden.

Figure 7. Description Ecologische Heemtuin Stadspark (source picture: website stichting EHS)

Since 2001, the Ecologische Heemtuin has had a permanent caretaker who, under contract of the municipality, could do this voluntary work while retaining benefits. The relationship with the municipality was difficult at that time, partly driven by the dissatisfaction the caretaker expressed about the way in which the municipality carried out major maintenance at the garden. In 2015, the caretaker's contract was in danger of not being renewed, as the municipality did not consider the caretaker suitable for contact with people. This issue has been advocated in favour of the Heemtuin and because of this incident, the responsibilities of the municipality and vice versa have been gradually established. Among other things, it has been established how the initiative contributes to municipal goals with regard to greenery. Eventually, this resulted in the establishment of a foundation in 2017.

This ongoing formalization had the effect that the caretaker no longer had to pay the costs for plants and the like out of his own pocket and to some extent took away the uncertainty as to whether this money would be returned by the municipality. Instead, the Heemtuin receives a structural subsidy. In turn, board members had to be appointed who were tasked with providing an annual report and budget every year. As argued by one interviewee of the board, one did not already know how to perform administrative tasks. Hence the interviewee has doubted its ability to perform such tasks:

> *"Those secretary things, look we got uhm.. we had all those things with the municipality, eh, from uhh.. eh, hand in things and how do I say that, uhm.. there has to be communication with the municipality, in all kinds of ways. Someone has to do that. Well I am not that good at that, but okay so uhh.. good enough."*

Following the passing away of the garden caretaker mid 2017, another volunteer took up this role in the form of a participation job and is now responsible for coordinating about six volunteers working at the garden. One or more tasks the previous caretaker was responsible for are not always continued, for example reporting on observations in the garden. Both the current garden caretaker and the interviewee of the board address that they would like to see this task taken up by a volunteer or expert in the future.

4.1.5 Amateur gardener's association Piccardthof

Amateur gardener's association Piccardthof originated in 1942. From then on, this association leases a piece of land from the municipality southwest of the Stadspark. ATV Piccardthof consists of around 300 members who have a house with an ornamental garden on the complex and there are also people (non-members) who can rent a vegetable garden. As a result of a focus on natural gardening and hard work by many volunteers, ATV Piccardthof was recognized as a nature park and included in the ecological main structure in 1999. Among others, the complex houses a flower meadow, butterfly garden, and several toad pools which have been constructed and are maintained by volunteers (members/non-members) during work mornings organized by the garden committee.

Figure 8. Description Amateur gardener's association Piccardthof (source picture: website ATVP)

The Amateur gardener's association Piccardthof leases a 19 hectares plot from the municipality of Groningen. In addition to being dependent on contract renewals by the municipality, the association is in constant contact with the municipality about changing rules, such as building and gardening rules. Moreover, the interviewee mentions that the natural way of gardening characteristic of this complex fits the municipality's vision of green management.

The association founded in 1942 is characterized by a high degree of formalization as it consists of a board and several committees e.g., a garden and construction committee. In recent years, dissatisfaction among members reigns over the administrative state of affairs. Lack of transparency about the board's activities and little opportunity for members to raise issues formed a breeding ground. In November 2020, a new board was appointed with the task of realizing a "broadly supported, open and transparent organization where members feel heard and seen". One way in which they try to achieve this is by the creation of a sounding board group consisting of members working closely with and advising the board.

Looking at the organization's capacity, the association has sufficient financial resources but is experiencing a reduced willingness among members to volunteer for the complex. Amongst others, this is reflected in 6 to 10 volunteers who participate in working mornings intended for the joint maintenance of communal green areas. In recent years, the board has been unable to focus on this issue due to all kinds of administrative issues. In addition, this also led to less attention being paid to the natural way of gardening that distinguishes Piccardthof, according to its members. In response to this issue, the recently appointed board says it will actively look for members who want to commit themselves to this theme.

To summarize, Table 6 shows the discussed factors for self-governing capacity for each initiative. An extensive comparison of the initiatives on these factors can be found in Appendix G.

Table 6 *Overview of factors for self-governing capacity in community gardening initiatives*

	Vlindertuin Lewenborg (VL)	Remise Tuin (RT)	Goudenregenplein initiative (GI)	Ecologische Heemtuin Stadspark (EHS)	ATV Piccardthof (ATVP)
Potential alliances with institutional players	• Municipality (facilitator/financer) • Housing association till 2015 (financer) • Residents' platform (financer)	• Municipality (facilitator)	• Municipality (facilitator/financer) • Residents' organization (RO) (facilitator/financer)	• Municipality (financer)	• Municipality (lease agreement/regulation)
Organisational structure	Foundation (since 2016)	Informal set-up, activities take place organically	Informal set-up, activities take place organically	Foundation (since 2017)	Association (since 1942) with board and committees
Human capital	• Commitment of garden caretaker is crucial • Difficulty recruiting new board members • More expertise wanted for providing guided tours	• Initiator is the driving force • Neighbours must be actively involved in maintenance by initiator	• Involved volunteer is now the driving force behind the initiative • Next to initiator and member of RO, no active volunteers for garden's maintenance	• Previously involved volunteers compensate for the gap created by the loss of the garden caretaker • Task of reporting garden's observations not yet fulfilled again	• Declining number of volunteers who are willing to volunteer for joint maintenance of communal green areas • Prevailing dissatisfaction with administrative affairs
Financial capital	• Contribution of housing association was discontinued by changed legal rules • Municipal contribution stopped partly because of formalization as a foundation • Financially dependent on residents' platform (committed for 3 years) • Contributions from funds (e.g., Oranje Fonds)	• Financially independent (no money flows)	• Currently financially dependent from council area team and residents' organization (committed for 1 year)	• Annual subsidy from the municipality that is reviewed every year	• Revenue from membership contributions

4.2 Environmental stewardship

4.2.1 Collective level

Insights from semi-structured interviews

Several insights into environmental stewardship in initiatives can be derived from the interviews. First, it seems that the origins of a CGI stem to varying degrees from an ecological drive of the initiator. A current board member of EHS mentioned that the former garden caretaker wanted to manage the garden in an ecological way to "give nature a voice". Initiators of both the VL and GI explicitly mention to focus on improving biodiversity, but at the same time want to (start to) act as an accessible meeting place where nature education takes place. Such a focus on biodiversity seems less evident in the RT, where the initiator emphasizes the value of spending time gardening, the contribution of plants to a pleasant (green) environment, as well as the function of the garden in bringing neighbours together. For ATVP, the inherent drive for the joint maintenance of communal green areas could not be identified, possibly because these tasks are embedded in a larger, rather fixed structure of the association.

Apart from ATVP, the initiator or garden caretaker of an initiative seems to embody the role of steward in various ways. Especially for the street-level CGIs GI and RT, it was noticed that the initiator makes every effort to reach local residents and try to get these people excited to commit to the garden as well as to keep people involved. Perseverance seems to be a useful personality trait (GI), as well as being socially skilled (EHS). The formalized gardens characterized by a garden caretaker (VL and EHS) show that this garden caretaker expresses stewardship through the sharing of one's own knowledge about gardening among fellow volunteers. At the same time, when certain knowledge about garden-related matters is not available, a steward i.e., the garden caretaker or initiator, is not hesitant to acquire this knowledge beneficial to the garden by establishing contact with people who possess this knowledge, for example by consulting one's own social network (VL/GI/EHS). Moreover, it can be observed that most initiatives are concerned with making their impact visible to others by means of publications on their website, Facebook or in the local neighbourhood newspaper. Often the initiator or garden caretaker takes on this role (GI/RT/VL), but in one case a volunteer shows stewardship by taking this task to heart (EHS).

Insights from questionnaires

After this first qualitative step towards the interpretation of environmental stewardship in CGIs, a quantitative analysis of the questionnaire findings on this concept follows. As mentioned in Chapter 3, the results from the questionnaires cannot be statistically substantiated due to a low number of respondents (n=28). The findings for the Goudenregenplein initiative are not considered hereafter, since only one respondent completed the questionnaire. When interpreting the data, it must also be considered that there is a great diversity in characteristics of the cases. Therefore, the quantitative analyses performed will be interpreted qualitatively to derive potential value of these analyses and questions asked in exploring the concept of ES. These insights serve as a proposal for future studies on how to examine this concept with more respondents and similarly typed gardens i.e., gardens which largely correspond to each other in scale, organizational structure, goals, and activities.

At the collective level, ES was looked at from two focal points: *satisfaction with the initiative's contribution to biodiversity* and *initiative's continuity*. Figure 9 shows the answers given by volunteers on the former item. A thing that stands out from this figure is that most of the volunteers of VL (*Mdn* = 5.00) report to be very satisfied with the initiative's contribution to biodiversity, while for the other initiatives volunteers mostly are somewhat satisfied (*Mdn* = 4.00).

Possibly this can be explained by the goal VL has explicitly set itself, which distinguishes itself from the others: *"to promote and protect the number of butterflies, insects, and plants"* and the associated activities such as butterfly counts.

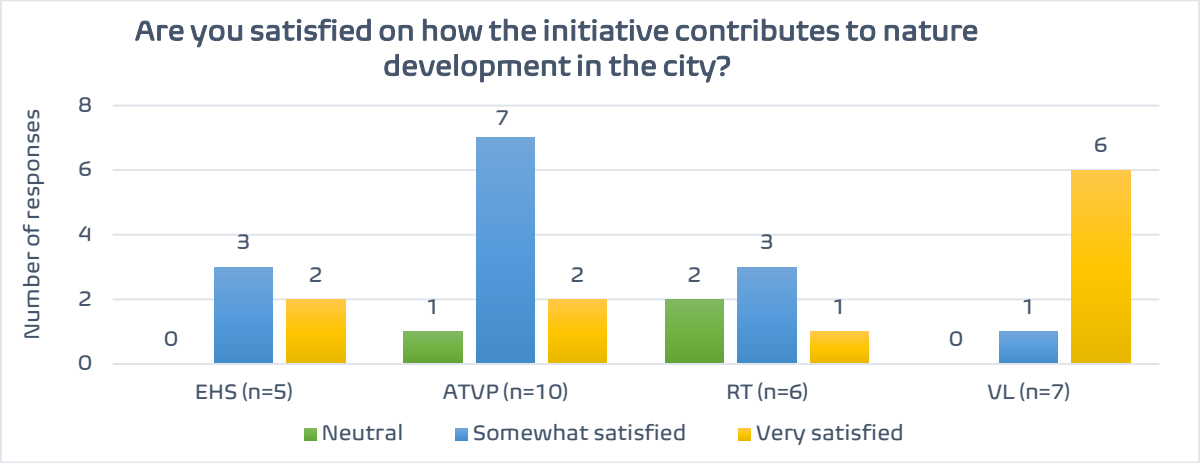


Figure 9. Degree of satisfaction on initiative's contribution to nature for all four initiatives (n=28)

The question *"Are you satisfied on how the initiative contributes to nature development in the city"* is valuable in determining satisfaction with the perceived contribution of an initiative to ecological outcomes, which is part of the definition of ES as described in section 2.1. However, to gain a broader understanding of the concept of ES in terms of e.g., social outcomes, more open questions might be preferred, such as: "What do you think the activities of the initiative contribute to?" and "What do you think the activities of the initiative should contribute to?". A combination of the answers to these questions provides both a broader exploration of ES and insight into levels of satisfaction. Subsequently, in a study with more similar gardens it can be identified whether volunteers within and across the various gardens arrive at similar answers.

Secondly, volunteers were asked to rate items on the continuity of the garden in terms of volunteer commitment. Continuity is expressed in this way, as it relates directly to the first part of the definition of ES identified in this research: "the actions taken by individuals, groups, or networks of actors, …", by looking into the extent to which volunteers of a garden want to continue these actions. Volunteers were asked whether (1) they think they will be involved in this initiative for at least another year, (2) they believe that enough volunteers will remain involved in the coming year, and (3) they believe that enough new volunteers will join in the future. The Figures 10, 11 and 12 indicate the responses to these items for each initiative.

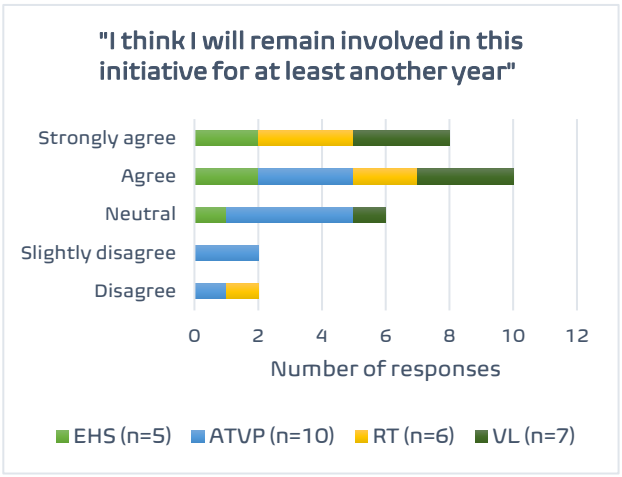


Figure 10. Perceived individual volunteer commitment for all initiatives (n=28)

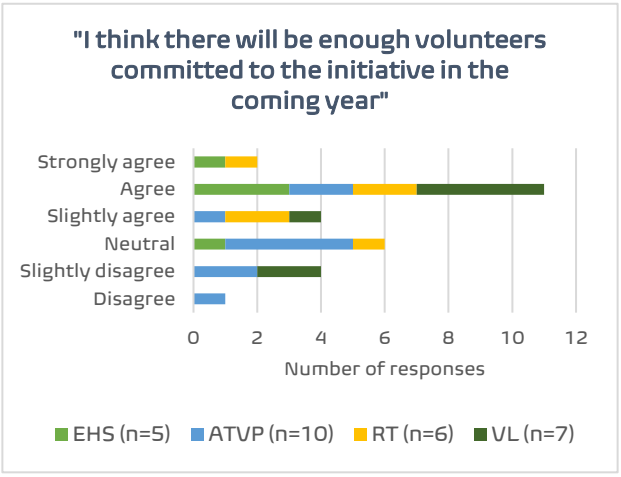


Figure 11. Perceived general volunteer commitment for all initiatives (n=28)

Figure 10 shows that most of the volunteers of EHS, RT and VL report to agree or strongly agree with the statement that they will stay involved in the initiative for another year. For ATVP, 3 out of the 11 volunteers indicate that they disagree with this in some form, and 4 volunteers indicate that they are neutral in this. However, because we are dealing here with very diverse gardens, the results for these initiatives cannot simply be compared. Especially regarding the first item, it needs to be recognized that, because of the diversity in gardens, it is likely that different intentions underlie the intended behaviour i.e., whether or not to continue for a year. It is therefore interesting for follow-up research to explicitly ask about the intention on which they base their answer to be able to qualitatively interpret the obtained quantitative data.

