Ecovillages, local governments, and local sustainability goals in the Netherlands

How two ecovillages potentially contribute to local sustainability goals through invited and invented spaces of participation in Wageningen and Nijmegen

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ABSTRACT

The Dutch Government has set sustainability-oriented goals in the Dutch coalition agreement, that partially inspired-, and trickled down to local coalition agreements in several municipalities throughout the Netherlands. An upcoming Dutch environmental law ankers sustainability related values in the Dutch society, and theoretically offers Dutch citizens easier access to participate in spatial related developments in their municipalities. Therefore, it is relevant for policymakers and scholars to scrutinize citizen-initiatives that presumably are drivers for sustainability-related contributions to local sustainability-oriented goals in their municipalities. The aim of this thesis is to explore the phenomena of ecovillages and their presumed potential for contributing to sustainability related objectives in the Netherlands, while at the same time investigate the ways how they participate in society and interact with local governments. This thesis explores (local-) civil participation related to local sustainability goals presented in two municipal coalition agreements. The research is executed by the hand of investigating two ecovillages through the lens of invited and invented spaces of citizen participation. In a nutshell, invited spaces of participation are characterized as spaces wherein citizens add value to society within a set of rules predetermined by local governments, while invented spaces of participation also add societal value, but are characterized as 'bottom-up', rather radical, and not predetermined by local governments. This exploration is executed with a multiple case study in Wageningen and Nijmegen. The research is conducted through a desk-research, combined with local policy analyses, and interviews with ecovillage-inhabitants, -initiators, and local governmental employees of Wageningen and Nijmegen. It is researched how the two ecovillages potentially contribute to local sustainability goals, how they interact with local governments, and what enabling- and or constraining factors are for ecovillages to thrive in the Netherlands. The results show that the researched ecovillages contribute to local sustainability goals through (1) providing social safety nets; (2) creating objects and organizing projects that aim to (re-)generate-, re-use, and provide sustainable energy-, land, water-, and food production, and; (3) education, whether or not onsite- and via tours, events, or other (creative-) ways. Additionally, the results show that communication and interactions between ecovillages and local-governments, and national-level policies and laws, both enable- and constrain ecovillages to establish themselves. Furthermore, it is concluded interactions between ecovillages and local governments are dynamic, complex, and go beyond the notion of invited versus invented spaces of participation. Therefore, a tool is suggested for citizen-initiatives, and local governments that smoothen collaborations for shared sustainability-oriented objectives and its implementations.

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LIST OF ABBREVIATIONS

Abbreviations	Meaning	Language
CBS	Centraal Bureau voor de Statistiek……………………………...	Dutch
GEN	Global Ecovillage Network…………………………………….	English
IEWAN	Initiatiefgroep Ecologisch Wonen Nijmegen……………………...	Dutch
LSGs	Local Sustainability Goals…………………………………………	English
SD	Sustainable Development…………………………………….	English
SDGs	Sustainable Development Goals……………………………...	English
UN	United Nations………………………………………………..	English
WBVG	Woningbouw Vereniging Gelderland………………………....	Dutch

1. Introduction

1.1 Background information

A Complex Situation in a Dutch Context: Housing, Sustainability, and Civil Participation

The current situation in the Netherlands concerning housing and sustainability-related issues raise questions from different corners in society and sketches a complex situation. Changes in the housing sector as a result of a decade-long process of neo-liberalization insinuate questionable social- and spatial implications in the Netherlands: It makes housing opportunities for tenants and buyers with limited financial abilities increasingly difficult (van Gent & Hochstenbach, 2020). Dutch housing issues, such as the lack of affordable homes, are partially contested with a plan to build one million new dwellings before 2030 (Ministerie van Binnenlandse Zaken en Koningsrelaties, 2022). Aside from housing issues in the Netherlands, other major challenges are present in the Dutch society. The Dutch Government is supposed to meet the goal for halving greenhouse-gasses in 2030 relative to 1990 (Rijksoverheid, 2022a). The goal of the Dutch Government to build 1 million new dwellings in 2030 seems unfeasible as the 'Bouwvrijstelling Stikstof' (an exemption for nitrogen emissions to stimulate building) is off the table: The exemption does not comply with the European Nature Restoration Law (Ministerie van Binnenlandse Zaken en Koningsrelaties, 2022; Raad van State, 2022). In short, the Dutch Government wants to combat a housing crisis by building a significant number of new dwellings within a decade, and while doing so, it must comply with European laws and agreements to secure a more sustainable future. This urgent issue in the Netherlands calls for creative solutions in the spatial environment. Consequently, apart from planning visions and nitrogen-emission reductions, the Dutch Government increasingly supports its citizens that think along and participate in processes related to sustainability- and spatial oriented issues. For example, by taking away constraining rules and legislations for citizen-initiatives that potentially contribute to sustainability and wellbeing of other citizens in the Dutch society (Rijksoverheid, 2022b). Subsequently, developments presumably occurring in the near future, such as the implementation of the 'Omgevingswet' (a new environmental law) indicate more room for civil participation concerning citizen-initiatives that engage in the planning of the spatial environment (IPLO, 2022a). These developments imply an increasing role of citizens in sustainability- and spatial issues in the Netherlands for the upcoming years.

Utility and Potential of Ecovillages in a Dutch Sustainability Transformation

The Dutch Government advocates a sustainable transformation in the Dutch society in the Coalition Agreement 2021, by pleading for improvements in combating climate change, tackling the nitrogen crisis, and building new affordable dwellings (Rijksoverheid, 2022c). These ambitions partially derive from agreements that United Nations (UN) member states made in the 2015 Paris Agreement on Climate Change, wherein ambitions for sustainability-related issues are translated into Sustainable Development Goals (SDGs) as guidelines for nation-specific policies (United Nations, 2021a;

Rijksoverheid 2022d). The UN invites governments and businesses to develop and use an 'ecovillage-approach' as a path to achieve (or at least contribute to) these goals (United Nations, 2021c).

Ecovillages originally are considered "*human scale full featured settlements in which human activity is harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future*" (Gilman, 1991, p. 10). The UN even state on their website that ecovillages are among the most sustainable communities on earth (United Nations, 2021c). Ecovillages are considered as sustainability pioneers or movements that have potential to transfer sustainability-oriented knowledge to mainstream society (Singh et al., 2029; Ulug et al., 2021). Understanding physical manifestations and possible sustainability-related solutions and contributions of ecovillages through local contexts and values and beliefs, should provide more insight on long-term objectives and possibilities for the scalability of an ecovillage-approach. This insinuates ecovillages potentially are useful phenomena for contributing to the sustainability ambitions stated in the current coalition agreement of the Dutch Government.

Spaces of Participation and local sustainability goals

The new environmental law (Omgevingswet) stimulates participation of citizens in the early stages of local planning developments for the sake of gaining citizen support and creativity in local spatial projects (IPLO, 2022a). Theoretically, with the introduction of the new law, local governments gain more decisive power, and citizens gain more participative opportunities (IPLO, 2022a; Rijksoverheid, 2022b). Logically, if citizen-initiatives like ecovillages indeed are drivers for sustainability-oriented developments on a local scale, researching them in the Netherlands would provide useful knowledge for local policymakers. Scrutinizing local civil-governmental interactions related to spatial- and sustainability-oriented issues might contribute to knowledge on how to implement, and deal with, the upcoming 'Omgevingswet'. This thesis scrutinizes two kinds of citizen participation as discussed by scholars as Miraftab (2004), Cornwall (2002) and Visser et al. (2021): *invited-* and *invented* spaces of participation. The core difference of the two concepts lies in the distinction that invited spaces of citizen participation are spaces created by (local-) governments and/or institutions that invite citizens to participate within the frameworks and rules predetermined by the creators (i.e., governments, institutions, etc.), whilst invented spaces of citizen participation are not predetermined by governments and/or institutions and mostly derive from civil disobedience: people take participative power in own hands (Miraftab, 2004; Kersting, 2013). Arguably, invited spaces of participation can be considered a top-down phenomenon in societies, whilst invented spaces of participation are rather characterized as bottom-up. The incentive to scrutinize these two different spaces of citizen participation in this thesis derives from the call of several scholars to further investigate civil-governmental interactions, -dissensus, and -frictions for the sake of understanding societal issues in sustainability transformations (Kaika, 2017; Tummers, 2016).

With the upcoming 'Omgevingswet' the Dutch Government is already experimenting in all its layers (e.g., provinces, municipalities, semi-governmental parties) to anticipate a smooth implementation of the new law (IPLO, 2022b). An important aspect is that local governments gain decisive power in the new environmental law. Citizens can come to local governments with ideas that relate to spatial development projects in their municipalities, and local governments can decide if it can or cannot be executed, without having the plan aligned with several other laws and bureaucratic procedures, as currently is the case. Therefore, it is relevant to further investigate citizen participation and collaboration with authorities on the local level. Local governments not only have obligations to contribute to Dutch national sustainability aspirations (e.g., the Dutch Climate Agreement), they often have ambitious perspectives in their coalition agreements with several sustainability-oriented goals for their municipality (VNG, 2022a). These local sustainability goals (LSGs) potentially are adequate pillars for citizens to add sustainability-oriented values to society. As ecovillages are proclaimed as the most sustainable communities to contribute to the global SDGs by the UN, perhaps they might as well be for LSGs of local governments throughout the Netherlands (United Nations, 2021c).

1.2 Societal and Academic Relevance

The societal relevance of this thesis settles on the fact that the research adds to knowledge on how ecovillages potentially contribute to- or drive a sustainability transformation in the Dutch planning context. If ecovillages indeed are adequate drivers for sustainability-oriented agency, this thesis might provide easier access for citizen-initiatives to establish themselves, for example as ecovillages, or to contribute to LSGs. For planners, this thesis might provide insights in various ways concerning the execution- and implementation process of the 'Omgevingswet'. By understanding ecovillages in their (Dutch-) local context, how they potentially contribute to LSGs, and how they participate in society, planners could consider ecovillages in spatial development projects for gaining sustainability objectives as introduced and desired by the Dutch Government.

For scholars and academic purposes, this thesis provides an example of a civil-governmental interaction in a Dutch context. There is research available considering how citizens participate in societies, and how ecovillages tent to behave in and towards societies, however, this thesis combines several Dutch-specific aspects that, in this combination, are not yet explored scientifically. It is the first time civil-governmental interactions are researched through the lens of invited and invented spaces of participation, and ecovillages and their potential local contributions to LSGs in the Netherlands. Therefore, this thesis might provide insights for planners, policymakers and (future-) citizen-initiatives that are worthy for further exploration considering ecovillages in a Dutch planning context.

1.3 Research problem and questions

There are issues in the Netherlands that are intertwined and complex, as the housing crisis cannot simply be resolved through mass building of new dwellings due to sustainability-oriented laws

and agreements on the international level (Ministerie van Binnenlandse Zaken en Koningsrelaties, 2022; Raad van State, 2022). Additionally, a new dynamic in decision-making processes in the spatial environment is introduced soon through the 'Omgevingswet', bringing new uncertainties and challenges in the public sector, especially on the local level. Citizen participation is intended to play a larger role in the Dutch planning context, however scientific knowledge is limited in this context. If ecovillages are among the most sustainable communities on earth, it makes sense to further investigate them in their local context for their potential to contribute to LSGs in the Netherlands. In this thesis, invited and invented spaces of citizen participation is the lens that will be taken to scrutinize ecovillages since they have different characteristics related to society, and therefore might provide broader knowledge concerning citizen participation in the Netherlands. It is suggested by Kaika (2017) and Tummers (2018), that frictions between citizens and/or citizen-initiatives and (local-) governments are valuable in understanding real added social innovation, and sustainability-oriented agency in societies. Therefore, it is relevant to find out if and/or how ecovillages potentially contribute to LSGs, and what enabling- and or constraining factors are for ecovillages to thrive in a Dutch local governing context.

The aim of this thesis is to explore the phenomena of ecovillages and their presumed potential for contributing to sustainability related objectives in the Netherlands, while at the same time to investigate the ways how they participate in society and interact with local governments. Consequently, the following research question is asked:

How do ecovillages contribute to local sustainability goals, and what are enabling- and or constraining factors for ecovillages to thrive in a Dutch local governing context?

To answer this question, three theoretical- and four empirical sub-questions are asked:

Theoretical sub-questions:
1. *What are ecovillages, and how do they relate to local sustainability goals in the Dutch context?*
2. *What are invited and invented spaces of participation and how do they relate to ecovillages and local governments?*
3. *What are enabling- and/or constraining factors in the Dutch local governing context for realizing ecovillages?*

Empirical sub-questions:
1. *How do Dutch ecovillage-initiators think they contribute to local sustainability goals?*
2. *How do Dutch local governmental employees think the ecovillages contribute to local sustainability goals?*
3. *How do initiators of Dutch ecovillages and local governmental employees experience invited- and invented spaces of participation in their municipality?*

4.   *What do Dutch ecovillage-initiators and local governmental employees experience as enabling-*
     and or constraining factors for establishing ecovillages?