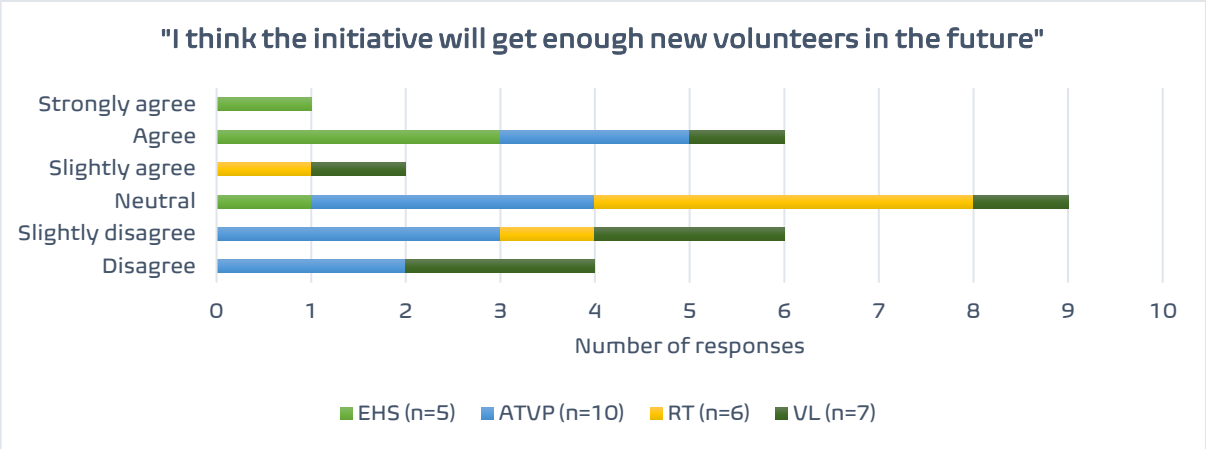


Figure 12. Perceived recruitment of enough volunteers for all initiatives (n=28)

Something that stands out regarding the second statement is that compared to the previous one, two volunteers from VL now slightly disagree that there will be enough volunteers, see Figure 11. Looking at the third statement on whether there will be enough new volunteers in the future (see Figure 12), two more respondents of VL disagree. A majority seems to be concerned about the initiative's continuity. In particular, one of the VL respondents relates this to the role of the current garden caretaker in the initiative:

> *"If [...] were to drop out, we wonder if anyone can be found with this knowledge and capabilities on a voluntary basis."*

Figure 12 also shows that half of the ATVP's respondents disagree that there will be enough new volunteers in the future, likely basing this idea on the previously observed trend of a declining number of volunteers committed to the complex. Also, four volunteers mention the need for more involvement of members as a point of improvement for the initiative at the end of the questionnaire. The answers given to this question about areas for improvement provide context to the answers given to the previously discussed items. Especially because the word "enough" in the second and third item can be interpreted variably, asking an open follow-up question can be valuable. Therefore, future research could consider following up the items about the garden's continuity with a question like "Why do you think that?" to identify success factors and points for improvement influencing volunteer commitment.

4.2.2 Individual level

An attempt has also been made to provide insight into environmental stewardship at the individual (volunteer) level. Volunteers were asked to what extent, through their participation in the initiative, they undertook various environment-oriented actions beyond the garden's activities. This was done to study the influence of participation in the garden on someone's passion for the environment. Firstly, volunteers were asked to rate the item *"By participating in this initiative I attach more value to a green living environment"*. For all initiatives, the median value of this item is 6.00, indicating that volunteers agree. Secondly, volunteers were asked to indicate to what extent they talk more about the importance of a green living environment with others (family/friends/colleagues) through their volunteering. This implies one acts as a steward by contributing to awareness creation. For this item, median values range from 5.00 (VL) to 6.00 (EHS), indicating that volunteers slightly agree to agree. The third item was *"By participating in this initiative I have taken greening measures around my house (outside the initiative)".* For this item, median values range from 4.00 for RT (neutral) to 6.00 for EHS and ATVP (agree). VL has a median value of 5.00, indicating that volunteers slightly agree in general.

These three items are a first step towards the operationalization of a volunteer's ES in ecological terms. However, these items are likely to be formulated too directive, which increases the likelihood of socially desirable answers. Also, to explore ES more broadly, asking open questions might be more appropriate. The following questions can be considered to explore an initiative's contribution to ES among volunteers without being too directive and paying attention to both the ecological and social context: "Has your participation in this initiative resulted in you taking ecological actions in your environment? If so, how?" and "Has your participation in this initiative affected your social connections? If so, how?". In addition, the question "What do you bring to the initiative?" might be considered to gain more insight into how a volunteer can act as a steward in the initiative.

4.3 Social capital

4.3.1 Social capital in community gardening initiatives

Structural dimension

The structural dimension of social capital is investigated by looking into the frequency with which volunteers have contact with others, the number of volunteers they have contact with as well as whether a volunteer is satisfied with this frequency of contact. A distinction was made between contacts during the activities at the garden and contacts beyond the garden's activities while investigating these factors.

First, the degree of contact related to the garden is examined. Looking across all four initiatives, the frequency of contact with other volunteers ranges from (almost) every day to less than once a month. Figure 13 shows that volunteers can be largely divided into two groups. The first group comprises volunteers who have contact with other volunteers once a week (46%), while volunteers of the second group have contact with others less than once a month (25%). Both groups include volunteers engaged in gardening and administrative tasks. Apart from 14% of the volunteers indicating to never contact each other beyond the garden's activities, others indicate that they do have contact with each other to different degrees. Still, no conclusive statements can be made about this frequency for CGIs in general due to the diversity in cases.

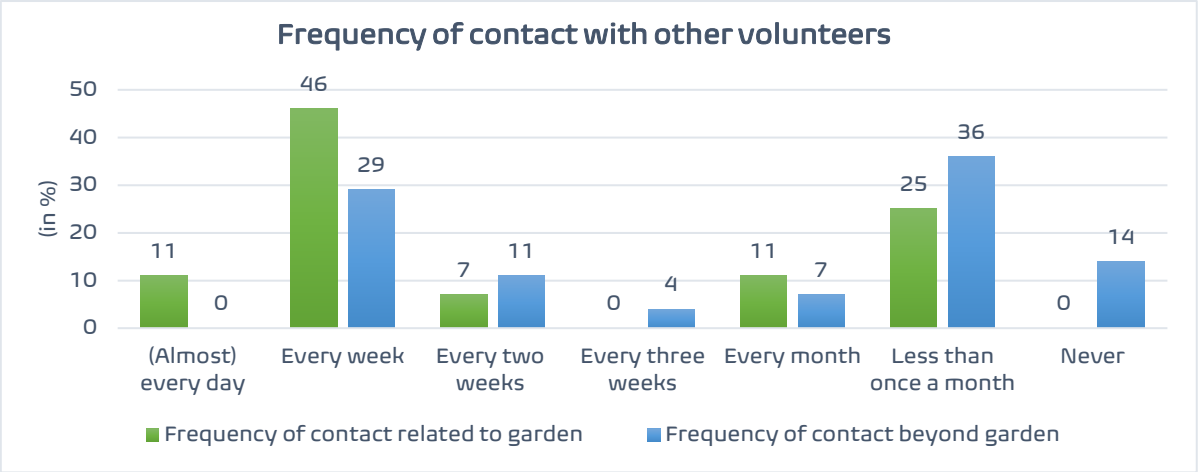


Figure 13. Frequency of volunteer contact related to and beyond garden for all initiatives (n=28)

Looking more closely at differences between the initiatives, it shows that a majority of the volunteers of Vlindertuin Lewenborg, Ecologische Heemtuin Stadspark and Amateurtuindersvereniging Piccardthof have contact with each other beyond the garden's activities. Half of the volunteers of the Remise Tuin report to have no contact with others outside of the garden, which is remarkable since they are neighbours. This suggests that the garden itself enables a sense of togetherness, which was also referred to by a volunteer in the questionnaire. For a follow-up study it might be interesting to investigate whether this finding i.e., a considerable part of neighbours having hardly any contact with each other outside the garden, also applies to other initiatives in which only neighbours are involved.

Second, volunteers were asked with how many volunteers they have contact related to the garden. Volunteers of EHS report to have contact with 3-4 volunteers (of 6-8 volunteers in total). For VL, this number varies from 2-5 volunteers (of 6-8 volunteers in total). RT is characterized by a range of 3-8 volunteers (of 10 in total) and volunteers of ATVP indicate to have contact with 2-10 or more volunteers (of 40 in total), respectively. Looking at the number of contacts beyond the garden, findings suggest that although people have less contact with each other on average, this does not result in considerably less volunteers with whom they have contact overall. Viewed across all initiatives, still a range applies between 1 and 10 or more volunteers. Even though this indicator gives a picture of the range in which people have contact with each other for each initiative, the answers do not seem to be of additional value in determining bonding social capital. Therefore, this indicator will not be taken along in the discussion hereafter.

The indicators *frequency of contact* and *number of volunteers one has contact with* related to and beyond the garden mainly provide insight into the actual social network of participation and to what extent this is maintained outside the activities of the initiative. However, the frequency indicator is of additional value when linked to the degree of satisfaction, as it gives insight into whether satisfaction depends on the frequency of contact one has.

Figure 14 shows that a majority of volunteers (n=21) are satisfied with the frequency of contact one has with others related to the garden, for every degree of contact. It would be interesting to investigate whether this can also be observed in a follow-up study with more respondents of more similar gardens. When paying attention to differences between initiatives, a majority of volunteers for VI and EHS indicate to be very satisfied, while in general ATVP's volunteers are slightly satisfied. One volunteer of ATV Piccardthof who has contact with others once a week reports being dissatisfied with this frequency. Half of the RT volunteers are very satisfied, the other half is neutral.

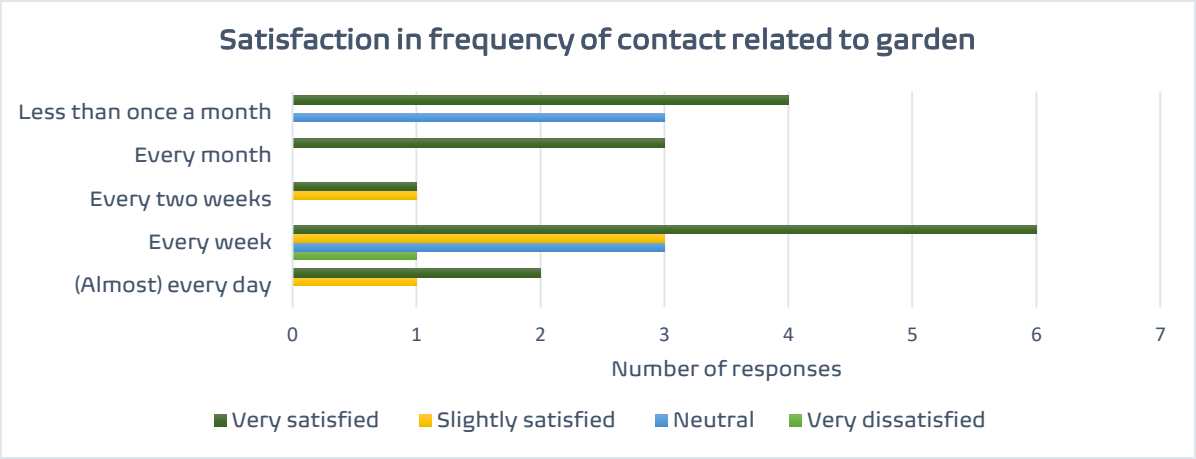


Figure 14. Frequency of contact and satisfaction of said contact related to garden (n=28)

When asked if they are satisfied with the frequency of contact they have beyond the garden's activities, 43% of the volunteers indicate that they are very satisfied. This is a slightly lower percentage compared to the percentage in the same category for the frequency of contact one has in the initiative (57%). Compared to 4% for frequency related to garden, now 7% of the volunteers are very dissatisfied with the frequency of contact beyond the garden, consisting of volunteers from EHS and ATVP. Overall, these findings suggest that one is satisfied with the frequency of contact related to and beyond the garden, regardless of the frequency of contact someone has with others.

Relational dimension

Social capital's relational dimension is operationalised in levels of trust and identification. The statement *"I trust the volunteer(s) I have contact with"* had an overall median value of 6.00, indicating that the initiatives' volunteers agree with this statement. A majority of VL and EHS volunteers responded with 'strongly agree', while ATVP and RT volunteers did so with 'agree'. The statement on identification, *"I can largely identify with the volunteer(s) I have contact with"* had a median value of 6.00. Here, most of the volunteers from all four initiatives just responded with "agree". Overall, these answers show that in all initiatives one generally trusts and can identify with others. To also be able to say something about where this is based on, one can consider asking a simple follow-up question like "why?" in future research.

Cognitive dimension

The cognitive dimension of social capital is operationalized by looking into the extent to which volunteers experience that other volunteers they have contact with share the same values. The overall median value of the corresponding item was 5.50, with which volunteers generally indicate that they (somewhat) agree with this. When looking at the median values for the particular initiatives, especially volunteers of EHS take a neutral stance with a value of 4.00. On the contrary, RT and VL are characterized by a value of 6.00. Since everyone who answers this item can have a different interpretation of "same norms and values", it would be a good addition to ask here, too, what someone bases their answer on. In this way, it can be examined for similar public citizen-led gardens whether norms and values are shared to a great extent because e.g., people live in the same street or whether other characteristics have an influence.

4.3.2 Linkages between social capital and environmental stewardship

Using findings for different dimensions of social capital, an exploration follows on the relation between social capital and ES. An attempt has been made to operationalize ES as the degree of commitment to activities of the initiative, which can be expressed in the time spent on the garden. To examine how social contact influences a volunteer's time spent, the following statement was included in the questionnaire: *"Through the contact I have with one or more volunteers I spend more time on the initiative than I would otherwise"*. In total 57% of the volunteers from the four initiatives indicate to agree with this statement to a greater or lesser extent. Figure 15 demonstrates that most of the volunteers affiliated with ATVP, RT and VL agree with the statement. EHS volunteers are largely neutral and for any initiative a few disagree. This item provides insight into the extent to which social contact influences participation. However, whether one perceives this increased effort (ES) resulting from this contact as desirable is still unclear. To tackle this and achieve greater validity, the following phrase could possibly be added to the item in the questionnaire in a follow-up study: *"which I appreciate"*.

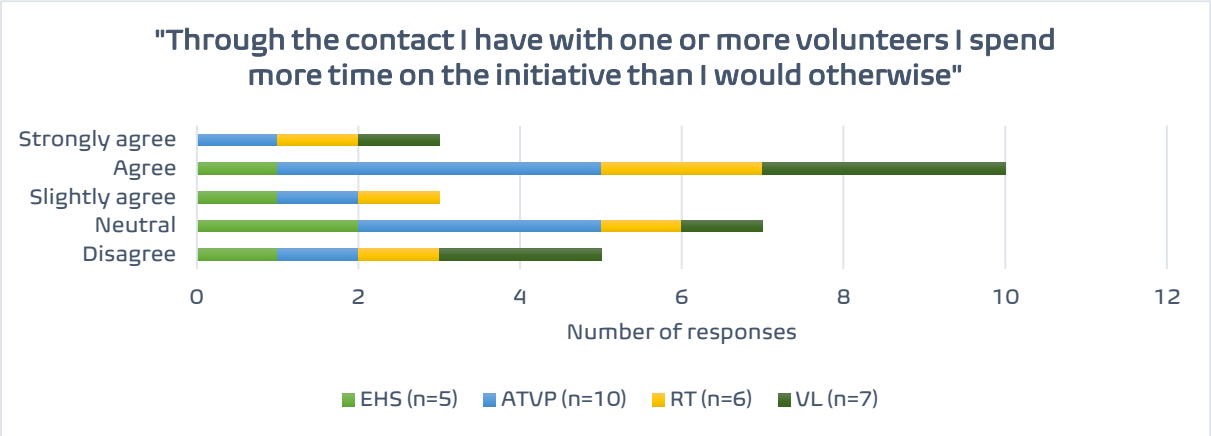


Figure 15. Degree to which participation is believed to increase time spent (n=28)

Secondly, to investigate whether possible linkages between social capital and (1) perceived commitment of volunteers (including oneself) to the garden as well as (2) the performance of individual stewardship activities can be quantitatively analysed, a trial was conducted in the form of multiple linear regressions shown in Table 7.

Given the low number of respondents, the reliability of these results must be strongly questioned. For now, Table 7 shows that the level of identification with others (B = 1.018) is a significant positive predictor for talking about a green living environment at a significance level of <0.05. The more a volunteer identifies with others, the more a volunteer talks about the importance of a green living environment with family/friends/colleagues. In addition, the frequency of contact in the initiative (B = 0.358) appears to be a significant positive predictor of taking greening measures at home at a significance level of <0.05. This assumes that the more often someone is committed to the initiative, the more likely it is that this person will take greening measures at their home.

Despite this attempt to quantify social capital's relationship with ES, it seems to provide limited insight into how dimensions of social capital impact ES. Instead, a more exploratory approach by including open questions in the questionnaire seems more appropriate. For example, one could consider asking the following questions: "Is the contact with other volunteers a reason for you to stay committed to the initiative?"

Table 7 *Trial for multiple linear regression analyses of the influence of social capital on initiative's and volunteer's environmental stewardship (n=28)*

Variables	Perceived personal involvement in initiative	Perceived involvement of existing volunteers in initiative	Perceived involvement of new volunteers in initiative	Value attached to green living environment	Talking about green living environment	Taking greening measures at home
Constant term	3.050 (0.082)*	2.632 (0.074)	3.539 (0.025)**	2.161 (0.206)	5.011 (0.004)**	5.207 (0.003)*
Frequency of contact in initiative	0.217 (0.220)	-0.033 (0.821)	-0.129 (0.401)	0.094 (0.586)	0.164 (0.316)	0.358 (0.035)*
Trust in other volunteers	0.205 (0.636)	0.092 (0.800)	-0.356 (0.351)	-0.078 (0.855)	-0.799 (0.057)	-0.504 (0.215)
Identification with other volunteers	0.018 (0.970)	0.343 (0.396)	0.763 (0.080)	0.954 (0.053)	1.018 (0.031)*	0.644 (0.156)
Same norms and values as other volunteers	0.044 (0.892)	-0.018 (0.948)	-0.211 (0.460)	-0.397 (0.222)	-0.269 (0.378)	-0.95 (0.197)
Model Statistics						
R^2	0.126	0.134	0.165	0.268	0.209	0.239
Adjusted R^2	-0.068	-0.017	0.020	0.141	0.072	0.107
F (sig)	0.830 (0.520)	0.886 (0.488)	1.139 (0.363)	2.107 (0.113)	1.522 (0.229)	1.809 (0.162)
| Unstandardized B and significance | * = significant at 0.05						

To investigate how ES influences social capital, it was investigated to what extent volunteering in the CGI contributes to (1) getting to know new people, and (2) volunteers regarding these persons as their friends. For the first item on new people, the findings show that most volunteers of VL, EHS, and ATVP have met new people. Volunteers of the RT already knew each other before the initiation of the garden, as one respondent mentioned at an open question about additional motivations for participation:

> *"It is a social and ecological activity with which we show the interconnectedness. It was already there before this initiative started; it is a result of it."*

Therefore, no conclusive statements can be made about whether volunteers of RT already regarded each other as friends or whether this was not achieved at all through participation, as Figure 16 shows. In the other initiatives that also consist of volunteers from other parts of the city, friendships have been established. Almost all volunteers of EHS claim to have become friends with others to some extent. For VT, 43% of the volunteers agree that they gained friends, while for ATVP this percentage is 60%. These findings show that whether volunteers regard other volunteers as their friends provides good insight into the strength of bonding social capital among volunteers who hardly or did not know each other before the initiative.

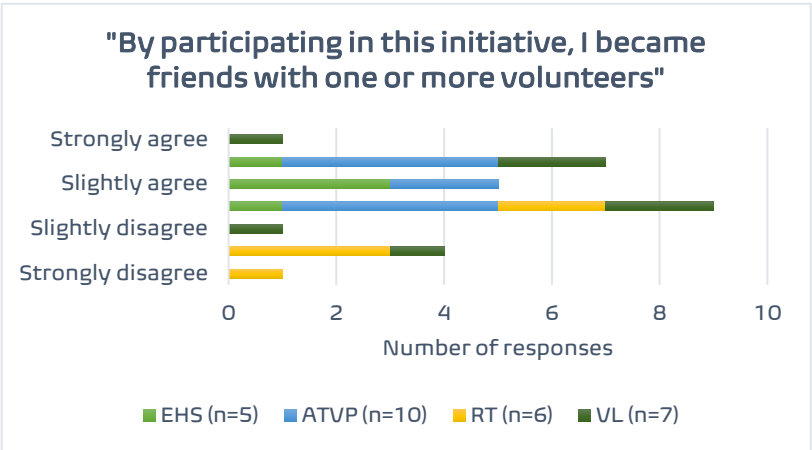


Figure 16. Degree to which participation contributes to development of new friendships (n=28)

4.4 Volunteer motivations

In Chapter 2 various intrinsic and extrinsic motivations were hypothesized that might be of relevance to volunteers of CGIs. To test this, respondents were asked to rate the fourteen motivations (seven intrinsic and seven extrinsic ones) on a scale from 1 (very unimportant) to 7 (very important). Respondents also had the opportunity to name motivations important to them that were not yet mentioned. Hereafter, explorations of main motivations for each initiative and linkages with ES will be discussed.

4.4.1 Volunteer motivations in community gardening initiatives

Due to a low number of respondents and the accompanying large standard deviations, this is an exercise in identifying important motivations of volunteers to participate in a CGI. Table 8 shows the three most important motivations for each initiative, based on the median value and standard deviation. While considering the uncertainty regarding the interpretation of these findings, for each initiative two motivations seem to be of value. These motivations are respectively *"to continue to enjoy a place that I appreciate"* and *"to help protect and / or restore greenery in the city"*, regardless of the uniqueness of each initiative. Other less-frequent motivations are *"to be outside"*, *"to learn about nature"*, and *"to show others that I care about green"*.

Table 8 *Trial for identifying important motivations of volunteers to participate in a CGI*

	First motivation	*Mdn*	*SD*	Second motivation	*Mdn*	*SD*	Third motivation	*Mdn*	*SD*
VL	To help protect and / or restore greenery in the city (I)	5.00	0.535	To continue to enjoy a place that I appreciate (I)	4.00	0.976	To show others that I care about green (E)	4.00	1.215
RT	To continue to enjoy a place that I appreciate (I)	4.00	0.632	To help protect and / or restore greenery in the city (I)	4.00	0.753	To be outside (I)	3.50	1.265
EHS	To continue to enjoy a place that I appreciate (I)	4.00	0.707	To help protect and / or restore greenery in the city (I)	4.00	0.837	To learn more about nature (I)	3.00	0.707
				To be outside (I)	4.00	0.837			
ATVP	To continue to enjoy a place that I appreciate (I)	4.00	0.516	To help protect and / or restore greenery in the city (I)	4.00	0.919	To learn more about nature (I)	4.00	1.059
(I) = intrinsic motivation | (E) = extrinsic motivation									

For all initiatives, the motivation *"to continue to enjoy a place that I appreciate"* has a median value of 4.00. Additionally, the question: *Was there any other motivation important to your decision to participate?* gave insight into the reasoning behind this motivation for volunteers of ATVP. They considered their voluntary participation necessary for the continued existence and liveability of the complex and argue that this is also expected of members. As one respondent puts it:

> *"I feel a moral obligation. ATV Piccardthof is an association. It is easy to grumble at others who are active (volunteer) when something is not going well. The Piccardthof is a beautiful place. That can only last if there are enough members who want to contribute."*

A volunteer of VL related this motivation to her commitment to the initiative as a board member:

> *"I think the Vlindertuin is an important green element in the neighbourhood, which promotes the environment and social contact in the neighbourhood. I have been asked by the board to become treasurer and, as it is a small project, it does not take much time alongside my other volunteer work."*

This quote also shows that, together with an appreciation for the initiative, commitment to the initiative is stimulated by the fact that one is asked to participate by someone from their social network. Likewise, more volunteers for VL, as well as from EHS and GI, emphasized to already know the initiator or another volunteer. This might cause people to participate, because they want to help and think its fun to volunteer with one or more persons they know or are friends with.

As mentioned at the start of this section, this is an exercise in how motivations of volunteers to participate can be best identified. Although this method of questioning gives the researcher insight into the extent to which motivations described in section 2.3.3. are present, potential drawbacks must also be recognized. The applied questionnaire method can cause respondents to give certain motivations, especially *"to help protect and / or restore greenery in the city",* a higher rating because of the positive feeling they get from it, like the idea of contributing to greenery. Still, respondents were given the opportunity to provide other motivations themselves and as Appendix H shows, the answers given by respondents often complemented previously identified motivations. However, for a follow-up study with more respondents, it can be suggested to start with a question asking respondents to name five motivations for participation. Subsequently, it can be examined whether and to what extent the motivations previously described in Chapter 2 and those shown in Table 8 also appear in the answers given by people.

The findings above also show that the volunteers involved in a garden are mainly driven by intrinsic motivations and that extrinsic motivations hardly appear to play a role in the decision to participate. Here too, social desirability may have played a role in the extent to which intrinsic and extrinsic motivations were assessed. Enabling volunteers to come up with motivations themselves in the first place could possibly have diminished this effect and is something to consider in follow-up studies. A suggestion for analysing the influence of intrinsic and extrinsic motivations would be to apply a qualitative research method (e.g., semi-structured interviews) to identify the stimulus behind the motivation and to determine whether a motivation is either intrinsic or extrinsic without being too directive. Still, one must consider that socially desirable answers are still likely to occur when applying such method. However, in contrast to a questionnaire, it provides the opportunity to ask follow-up questions to get to the core of someone's motivations.

4.4.2 Linkages between volunteer motivations and environmental stewardship

To investigate whether possible linkages between volunteer motivations and ES can be quantitatively analysed, a trial was conducted in the form of multiple single linear regressions shown in Table 9. It appears that someone's total score on intrinsic motivations is no significant predictor for a volunteer's perceived involvement in the initiative. Furthermore, these regressions seem to suggest that someone's score on intrinsic motivations is a positive predictor for a volunteer's ES, operationalized as the extent to which a volunteer (1) attaches value to a green living environment (B = 0.174), (2) talks about the importance of a green living environment with loved ones (family/friends/colleagues) (B = 0.203), and (3) takes greening measures around their house (B = 0.221), all at a significance level of <0.05. Nevertheless, it must be examined whether similar findings can be found in a follow-up study on more similar gardens and with more respondents.

Table 9 *Trial for simple linear regressions analyses of the influence of intrinsic motivations on perceived involvement in initiative and volunteer's environmental stewardship (n=28)*

Variables	Perceived involvement in initiative	Value attached to green living environment	Talking about green living environment	Taking greening measures around home
Constant term	5.071 (0.007)*	1.464 (0.397)	0.436 (0.764)	-0.031 (0.982)
Total score on intrinsic motivations	0.013 (0.868)	0.174 (0.029)*	0.203 (0.004)*	0.221 (0.002)*
Model Statistics				
R^2	0.001	0.170	0.279	0.323
Adjusted R^2	-0.037	0.138	0.251	0.297
F (sig)	0.028 (0.868)	5.329 (0.029)*	10.069 (0.004)*	12.408 (0.002)*
Unstandardized B and significance | * = significant at 0.05				

Besides, an attempt was made to investigate the influence of ES on volunteer motivations in a more direct way by including two items that looked into the extent to which the contribution of the initiative to nature in the city (1) gives a volunteer energy, and (2) ensures that a volunteer wants to continue to commit to the initiative, see Figures 17 and 18.

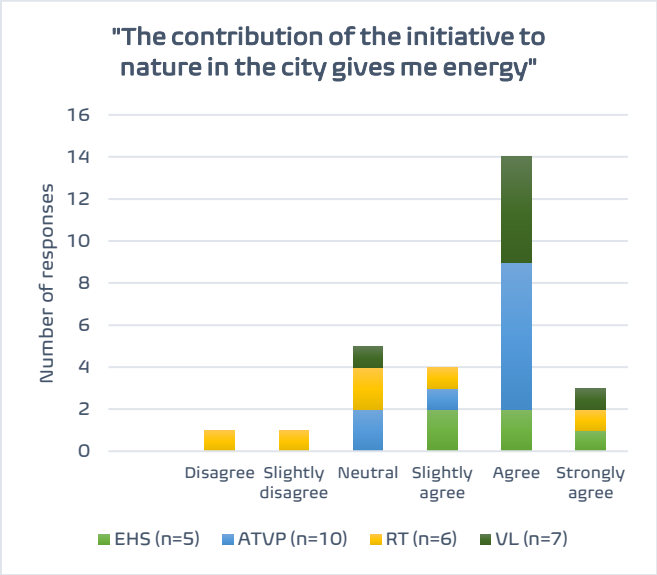


Figure 17. Degree to which initiative's contribution is believed to give volunteer energy (n=28)

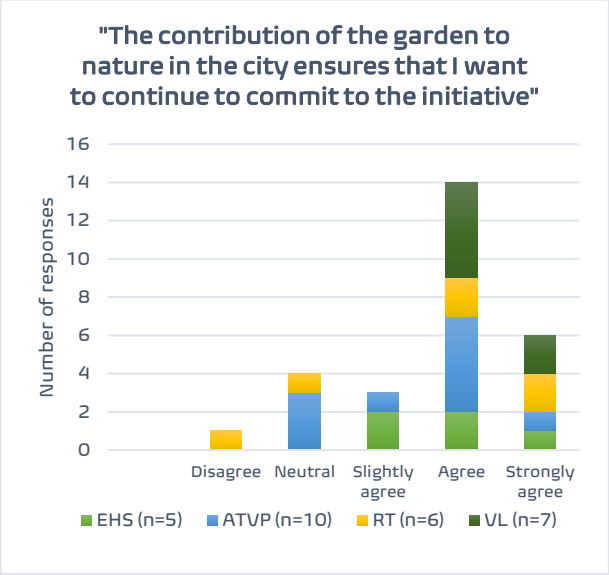


Figure 18. Degree to which initiative's contribution is believed to guarantee volunteer commitment (n=28)

In general, 52% of the volunteers agree with the former item and 48% with the latter. Figures 17 and 18 show that volunteers of EHS and VL generally agree with these items to a greater or lesser extent, while for RT and ATVP opinions are more divided. Possibly, this may be due to a reduced presence or absence of an ecological drive for the initiation of the RT and ATVP as was discussed in section 4.2. Although both items are of value in examining to what extent a volunteer attaches value to the ecological aspect of the initiative and identifying the role it plays in one's volunteer commitment, follow-up studies might consider including an open question to serve a broader understanding of ES as touched upon in section 4.2. For example, one could consider asking questions such as: "what gives you energy in this initiative?" or "what keeps you committed to this initiative?" to explore the versatility of the concept of ES in relation to volunteer commitment. These points will be further elaborated on in the conclusion and discussion in Chapter 5.

CHAPTER 5

Conclusion & discussion

5. Conclusion and discussion

This thesis evolved around the following research question: *How do community gardening initiatives impact environmental stewardship, and vice versa, at the level of the collective and the individual?* A rationale behind this research was to unravel whether citizens participating in CGIs exhibit stewardship from an ecological drive to fulfil responsibilities that previously belonged to governmental actors. Hereafter, conclusions that can be drawn are discussed, followed by a discussion of this study's limitations, directions for future research, and contributions to planning theory and practice.