2. Theory

The aim of this chapter is to develop an understanding of potential ecovillage contributions to LSGs in the Netherlands. Consequently, the discussed enabling- and/or constraining concepts, within the spectrum of invited and invented spaces of participation, are introduced for a better understanding of dynamics between ecovillages and municipalities (Cornwall, 2004; Miraftab, 2004; Visser et al., 2021). In the end of this chapter the following theoretical sub-questions are answered:

1. What are ecovillages, and how do they relate to local sustainability goals in the Dutch context?
2. What are invited and invented spaces of participation and how do they relate to ecovillages and local governments?
3. What are enabling- and/or constraining factors in the Dutch local governing context for realizing ecovillages?

2.1 A Short History of Sustainable Development Theory and SDGs

This thesis focuses on LSGs in the Netherlands, however, to understand where the LSGs are based upon, we must first look to its origins and thereby to global policies introduced by the UN. In the face of current global climate change issues and fighting poverty, in 2015 the UN members agreed upon implementing the 2030 Agenda for Sustainable Development, and thereby the SDGs (United Nations, 2021a). These SDGs are 17 goals created to make the world a better place to live for everyone on earth by 2030 (United Nations, 2021b). The implementation of the 2030 Agenda for Sustainable Development indicates the necessity for sustainable solutions to global challenges. World leaders (I.e., the United Nations) embraced the SDGs as a guideline for sustainable transformation (Stevens & Kanie, 2016). In this development process, the UN emphasize the four aspects of society, economy, environment, and governance (Shi et al., 2019). These four aspects ought to be developed sustainably, however, Sustainable Development (SD) theory is not static, so what exactly is meant by SD? What does it encompass and are world leaders complying with the main ideas of the concept?

In their article, Dickens et al. (2019) describe a short evolution of SD definitions. The first definition originates from Aldo Leopold's essay 'The Land Ethic' from 1949. Therein, Leopold (2004) states SD can be seen as an organizing principle that balances out the human needs and finite natural resources while maintaining the natural environment in its beauty. It is considered the first academic call for moral responsibility to nature, while improving the relation between people and nature by balancing the use and protection of resources (Dickens et al., 2019). A follow-up definition was established by the Brundtland commission in the 1980s. In the book 'Our Common Future', better known as the Brundtland report, the definition of SD emphasizes current needs of people should not have negative impact for future generations while developing (Keeble, 1988). Hereby the predominant environmental perspective in defining SD from Leopold in 1949, evolved into a more integrated

environmental-social perspective with a focus on intergenerational equity in the 1980s (Leopold, 2004; Keeble, 1988).

In their article on a plan to meet Millennium Goals, the precursors of the SDGs, Sachs & McArthur (2005) argue for collaboration between governments and international development partners to set up a nation specific strategy for implementing the goals. It is based on the idea that specific national governance is an enabling factor, and countries have their own responsibility in mobilizing these resources. Current SDGs include similar goals as well, for example fighting poverty and increase good health and wellbeing, however expanded toward more environmental- and institutional goals like responsible consumption and production, climate action, and strong institutions and partnerships (Sachs & McArthur, 2005; United Nations, 2021). This evolution in UN development goals points out the challenge of current SDG implementations concerning cross-border environmental issues such as air-pollution, droughts, floods, and so on. Additionally, differences in institutional frameworks of UN member states form challenges. As Emas (2015) stresses, strategies for achieving such goals remain a national issue whilst the goals are international and have broad definitions of sustainability and SD. The various national practices of contributing to SDGs is therefore partly divergent in approaches. Shi et al. (2019) also claim that although SDGs are used as global guidelines for sustainable transformation, misinterpretations of SD theory is easily made in practice. Shi et al. (2019) suggest three different timeframes in SD theory. First, the embryotic period. This is before 1972, and mainly focuses on pursuing sustainable use of natural resources, like in Leopold's essay on natural ethics from 1949 (Leopold, 2004). Second, the moulding period. This is between 1972 and 1987, a period where the concept of SD is first introduced in the United Nations Conference on the human environment. However, the definition of SD remains vague and is mainly impracticable during this period (Shi et al., 2019; Keeble, 1988). Third, the developing period. This period is from 1987 onwards. More 'practical wisdom' is added, meaning that scholars added more values (e.g., governance), and it is the period wherein global action (global partnerships) where implemented to achieve global goals, currently being the SDGs (Shi et al., 2019; United Nations, 2021).

Briefly, the evolution of SD theory indicates diverging interpretations of current SDGs as academic contributions to SD theory increases from varying disciplines. It shows how the characteristics of the concepts of sustainability and SD evolve over time, from human-centered approaches to natural-centered approaches, toward elaborated approaches concerning governance as well.

2.2 Relations between Ecovillages, Sustainable Development, and Sustainability Transformations

In the previous section, a short history of SD theory evolution and the emergence of SDGs is discussed. It shows the aspirations of different nations around the world for sustainability policies. The emergence of institutional goals and the introduction of the relevance of governance in the last decades, indicates the actual goals of the SDG-guidelines are ought to transform in both the political and societal

spectrum. Agents and drivers for sustainability-oriented transformations are therefore increasingly scrutinized for the sake of 'adding more wisdom' to sustainability policies (Shi et al., 2019). Ecovillages are potentially such agents or drivers for sustainable transformation as is explained below. In this thesis, ecovillages are defined as:

Human scale full featured settlements in which human activity is harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future (Gilman, 1991, p. 10).

In other words, these collective settlements (i.e., ecovillages) aim to incorporate sustainability activities into daily-life practices while focusing on a sustainable community and environmental development (Gilman, 1991). Singh et al. (2019, p. 1) define ecovillages as: "*An emerging approach for shaping a sustainable future at a grass-root level and an opportunity to deal with the challenge of managing nature conservation in a community with a culturally, socially, and economically diverse actors*". Therefore, ecovillages are not merely collective settlements that aim to integrate sustainability into daily-life practices but can also be seen as a way or movement to approach a sustainable future. Ecovillages can provide a deeper understanding of '*spatial*' and '*temporal*' aspects that contribute to sustainable development (Singh et al., 2019). Nevertheless, as mentioned in section 2.1, the answer to the question what can be seen as sustainable or SD is not one-sided, and open to diverging interpretations (Emas, 2015; Shi et al. 2019). Therefore, study of sustainability should not be approached as 'value-free' but should include values and responsibilities within its contexts (Horlings, 2015). The call for including values and responsibilities into sustainability studies implies the collective or personal experience of people concerning sustainability. This can be considered as a subjective or 'inner' dimension of sustainability, while the 'outer' dimension of sustainability refers to objective behaviors and practices (Ulug et al., 2021). According to O'Brien (2009), acknowledging both the 'inner' and 'outer' dimension of sustainability implies humanity's engagement in subjects like climate change action and sustainability-oriented behavior. Characteristics of ecovillages such as human activities focusing on environmental development, make ecovillages relevant agents for sustainable development. They give a glimpse of human perception, -cooperation and -development within the context of sustainability. As Gilman (1991) emphasizes, ecovillages predominantly aim to incorporate sustainability activities into daily-life practices that can be continued in the future. Besides, the Global Ecovillage Network (GEN), an overarching organization connecting ecovillages around the world, aims to empower local communities and shift to sustainable lifestyles (Global Ecovillage Network, 2021). These characteristics of ecovillages promoting shifts to sustainable behavior and -practices indicate that ecovillages are relevant subjects to link to sustainable transformations.

Building on the famous triangular concept of sustainability, consisting of society, economy and environment, scholars investigated different approaches and dimensions concerning SD (Campbell, 1996; United Nations, 2021). For example, Ulug et al. (2021) have studied the 'inner' and 'outer'

dimensions of sustainability in ecovillages through the lens of collective identity and connect it to sustainable transformation. At the same time, the SDGs are implemented by the UN as guidelines for sustainable transformation (Stevens & Kanie, 2016). Logically, the question arises what exactly is meant by sustainable transformation.

Transformations can be referred to as changes in complex interdisciplinary adaptive systems and apply to large-scale changes in societies (Hölscher et al., 2018). This can be on global-, national-, and local level. As Hölscher et al. (2018) argue, transformation involves human interactions with the physical environment, such as in the natural environment. Theoretically, this assumption can link the concept of sustainable transformation to ecovillages when using Gilman's (1991) definition of an ecovillage, as ecovillages aim to integrate human activities harmlessly into the natural world. Nevertheless, as Hölscher et al. (2018) emphasize, transformations take place in complex adaptive systems in societies. Again, like the concepts of sustainability and sustainable development, the concept of transformation is not static or applicable to one certain reality or sphere. O'Brien (2018) argues it is relevant to consider three different spheres of transformation in societies: the practical-, political-, and personal sphere. The practical sphere represents actions, behaviors and strategies that contribute to the desired outcome, the political sphere represents the systems and structures that enable or constrain practical responses to the desired outcome, and the personal sphere represents the subjective beliefs, values and perceptions of people related to this systems and structures (O'Brien, 2018, pp, 155-156). In her paper, O'Brien (2018) takes a decarbonization policy as research subject and desired outcome however the three interacting spheres apply for other situations as well. Currently, policies are predominantly based on the practical sphere of sustainable transformation as they provide measurable outcomes. Other scholars frame this type of transformation as a transition approach to transformation (Blythe et al., 2018). Examples are renewable energy parks, reducing nitrogen-emissions through decreasing livestock, switching from fuel-based to electric-based vehicles in public transport, and so on. However, scholars stress the notion that policies focusing merely on the practical sphere of sustainable transformation might face issues related to political and personal spheres (O'Brien, 2018; Kaika, 2017). The personal sphere influences both the political- and practical sphere, however, it is in the political sphere where norms are challenged, social movements are formed, and where transformations of the status-quo are forged (O'Brien, 2018). The political sphere of transformation is the sphere where systems and structures act as enabling- or constraining forces for realizing practical solutions to sustainability issues. The political sphere consists of rules, regulations, legislations, institutions, and regimes, but it is also the sphere were new collaborations, alliances and social innovations take place (O'Brien, 2018).

The dynamic of practical-, political-, and personal spheres of transformation on the global-, national-, and local level implicates the complexity of relations between ecovillages and (semi-)governments. For example, on the global level, SDGs are implemented as guidelines for sustainable transformation while they can be interpreted and executed in diverging manners on the national- and

local level (Emas, 2015; Shi et al., 2019). Consequently, if, for instance, nations merely focusing on technical- and practical solutions to sustainability issues, it might produce issues on the political- and personal spheres (O'Brien, 2018; Kaika, 2017). Imaginably, the vast number of factors that influence the dynamic between the different spheres is endless. This example emphasizes the importance of local governmental context for ecovillages to be successful agents of sustainable transformation. Besides, it is not uncommon for ecovillage-inhabitants to contest mainstream sustainability definitions and practices as, for example, they can have their own solutions of recycling alongside municipal recycling programs, which they perceive as inadequate (Ulug et al., 2021). In other words, ecovillage-inhabitants can perceive sustainability differently in comparison to local governmental-employees, or even national policymakers. This complexity of relations between citizens (e.g., ecovillage-inhabitants) and (semi-) governments (e.g., municipalities) concerning sustainability transformations among practical-, political-, and personal spheres, insinuates a necessity for researching enabling- and constraining factors for ecovillages to establish in a local governing context.

2.3 Significance of Political Nature in Transformations

Briefly, as discussed in section 2.1 and 2.2, SD theory evolved over time, the related UN goals evolved into the current SDGs which now emphasize the relevance of (local-) governance and partnerships, and dynamics and interactions of three different spheres of transformation as introduced by O'Brien (2018) articulates the societal complexity of the UN's desired sustainability transformations. It implies citizen-initiatives like ecovillages potentially perceive sustainability values and practices differently in comparison to policymakers. Consequently, local governance concerning sustainability transformations can be challenging for citizen-initiatives like ecovillages. The notion of sustainability transformations has ignited a fair share of discussion in the academic realm, particularly when concepts as policy and governments are involved. Blythe et al. (2018) even speak of 'the dark side of transformation' when they refer to the risks of transformation if the political sphere of transformation is excluded in the sustainability transformation discourses and -applications. In their paper, Blythe et al. (2018) stress the importance of politicization, meaning that scholars, policymakers, and practitioners of sustainability transformations should be transparent about the political nature of transformation discourses and manifestations. It indirectly relates to O'Brien's (2018) notion of the political sphere of (sustainability-) transformations, wherein systems and structures potentially enable or constrain practical solutions for sustainability challenges. The political sphere can be seen as the glue for sticking personal ideals together with practical outcomes via rules and legislations, but also with collaborations and alliances. At the same time, it is important not to merely focus on political significance when discussing sustainability transformation discourses and take diverging approaches to sustainability transformations. Scholars emphasize the plurality of sustainability transformations, and the complexity of interactions between these different approaches (Blythe et al., 2018; O'Brien, 2018; Hölscher et al., 2018). However, when it comes to setting up ecovillages legally in a specific national-, social-, physical

space, there are rules, structures, and local communities to consider, making the importance of the political dimension inevitable. The attitude of local governmental authorities (e.g., municipalities and/or police) toward sustainability-oriented citizen-initiatives are therefore of importance for setting-up ecovillages.