5.1 Conclusions on leverage points

The first goal of this research, whether and how environmental stewardship plays a role in the context of community gardening initiatives, has been explored by conducting both literature and empirical research (document analysis, semi-structured interviews, and questionnaires). From the theory, we have seen that regarding green citizen initiatives like CGIs, the concept of ES should be interpreted in a contextual sense. This involves that attention is also being paid to the consequences of a CGI's actions for the social functioning of urban areas, for example in terms of social cohesion in the neighbourhood. However, a thorough exploration of the influence of CGIs on social cohesion and connection to the neighbourhood was hampered by restrictions related to the COVID-19 pandemic. As we will touch upon in this chapter, this research deals with a great diversity when it comes to the types of gardens that are empirically studied as well as too few respondents making statistically substantiated claims difficult. Still, several lessons can be drawn from the effect of various leverage points on ES in CGIs.

This diversity in cases' characteristics enables us to explore the various interactions between the theoretically identified factors determining capacity for self-governance i.e., nature of alliances with institutional players, internal organisational structure, and human and financial capital. However, this can be determined to a certain extent, since a garden's self-governance capacity is likely to be constructed and get lost again under various circumstances (Mattijssen et al., 2017; Ubels et al., 2019). An attempt was made to grasp this highly dynamic concept via document analysis and interviews to obtain a clearer picture of a garden's developments since the start and concretely, to gain insight into circumstances under which this capacity might change.

Comparisons between the CGIs for the factors investigated show that except for ATV Piccardthof (ATVP), the initiatives can be divided into two groups based on their ambitions. Vlindertuin Lewenborg (VL) and Ecologische Heemtuin Stadspark (EHS) can be regarded as more enterprising gardens in terms of (maintenance) activities. Either the garden covers a relatively large area of native plant species that needs to be maintained (EHS) or in case of VL, the maintenance of a butterfly attractive garden is complemented by the organization of several educational nature-related activities for which the garden uses facilities such as a garden house. In this sense, the gardens make a major contribution to ES in terms of ecological outcomes. For such activities or facilities, these gardens are dependent on continuous money flows, often from the municipality. For receiving this support, it shows that an initiative's goals need to fit in with municipal policy objectives and accountability to the municipality for the money spent is called for. This suggests that shared governance is required in order for a more enterprising initiative to be successful, in this way being fairly far removed from self-governance. On the other hand, the Goudenregenplein initiative (GI) and the Remise Tuin (RT) can be characterized as street-level gardens that aim to realise (GI) or have realized (RT) a low-maintenance, biodiverse garden. These gardens need funding for the plants in its initial phase, but once realized they are not dependent anymore on continuous money flows and therefore can arrive at self-governance. Compared to the other mentioned CGIs, the part of these gardens in ES in terms of ecological outcomes may be fairly limited. However, they may be of great value in ES in social terms i.e., the bonding and bridging of the neighbourhood. This teaches

us that citizen-led gardens merely aimed at realizing a maintenance-friendly garden have the potential to arrive at self-governance.

As previously identified, it cannot be simply assumed that the element of 'community' in community garden involves the formation of bonds between the people involved in this garden (Pudup, 2008). Therefore, an examination of bonding social capital present in CGIs took place via questionnaires filled in by volunteers of the initiatives. Even though the gardens are very different and consist either only of neighbours, people from other parts of the city or a combination of the two, the findings show for all initiatives that bonding social capital is present when looking at the indicated level of trust, degree of identification with others, and shared values. Looking into the influence of social capital on ES in terms of volunteer commitment, it was observed for all initiatives that volunteers spent more time on the initiative than they would have done otherwise because of the contact with others, but it is still unclear whether this increased effort is valued.

When it comes to the role of volunteer motivations on individual ES in CGIs, the studied initiatives show that intrinsic motivations, in contrast to extrinsic ones, play a major role in the decision to participate in a CGI. A trial for identifying important motivations of volunteers in these initiatives tells us that *to continue to enjoy a place that I appreciate* and *to help protect and/or restore greenery in the city* are the main reported motivations to participate across all initiatives. In addition, volunteers from three different CGIs mentioned to commit themselves to the initiative because they think its fun to help the initiator, garden's caretaker, or other volunteer with whom one already has a personal connection. These findings tell us that a volunteer's appreciation of the place might be driven by ecological and/or social motives.

All in all, based on the output from the questionnaires volunteers seem to exhibit stewardship beyond the garden's activities through participation, but social desirability may be at play. However, for almost all CGIs the initiator/garden caretaker seems to fulfil the role of steward in different ways: enthusing people (and continuing to do so), sharing of knowledge, and being visible to others. Herein, these actors are driven by ecological concerns to varying degrees. At the same time, often a social driver i.e., the desire to act as a meeting place, can be identified. In this way, the theoretical notion that ES in GCIs should be defined in a contextual sense is confirmed. By acting as a steward, the initiator or garden caretaker also plays a key role in guaranteeing ES at the collective level, in terms of an initiative's continuity. The moment this actor discontinues, strong demands are made on the available human capital. Whether this is present appears to depend on the presence of bonding social capital in combination with one's motivation to continue an initiative.

5.2 Limitations and recommendations for future research

As touched upon by Flyvbjerg (2006), the context-dependency of case studies involves that the extrapolation of research findings from individual cases to other examples must be accompanied with caution. All the more caution is required in the interpretation of this study's findings, since the studied CGIs vary in scale, structure, and activities, among others. Hence, this is a clear limitation of this study that should be recognized. Nevertheless, this teaches us that citizen-led community gardening can be regarded as a fluid concept. Although CGIs have been operationalized using the criteria described in section 3.2, more strict criteria must be included in a follow-up study to arrive at more similar gardens based on which findings can be better extrapolated, strengthening the study's external validity. A first suggestion would be to exclude garden complexes such as ATV Piccardthof from this study. Stewardship is less likely to be found here, since the joint maintenance of communal green areas is embedded in a more solid organizational structure typical of associations i.e., being a task for which people involved in this complex are expected to commit themselves. In terms of these organizational characteristics, such an association does not appear to be comparable with an average citizen-led garden located in a particular neighbourhood. In addition, this research taches us that the fact that a CGI is located in a particular neighbourhood does not necessarily mean that this initiative consists for the most part of neighbours, as Vlindertuin Lewenborg shows in this study.

In addition to a diversity in cases, too few responses to the questionnaire made it difficult to statistically test the assumed relationships from the conceptual model regarding social capital, volunteer motivations, and ES. A statistical sound interpretation of the linear regressions performed requires at least a sample size of 40 volunteers. The COVID-19 restrictions made it more difficult to arrive at a large enough number of respondents from similar initiatives with a biodiversity focus, as fewer CGIs were active and/or visible because no group activities could be undertaken. Nonetheless, these limitations did not prevent a critical consideration of how the ES concept can be properly investigated methodologically, which was the second goal of this research. Since social desirability is likely to occur as a confounder of people's responses to environmental activity-oriented questions, it is even more important to pay attention to the construct validity of ES (Vesely & Klöckner, 2020). Hereafter, various insights are discussed that can be of value to follow-up studies that try to investigate ES in community gardens.

One of these insights includes that ES is a fluid and hard to grasp phenomenon, which complicates its operationalization in both semi-structured interviews and questionnaires. As discussed at the start of this report, stewardship can change over time under the influence of different leverage points (Bennett et al., 2018). Therefore, one should consider this research as a practical exercise in clarifying this concept in the context of green citizen initiatives i.e., CGIs. The fluidity of ES can also be recognized in this study, since it shows that environmental stewardship can be operationalized differently at different levels in the context of GCIs. In this study, ES ranged from an initiative's ability to undertake sustained actions in pursuit of environmental outcomes (collective level) to the extent to which volunteers take environment-oriented actions themselves beyond the garden as a result of their participation (individual level).

Precisely because of this fluidity, one must ask whether an exploration of this phenomenon by means of pre-formulated items is preferred. Therefore, in Chapter 4 suggestions were made for asking certain open questions in a follow-up study to arrive at a deeper qualitative interpretation of this concept in the context of CGIs. Additionally, in this study an attempt has been made to identify characteristics of stewards in initiatives based on findings from the document analysis and semi-structured interviews. Future research could build on this and do justice to the fluidity of this concept by exploring stewardship in an in-depth qualitative manner. A suggestion would be to make use of participatory observation, which enables a close examination of interrelationships between volunteers to examine how volunteers, besides merely initiators, can act as stewards in a CGI.

As the previous suggestions highlight, in studying ES its social context cannot be unseen. Although this research pays attention to this by studying social capital as a leverage point, a current limitation of this study is that merely the social context of the initiative itself and not its embedding in the neighbourhood was looked at thoroughly. This involves that the studied leverage points for ES i.e., capacity for self-governance, social capital, and volunteer motivations, are viewed too one-sidedly. For these reasons, the following suggestions can be made for studying leverage points for ES in neighbourhood gardens. First, instead of only focussing on capacity for self-governance in an organisational manner, this leverage point can consider the influence of an initiative's embedding in the neighbourhood by looking into neighbourhood characteristics such as neighbourhood social cohesion. In terms of social capital, also the degree of bridging social capital could be investigated between volunteers and residents as a result of the establishment of the garden in a neighbourhood. This can provide insights into whether the role of a community garden as "third place" i.e., an informal meeting place outside of home or work, also trickles down to the wider neighbourhood in which the initiative is located (Firth, Maye, & Pearson, 2011). Regarding volunteer motivations as leverage points, a suggestion would be to invite respondents to give their own motivations instead of having them assess motivations previously identified by scholars in environmental projects, as was done in this study.

5.3 Contributions for planning theory and practice

Altogether, the way in which this research has been conducted and the suggestions that followed from this, result in various contributions to planning theory and practice. First, this research entails an exploration of what ES might encompass in a real-life context i.e., community gardening initiatives. We have seen that ES does not seem to occur in certain public citizen-led gardens, in this way providing a further delineation of the type of community gardens that are contexts for stewardship. Specifically, something for planning theory to take along is the recognition of ES being a comprehensive and holistic concept that should be treated as such when doing research on this theme.

In the context of planning practice this study enriched current understandings of the functioning of CGIs by looking at it from both the perspective of the initiator and other volunteers. Insights were gained into circumstances that might threaten its continuity as well as the role of institutional actors in this, among others. This study also offers an initial exploration of possible characteristics of a steward, from which other initiatives can learn. Together with more in-depth insights from follow-up studies on the embeddedness of community gardens in their neighbourhoods, the potential of these gardens in supporting local stewardship efforts among volunteers as well as nearby residents can be identified.

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APPENDICES

Appendix A – Core characteristics of community gardening initiatives

Table 10 *Core characteristics for each community gardening initiative*

CGI	Size of garden plot	Start year	Goals	Activities	Number of volunteers
Vlindertuin Lewenborg	+/- 900 m2	2001, revived by current volunteers in 2012 and foundation was established in 2016	To promote and protect the number of butterflies, insects, and plants	Weekly maintenance of garden, organization of small-scale activities and workshops, including so-called *Night Butterfly Evenings* and annual butterfly count	6-8
Remise Tuin	+/- 35 m2	2016	These are not necessarily fixed; initiative arose from the need for a pleasant living environment comprising a diversity of plants	At least twice a year major maintenance with neighbours, donation of plants by neighbours	1 active (initiator) - alternately supported by neighbours (max. 10)
Goudenregenplein	+/- 1500 m2	2017	To promote biodiversity and education about it, as well as bringing people together	Annual planting and sowing day	1 active (initiator) - supported by 5 to 6 people
Ecologische Heemtuin Stadspark	+/- 3,5 hectares	2001, foundation was established in 2017	The preservation and protection of the botanical garden in the Stadspark in Groningen, as well as the preservation and protection of the flora and fauna present there	Weekly maintenance of garden, annual dredging day	6-8
Amateurtuindersvereniging Piccardthof	19 hectares	Association founded in 1942 and re-established in 1962	Among others promoting knowledge of the cultivation of flowers and plants, as well as promoting the nature-friendly use of allotment gardens	Besides maintenance of own garden, working mornings organized by garden committee	6-10 during working mornings, a total of 40 people for all activities on the complex

Appendix B – Interview permission statement

(IN DUTCH)

Onderzoeker: Tamara Koekkoek
E-mailadres: <e-mailadres>
Telefoonnummer: <telefoonnummer>

Groningen, <datum>

Beste,

Bedankt dat u wilt meedoen aan een interview over stedelijke buurttuininitiatieven. Dit interview is onderdeel van een masteronderzoek voor de opleiding Sociale Planologie aan de Rijksuniversiteit Groningen. In dit onderzoek ben ik geïnteresseerd in de organisatie en de activiteiten van uw initiatief. Hier zou ik graag meer over te weten komen in een interview met u.

Door het toestemmingsformulier te ondertekenen, gaat u akkoord met onderstaande punten (opgemaakt in tweevoud):

- Ik ga akkoord met deelname aan het interview en de onderzoeker heeft het onderwerp van het onderzoek uitgelegd.
- Ik ben ervan op de hoogte dat het interview volledig vrijwillig is en dat ik op ieder moment het interview kan beëindigen of onderbreken.
- Ik ben ervan op de hoogte dat ik er altijd voor kan kiezen om een vraag niet te beantwoorden.
- Ik ben ervan op de hoogte dat mijn antwoorden vertrouwelijk zijn en dat mijn naam niet genoemd of gekoppeld wordt aan het onderzoek.
- Ik ga ermee akkoord dat er een geluidsopname van het interview wordt gemaakt en dat niemand, behalve de onderzoeker, toegang heeft tot de geluidsopname van het interview zonder mijn toestemming.
- Ik ben ervan op de hoogte dat ik een schriftelijke versie van het interview kan inzien.
- Ik ga ermee akkoord dat het interview geanalyseerd en gebruikt wordt voor het onderzoek.
- Ik ben ervan op de hoogte dat ik een versie van het onderzoek bij de onderzoeker kan opvragen. Daarnaast ben ik ervan op de hoogte dat het onderzoek is in te zien voor studenten en medewerkers van de Rijksuniversiteit Groningen.

Datum: *Naam en handtekening geïnterviewde:*

Datum: *Naam en handtekening onderzoeker:*

Appendix C – Interview guide

(IN DUTCH)

Introductie
Goedendag, ik zal me bij deze nog even voorstellen. Ik ben Tamara Koekkoek en ik ben een masterstudent planologie aan de Rijksuniversiteit Groningen. Wat fijn dat u de tijd kon vinden voor dit interview en dit interview met mij wilt doen.

Zoals ik via de mail aangaf, vindt dit interview plaats in het kader van een afstudeeronderzoek naar stedelijke buurttuininitiatieven in de stad Groningen. Concreet ben ik geïnteresseerd in hoe **[naam initiatief]** werkt en wat voor activiteiten er binnen dit initiatief worden gedaan. Ook ben ik benieuwd naar de manier waarop het initiatief bijdraagt aan de natuur in de stad.

We hebben bij de afspraak aangegeven dat dit interview ongeveer een uur duurt. Klopt het dat u vandaag die tijd heeft? Hoe strikt staat u op de tijd? Zoals vermeld stond in het toestemmingsformulier wordt er een geluidsopname van dit interview gemaakt. Bij deze wil ik nogmaals benadrukken dat uw anonimiteit gewaarborgd blijft in de antwoorden die u geeft. Heeft u op dit moment vragen voordat we beginnen aan het interview?