2.4 The Dutch Context of Governance and Sustainability Policies

In the last sections it became clear the UN introduced SDGs as guidelines for a sustainable transformation on the global scale, and ecovillages are considered as adequate drivers for this transformation on the local scale as they are characterized as entities promoting sustainability-oriented shifts in society (Stevens & Kanie, 2016; Gilman, 1991; GEN, 2021). Subsequently, how sustainability, and sustainable transformations are defined, perceived, and implemented by governments, citizens (-initiatives) or other parties is divergent, dynamic, and complex (Emas, 2015; Shi et al., 2019; Ulug et al., 2021; O'Brien, 2018). Nevertheless, it is in the political sphere of transformation where the status-quo is challenged, and where enabling or constraining practical responses to desired outcomes take place (O'Brien, 2018). For understanding relations between (local-) governance, LSGs, and ecovillages in a Dutch context, first the Dutch planning rationales are roughly introduced. By doing so, a part of the answer of the first theoretical sub-question, *what are ecovillages and how do they relate to LSGs in the Dutch local-governing context*, will be provided.

2.4.1 A Short History of Dutch Planning Rationales

Controlling and shaping land against natural forces has been the rule in Dutch planning history (Dekker et al., 2012). The famous expression 'God created the world, but the Dutch created the Netherlands' reflects this history of controlling nature and the dominance of large technical infrastructure planning projects. Collaborations were needed to make the large planning projects a success, and shared collective gains were the perfect the driver to do so (Dekker et al., 2012). The practice of social and political deliberation seeps through the history of the Dutch planning culture wherein public and private actors consulted for the sake of collective gains. Dekker et al. (2012) describe planning culture as a complex reflection of social change (I.e., planning projects function as manifestation of social deliberation in the Netherlands). A constant dynamic of success and failure in governing planning projects shape the current planning culture as it is. Van Asshe et al. (2012) emphasize the self-enforcing nature of success and failure dynamics in creating governance systems. They describe a productive competition between discourses and organizations. Concerning the history of Dutch planning rationales, changing over decades from predominantly technical top-down approaches toward more collaborative/communicative approaches wherein citizens play a bigger role through consultation, this dynamic of success and failures in social deliberation now has its place in the governance layer (Allmendinger, 2017). Nevertheless, academic criticism on current collaborative planning rationales is present. Through the lens of social justice for example, Fainstein (2014) argues

collaborative planning cannot produce just outcomes since it cannot resolve structural inequalities among actors. Assuming all citizens have equal access to deliberation and power-relations are in balance is the big mistake in this case. So how are ecovillages positioned in the Dutch local governing context?

2.4.2 Ecovillages Within the Dutch Local Governing Context and Local Sustainability Goals

Planning is not static, however it seems contradicting that Dutch planning history is known for 'shaping land against natural forces' while ecovillages identify themselves as settlements 'working in harmony with nature' (Dekker et al., 2012; Gilman, 1991). It may imply strong diverging perspectives between the Dutch Government and ecovillage initiatives on how to develop land. However, as a result of the 2015 Paris Agreement and the 2030 Sustainable Agenda as discussed in sector 2.1, the Dutch Government currently has sustainability goals in national planning visions that are in line with sustainability goals from the GEN. Goals of the GEN concern education for sustainable communities, empowering local communities, advance environmental protection, shifting to sustainable lifestyles (Global Ecovillage Network, 2021). Similar objectives are found in the new Dutch coalition agreement as it focuses, along with other arguments, on enabling households, communities, and cooperations to make a sustainable transformation, and creating prosperity via education and sustainable innovation (Bureau Woordvoering Kabinetsformatie, 2021).

Another relevant claim for (future-) ecovillages in the coalition agreement is that the Dutch Government wants to create 'more space for alternative housing types' (e.g., ecovillages) that are initiated by citizens (Bureau Woordvoering Kabinetsformatie, 2021, p. 13). This statement implies a willing attitude of the Dutch Government toward ecovillages for developing within the rules and aims secured in the national coalition agreement. It also implies that, within the political sphere of sustainable transformation as discussed by O'Brien (2018), new possibilities for ecovillages are apparent in the coming years to establish themselves in the Netherlands. However, an uncertain factor for ecovillages is the future implementation of the Dutch 'Omgevingswet', best translated into 'environmental planning act'. This upcoming law promotes participation between citizens and local governments and focuses particularly on LSGs as local governments themselves can now decide what (sustainability-) projects get permissions (Rijksoverheid, 2022d). By the means of this upcoming law, citizen-initiatives potentially have easier possibilities to establish sustainability objectives if those are in line with municipal LSGs. However, what kind of participation between local governments and citizen-initiatives, and how sustainability is perceived in the act remains unclear (Foort & Kevelam, 2015). Moreover, as Kaika (2017) stresses, research should be done concerning dissensus or disagreements between citizens (-initiatives) and (local-) governments as these situations can help us learn how participation and communication is relevant, or not, in sustainability policies like the upcoming Dutch 'Omgevingswet'. Specifically, Kaika (2017) argues dissensus in society toward (sustainability-) policies reveals and addresses the real societal challenges. Ecovillages acting outside of the governmentally introduced rules could therefore be relevant subjects to scrutinize. This assumption will be elaborated on in the following

section. However, first, for answering the sub-question what ecovillage are and how they relate to LSGs in the Dutch local-governing context, it can be stated that ecovillages are collective initiatives or projects that aim to incorporate a sustainable lifestyle into daily-life practices while also promoting this lifestyle (Gilman, 1991; Ulug et al., 2021). Ecovillages relate to LSGs in the Dutch local-governing context in the sense that with the governmental promotion of increasing citizen-initiative agency in sustainability transformations (i.e., the upcoming environmental law or 'Omgevingswet'), ecovillages are adequate drivers on the local scale to promote and demonstrate a sustainable lifestyle (Ulug et al., 2021; GEN, 2021). However, as emphasized by scholars as Emas (2015), Foort & Kevelam (2015) and O'Brien (2018), the perceptions of what sustainable behavior, or sustainability in general, encompasses can be divergent. There are personal values, practical solutions, and political structures in sustainability transformations that interact, making societal changes in sustainability transformations complex challenges (O'Brien, 2018). Additionally, as Ulug et al. (2021) explain, ecovillage initiators might not agree to local governmental sustainability standards. So, if ecovillages indeed are adequate agents for sustainable transformation, and the Dutch Government is promoting alternative housing in the new coalition agreement, while also promoting citizen-initiative input on a local scale by the hand of the upcoming 'Omgevingswet' or environmental law, it is relevant to scrutinize how citizen-initiatives like ecovillages are encouraged (or demoralized) by local governments to participate (Bureau Woordvoering Kabinetsformatie, 2021; Rijksoverheid, 2022a).

2.5 Participation and Active Citizenship

As explained in sector 2.4, Dutch-governmental developments like the new coalition agreement and the upcoming 'Omgevingswet' theoretically support active citizenship and participation in the Dutch society. However, as Cornwall (2002) argues, there are different spaces in which citizens (-initiatives) can participate. It is relevant to explore the dimensions and dynamics of these spaces if the Dutch Government aims to implement more active citizen participation in future (local-) policies (Cornwall, 2002; Rijksoverheid, 2022d). Building on the notion that perceptions and values of sustainability and sustainable behavior can differ between and in different actors (e.g., citizens, initiatives, local governments, etc.), diverging spaces of participation exist in society. The changing role of active citizenship in the Netherlands is arguably divided in a twofold of "spaces of participation": invited- and invented spaces of participation (Cornwall, 2002; Miraftab, 2004). As is discussed in the following section, a debate of what "real societal value" encompasses is conducted to grasp the role that ecovillages can take as potential sustainability transformation agents and -drivers.

2.5.1 Invited and Invented Spaces of Participation

Ecovillages often focus on sustainable community and environmental development, however, additionally, ecovillages are often perceived as citizen-initiatives that act as pioneering experiments in our societies (Gilman, 1991; Singh et al., 2019). As the number of citizen-initiatives increases, the

relation between citizen-initiatives and governments changes (Visser et al., 2021). As ecovillages can be perceived as pioneering citizen-initiatives, these changing relationships are relevant for ecovillages too. There are many varieties concerning citizen-governmental relations, however there are two concepts that deserve extra attention after the conducted literature research. The first concept is the notion and distinction of *invited-* versus *invented spaces of participation* (Miraftab, 2004). In the Netherlands, policies show an increasing trend of so-called *invited spaces*. In this thesis invited spaces is defined as; "*The institutional-, legal-, organizational-, political- and policy spaces that are created by governments for citizens to take on initiatives to create public value*" (Visser et al., 2021, p. 869). This practice seems an enabling factor as governments create spaces intentionally for citizens to add societal value. Think for example of citizen-initiatives that maintain playgrounds in neighborhoods, promote to 'flip tiles' for green, or who start a community center in their streets within the rules-, and by the promotion of local governments or -policies (Visser et al., 2021). However, invited spaces are limited to spaces within the scope predetermined by the governments that introduce them (Miraftab, 2004). This questions the notion of 'real added value' of citizens as they partake in a space within the borders of the ones that made the rules of the game (Eversole, 2012). The criticism of scholars concerning invited spaces of participation is not unanimously backed by all scholars. In their article about community-based initiative performances, Igalla et al. (2020) argue that governments do not only invite citizens to participate, but also invite citizen-initiatives to take the lead in initiating the creation of public value. This argument implies that although the space is invited by governments, the actual leadership in initiating public value is handed over to citizen-initiatives.

On the other hand, the concept of *invented spaces* of participation is more open to radically different approaches to agency and self-determination as there are no sets of values necessarily predetermined by the government at all (Miraftab, 2004). It challenges the status-quo and is often linked to civil disobedience, and for example demonstrations, while adding public value (Kersting, 2013). Arguably, invented spaces are more appropriate to be connected to ecovillages as ecovillages are often experimental places with pioneering people that behave differently in comparison to mainstream society, nevertheless, at the same time, proved to increase living conditions for other people in their direct environment (Avelino & Kunze, 2009). Invited- and invented spaces are different concepts about the spaces wherein citizens participate in society, however, in research on the commoning of governance, Leitheiser et al. (2021) suggest ways to integrate invented spaces in the invited spaces that are already existing in institutions and governments. This means that citizenship needs to be redefined and new institutional instruments and procedures that support communities, in this case, in commoning, are required (Leitheiser et al., 2021, p. 13). Arguably, the challenge is to integrate the radically different way of thinking and new character of invented spaces into policies for 'real added value' of citizen-participation. Briefly, on the one hand, scholars claim that invited spaces of participation are governmentally and/or institutionally controlled, and do not perse reflect 'real added value' of citizen

participation in societies. On the other hand, scholars claim invented spaces of participation reflect real social innovation in contributing to society in comparison to invited spaces of citizen participation.

2.5.2 Spaces of Interactions and Citizen-Governmental Dissensus

The second theoretical sub-question of this thesis reads: *what are invited and invented spaces of participation, and how do they relate to citizen-initiatives like ecovillages and local governments?* For understanding the relations between these concepts, some nuances ought to be elaborated. As mentioned above, the foremost distinction between invited- and invented spaces of participation is the difference in governmental control and steering of citizen-initiatives to public value versus citizen-initiatives that act outside of governmentally given spaces of participation (Cornwall, 2002; Miraftab, 2004). However, invited and invented spaces of participation are not perse contradictory, as Igalla et al. (2020) argue, invited spaces might facilitate citizen-initiatives that take leadership given by governments in societal contributions. In other words, it is not merely inviting citizens for civil participation, but additionally the control is delivered to the concerned citizen-initiatives. Moreover, Leitheiser et al. (2021) suggest invented spaces should be integrated in already existing invited spaces in governments and argue it to be the "commoning of governance", making citizens and State/market "sparring partners" instead of opponents. It indicates these scholars advocate integration of the two concepts, rather than regarding them as contradictions. On the one hand, by looking beyond the distinction of invited- and invented spaces of participation, and perceive them as potential integrative concepts, interactions between citizens, communities, policymakers, markets, planners, and scholars are noticed (Leitheiser et al., 2021; Igalla et al., 2020). On the other hand, as Kaika (2017) stresses, if we want to learn from difficulties in governance through the tunnel-vision of focusing on technical indicators and practical solutions in sustainability policies (section 2.2), the focus must lie on dissensus between citizens and governments as it shows who is not involved in participative processes. As Kaika (2017) argues, the ones not involved or listened to in participation processes might indicate the 'weak spot' and space of improvement. These arguments to seek real added societal value seem conflictive, however, might be reenforcing perspectives as citizens excluded in societal participative processes might shine a light on learning how to integrate citizen-governmental leadership as argued by Kaika (2017) and Leitheiser et al. (2021). The notion of going beyond the distinction of invited- and invented spaces of participation, and the importance of focusing on citizen-governmental dissensus for gaining societal value in participative processes, show relations between what invited- and invented spaces of participation are, and how citizens (-initiatives) can play an executive role in participative processes driven by governments. However, it does not explicitly answer the second theoretical sub-question. For the answer to this question, a deeper insight in ecovillages and local governments is provided in the section below by the hand of the Dutch context.

2.5.3 So What About Interactions in the Netherlands?

In the Dutch context, goals and objectives in the new national coalition agreement, for example promoting alternative forms of living initiated by citizen-initiatives, and characteristics in the upcoming environmental law (i.e., Omgevingswet), such as facilitating legislation for citizen-initiatives to set up sustainability-projects more easily through a digital desk, imply an increase of invited spaces for citizen (-initiative) participation in the Dutch society compared to former national policies that tend to be more cumbersome (Rijksoverheid, 2022d). Theoretically, the assumed amalgam of invited and invented spaces of participation by scholars as Leitheiser et al. (2021) and Igalla et al. (2020) is a relevant perspective on how ecovillages can operate in the Dutch context of citizen participation, as ecovillages can be perceived as pioneering citizen-initiatives and drivers for social experimentation in mainstream societies (Avelino & Kunze, 2009; Singh et al., 2019). They add value in society concerning sustainable behavior, and often take the lead in demonstrating sustainable behavior in mainstream societies (Ulug et al., 2021). Consequently, the notion ecovillages presumably add societal value through invited- and/or invented spaces of participation is probable. This presumption is based on the apparent complements characteristics of ecovillages, as described by Gilman (1991), have with the current Dutch governmental strategic vision on how to develop the country sustainably: Ecovillages aim to incorporate sustainability aspects into daily-life practices, while the Dutch Government aims to use more sustainable energy, to adapt to climate change, to develop a circular economy, and the transit toward circular agriculture, implying daily-life practices in the Netherlands ought to become more sustainable (Rijksoverheid, 2022e). Besides, ecovillages have potential in generating sustainability impacts in urban environmental actions beyond own ecovillage borders (Ergas, 2010), and might act as local examples on how relationships and interactions with surrounding communities might work in the desired transformation toward sustainability practices (Ulug et al., 2021). In other words, ecovillages can be interesting subjects to scrutinize when governments explicitly have development goals related to sustainability. This aligns with the UN's claim ecovillages are among the most sustainable communities on earth (United Nations, 2021c). As the new upcoming 'Omgevingswet' in the Netherlands puts more emphasis on local decisive power (i.e., local governments gain decisive power in comparison to current environmental laws) concerning spatial developments and sustainability, citizen-initiatives like ecovillages potentially are relevant actors on this level. Nevertheless, the decisions employees of local governments make (especially local politicians) are influenced by national factors such as national laws and -policies, and therefore they have not full authorization to make decisions that matter on the local level (Coenradij & Allers, 2017). The (historical-) factors influencing Dutch local governmental accountability concerning spatial policies are discussed in the following section to better understand the Dutch context wherein ecovillages and Dutch local governments are situated.

2.6 Dutch Policy Context, Land-Scarcity, and Land Development

The challenges of (-and between) Dutch citizen-initiatives like ecovillages and (local-) governments are better understood if Dutch land policy and use of land is discussed. From the 1950's onwards, deliberation between (future-) citizen-initiatives like ecovillages and governments presumably are inevitable in the sense that in the Netherlands land is not predominantly owned by land developers like in most Western countries, but by local authorities such as municipalities (Buitelaar, 2010). However, the distinctive Dutch 'active land policy' with municipalities as landowners decreased over the last decades, and the share of property developers increased due to growing market competition, a change in relations between municipalities and social housing, and the emergence of European legislations (Segeren, 2007; Buitelaar, 2010). In other words, the room for citizen-initiatives to deliberate for alternative housing with local authorities is under pressure through a neoliberal development in the housing market.

Along with the 'neo-liberalization' of the Dutch housing market, challenges like land scarcity, urbanization, and the role of land-use and -planning arise for ecovillages to establish themselves in the Netherlands (Buitelaar & Sorel, 2010; Hazeu et al., 2011). Simply put, when looking at land-use changes over the last decennia, there is hardly any space left with sufficient zoning plans for ecovillages to establish themselves due to urbanization and increasing land scarcity (Hazeu et al., 2011). Like Dekker et al. (2012) emphasize, the Dutch planning culture is a complex reflection of societal change through social deliberation and learning from failures in the past. This includes stepping away from legal certainty in planning visions, and being flexible, in 'getting things done' appropriate to individual and local circumstances: The goal justifies the means (Needham, 2016). Therefore, if the goal of the Dutch Government is to "provide more space for alternative forms of housing" in the coming years, the bargaining position of ecovillages should increase on paper (Bureau Woordvoering Kabinetsformatie, 2021, p. 13). Theoretically, this flexibility in land-use planning, and the proposed 'more space' for alternative forms of housing by the Dutch Government, should provide citizen-initiatives like ecovillages more room in establishing themselves. However, in practice it is at least doubtful on account of current developments in the Netherlands related to neo-liberalization of the Dutch housing market and resulting in increasing pressure on land availability (Buitelaar & Sorel, 2010; Hazeu et al., 2011). Developments over the past decades like increasing ratio of land developers in comparison to land owned by municipalities, imply that flexibility from the governmental side to support citizen initiatives like ecovillages, comes with a financial cost (Buitelaar, 2010). Dutch land policy, land scarcity, and land development are therefore factors that influence local governments' decisions on spatial policies.
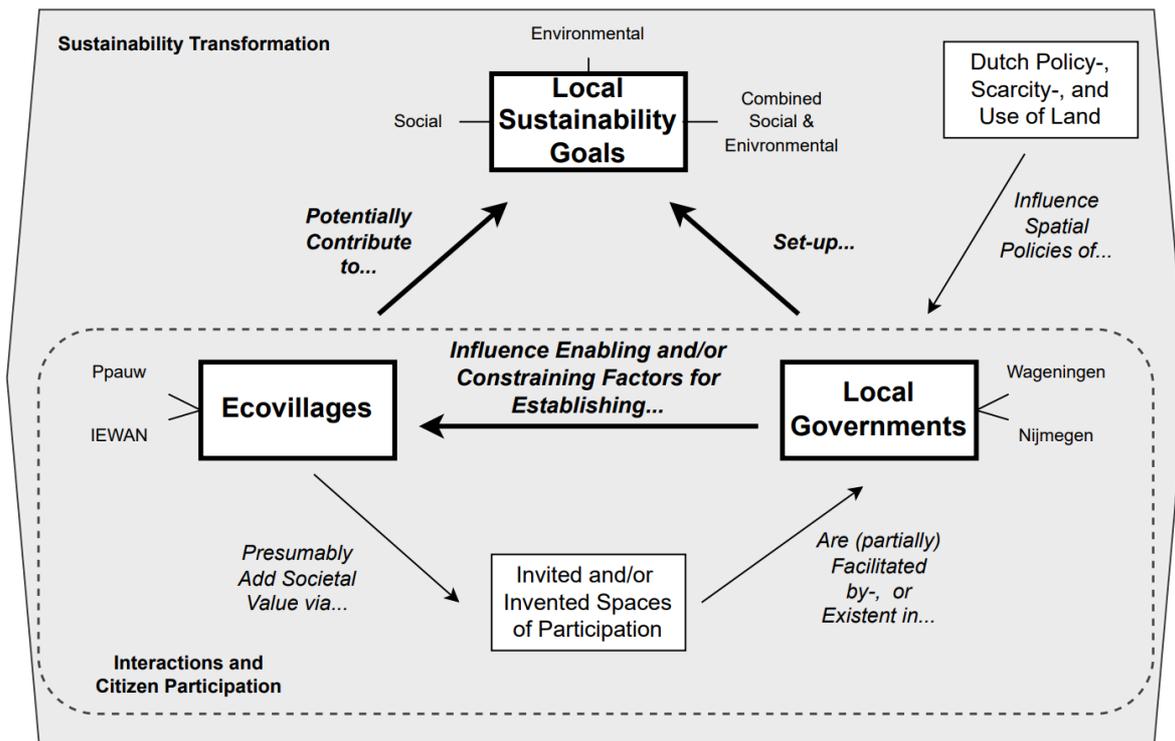
Figure 1: Conceptual model

3. Methods

In this chapter, I will explain the research approach, -design, and methodological considerations. The design is based on the research questions, and literature discussed in chapter two. Additionally, the data analysis and coding are described, and relevant ethical issues are discussed. However, concerning ontology, first it must be mentioned I take a relativist perspective in approaching reality in this thesis. I believe multiple realities exist in investigating ecovillages and that they are shaped by contextual factors. This research will not provide one single truth concerning ecovillage contributions to LSGs or enabling- and constraining factors between ecovillages and local governments. I merely investigate within the context I believe is useful for Dutch planning policies, relevant for understanding collaboration dynamics between ecovillages and municipalities, and adds to socio-spatial research concerning social- and environmental sustainability.

3.1 Research Approach and Design: Why Qualitative?

The first part of the twofold research question asks how ecovillages potentially contribute to LSGs. The second part of the research question asks what enabling- and/or constraining factors are for realizing ecovillages in a Dutch local governing context. Thereby, the research approach consists of both a 'how' and a 'what' component. Consequently, the nature of the research is both descriptive and explorative. On the one hand, the first part of the research question, concerning potential ecovillage contributions to LSGs, is descriptive. It attempts to describe how ecovillages contribute to LSGs. This research is focused on enabling- and constraining factors that; (a) occur for establishing ecovillages in a Dutch governing context, which is largely dictated via national-level administrative factors (Coenradij & Allers, 2017); and (b) occur for ecovillages to make meaningful contributions to LSGs. This focus mainly takes place on the local level (I.e., local governments and ecovillages). Therefore, factors as invited and invented spaces of participation, and influences of the Dutch policy context, land scarcity and land development are discussed. By doing so, it is attempted to describe and explain how ecovillages (potentially) contribute to LSGs, whilst at the same time provide additional information via the elaboration of enabling- and constraining factors for ecovillages to thrive in a Dutch local-governing context.

On the other hand, researching the second part of the research-question, what enabling- and constraining factors are present in realizing ecovillages in Dutch local-governing context, is explorative in nature. According to Bryman (2016) explorative research is the initial research into a hypothetical- or theoretical idea. In this research the hypothetical idea is that there are enabling- and/or constraining factors for realizing ecovillages in the Dutch local-governing context. Additionally, it builds upon the suggestion from Kaika (2017) to further investigate dissensus and constraining factors between citizens and governments for real sustainable transformation. Dissensus and constraining factors between citizen-initiatives (i.e., ecovillages) and municipalities are scrutinized through different concepts that

are considered adequate for this research as they are indicators for the success of ecovillages: sustainability-oriented activities and values of ecovillages (I.e., ecovillage inhabitants), invited versus invented spaces of participation, and civil-governmental interactions.

3.2 Case studies

In this thesis, a case study is defined as introduced by Yin (1994: 13) cited in Rhee (2004): "*An empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident…[and] relies on multiple sources of evidence*". This definition is adequate for, and related to this research, as this research scrutinizes the phenomenon of ecovillages (I.e., real life phenomena), and their potential contributions to LSGs (I.e., unclear context relied to different sources of evidence). Additionally, ecovillages are explored in their local governing context. The two selected ecovillages, IEWAN and Ppauw (Figure 2) are considered as citizen-initiated ecovillage projects and represent real-life examples from ecovillage- and citizen- initiative literature used in this thesis in Chapter 2. Therefore, this thesis describes and explores two casuistries, in Wageningen (Ppauw), and in Nijmegen (IEWAN).