Openingsvragen (enkel gesteld wanneer niet vermeld op website/FB-pagina)
1. Hoelang zet u zich al in voor [naam initiatief]?
   <u>Doorvragen:</u> *Wat doet u binnen het initiatief? / Hoeveel tijd per week besteed u aan de activiteiten?*

2. Hoelang bestaat [naam initiatief]?

3. Waarom besloot u [naam initiatief] op te richten?
   <u>Indien niet de oprichter</u>*: Waarom besloot u deel te nemen? / Wie heeft het opgericht?*

4. Wat zijn de doelen van dit initiatief?

5. Wat voor activiteiten worden er binnen [naam initiatief] gedaan?
   <u>Doorvragen:</u> *Over wat voor periode worden deze activiteiten georganiseerd? / Hoe dragen ze bij aan de doelen?*

Hoofdvragen
(Human and financial resources)

1. Hoeveel vrijwilligers of leden telt het initiatief?
   <u>Doorvragen</u>*: wat voor kanalen gebruikt het initiatief om naar vrijwilligers (en de buitenwereld) toe te communiceren? (Bijv. Facebook, e-mail, etc.)*
   - Is dit aantal vrijwilligers/leden voldoende om de activiteiten uit te voeren die nodig zijn om de doelen van het initiatief te bereiken? Waarom wel/niet?
   - Is er binnen het initiatief voldoende kennis en vaardigheden om alle activiteiten die u wilt/jullie willen ondernemen te kunnen uitvoeren?
   - Lukt het om voldoende leden vast te houden om het initiatief gaande te houden? Waarom wel/niet? Heeft u een idee waardoor dit komt?
   - Lukt het om voldoende leden te werven om het initiatief gaande te houden? Waarom wel/niet? Heeft u een idee waardoor dit komt?

2. Beschikt uw initiatief over financiële middelen? Zo ja, wat voor financiële middelen zijn dit?

   - Hoe komt uw initiatief aan financiële middelen? Zijn deze middelen voldoende om te kunnen blijven voortbestaan?
   - Zijn deze middelen voldoende om de activiteiten te kunnen doen die nodig zijn om de doelen van het initiatief te bereiken? Waarom wel/niet?

(Level of autonomy/potential alliances)

1. Zijn er partijen waar uw initiatief van afhankelijk is?
   <u>Doorvragen:</u> *(gemeente, provincie, bedrijven, organisaties); Op welke manieren? Hoe ervaart u dit?*

2. In hoeverre kan het initiatief zelf keuzes maken over hoe activiteiten worden uitgevoerd? <u>Doorvragen:</u> *Hoe ervaart u dit?*

3. Zijn er bepaalde regels en procedures waar uw initiatief zich aan moet houden? <u>Doorvragen:</u> *(bijv. gemeentelijk) Van wat voor aard? Zo ja, in hoeverre heeft dit gevolgen voor de activiteiten en/of doelen van het initiatief?*

(Internal coordination/degree of formalization)

1. Hoe is het nemen van besluiten georganiseerd binnen het initiatief? Bijv. gedaan door kerngroep, commissies of meer organisch?
2. Hoe verloopt de organisatie van de activiteiten?
3. Hoe verloopt de afstemming tussen vrijwilligers over de activiteiten? Wat gaat er goed en wat kan er beter?

(Environmental stewardship)

1. Hoe draagt het initiatief bij aan natuurontwikkeling in de stad?

2. Ziet u nog kansen voor dit initiatief om de bijdrage aan natuurontwikkeling te vergroten? Waarom wel/niet?
   <u>Doorvragen:</u> *Zo ja, wat is hiervoor nodig?*

3. In hoeverre zijn de doelen van het initiatief behaald?
   <u>Doorvragen:</u> *Waaruit blijkt dat? Bent u hier tevreden over gezien de looptijd van het initiatief? Waarom wel/niet?*

4. Heeft u aanwijzingen dat vrijwilligers door hun deelname aan het initiatief zich meer bewust zijn van de noodzaak om zich in te zetten voor groen in de stad?
   <u>Doorvragen:</u> *Waaruit blijkt dat?*

5. Heeft u aanwijzingen dat vrijwilligers door hun deelname aan het initiatief zich buiten het initiatief om inzetten voor een groener leefklimaat?
   <u>Doorvragen:</u> *Waaruit blijkt dat?*

Afsluitende vragen

1. Hoe ziet u de toekomst van [naam initiatief] voor u?
2. Tot slot, zijn er zaken niet aan bod gekomen waarvan u vindt dat ik ze wel moet weten?

Dit was de laatste vraag van dit interview. Heeft u verder nog vragen of opmerkingen naar aanleiding van dit interview? Zo niet, dan wil ik u bij deze ontzettend bedanken voor uw tijd!

Appendix D – Questionnaire protocol

(IN DUTCH)

Introductie

Wat leuk dat u zich inzet voor <naam initiatief>! Mijn naam is Tamara en ik wil graag meer leren over dit initiatief. Ik ben een masterstudent in de richting planologie aan de Rijksuniversiteit Groningen. Voor mijn afstudeeronderzoek ben ik geïnteresseerd in de werking en activiteiten van buurttuin initiatieven in Groningen. Via mijn onderzoek kan het duidelijk worden hoe buurttuin initiatieven en mensen zoals u, kunnen bijdragen aan een natuurinclusieve stad!

Deze enquête zal ongeveer 7 minuten van uw tijd in beslag nemen. Uw hulp is van belang om dit onderzoek tot een succes te maken. Hartelijk bedankt voor uw deelname!

Vriendelijke groet,

Tamara Koekkoek

Goed om te weten voordat u begint

- De gegevens worden anoniem verwerkt. Dit betekent dat uw naam niet wordt geregistreerd.
- De informatie die u deelt, wordt vertrouwelijk behandeld.
- De verzamelde gegevens worden gebruikt voor een afstudeeronderzoek. Dit houdt in dat de resultaten van dit onderzoek kunnen worden ingezien door studenten en medewerkers van de Rijksuniversiteit Groningen.

Persoonsgegevens

Hierna worden enkele gegevens gevraagd die nodig zijn voor de analyse.

(1) Wat is uw leeftijd?

_____

(2) Wat is uw geslacht?

- ○ Vrouw
- ○ Man
- ○ Non-binair
- ○ Onthul ik liever niet
- ○ Omschrijf ik liever zelf: _____

(3) Heeft u een opleiding aan het hoger onderwijs (hogeschool en/of universiteit) afgerond?

- ○ Ja
- ○ Nee

(4) Welke van de volgende categorieën omschrijft het beste uw huidige werksituatie?

- ○ Baan (full-time, part-time of zzp)
- ○ Geen baan, werkzoekend
- ○ Geen baan, niet werkzoekend
- ○ Gepensioneerd
- ○ Kan niet werken i.v.m. gezondheid
- ○ Student
- ○ Anders, namelijk _____

Deelname aan het initiatief

Dit gedeelte gaat over uw inzet voor de Vlindertuin Lewenborg.

(5) Hoe heeft u over dit initiatief gehoord? U kunt meerdere antwoordopties aanvinken.

- ☐ Via buren
- ☐ Via familie/vrienden
- ☐ Via de wijkkrant
- ☐ Via online platform (website, social media, etc.)
- ☐ Anders, namelijk _____

(6) Hoelang bent u bij dit initiatief betrokken (in maanden)?

_____

(7) Hoe vaak zet u zich doorgaans in voor dit initiatief?

- ○ Meerdere keren per week
- ○ 1 keer per week
- ○ 1 keer in de twee weken
- ○ 1 keer in de drie weken
- ○ 1 keer per maand
- ○ Minder dan 1 keer per maand
- ○ Anders, namelijk _____

(8) Met wat voor activiteiten houdt u zich voornamelijk bezig in dit initiatief? (bijv. onderhoud van tuin, bestuurswerkzaamheden, etc.)

_____

Onderling contact

Dit gedeelte gaat over de mate van contact die u heeft met mensen die zich, net als u, inzetten voor de Vlindertuin Lewenborg. Van nu af aan worden deze mensen aangeduid met de term “vrijwilligers”.

(9) Hoe vaak heeft u contact met andere vrijwilligers binnen het initiatief?

Onder 'contact' worden zowel fysieke als telefonische/online ontmoetingen verstaan.

- ○ (Bijna) elke dag
- ○ Elke week
- ○ Elke twee weken
- ○ Elke drie weken
- ○ Elke maand
- ○ Minder dan 1 keer per maand
- ○ Nooit

(10) Met hoeveel verschillende vrijwilligers heeft u dan doorgaans contact?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10 of meer
- ○ Anders, namelijk _____

(11) Bent u tevreden over hoe vaak u contact heeft met vrijwilligers binnen het initiatief?

- ○ Zeer ontevreden
- ○ Enigszins ontevreden
- ○ Neutraal
- ○ Enigszins tevreden
- ○ Zeer tevreden

---

(12) Hoe vaak heeft u contact met andere vrijwilligers buiten activiteiten van het initiatief om?

Onder 'contact' worden zowel fysieke als telefonische/online ontmoetingen verstaan.

- ○ (Bijna) elke dag
- ○ Elke week
- ○ Elke twee weken
- ○ Elke drie weken
- ○ Elke maand
- ○ Minder dan 1 keer per maand
- ○ Nooit

Als het antwoord op bovenstaande vraag “Nooit” is, sla dan de volgende vraag over en ga naar vraag 14.

---

(13) Met hoeveel verschillende vrijwilligers heeft u dan doorgaans contact?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10 of meer
- ○ Anders, namelijk _____

(14) Bent u tevreden over hoe vaak u contact heeft met vrijwilligers buiten activiteiten van het initiatief om?

- ○ Zeer ontevreden
- ○ Enigszins ontevreden
- ○ Neutraal
- ○ Enigszins tevreden
- ○ Zeer tevreden

(15) Geef aan in hoeverre u het eens bent met de volgende stellingen:

	Sterk mee oneens	Mee oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Sterk mee eens	N.v.t.
Ik vertrouw de vrijwilliger(s) waarmee ik contact heb	○	○	○	○	○	○	○	○
Ik kan me grotendeels identificeren met de vrijwilliger(s) waarmee ik contact heb	○	○	○	○	○	○	○	○
De vrijwilliger(s) waarmee ik contact heb, heeft/hebben dezelfde waarden en normen als ik	○	○	○	○	○	○	○	○
Door het contact met één of meerdere vrijwilligers besteed ik meer tijd aan het initiatief dan ik anders zou doen	○	○	○	○	○	○	○	○

(16) Geef aan in hoeverre u het eens bent met de volgende stellingen:

Door deel te nemen aan dit initiatief ...

	Sterk mee oneens	Mee oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Sterk mee eens
... heb ik nieuwe mensen (vrijwilligers) leren kennen	○	○	○	○	○	○	○
... ben ik bevriend geraakt met één of meerdere vrijwilligers	○	○	○	○	○	○	○

(17) Waarom besloot u deel te nemen aan het initiatief? Geef aan hoe belangrijk de volgende motivaties waren voor deze beslissing:

	Helemaal niet belangrijk	Niet erg belangrijk	Redelijk belangrijk	Zeer belangrijk	Uitermate belangrijk
Om groen in de stad te helpen beschermen en/of herstellen	○	○	○	○	○
Om meer te leren over de natuur	○	○	○	○	○
Om te voorkomen dat anderen kritiek op mij leveren	○	○	○	○	○
Om de erkenning die ik ervoor krijg	○	○	○	○	○
Om de financiële vergoeding die er tegenover staat	○	○	○	○	○
Om met mensen in contact te komen	○	○	○	○	○
Om ervaring op te doen die goed op mijn CV staat	○	○	○	○	○
Om me nuttig te voelen	○	○	○	○	○
Om te kunnen blijven genieten van een plek die ik waardeer	○	○	○	○	○
Om aan anderen te laten zien dat ik om groen geef	○	○	○	○	○
Om me minder schuldig te voelen over de milieuproblematiek	○	○	○	○	○
Om erbij te horen	○	○	○	○	○
Om buiten te zijn	○	○	○	○	○
Buren/vrienden/kennissen staan erop dat ik dit doe	○	○	○	○	○

(18) Was er nog een andere motivatie belangrijk voor uw beslissing om deel te nemen? Dan kunt u deze hieronder noemen.

_____

_____

_____

Bijdrage aan natuurontwikkeling in de stad

(19) Bent u tevreden over hoe het initiatief bijdraagt aan natuurontwikkeling in de stad?

- ○ Zeer ontevreden
- ○ Enigszins ontevreden
- ○ Neutraal
- ○ Enigszins tevreden
- ○ Zeer tevreden

(20) Geef aan in hoeverre u het eens bent met de volgende stellingen.

De bijdrage van het initiatief aan natuurontwikkeling in de stad ...

	Sterk mee oneens	Mee oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Sterk mee eens
... geeft mij energie	○	○	○	○	○	○	○
... zorgt ervoor dat ik me voor het initiatief wil blijven inzetten	○	○	○	○	○	○	○

(21) Geef aan in hoeverre u het eens bent met de volgende stellingen:

	Sterk mee oneens	Mee oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Sterk mee eens
Ik denk dat ik nog tenminste een jaar bij dit initiatief betrokken blijf	○	○	○	○	○	○	○
Ik denk dat er het komende jaar genoeg vrijwilligers blijven die zich inzetten voor het initiatief	○	○	○	○	○	○	○
Ik denk dat er in de toekomst genoeg nieuwe vrijwilligers bijkomen die zich zullen inzetten voor het initiatief	○	○	○	○	○	○	○

(22) Geef aan in hoeverre u het eens bent met de volgende stellingen.

Door mijn deelname aan dit initiatief ...

	Sterk mee oneens	Mee oneens	Beetje mee oneens	Neutraal	Beetje mee eens	Mee eens	Sterk mee eens
... hecht ik meer waarde aan een groene leefomgeving	○	○	○	○	○	○	○
... praat ik meer over het belang van een groene leefomgeving met naasten (familie/vrienden/collega's)	○	○	○	○	○	○	○
... heb ik rondom mijn huis zelf vergroenende maatregelen genomen (buiten het initiatief om)	○	○	○	○	○	○	○

Opmerkingen

(23) Zijn er nog dingen die volgens u beter kunnen binnen de Vlindertuin Lewenborg? Dan kunt u deze hieronder noemen.

_____

_____

_____

_____

_____

Afsluiting

Hartelijk bedankt voor het invullen van deze enquête!

Appendix E – Transcripts of interviews

The transcripts of the interviews are stored by the researcher.