The local governments wherein the two ecovillages are located are the municipality of Nijmegen (ecovillage IEWAN), and the municipality of Wageningen (ecovillage Ppauw). The two municipalities both have several LSGs, for example, the Municipality of Wageningen agreed upon building 'future-proof' sustainable neighborhoods (Gemeente Wageningen, 2022). However, how the municipality of Nijmegen and IEWAN, and the municipality of Wageningen and Ppauw, collaborate, communicate, and interact within the municipal borders concerning these local goals remains vague. It is not clear if these parties perceive sustainability similarly, while these perceptions of sustainability, and sustainability contributions can differ (Ulug et al., 2021). Therefore, a (policy-) document analysis is conducted to find out what LSGs the two municipalities have agreed upon, and if apparent, how the related ecovillages potentially contribute to these LSGs. Additionally, interviews are conducted with inhabitants of both ecovillages, and employees of both local governments (e.g., employees of municipality and police). By doing so, a contextual understanding is provided to find out how ecovillages potentially contribute to LSGs, and what enabling- and/or constraining factors occur for ecovillages to establish themselves in a Dutch local-governing context.

The research design is a qualitative multiple case-study. Qualitative research on both these ecovillages and local authorities might provide a better contextual understanding of potential LSG contributions from ecovillages. At the same time, by looking into enabling- and/or constraining factors between ecovillages and local authorities, the shared goals concerning sustainability transformations, and sustainability actions and values of ecovillages are discussed.

There are two reasons why this thesis focuses on two ecovillages. First, this research is conducted in a relatively short timeframe and by one person, due to time limits researching more ecovillages is not feasible and potentially affects the quality of analysis. Second, researching only one

ecovillage and the dynamic between this ecovillage and local government would tell us something about one case. The aim of this research is to gain better insights on how ecovillages potentially contribute to LSGs, and what enabling- and constraining factors are for realizing ecovillages in a local governing context. Hereby, it is hoped to draw valuable lessons for Dutch planners, policymakers, and institutions, who are engaged in sustainability transformations. Researching two ecovillages might show relevant similarities, differences, or patterns. Consequently, these similarities, differences or patterns can be researched in a larger (quantitative-) research for assessing valuable significances.

3.3 Cases: IEWAN Nijmegen and Ppauw Wageningen

During the selection of the two ecovillages IEWAN and Ppauw literature-related requirements were considered. First, the ecovillages must identify themselves as ecovillages, and should be aligned with the definition of an ecovillage according to Gilman (1991). In the broader sense, this means ecovillages should identify themselves as collective settlements that aim to harmlessly integrate human activities into the natural world in a way it is sustainable for the future. More specifically, the ecovillages must identify themselves as pioneers, demonstrators, or educators for a sustainable lifestyle (Ulug et al., 2021; GEN, 2021). In the search for these places, several projects came along, however sometimes identified themselves as spiritual communities, or simply as an ecological-oriented neighborhood. Therefore, I used the database from GEN (https://gen-nl.nl/de-ecodorpen/) to find out which ecovillages are already existing in the Netherlands. From the database I selected two ecovillages that emphasize educative and informative activities, as these are considered important criteria for the societal impacts of ecovillages (GEN, 2021). The projects of IEWAN and Ppauw fits most adequately in these selection requirements.

Additionally, the selected ecovillages had to have information available on their websites concerning how they organize themselves and how they interact with external parties like (local-) communities and -governments. As argued by Visser et al. (2021), relations between citizen-initiatives like ecovillages and (-local) governments change due to the increase of citizen-initiatives and changing policies. Invited and invented spaces of citizen participation in society are therefore relevant concepts to scrutinize as they tell us how citizen-initiatives like ecovillages are organized and through which spaces they participate in society. It is aimed to go beyond the notion of the distinction of invited and invented spaces of participation and explore opportunities of an integrative approach of these concepts as suggested by Leitheiser et al. (2021) and Igalla et al. (2020). Theoretically, the assumed amalgam of invited and invented spaces of participation by scholars as Leitheiser et al. (2021) and Igalla et al. (2020) is a relevant perspective on how ecovillages can operate in the Dutch context of citizen participation, as ecovillages can be perceived as pioneering citizen-initiatives and drivers for social experimentation in mainstream societies (Avelino & Kunze, 2009; Singh et al., 2019). They add value in society concerning sustainable behavior, and often take the lead in demonstrating sustainable behavior in mainstream societies (Ulug et al., 2021). Therefore, ideally, the two selected ecovillages had different relations

and/or interactions with their local governments for diverging perspectives in the qualitative data collection. On the one hand, IEWAN was considered to navigate within the context of an *invited space* of participation. Although calls from the municipality to its citizens are considered a prerequisite for invited spaces of participation, there was not an actual invitation or call from the municipality for citizen-initiatives to establish ecovillages in Nijmegen, nevertheless, the municipality was behaving facilitative, collaborative, and willing in the process of establishing of the ecovillage (IEWAN, 2021b). These characteristics tend towards features of invited spaces of participation as IEWAN was 'legitimized' as participative civil organization (Miraftab, 2004). On the other hand, Ppauw was considered to participate in an *invented space* of participation as it started as a collective action protesting vacant industrial properties (Ppauw, 2021). Theoretically, Ppauw has more similarities to an 'outcast' participative organization and are not formally supported by local governments as they operate outside the (local-) formal structures (Ppauw, 2021; Miraftab, 2004). By researching the two selected ecovillages, more insights should be provided considering distinctions between invited and invented spaces of participation, however, more importantly, what components might be approached as integrative.

Case 1: Ppauw
Ppauw is the name of the selected ecovillage in Wageningen. The ecovillage is 8 years old and has about 10 inhabitants and is located between the city center of Wageningen and a forest, on the eastside of Wageningen on an old and abandoned hospital site which was named after Pieter Pauw (Ppauw, 2021). A new neighborhood is recently built near the ecovillage and an asylum center is located right next to the borders of the ecovillage. Ppauw is squatted and is not connected to water network and is partially self-sufficient in generating energy (solar) and producing food (Ppauw, 2022).

Case 2: IEWAN
IEWAN is the name of the selected ecovillage in Nijmegen. The ecovillage is founded in 2015 and has 44 adults and 9 children and is located in the north side of Nijmegen in Lent, right next to the Waal river (IEWAN, 2022). IEWAN is newly build in 2015 in collaboration with the Municipality of Nijmegen, housing association Gelderland (WBVG), and housing corporation Talis (IEWAN, 2022). IEWAN is connected to all facilities (water, electricity, drainage), however, does have an own water-filter system and energy generation system (solar) (IEWAN, 2022).

Figure 2: Locations of ecovillages Ppauw and IEWAN in Wageningen and Nijmegen.

3.4 Research strategy

The strategy taken to collect data for answering the research-question is to perform both a desk-research and empirical study. The desk-research is based on data from policy documents of both municipalities (Wageningen and Nijmegen), websites of the two ecovillages (Ppauw and IEWAN), and academic literature discussed in chapter 2. The empirical study is based on interviews with initiators and citizens from the two ecovillages, employees of local authorities (municipality, police), as well as observations on ecovillages sites.

3.4.1 Desk research

The desk research is conducted through identifying LSGs from policy documents of the municipalities to the sustainability objectives and web analysis through actions of the ecovillages as showed on their websites www.ppauw.nl (under tab archive, document 'boekje'), and www.iewan.nl (Table 1). In the case of Wageningen the leading document is the municipal coalition agreement 2018-2022: 'Een nieuw perspectief, Duurzame verandering voor elkaar' (Gemeente Wageningen, 2022). In the case of Nijmegen, the used document is the municipal coalition agreement 2018-2022: Coalitieakkoord 'Nijmegen: Samen Vooruit' (Gemeente Nijmegen, 2022). The coalition agreement documents display the policies of the two municipalities between 2018 and 2022. Both documents

display boundaries, objectives, and rules within the administrative sphere of sustainable transformation in the selected municipalities. Hereby, a better insight on the legal frameworks wherein ecovillages can potentially contribute to local sustainability goals is provided. This relates to the first part of the research question: *How can ecovillages contribute to local sustainability goals?*

There is no academic definition of what LSGs are. There are however several municipalities participating in the 'Gemeenten4GlobalGoals campaign': A campaign where municipalities can choose to use the predicate as sign of participating to SDGs relevant for (local-) sustainable developments (VNG, 2022b). Additionally, since the Dutch policy on sustainability is indirectly abstracted from the 2015 Paris Agreement, and therefore at least partially is related to SDGs, the values of most current SDG definitions are used for identifying the local sustainability goals of the municipality of Wageningen and Nijmegen (Government of the Netherlands, 2022). As mentioned in sector 2.1, SDGs on the global level evolved while more 'practical wisdom' was added to the concept, meaning that scholars added more values (e.g., governance), and global action (global partnerships) to achieve SDGs (Shi et al., 2019; United Nations, 2021). In this thesis, the same values are used to identify what local sustainability goals enhance: the goals should not negatively impact future generations on both natural- and social sense, (social-) equity is strived for, and a governance aspect for achieving these goals is mentioned (Shi et al., 2019). At the same time, this part of the desk research gives a better insight where ecovillages and municipalities align concerning sustainability objectives, and where they are not aligning. This information provides (partially) the contextual understanding of relations between the municipalities and ecovillages. Subsequently, knowledge is provided for interpreting consensus and dissensus between ecovillages and municipalities, which is considered as relevant information for citizen-initiatives as sustainability agents if strived for 'real smart solutions and social innovation' in sustainable transformation processes (Kaika, 2017).

Case	Document name	Document type	Author(s)
Wageningen	Een nieuw perspectief, Duurzame verandering voor elkaar	Policy document (coalition agreement)	Municipality of Wageningen
Wageningen	Boekie	Manual, document collection (notes, press articles)	Ecodorp Wageningen Ppauw, National and local media
Nijmegen	Nijmegen: Samen Vooruit	Policy document (coalition agreement)	Municipality of Nijmegen
Nijmegen	IEWAN- Strowijk Nijmegen	Website	Ecodorp Nijmegen IEWAN

Table 1: Overview document- and web analysis used in desk research.

3.4.2 Empirical research

The empirical part of the research is conducted through interviews and observations. Qualitative interviews are useful to receive subjective perspectives of the respondents (Hopf, 2004). In this research subjective perspectives of respondents are important for analyzing the enabling- and constraining factors between ecovillage-initiators and municipal employees. These perspectives provide insights on how respondents perceive their role in achieving LSGs, but also how they are situated in (local-) society, and how communication between ecovillages and local governments is experienced. The interviews are semi-structured, meaning an interview guide is used to discuss the relevant subjects, however the questions are open-ended, so respondents have room to talk about their experiences and knowledge of the subjects (McIntosh & Morse, 2015). Additionally, one group interview is conducted on the initiative of one respondent from the Municipality of Nijmegen. As Bryman (2016) explains, group interviews potentially provide insights in focus-group dynamics on interpretations on the selected subject (in this case municipal employees about ecovillages and local sustainability goals). Therefore, I agreed to the suggestion. The interview guide for ecovillage-initiators is found in Appendix 1, and the interview guide for municipal employees is found in Appendix 2. Table 2 shows the list of interviewees, and the analysis and coding of the empirical research is discussed in sector 3.4.

In this research, observations are done to gain additional insights on how ecovillages potentially contribute to LSGs, and how they interact with municipalities. Observations are relevant during interviews with respondents, but also observations of physical attributes are inputs of sources for data triangulation, discussed in following sector 3.2. (Yin, 2009). Observations in this research are done on ecovillage locations. The observations focus on physical artifacts on ecovillage sites that potentially contribute to LSGs, for example the presence of solar panels and structures built with natural, recyclable, or circular materials. The analysis and coding of the empirical research is explained in the following section.

Case	Interviewee	Interview type	Date
Wageningen	Respondent 1, initiator ecovillage Ppauw	Face-to-face interview, individual	22. April 2022
Wageningen	Respondent 2, inhabitant ecovillage Ppauw	Face-to-face interview, individual	22. April 2022
Wageningen	Respondent 3, community officer at Police Wageningen	By phone, individual	9. May 2022
Nijmegen	Respondent 4, inhabitant ecovillage IEWAN	Face-to-face interview, individual	22. April 2022
Nijmegen	Respondent 5, employee Municipality of Nijmegen	Online, individual	9. May 2022
Nijmegen	Respondent 6, employee Municipality of Nijmegen	Online, group	23. May 2022
Nijmegen	Respondent 7, employee Municipality of Nijmegen	Online, group	23. May 2022

Table 2: List of interviewees. Names interviewees are known by author.