Appendix F – Interview code trees

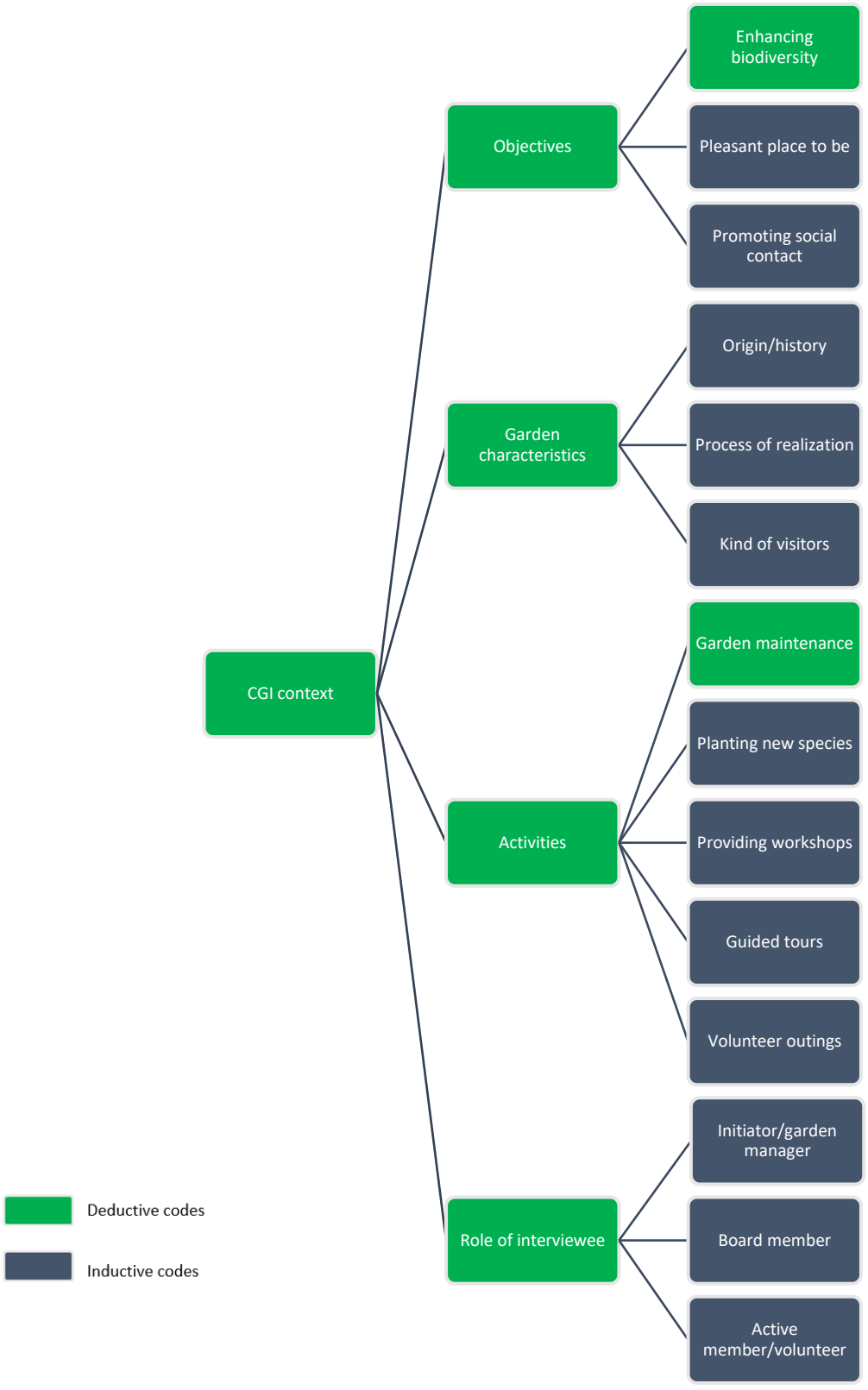

Figure 19. Interview code tree related to context of CGIs

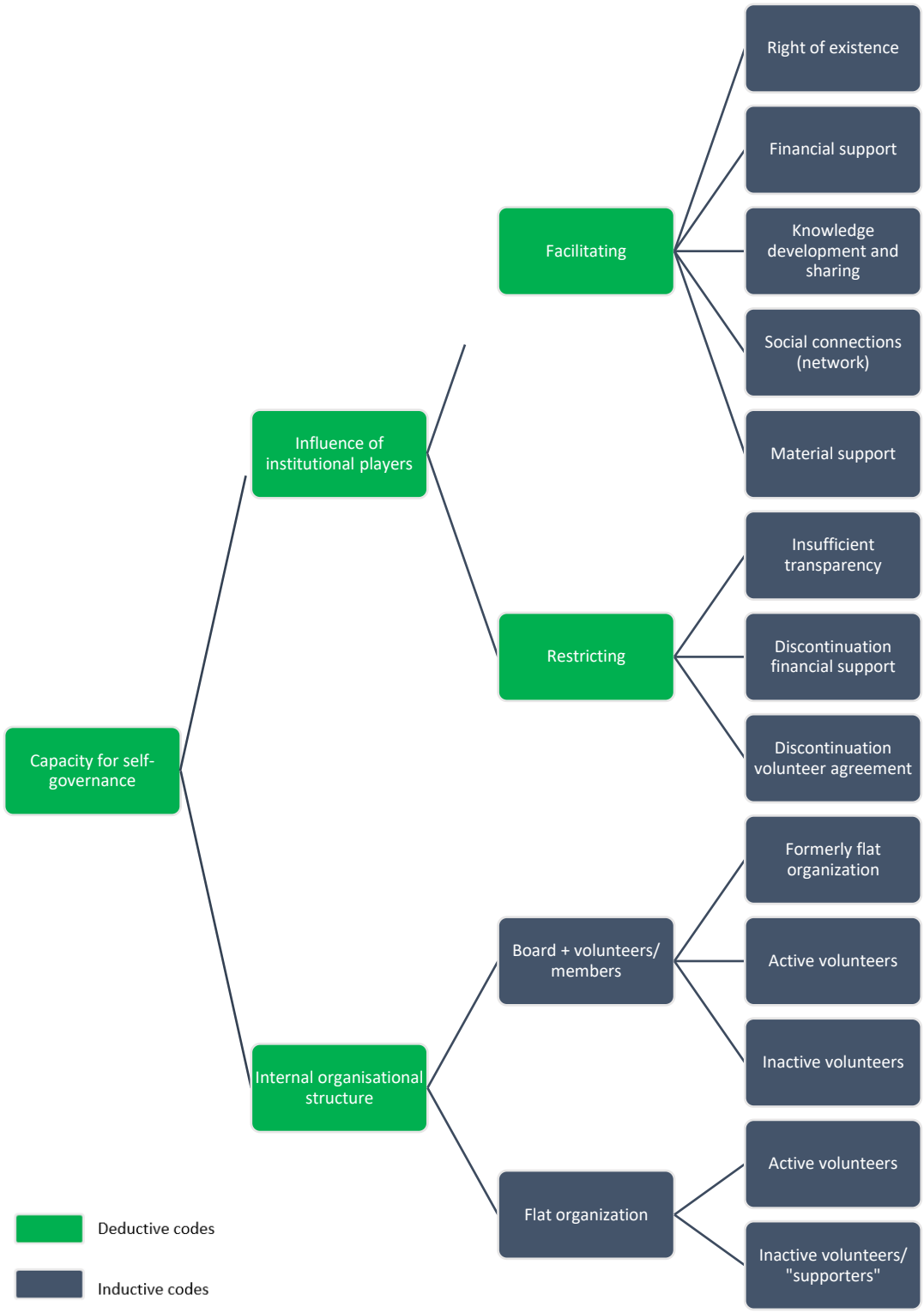

Figure 20. Interview code tree related to (1) influence of institutional players and (2) internal organisational structure determining self-governance capacity of CGIs

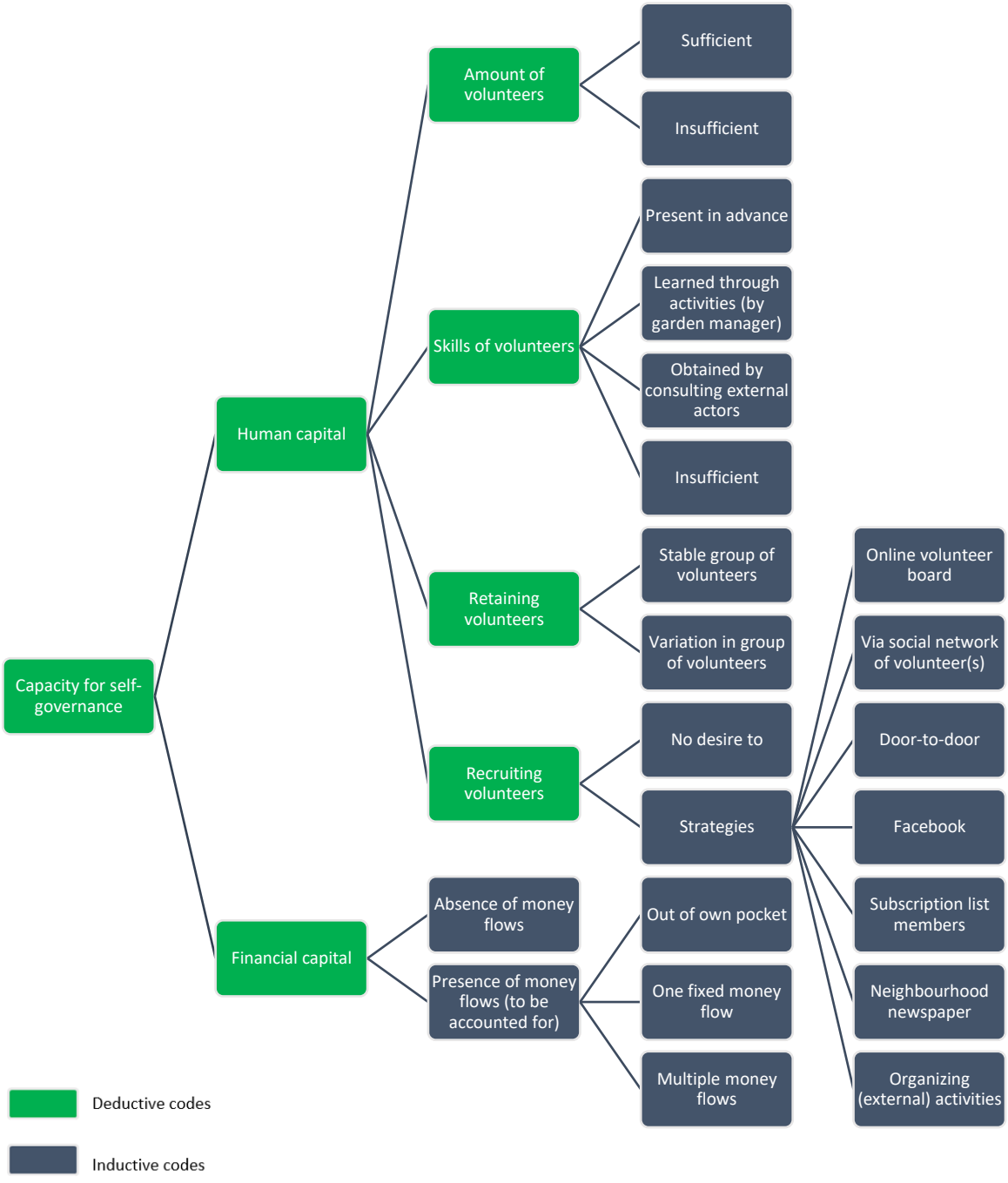

Figure 21. Interview code tree related to (1) human capital and (2) financial capital determining self-governance capacity of CGIs

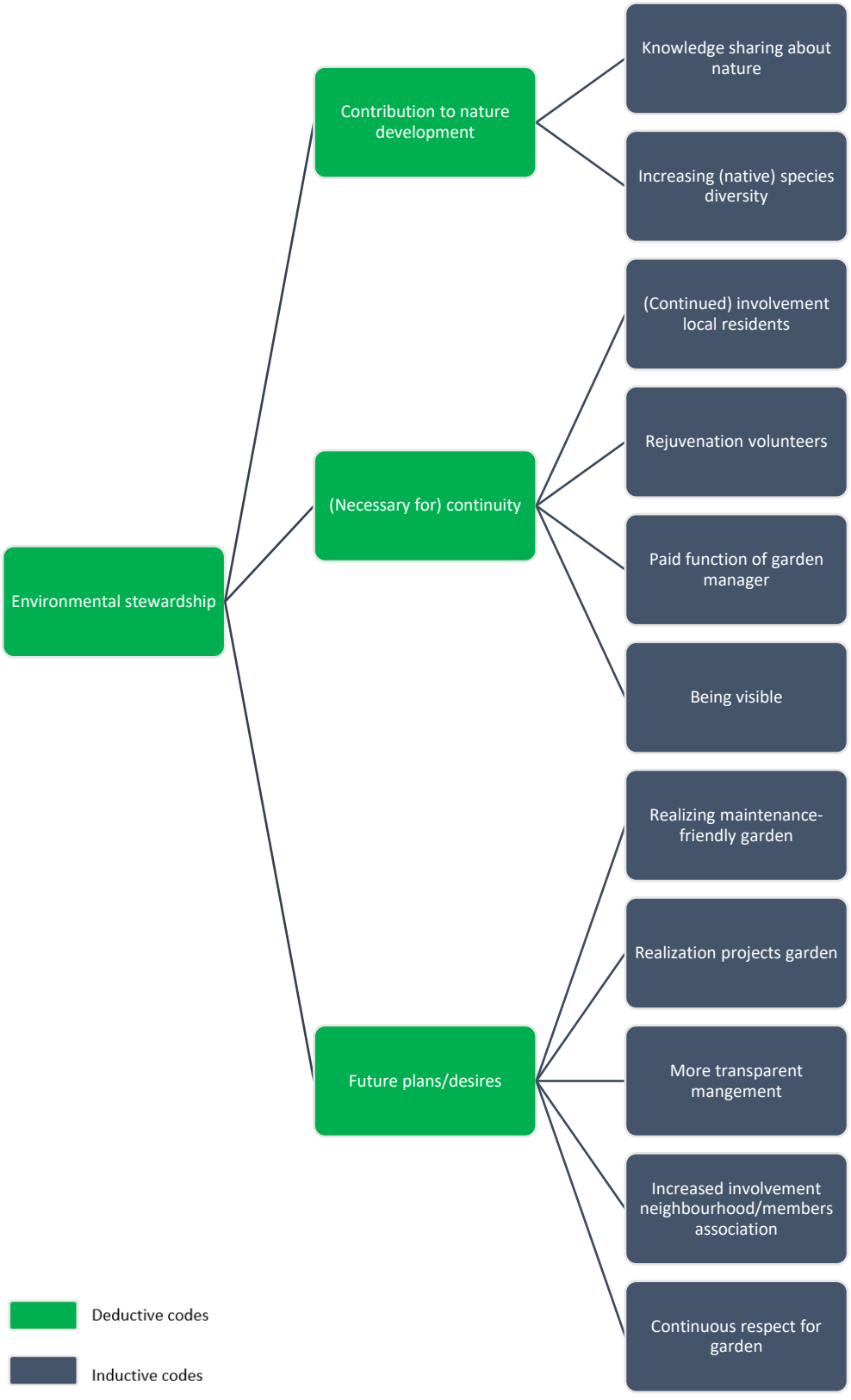

Figure 22. Interview code tree related to environmental stewardship of CGIs

Appendix G – Comparison on capacity to self-govern

When comparing the results of the five initiatives for capacity for self-governance, it can first be noticed that the municipality plays an important role in the start-up phase. Since the land belongs to the municipality, this party must agree with the plans. Once permission has been given, the municipality can also provide material support. For the Remise Tuin (RT), the municipality made a planting schedule and delivered plants. Also, they took up the task of ploughing soil and this happened for other initiatives as well (VL/GI). The Goudenregenplein initiative also regularly consults a contact person of the municipality for advice, as they are still in their initial phase. Nonetheless, the aim is to eventually realize a maintenance-friendly garden in which the municipality no longer has a role, which has been realized for the RT. In contrast, longer-standing initiatives like Vlindertuin Lewenborg and Ecologische Heemtuin Stadspark that organize additional educational activities (VL) and cover a larger ecologically diverse area (EHS) still have frequent contact with the municipality e.g., about maintenance of a garden house and annual subsidy, respectively. Such collaborations with the municipality also bring along greater dependence. For example, the VL is dependent on the willingness of the municipality to renovate the garden house and EHS depends on the willingness of the municipality to provide a subsidy each year. Unique to ATV Piccardthof is that they rent the land on which their complex is built from the municipality.

Regarding the degree of formalization, both the VL and the EHS became a foundation after respectively 4 and +/- 15 years since the establishment of the garden. The reason for VL was the loss of a source of income (housing association), which forced them to look for other sources of income and which is easier to organize as a foundation. EHS became a foundation, as this was a condition for receiving a subsidy of the municipality. ATVP has been organized as an association since its establishment, but the past administrative state of affairs also seems to be causing much discontent among members (and volunteers). The two most recent initiatives, the RT and GI, are characterized by an informal set-up in which the initiator is the driving force behind the initiative. Both gardens are strongly reliant on the efforts of neighbours as volunteers for its maintenance. The RT succeeds to date in involving neighbours in the garden, while the GI still experiences difficulties in realizing this.

An explanatory factor seems to be the already present contact between local residents before the establishment of the RT. This does not hold for the GI, which still calls for a greater involvement of local residents for the continuity of the initiative. For both initiatives that are now a foundation, VL and EHS, we see that in terms of human capital there is a clear separation between board members and volunteers working in the garden. Volunteers who are appointed as board members do little or no work in the garden. In the case of VL it is difficult to recruit new board members and also for EHS the board members have been working since the establishment of the foundation in 2017. Extra volunteers are needed to ensure the continuation of these foundation boards in the long-term. ATVP calls for a greater participation of members as volunteers, as the number of volunteers has declined sharply in the last decade. So, almost all initiatives would feel strengthened by more volunteers.

In terms of financial capital, we see that all initiatives are dependent on money flows except for RT. From the interviews it becomes clear that because VL and EHS have organized themselves as a foundation, they no longer have to advance money themselves while waiting for the municipality to refund the money spent. For these initiatives we see that they are currently both dependent on at least one major funder. In addition, VL increases its self-organizing capacity by raising money through participating in additional activities organized by funds. In the case of a starting initiative such as the GI, we see that knowledge of certain procedures, which in this case the residents' organization has at its disposal, benefits the organization of activities. Concretely, through this organization the GI found out that a local housing association could contribute to their planting day in the form of providing food, in this way circumventing the regulation that housing associations are not allowed to donate money. This access to knowledge of financial regulations increases the self-organizing capacity of an initiative.

Appendix H - Output questionnaires for CGIs

Vlindertuin Lewenborg

Age range	Between 46 and 73 years
Median duration of involvement (in years)	4
What activities are you mainly engaged in in this initiative?	Maintenance garden, administrative tasks, graphic design, PR ideas, chores, providing coffee or tea

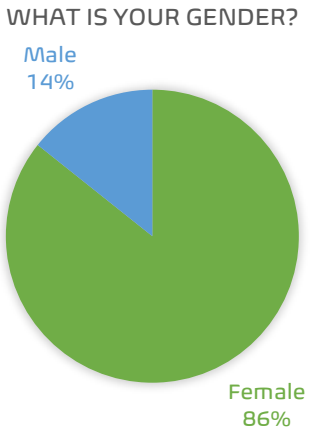

Figure 23. Gender of VL respondents (n=7)

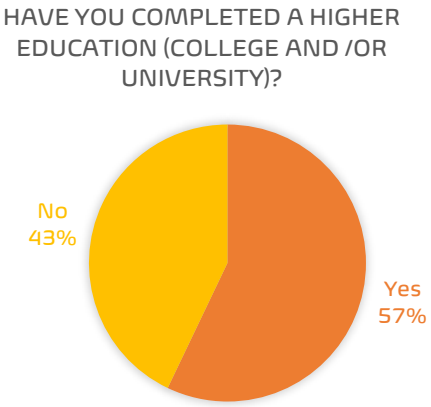

Figure 24. Education level of VL respondents (n=7)

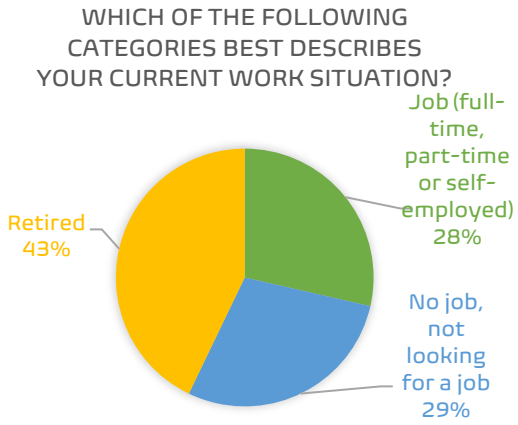

Figure 25. Work situation of VL respondents (n=7)

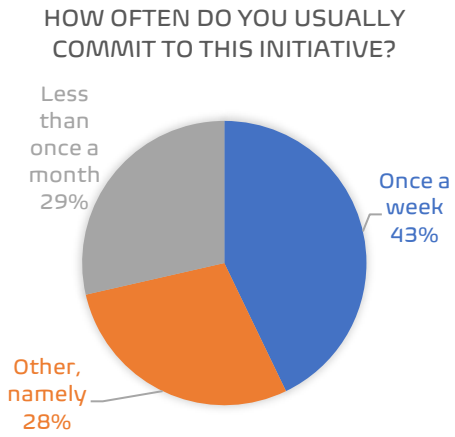

Figure 26. VL respondents' frequency of commitment (n=7)

Other, namely:
- As a hostess during activities
- On occasion, special tasks

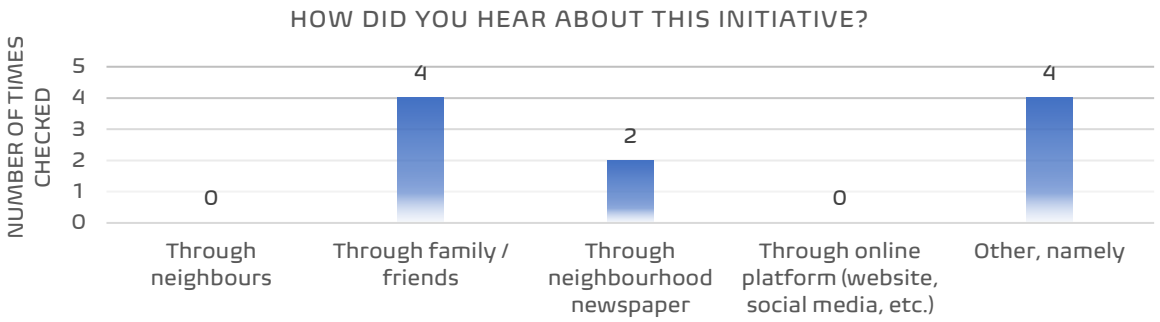

Figure 27. VL respondents' familiarity with initiative (n=7)

Other, namely:
Via volunteer Vlindertuin
Via volunteer job board
Via old colleague (now volunteer Vlindertuin)
Via walking festival

Additional motivations mentioned to participate

Answer	Code
"It is difficult to find volunteers for board positions. Given my work history and experience, this is no obstacle for me. I think the Vlindertuin is an important green element in the neighbourhood, which promotes the environment and social contact in the neighbourhood. I have been asked by the board to become treasurer and, as it is a small project, it does not take much time alongside my other volunteer work"	Via social network of existing volunteers
"I am friends with the manager, I have known him for almost 40 years."	Via social network of existing volunteers
"I knew that I could do graphic designs better and more beautifully, and because I knew (name volunteer) I wanted to help her with that."	Via social network of existing volunteers / skills of volunteers – present in advance
"In my current paid position, I work a lot with volunteers. By now volunteering myself, I am on the other side, and I do not experience the workload that a paid job sometimes entails. I experience my contribution as welcome and above all the goal appeals to me: conservation of nature. In addition, I meet reasonably like-minded people, which makes the atmosphere very pleasant and stimulates people to achieve something together, even though the input can be very different. Doing what you are good at comes out very well here, in addition to the regular garden jobs. All of this is a lot of fun."	Escaping the workload of a paid job, meeting like-minded people, pleasant atmosphere

Points for improvement

Answer	Code
"As a board, we are concerned about the continuity of the project. There is now a voluntary manager who designs and maintains the garden and manages the volunteers. If he were to drop out, we wonder if someone can be found with this knowledge and capabilities on a voluntary basis. It would help a lot if e.g., two days a week a regular could get a paid basic job to maintain this project for the neighbourhood"	Concerns about continuity of initiative dependent on position of garden caretaker
"Better accommodation is desperately needed. The current loft is leaky and does not radiate much fun and offers no added value to educational opportunities for pupils from surrounding primary schools. It is also too small to organize workshops or courses for adults, for example. Materials and tools cannot be stored properly. The inadequate accommodation is not inviting to visitors. There are also few local residents. See the solid log cabin in the Leroy Garden in stark contrast to the Butterfly Garden, where initiatives and ideas are alive but there is no suitable space to implement"	Dissatisfaction with current resources (accommodation) and its inability to serve as a meeting place
"It is a pity that the chairwoman is no longer here. This is a loss for the garden. The question is how new initiatives will come up"	Concerns about continuation of new activities
"No. I have a lot of respect for what the volunteers do. I hope that this will remain the case and that more people will make an effort to ensure continuity"	Need for new volunteers

Remise Tuin

Age range	Between 45 and 67 years
Median duration of involvement (in years)	2,5
What activities are you mainly engaged in in this initiative?	Maintenance garden, providing coffee or tea for neighbours

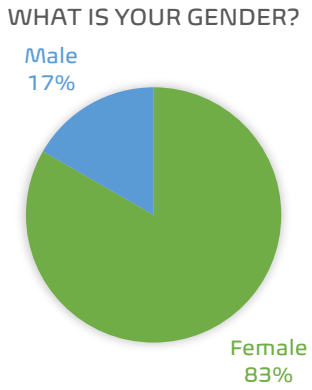

Figure 28. Gender of RT respondents (n=6)

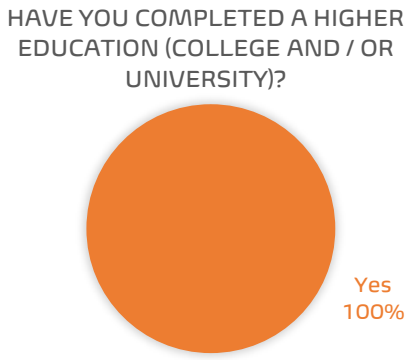

Figure 29. Education level of RT respondents (n=6)

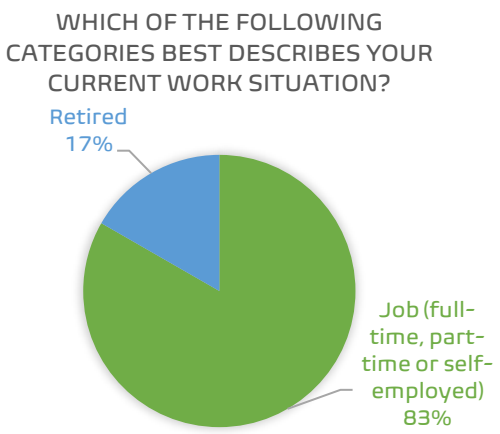

Figure 30. Work situation of RT respondents (n=6)

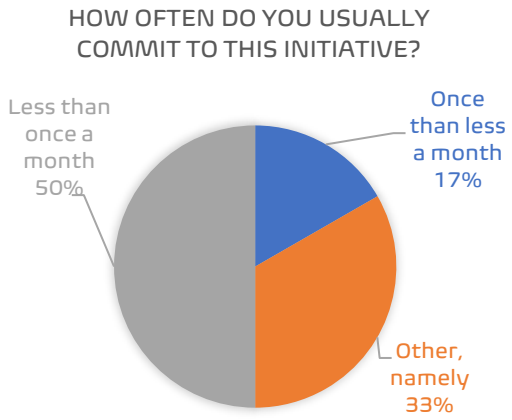

Figure 31. RT respondents' frequency of commitment (n=6)

Other, namely:
- Via my partner who took the initiative

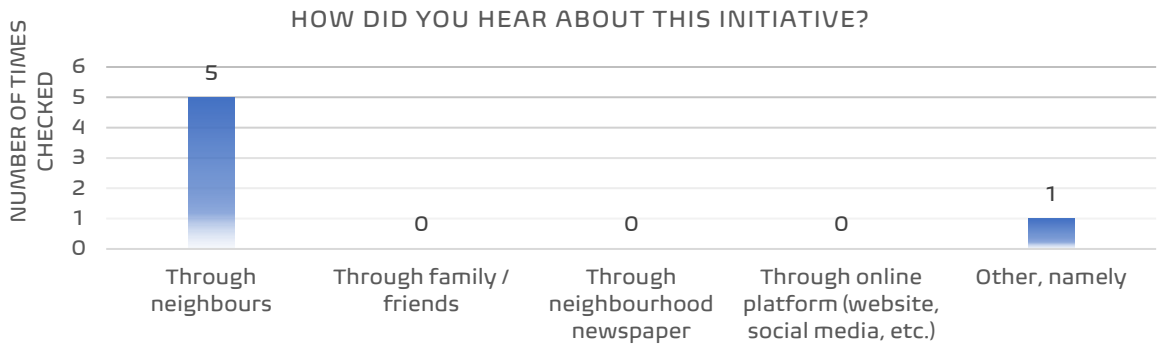

Figure 32. RT respondents' familiarity with initiative (n=6)

Other, namely:

Via my partner who took the initiative

Additional motivations mentioned to participate

Answer	Code
"The municipality has invested in the garden and paid for all the plants. So important to take care of and maintain this. We also overlook the garden, so we have an interest in being able to enjoy it."	Maintenance as an obligation to the municipality, interest in pleasant view
"Actually, it is a small initiative that mainly started by a person who has been most involved in it. The garden is adjacent to his garden. It is a social and ecological activity with which we show the interconnectedness. It was already there before this initiative started; it is a result of it"	Garden as a result of existing interconnectedness between neighbours
"Shared garden in a piece of public greenery and this in the middle of the city"	Admiration for the garden's characteristics
"It is a joint neighbourhood activity that strengthens the cohesion in the block in which the participants in the initiative participate"	Strengthening of social cohesion through gardening
"Responsible for a piece of land together as neighbours"	Shared ownership

Points for improvement

Answer	Code
"The involvement of the other neighbours"	Need for increased involvement neighbours
"I would like to create a communal compost bin for garden waste, if necessary, possibly together with the municipality. I'm going to suggest this to the neighbours too"	Other resources (communal compost bin) as addition to garden
"Maybe work together in the garden more often. See if we can build a playground"	Need for higher frequency of garden maintenance

Goudenregenplein initiative

(n=1)	
Gender	Female
Age	40 years
Completion of higher education	Yes
Work situation	Job (full-time, part-time, or self-employed)
Frequency of commitment	Once a month
Duration of involvement (in years)	0,5
What activities are you mainly engaged in in this initiative?	Thinking along