3.5 Analysis and Coding

Both the desk- and empirical data are analyzed with the help of coding. For the desk-research, all chapters of both municipal coalition agreements are coded, they enhance principles, objectives, policy intentions, and concrete agreements and/or action points (Gemeente Wageningen, 2022; Gemeente Nijmegen, 2022). The principles and objectives are translated into policy intentions. For the policy intentions, agreements and/or actions are set. Based on SD definitions of Shi et al. (2019), coding was conducted as followed: The policy intentions combined with agreements and/or actions in the document that (1) relate to the goals that are not negatively impacting future generations on both natural- and social sense, (2) wherein equity is strived for, and (3) have a governance aspect for achieving these goals, are considered as LSGs. Subsequently, after identifying the LSGs, they were labeled in the following themes: (1) *Natural/environmental-oriented sustainability goals*, which focus on concepts such as sustainable land development, greenery, sustainable landscape integrations; (2) *social-oriented sustainability goals*, which focus on concepts like quality of life, social equity, social benefits, community, and work; (3) *combined natural/environmental and social sustainability goals*, which have combined environmental/social factors like for example citizen-initiatives for sustainable behavior and activity in neighborhoods (e.g., collectively switching tiles to grass in gardens throughout the neighborhood). The coded LSGs and labels can be found in Appendix 3 (Wageningen) and Appendix 4 (Nijmegen). The selection of the aforementioned three codes is based on the Dutch data and statistics bureau '*Centraal Bureau Statistiek*' (CBS) SDG-monitoring report for the Netherlands, which implies there is room for improvement when looking at challenges concerning SDG 11 Sustainable Cities and Communities (combined environmental/social oriented), SDG 15 Life on Land (environmentally oriented), and SDG 16 Peace, Justice and strong Institutions (socially oriented) (CBS, 2021; UN, 2021).

Concerning the interviews, Dutch language transcriptions are made of all interviews and only the used quotes in this thesis are translated to English. The interviews were recorded and an informed consent form, as well as an information form were handed out to the respondents beforehand (Appendix 5). The same codes from the desk-research (environmental, social, combined) are used for identifying answers from interviewees focusing on the first part of the main research question, related to questions about LSGs and potential ecovillage contributions to LSGs. However, these labels are not relevant for answers of interviewees related to questions focusing on enabling/constraining forces for ecovillages to establish themselves on a local governing context (the second part of the main research question). After revisiting the theoretical framework chapter, three themes were selected: (1) *invited and invented spaces of participation*, which focus on all aspects that interviewees experienced in possibilities/challenges within the local municipal legal frameworks and/or governing context; (2) *interactions*, which focuses on communication between ecovillages and local authorities (municipality and police), and; (3) *national level factors* that concern the planning and use of land (-scarcity). Examples are factors related to path dependency (e.g., historical decrease of active land policy and/or increase of market competition) and national level policies and/or laws. All themes and related subjects are found in the coding tree (figure 3).

Additionally, for the first part of the research question, how ecovillages potentially contribute to LSGs, on-site observations are used. This means I observed the presence of solar panels, water- and food recycling systems, the use of natural materials for building, and other physical objects that potentially contribute to LSGs like communal areas, shared spaces etc. Pictures are made of some of these observations. These observations are used as extra source of information to strengthen data triangulation.
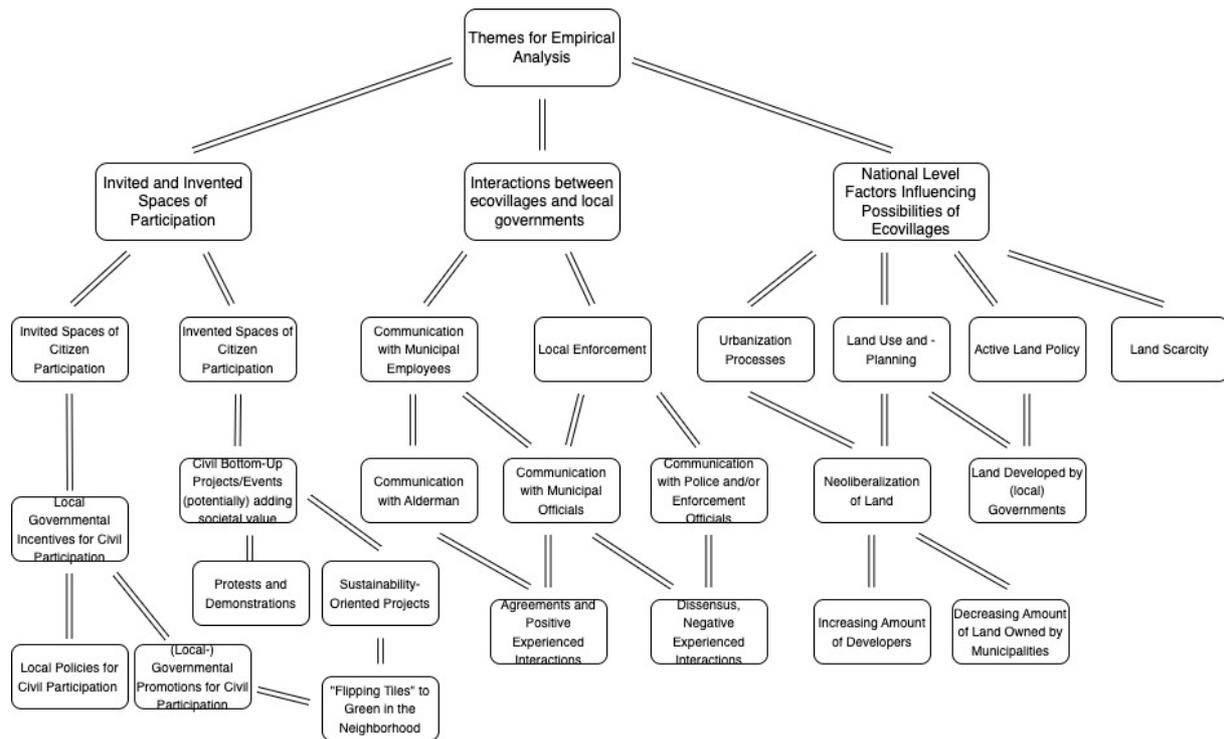
Figure 3: Coding tree of empirical analysis

3.6 Validity

Concerning validity of the research a data source triangulation technique is used. There are three different sources of data in investigating the research question: (1) Desk research sources as described in section 3.3 and 3.3.1; (2) interview sources from both ecovillage-initiators and local governmental employees (municipality, police); (3) observational sources, as described in sector 3.3.2. Furthermore, concerning transparency and replicability, academic discussion is ongoing whether to decouple the concepts of transparency and replicability (Prett et al., 2020; Aguinis & Solarino, 2019). In this thesis, transparency is based on trustworthiness, which is about the degree in which the reader can assess whether the author is has been honest in conducting the research (Prett et al, 2020). In conducting this research, among other terms, I predominantly used the terms "ecovillages", "sustainability", "invited and invented spaces of participation", while searching for adequate articles. I conducted the research mainly through Google Scholar and the SmartCat catalogue of the University of Groningen. Furthermore, I used sources from lectures given during the study *Society, Sustainability and Planning* at the faculty of Spatial Sciences on the University of Groningen in the year 2021-2022. Additionally, the interview guides in Appendixes 1 and 2 indicate the line of conversation during interviews. The research is not generalizable, nevertheless it does add scientific and societal value in the sense it provides additional knowledge on ecovillages in a Dutch governing context.

3.7 Ethics

There are four main areas in ethical principles regarding social research a researcher should be aware of (Diener & Crandall, 1978). First, whether there is harm to participants; second, whether there is a lack of informed consent; third, whether there is an invasion of privacy; and fourth, whether deception is involved. As I intended to take these considerations regarding ethics in honor, I conducted interviews and observations in the following manner:

1. *Harm to participants.* I did not harmed participants in any physical- or psychological way, and participants were always able to stop the interview at any given time.

2. *Lack of informed consent.* Beforehand interviewing the participants, I explained the objectives of the research I conducted, I gave information of the research, and I asked if I could record the interview (Appendix 5). I asked if they wanted to be anonymous when using their quotations. I handed out an informed consent form including a checklist (Appendix 6).

3. *Invasion of privacy.* I interviewed them on the location they desired to ensure their privacy if desired.

4. *Deception.* I presented my research as it was. I did not mislead participants into certain answers. If I got off track of my interview list, it was merely to collect more in depth-data.

4. Results and Discussion

After introducing ecovillages Ppauw and IEWAN, this chapter discusses the data extracted from the desk research, as well as the outcomes of the observations, and interviews with inhabitants of the ecovillages Ppauw and IEWAN and employees of the local governments of Wageningen and Nijmegen. First, results of potential ecovillage LSG contributions are showed and discussed in three themes: socially-oriented LSGs, environmentally-oriented LSGs, and combined social and environmental oriented LSGs. Second, interactions between ecovillages and local governments are discussed through the themes invited spaces of citizen participation, invented spaces of citizen participation, and national factors.

4.1 Introducing the Ecovillages Ppauw and IEWAN

Ppauw – Wageningen

The first case is ecovillage Ppauw in Wageningen. Ppauw is located on the eastside of the city of Wageningen about 10 minutes distance from the city center by bike. The ecovillage established itself by squatting an old hospital site, the former hospital of Pieter Pauw (Figure 4). The inhabitants live in caravans, it is a reason why Ppauw inhabitants see the ecovillage as a 'mobile ecovillage'. Ppauw identifies itself as a local cultural incubator in Wageningen. The ecovillage organizes events and workshops for kids, students, companies, and individuals. Additionally, inhabitants love to make music (Ppauw, 2022). When connected to theory of chapter 2, Ppauw is best aligned with characteristics of *invented spaces* of participation, as Ppauw established itself illegally after a demonstration without the 'invitation' of the local government of Wageningen, however, Ppauw always has been transparent in communication and aimed to add societal value via (education in) sustainability lifestyle practices. Ppauw is not formally acknowledged by the local government, however, informally there are relations between ecovillage-inhabitants and officials like special investigations officers and police. While observing the location and characteristics of Ppauw, the first impressions where: the sense of community at breakfast time, the openness of inhabitants towards non-ecovillage inhabitants (including myself), the amount of space and green, a small proportion of 'messiness', and the creative atmosphere.

Figure 4: A view of Ecovillage Ppauw in Wageningen. Organic kitchen garden on the left, communal buildings on the back in the middle, and greenhouse on the right.

IEWAN – Nijmegen

The second case is ecovillage IEWAN in Nijmegen. IEWAN is located on the northside of Nijmegen about 15 minutes from the city center by bike. Since IEWAN is largely built with straw, wood and cob, popularly, it is also called 'Strowijk', meaning 'straw district'. It is considered an apartment complex or -building. The inhabitants live in apartments that are available for adults, seniors, families and young adults (Figure 5). The ecovillage established itself in collaboration with the Municipality of Nijmegen, housing association Gelderland (WBVG), and housing corporation Talis (IEWAN, 2022). As the Municipality of Nijmegen wanted to develop the area of the IEWAN ecovillage location while closely working together with the IEWAN-initiative, theoretically, it was considered to fit best in the description of an *invited space* of citizen participation. IEWAN is exemplarily for sustainable building as the straw building is claimed to be the biggest in the Netherlands, and occasionally used by the Municipality of Nijmegen as manifestation of local sustainability policy (IEWAN, 2022). While observing the location and characteristics of IEWAN, the first impressions where: The quietness (there were not many inhabitants in shared area's), although kindly received by interviewee there was a sense of "privateness" in the complex, the (sub-)urban appearance of the apartment building and neighborhood, lack of space due to location in the middle of a neighborhood, natural constructions and well-maintained garden, tidiness, and shared communal buildings as center of the ecovillage.

Figure 5: A view of Ecovillage IEWAN in Nijmegen. Green roof of communal building on the left, four communal residential groups for young adults in the middle, mixed residential apartments in the right.