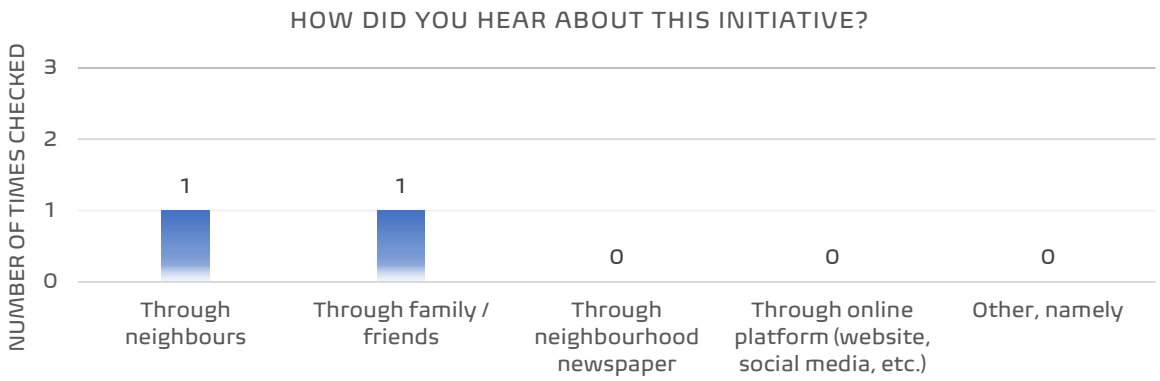

Figure 33. GI respondent's familiarity with initiative (n=1)

Additional motivations mentioned to participate

Answer	Code
"Fun to do with friends. And I love creativity and innovation and greening"	Via social network, affiliation with topic

Points for improvement

Answer	Code
"Communication. A little more long-term planning"	Need for communication and long-term planning

Ecologische Heemtuin Stadspark

Age range	Between 42 and 60 years
Median duration of involvement (in years)	3,5
What activities are you mainly engaged in in this initiative?	Administrative tasks, maintenance garden, promotional activities

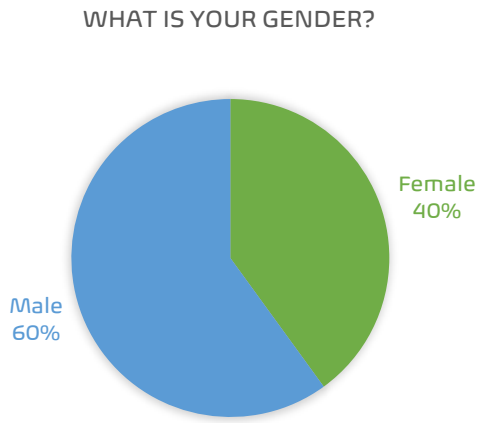

Figure 34. Gender of EHS respondents (n=5)

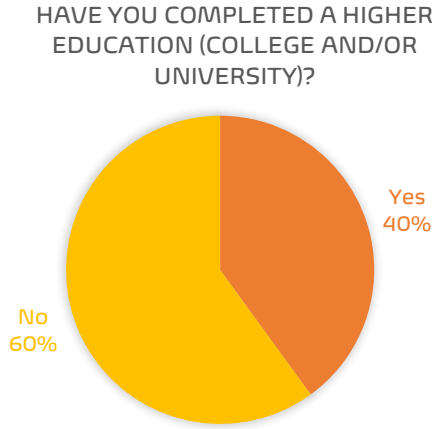

Figure 35. Education level of EHS respondents (n=5)

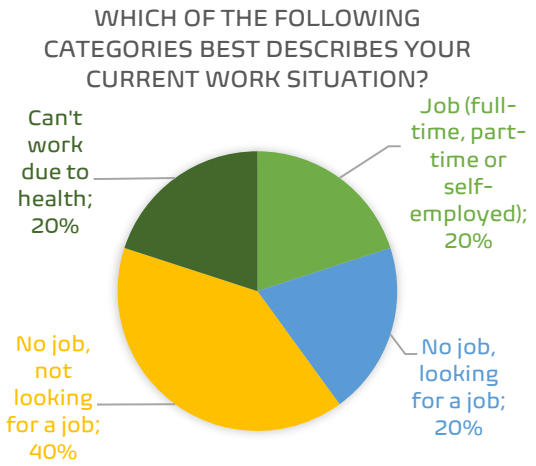

Figure 36. Work situation of EHS respondents (n=5)

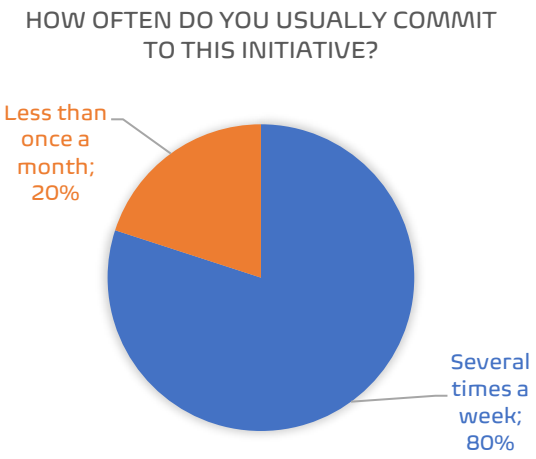

Figure 37. EHS respondents' frequency of commitment (n=5)

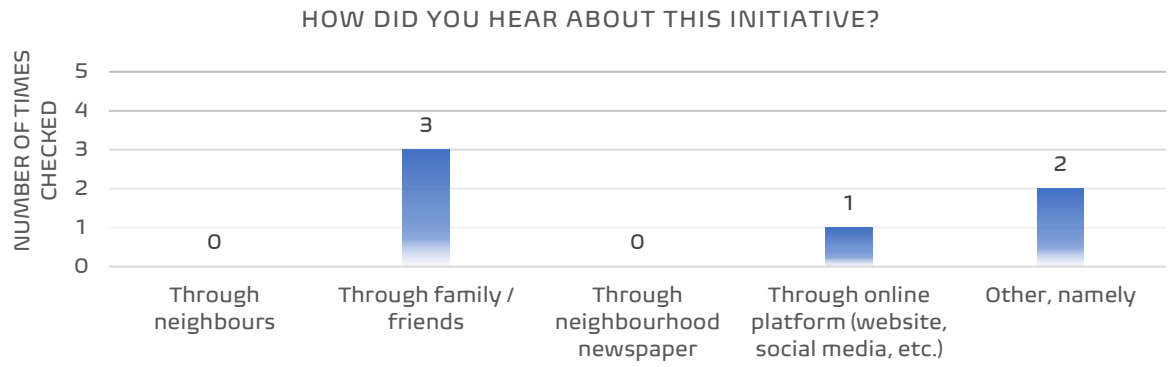

Figure 38. EHS respondents' familiarity with initiative (n=5)

Other, namely:
The place itself
Worked here before through social organization

Additional motivations mentioned to participate

Answer	Code
"The initiator had been a friend of mine for thirty years, but contact had also been diluted for almost twenty-five years"	Via social network of existing volunteers
"Passing on knowledge and making others enthusiastic about nature"	Knowledge sharing about nature

Points for improvement

Answer	Code
"I am quite happy with how things are going. The garden caretaker is doing well, and I feel at ease, which is important to me. About satisfaction degree of contact within initiative: well, I notice that I would like to have more contact, but I also have other volunteer work. About satisfaction degree of contact beyond initiative: yes, perhaps. I also experienced that I had more contact. If you then have a conflict, that is a disadvantage. It's okay"	Slightly a need for more contact in and beyond the initiative
"Yes, a little more involvement of experts relevant to us, especially for slow expansion of the website with expert information"	Somewhat in need for more shared expertise

Amateur gardener's association Piccardthof

Age range	Between 40 and 69 years
Median duration of involvement (in years)	4
What activities are you mainly engaged in in this initiative?	Maintenance of communal gardens and/or avenues, (supporting) board work, catering activities, involved in introductory meetings, organisation of activities for young and old

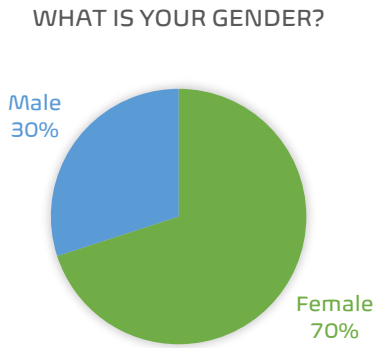

Figure 39. Gender of ATVP respondents (n=10)

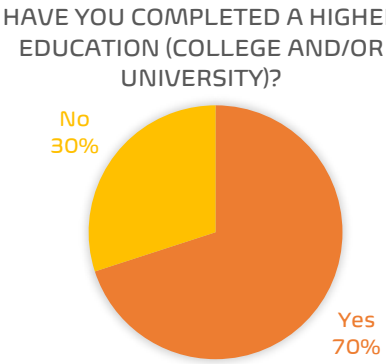

Figure 40. Education level of ATVP respondents (n=10)

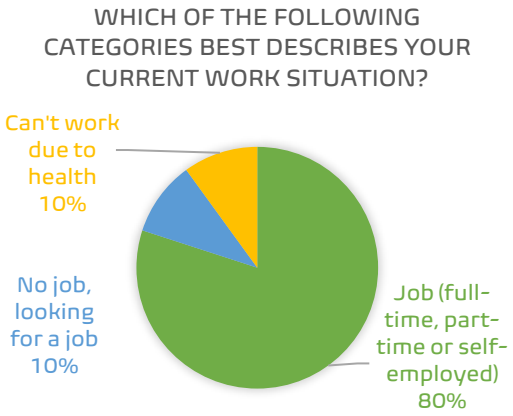

Figure 41. Work situation of ATVP respondents (n=10)

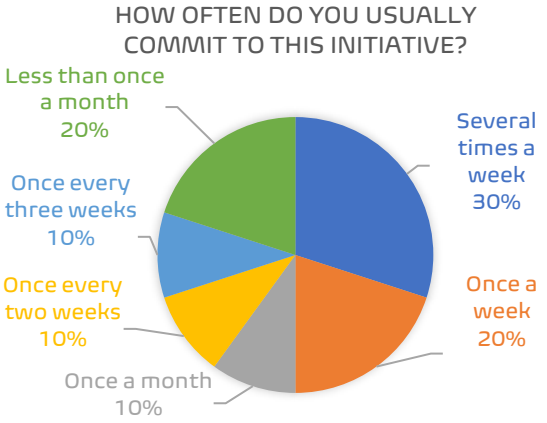

Figure 42. ATVP respondents' frequency of commitment (n=10)

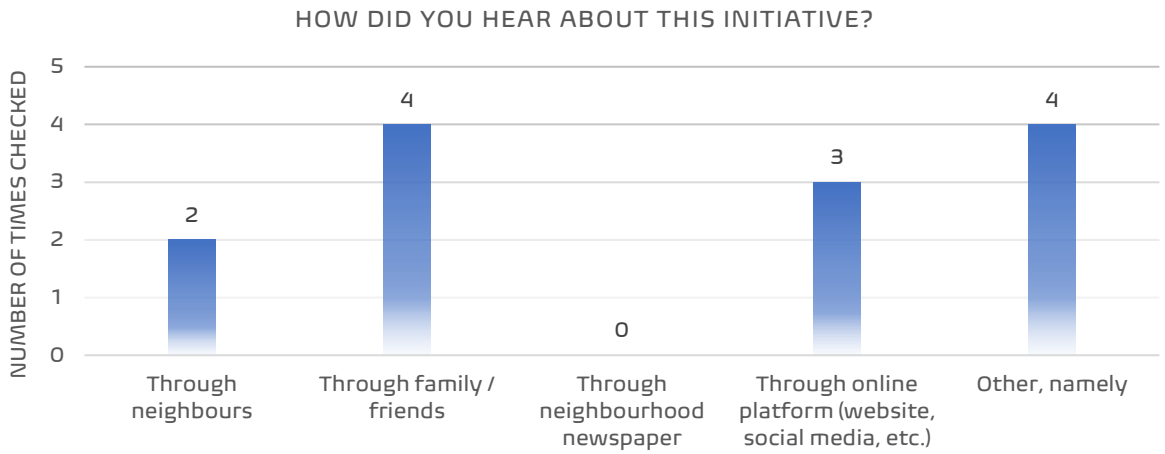

Figure 43. ATVP respondents' familiarity with initiative (n=10)

Other, namely:
As a member (2 times)
As a member of the association, you are also expected to do voluntary work, so at the intake of membership
Association magazine and members meeting

Additional motivations mentioned to participate

Answer	Code
"Commitment to the park increases the liveability"	Importance attributed to the park's liveability
"Yes: I feel a moral obligation. ATV Piccardthof is an association. It is easy to grumble at others who are active when something is not going well. The Piccardthof is a beautiful place. This can only last if there are enough people who want to contribute from the association."	Necessary for continuity of association
"Because I believe that everyone can contribute in his or her own way to the conservation of nature and the association"	Necessary for continuity of association, as well as preservation of nature
"Self-development"	Personal enhancement
"Being visible in the community, sense of values, and determining future direction of ATV"	Creating visibility, engaged with future of association
"Ensuring that the complex can continue to exist. After all, it is leased land with an extension every 10 years"	Necessary for continuity of association

Points for improvement

Answer	Code
"There are points for improvement within nature management. Too often people still work alongside each other. Maintenance is now sometimes done too rigorously and is at the expense of nature. In addition, more involvement could be offered to the vegetable gardeners, they are not always seen as members compared to the people who have a house. More activities could also be organized such as lectures, course evenings, etc. to increase knowledge of nature among those involved in the association. This happens for example at the garden association of Vinkhuizen. Every year, everything is on the agenda there. Sharing more knowledge through things like that"	Need for more knowledge sharing (activities) on garden maintenance in a natural way
"Communication, clarity of rules/statutes, not stir up old feuds, offering choices in building and gardening"	Need for transparency and freedom of choice
"More involvement of the members, but with this new board that will probably go better"	Need for more involvement of members as volunteers
"More support for the different types of activities/ people on the board"	Need for more support for activities and board members
"More volunteers" (two times)	Need for more involvement of members as volunteers

Appendix I – Additional reflection

What went well?

Although I had to start working on my thesis in the midst of a COVID-19 pandemic, which obliged us among other things to work completely from home, I believe that my enthusiastic and determined attitude helped me through the entire research process. Getting into contact with the various initiatives for conducting semi-structured interviews went smoothly. Despite the measures regarding the coronavirus, all interviewees indicated that they would like the interview to take place physically and this could be done safely by keeping a 1.5 metres distance from each other. I am grateful for how in most cases I have been welcomed to the gardens by the interviewees, which allowed me to develop a better understanding of the workings of these gardens.

What did not go well and what would you have done differently in hindsight?

The collection of answers by volunteers to the questionnaires went less smoothly than anticipated for some initiatives. As expected, some of the volunteers were less digitally skilled and in these cases several garden visits were necessary which was often only possible on specific time slots. This was time consuming, but I look back on this with good feelings also because of the hospitality I have experienced. Also, for the digital distribution of the surveys among volunteers I was highly dependent on the interviewees' time and effort. Still, I am very thankful for how the interviewees were of help and in retrospect I am satisfied with how the process went.

Do the outcomes appear convincing to you?

As has become clear throughout the chapters, this research should be regarded as an exercise for studying environmental stewardship in the context of citizen-led public gardens, referred to in this study as community gardening initiatives following the definition of Veen (2015). We have seen that in certain types of CGIs i.e., garden complexes characterized by a rather solid structure, environmental stewardship is not likely to occur, in this way further delineating community gardens that are contexts for stewardship. This is a convincing outcome given the earlier identified differences in the studied CGIs, which became especially clear during the interviews. Although the assumed relationships described in Chapter 2 cannot be substantiated statistically, the study offered insights about the applicability of the methods that were used to measure environmental stewardship as a construct.