4.2 LSGs in Wageningen and Nijmegen

The document and web-analysis showed both the municipalities of Wageningen and Nijmegen have LSGs in their coalition agreement documents. Wageningen has 46 identified LSGs (Appendix 3) and Nijmegen 21 (Appendix 4). However, the way LSGs are presented in the coalition agreement documents differ. The coalition agreement document of Wageningen is mainly presented in bullet points and is categorized into goals, challenges, intentions, and action points, whereas the coalition agreement document of the Municipality of Nijmegen is less structured and more descriptively on the discussed themes. Both coalition agreements emphasize priority on sustainability- and social ambitions, which, as mentioned by an employee of the Municipality of Nijmegen (respondent 5), reflects the predominantly 'politically left oriented' and 'green' coalitions in both municipalities. The coalition agreement documents have similarities as the municipal coalitions of both cities share political preferences, and the coalition agreement documents both mention the cities have universities and a diverse population, however, a significant difference between the coalition agreement documents is that the Nijmegen's coalition agreement document is more opt to 'big city' issues as Nijmegen is roughly five times the size of Wageningen population-wise (CBS, 2022). Examples of this are mentioned challenges like rapid urbanization, lack of space, and livability in city-center (Gemeente Nijmegen, 2022). Nevertheless, during the document analysis and empirical research three themes came forward frequently in both cases: *social-oriented sustainability goals, environmental-oriented sustainability goals, and goals that combine both environmental- and social aspects.*

4.3 Perceptions of Ecovillage Contributions to LSGs

The first two empirical sub-question in this thesis are: (1) *How do Dutch ecovillage-inhabitants think they contribute to local sustainability goals?* And; (2) *How do Dutch local governmental employees think ecovillages contribute to local sustainability goals?* After conducting the interviews with some of the ecovillage inhabitants of Ppauw and IEWAN the overall impression was that inhabitants of both ecovillages and employees of both local governments think the ecovillages contribute to LSGs, however, inhabitants did not specifically know what LSGs were mentioned in the local coalition agreements. The perceptions of ecovillage contributions sometimes align and differ between ecovillage-inhabitants and local governmental employees, this is discussed below.

4.3.1 Perceived Social-Oriented LSG Contributions: Social Safety Net

Both respondents from Ppauw and IEWAN claimed to add societal value in the respective municipalities. In IEWAN the room for guests is sometimes used to provide people in need a place to stay for a short period. For example, refugees and young mothers in a divorce made use of these guest rooms (Respondent 4). IEWAN also has a 'give-away-corner' where residents leave groceries for others (i.e., both ecovillage- and non-ecovillage inhabitants) to take for free (Figure 6). Respondent 4 hereby thinks IEWAN adds value to society, and while he thinks IEWAN contributes to sustainability in general, he was not aware of the actual LSGs mentioned in the coalition agreement document of Nijmegen. However, actions to also take care of people living outside to ecovillage are closely aligned with LSGs in the chapter 'Remaining a Social City' in the Nijmegen coalition agreement. For example, the seventh identified LSG in the document focuses on Nijmegen as inclusive city that is hospitable, tolerant, and where citizens have 'a warm heart' (Appendix 4). Arguably, citizens with a 'warm heart' are not definable, however tolerance and hospitality can be translated into providing refugees a place to stay or giving away free food to people with fewer financial abilities than average. In the case of Wageningen, Respondent 2 mentioned Ppauw functions as a 'safe haven' for him to recover from an addiction. The sustainability-lifestyle, being outside, and mostly the people at Ppauw offered a way out for his unhealthy situation. It provided structure and supported his mental health. Respondent 1 stated that helping people in their process for a sustainable or (spiritual-) transformation is his intention, and he believes this is important in contributing to a sustainable world. The two examples of IEWAN and Ppauw to offer a kind of social safety net are practical and more or less behaviors of the ecovillages. Ulug et al. (2021) approach this as the 'outer-dimension' of sustainability, however, the intrinsic values and beliefs of respondents 1 and 4 to help people from outside the ecovillage, sketch the 'inner' dimension of sustainability and reflects the experiences and values of the two respondents.

The local governmental employees of Wageningen and Nijmegen have overlapping thoughts with ecovillage inhabitants concerning social-oriented LSG contributions of ecovillages. For example, both ecovillage-inhabitants and local-governmental employees in Nijmegen think IEWAN contributes

to social-oriented LSGs by being a textbook example for communal living, and in Wageningen both parties see the mobile homes of Ppauw as a partial solution for the current housing crisis in the Netherlands. However, there are differences in perspectives about the contribution of the ecovillages. As a local governmental employee of the City of Nijmegen stated:

"...But also, in a social sense (i.e., contributions to LSGs), that form of communal living... not only at IEWAN itself... but especially the openness of IEWAN towards the entire neighborhood... with a large common room as beating heart that others (i.e., non-ecovillage inhabitants) can use... It really connects the neighborhood" (Respondent 7, Nijmegen municipal employee).

The perspective the municipal employee takes concerns social contributions at the neighborhood level, whereas the IEWAN-inhabitant stated the ecovillage reaches out to those in need, no matter where they are from, within or beyond neighborhood borders. This example illustrates the differences in the angle taken by local governmental employees in comparison to ecovillage inhabitants that came forward in the interview analysis: it's a structural view on social hospitality in the neighborhood based on social development and cohesion in the city, versus a personal take on social hospitality in the ecovillage. In the case of Wageningen, a similar difference in perspectives on social-oriented LSGs became clear concerning the adjacent asylum center and the refugees that visited Ppauw. Whereas inhabitants of Ppauw where open to visits from refugees next door, and thought some refugees needed a place to slow down and be among other people besides from refugees, the municipality of Wageningen sometimes would forbid these people to come over as it did not fit the integration process (Respondent 2). A clear explanation why it does not fit the integration process was not available. These divergencies relate to different perceptions of sustainability practices like Ulug et al. (2020) argue: Ecovillages sometimes contest mainstream sustainability practices. In their article Ulug et al. (2020) take different perceptions on recycling practices as example, in the cases of Wageningen and Nijmegen it is different perceptions on how to behave social, and indirectly, how to integrate social-oriented LSGs. It can be argued that Ppauw and IEWAN predominantly act within the practical sphere of sustainability transformations as introduced by O'Brien (2018), since their approaches are direct behaviors and actions. For example, in Nijmegen; people in need can receive help through shelter. Whereas the local governments of Wageningen and Nijmegen predominantly act within a political sphere of sustainability transformation and take systems and structures as guideline, for example in Wageningen; (social-) sustainability contributions should fit within the predetermined integration process.

Figure 6: A give-away-corner in the entrance hall of IEWAN with a box of free food.

4.3.2 Perceived Environmental-Oriented LSG Contributions: Water Usage and Sustainable Food Production

Both inhabitants of Ppauw and IEWAN claim to support nature preservation and environmentally friendly developments by the hand of several projects within the ecovillage borders (Respondent 1; Respondent 4). For example, Ppauw planted a food forest and organic garden for food production and soil improvement (Figure 8), and IEWAN installed a halophyte water-filter system to reduce- and re-use water (Figure 7). On paper, these kinds of projects are applauded by local governments as both Wageningen and Nijmegen have environmental related LSGs that support similarities to these projects like the Wageningen LSG to support nature inclusive agriculture, and the Nijmegen LSG that includes sustainable water storage and usage (Appendix 3, Appendix 4). Nevertheless, the 'real' contribution of the halophyte filter is arguable. As a municipal employee (Respondent 6) argues, the filter is not scalable and therefore has little impact on water waste in households in the City of Nijmegen. Additionally, an IEWAN-inhabitant (respondent 4) admitted there were some significant problems with the functioning of the filter. The educational function the halophyte-filter was meant to have in the first place, is therefore less credible.

A similar example occurs in Wageningen, where an organic kitchen garden and food forest functions as 'nature inclusive agriculture' as described in the Wageningen coalition agreement (Appendix 3). However, the scale of the food forest and organic garden are miniscule compared to the rest of the food production by non-organic local farmers in the surrounding area (Respondent 1). Basically, both ecovillages do their best to make as less of an environmental impact as possible (e.g., solar panel installations, water-filter systems, organic food production etc.), nevertheless 'real'

significant contributions to environmental-oriented LSGs in the municipalities are debatable due to their scales of local impact. A local governmental employee in Wageningen stated:

"You can also see that they (i.e., Ppauw-inhabitants) do everything in their power to minimize environmental impacts. I don't know if it has impacts or will have follow-ups, but I do know that there are more and more people who feel the same way" (Respondent 3, communal officer Wageningen Police).

The local environmental impact of these projects in the ecovillages seems to remain small as the organic garden in Ppauw is not sufficient for feeding all inhabitants without external food supply, let alone it can provide more citizens in Wageningen, and the innovative halophyte filter in IEWAN lacks productivity and scalability. Nevertheless, the community officer of Wageningen (Respondent 3) points out an interesting notion, that seemingly an increasing amount of people feel connected to sustainable lifestyles. It seems the impact these ecovillages make rather relate to education, or being an example for a sustainable lifestyle, than assuring measurable environmental impacts.

Figure 7: Halophyte water-filter system in IEWAN. Gray water from IEWAN is filtered via this system and re-used to flush toilets.

Figure 8: Organic kitchen garden for soil improvement and food production in ecovillage Ppauw.

4.3.3 Perceived Combined Social- and Environmental-Oriented Contributions: Education and Sharing

In addition to the belief from the Wageningen community officer that 'more and more people' getting interested in sustainable lifestyles, in both Ppauw and IEWAN, the ecovillage-inhabitants spoke of 'adding societal value' via *education*. In Ppauw, most education is transferred via performances, art installations, and events in- and outside of the ecovillage borders. Examples mentioned by respondent 1 are actions in the city of Wageningen for awareness of climate change and environmental issues, and the value of spaces for creativity and culture in the city of Wageningen. This statement fits the ecovillage characteristics described on their website, and the observations made during the visit of Ppauw. For example, respondent 1 made a mobile solar panel installation in the form of a flower that he brought to events and public spaces to create awareness for sustainability (Figure 9). Both local governments have education as important theme in their coalition agreements (Appendix 3, Appendix 4). For example, LSG 40 in the coalition agreement of Wageningen shows nature preservation- and environmental-oriented education is considered a goal (Appendix 3). Similarly, an IEWAN inhabitant (Respondent 4) also stated the educative role of the ecovillage. Every first Sunday of the month IEWAN organizes an educative tour in their ecovillage where IEWAN promotes a sustainable lifestyle via communal living, and how collective housing projects like IEWAN can be executed and built sustainably with natural resources, in the case of IEWAN that is wood, straw, and mud (Figure 10). The educative role the two ecovillages take are in line with characteristics of ecovillages as described by GEN, that emphasizes ecovillages should take a role in education for sustainable communities, empowering local communities, advance environmental protection, and shifting to sustainable lifestyles (Global Ecovillage Network,

2021). In IEWAN, the inhabitants work in different groups and education is one of the groups, the spokesman of IEWAN emphasized the educative role of the ecovillage and stated:

"Well, it is one of our core values to really come forward as an example for others…the impact is much greater if you can inspire people and that it (i.e., sustainable lifestyle) is imitated" (Respondent 4, IEWAN inhabitant).

This statement illustrates that apart from education, an exemplary role to society is important to IEWAN. The most important message IEWAN wants to transfer toward the rest of the world is the notion *sharing* as a sustainable principle (Respondent 4). Sharing as sustainable principle also comes forward as LSGs in the coalition agreements of Wageningen and Nijmegen (Appendix 3, Appendix 4). Additionally, as a municipal employee of the city of Nijmegen claims (Respondent 6), through the exemplary role IEWAN takes, naturally-build buildings- and wooden constructions have increased throughout the surrounding neighborhoods. Therefore, the educative and exemplary role of IEWAN has physical impacts in the surrounded area. This phenomenon in Nijmegen showcases that ecovillages can be more than just collective settlements that integrate a sustainable lifestyle and can act as drivers for a sustainable movement as argued by Singh et al. (2019). Nevertheless, the perspective of IEWAN as exemplary role differs between de inhabitants and the local-governmental employees. IEWAN predominantly showcase their *sustainable lifestyle* once a month via a tour, which in theory is supported by the Municipality of Nijmegen (Appendix 4). However, although the Nijmegen local-governmental employees support the tours, they explained the ecovillage is predominantly used as small-scale flagship-project for *sustainable building* when international delegations come to Nijmegen (Respondent 6). Naturally, IEWAN also educate and showcase sustainable building (Figure 10), however the emphasis is on a sustainable lifestyle, while the Municipality of Nijmegen emphasizes the sustainable building style instead of a sustainable lifestyle.

Figure 9: A mobile solar panel installation in the form of a flower at Ppauw, also used during events.

Figure 10: A sample of a straw building block used during the construction of the IEWAN apartment complex and showed during the monthly educative tours.

4.4 Enabling and Constraining Factors for Establishing Ecovillages

The third and fourth empirical sub-questions of this thesis are: (3) *How de ecovillage-inhabitants and local-governmental employees experience invited and invented spaces of participation in their municipality?* And; (4) *What do ecovillage-inhabitants and local-governmental employees*

experience as enabling- and/or constraining factors for establishing ecovillages? Although the respondents were not aware of the concepts of invited- and invented spaces of participation, ecovillage-inhabitants clearly explained how municipalities operated, and vice versa. First the invited spaces of participation are discussed, followed by invented spaces of participation.

4.4.1 Invited Spaces of Participation: Public Space Management and Civil-Governmental Interactions

As presumed in the selection of the ecovillages, IEWAN is most likely to operate within invited spaces of citizen participation in comparison to Ppauw. There are some activities at IEWAN confirming this presumption, for example, together with their neighboring apartment complexes, they started a community-based citizen-initiative to take over the control of *public space management* from the Municipality of Nijmegen (Respondent 4). Instead of a "simple short mowed green field" (Respondent 4), now IEWAN shares a wadi with the neighborhood that also functions as playing ground (Figure 11). As Visser et al. (2021) argue, these kinds of citizen-initiatives are bounded to rules given by (local-) authorities, for example, keeping the public space safe and clean. In general, inhabitants of IEWAN experience this opportunity to participate as positive as they increasingly orchestrate the destinations and functioning of their direct living-environment, however difficulties occur as well:

"There was an alderman saying: Great! Just go and do it! (i.e., managing public spaces). But then it still must be accepted by all kinds of officials, and they said: What exactly are you going to do? It is not possible, it is not allowed" (Respondent 4, IEWAN inhabitant).

This example illustrates that although the Municipality of Nijmegen supports and facilitates community-based citizen-initiatives, the experience depends on what kind of local-governmental employee ecovillage-inhabitants are dealing with. Logically the prioritization of such initiatives is not equally distributed in the agendas of local-governmental employees and the 'rules' are not always clear to everyone (i.e., municipal employees) (Respondent 6). Besides, all three local-governmental employees of the City of Nijmegen argued they are dependent on national policies too, and consequently cannot always allow the wanted 'space' for citizen-initiatives. However, according to Miraftab (2004) invited spaces of participation are also characterized as *promoted* and *predetermined* by the concerned governments or institutions. In this case of Nijmegen, on the one hand, it seems hardly any promotion or stimulation took place. Invitations or predeterminations were not mentioned during interviews from both the IEWAN-inhabitant and local-governmental employees of Nijmegen. On the other hand, in the Nijmegen coalition agreement document, LSGs are identified that 'support initiatives' and 'provide places for citizen-initiatives' (Appendix 4). Therefore, there seems to be a gap between policy on paper, and actual policy executions or implementations. Or at the minimum a gap between goals in the coalition agreement, and knowledge of these goals from local-governmental employees in Nijmegen is apparent.

All three interviewed municipal employees of Nijmegen experienced positive collaborations with IEWAN, although none were able to replicate LSGs related to invited spaces of citizen participation. They just talk to each other and see how one can, or cannot, help another. So instead of a predetermined space for citizen participation, a citizen-governmental interaction takes place that can be dynamic: it depends on who is working with whom, and where their priorities lie.

Figure 11: Terrace and wadi/playground in a public space, controlled by the community-based citizen-initiative set-up by IEWAN and surrounding neighbors.

4.4.2 Invented Spaces of Participation: Creativity and Awareness

In the case of Ecovillage Ppauw in Wageningen, an invented space of participation is an adequate description for the way Ppauw puts efforts to add societal value, and how they established themselves. Ppauw squatted the old hospital site illegally, without predetermined or local-governmental approval. As Miraftab (2004) argues, invented spaces of citizen participation are more open to radically different approaches to self-determination as there are no sets of values necessarily predetermined by the government at all: it challenges the status-quo. This is in line with the interviews and observations taken in the case of Wageningen. An inhabitant of Ppauw (Respondent 1) explained his intention is to add societal value through *creative* ways and go beyond the (legal-) opportunities given by authorities. Not for the sake of challenging the status-quo, but rather to *show* and *educate* how a sustainability-lifestyle is possible with little financial abilities and with a fair share of creativity (Respondent 1). It strongly relates to combined environmental and social LSGs wherein education and sharing as sustainable principle are important pillars (Appendix 3). For this reason, the inhabitants of Ppauw agreed to be part of popular tv-shows, such as *Jouw stad, ons dorp,* a show where families change contradicting

homes for a weekend. The goal was to create awareness for roughly 1 million people that watch the show, to see that alternative and sustainable living can be fun. Respondent 1 sees it as his life-task to inspire and help others to change toward a more sustainable lifestyle, including the inner dimension of sustainability that also concerns self-consciousness and spirituality in his opinion. According to the initiator of Ppauw, these values can help find satisfaction in life.

"We even heard from kids: It's no use anymore (I.e., sustainability transformation), and we should all go on a comfortable ride towards apocalypse. Then they come here and find joy. They see how easy and fun it is to do things differently. That's exactly what we try to pass on" (Respondent 1, Ppauw inhabitant).

All the discussed actions arranged by Ppauw to create awareness for a sustainable lifestyle happened from an intrinsic belief to add societal and environmental values: they were not encouraged through any predetermined rules or opportunities from local-governmental parties. However, contradictory to Kersting's (2013) explanation of invented spaces of citizen participation, this does not mean Ppauw always behaves disobedient in relation to the local-governmental forces. There are positive interactions taking place between Ppauw and local-governmental employees like municipal employees, policemen, and civil enforcement officers. These interactions are based on *communication* and *trust* (Respondent 1; Respondent 3). The Wageningen community officer said he has no hard feelings against the squatting of the terrain or the lifestyle the Ppauw inhabitants have, however he does have obligations and rules he works with. Therefore, making agreements and communication is key for a peaceful course of circumstances (Respondent 3). The Ppauw initiator (Respondent 1) thinks similar and trusts some police officers are willing to think along in solutions, instead of blindly focusing on official rules as civil enforcement officers sometimes do in his opinion. These interactions based on trust and communication can be seen as an act that 'sparring partners', as discussed by Leitheiser et al. (2021. However, although Ppauw-inhabitants and local-governmental employees of Wageningen seem to have found a way of coping, there are national policies influencing the abilities of these local coping-mechanisms.

4.4.3 National Factors Influencing Ecovillage Establishment: Land Policy and Tradeoffs
During all interviews with local-governmental employees in both Wageningen and Nijmegen, a certain 'border' or limit of possibilities to support or facilitate the two ecovillages was mentioned due to national policies or other national factors that influence the existence and prosperity of ecovillages. A municipal employee of Nijmegen explained that due to events such as the 2008 financial crisis and the shift of executive power of the Dutch National Government toward local governments, cities must make their financial balance work (Respondent 5). He explains that to keep civil taxes in acceptable proportions, land must be sold to developers. This is in line with Coenradij & Allers' (2017) argument that decisions local-governmental employees make, are heavily influenced by national factors, such as

national laws- and policies that for example forces municipalities to invest in youth-care. In theory municipal employees can be in favor for establishing an ecovillage while not being able to help them establish due to national factors as (land-) politics or financial crises. The flexibility of local-governmental employees can become limited due to these national factors:

"The city's policy is dependent on national policy, which is a bit neoliberal with land policy, developing, and making money as drivers. Everyone is sucked into that system" (Respondent 5, employee Municipality of Nijmegen).

In the case of Nijmegen, the municipality tends to stay ahead of land-developers by buying up a lot of land themselves. This way, Respondent 5 explains, the municipality can make decisions to agree with lesser financial gains for land in return for more control in determining what will be developed. It becomes a tradeoff, more financial gains in the city's treasury versus more societal benefits through spatial control. This local-policy has worked as enabling factor for IEWAN to establish: The City of Nijmegen was owner of the plot, they liked the IEWAN-initiative for their sustainability-oriented ideas, consequently they worked together to establish the ecovillage (Respondent 4). This situation differs from Wageningen where Ppauw, after squatting several locations, have never received plot or something similar owned by the municipality to establish themselves. It is partly the reason why the initiator of Ppauw recently started an initiative to buy land (Vrijland), so land gets out of the 'land-market' circulation (Respondent 1). It seems a neoliberal approach on land policy has become a constraining force over the past decade for ecovillages to establish. However, the (land-) policy of the City of Nijmegen, and the Vrijland initiative from the Ppauw initiator try to contest the developers so projects such as IEWAN and Ppauw can establish themselves.

4.5 Interpretations and Implications of Results

This research was conducted to find out whether ecovillages potentially contribute to LSGs while navigating through invited spaces of participation, and what enabling- and constraining factors occur for ecovillages to thrive a Dutch local governing context. In the sections 4.3 and 4.4 perceptions of potential LSG contributions, and influencing factors for ecovillage to establish, are displayed and discussed from the researched ecovillages'- and local-governmental point of view. Some gaps, contrasts, and overlaps are found. This section discusses if then data and interpretations are adequate to answer to research questions.

4.5.1 Interpretations and Implications from Results of First Part Research Question:

How can ecovillages contribute to local sustainability goals?

While conducting the desk- and empirical research some threads were discovered in the analysis that can be linked to the research questions. The first part of the research question focuses on potential

ecovillage contributions to LSGs. The most of which are combined social/environmental goals, and slightly more related social than environmental goals. These outcomes could imply environmental goals are of lesser importance to municipalities in Wageningen and Nijmegen in comparison to social goals or combined social/environmental goals. However, this is not the case. The interviews revealed that in Wageningen and Nijmegen both ecovillage inhabitants and local-governmental employees see environmental goals as obvious (see sector 4.3.2).

There was no question for the IEWAN-initiative to build as sustainable as possible, it was a core value before the establishment of the ecovillage (Respondent 4). Also, the inhabitant of Ppauw (Respondent 2) told he thinks it is normal to behave as sustainable as possible and to always take environmental impacts into consideration within everyday practices. Additionally, two employees of the Municipality of Nijmegen stated to have solar panels at home, that they sow flowers to help bees, and plan to install a *warmtepomp* (a sustainable heating system) as they simply claim it's the right thing to do (Respondent 5, Respondent 7). So, concerning the interpretations of the answers the respondents gave, sustainability and a sustainable lifestyle was obvious and relevant for all respondents, including the community police officer of Wageningen: no opposes or criticism concerning environmental-oriented goals or policies were mentioned. There was a shared feeling that as citizens and Municipality of Wageningen, and Nijmegen, they support sustainability and are *green* in heart. This attitude and 'feeling' of being a *green* city came forward during interviews in both the cases of Wageningen and Nijmegen. As Respondent 5 mentioned, the cities Utrecht, Wageningen, Nijmegen, Ede are called *the green belt*, as reference to the infamous *bible belt* that consists of a cluster of predominantly Christian inhabitants.

A similar implicit consensus between local-governmental employees and ecovillage inhabitants is apparent concerning social- and combined social-environmental LSGs (see sectors 4.3.1, and 4.3.3). However, there were differences in perspectives in this case: In 4.3.1 a personal versus structural narrative, and in 4.3.3 a sustainable lifestyle versus a natural building narrative. The different approaches and perspectives to social- and combined social- and environmental oriented LSGs may imply a gap between citizens and local-governmental employees concerning the approaches to sustainability contributions. Nevertheless, feelings and statements of consensus between citizens and local governmental employees dominate the feelings and statements of civil-governmental dissensus.

4.5.2 Interpretations and Implications from Results of Second Part Research Question:

What are enabling- or constraining factors for ecovillages to thrive in a Dutch local governing context?

The three themes concerning enabling- and constraining factors for ecovillages to establish themselves in Dutch local-governing context are invited spaces of participation, invented spaces of participation, and Dutch national land policies. In the results section, it became clear ecovillage-inhabitants and local-governmental employees experience their interactions and collaborations as

positive in both Wageningen and Nijmegen. It might implicate citizen-governmental interactions run smoothly in these Municipalities. On the one hand, this implication is correct as both the ecovillage-inhabitants and local-governmental employees that were interviewed share a similar vision on the importance of sustainability issues: they might get along and think in solutions. On the other hand, ecovillage-inhabitants explained that it really depends on who you are dealing with. In the case of Ppauw it is the understanding police officer versus the rule chasing civil enforcement officers (Respondent 1), in the case of IEWAN it is the enthusiastic alderman versus inflexible municipal officials (Respondent 4).

The implications of Dutch national factors that might influence local policies are significant. Local Governments must consider Dutch law and -policy. Nevertheless, as discussed in sector 4.4.3, local governments can be creative in finding opportunities to develop within their control. Besides, it is noteworthy to recall the fact that a new environmental law in the Netherlands is introduced, probably in July 2023, which, in theory, should provide local governments more control in spatial decisions (Rijksoverheid, 2022d). Therefore, the results of sector 4.4.3 ought to be interpreted as contemporary but bearing in mind contextual factors such as national- and local policies in the Netherlands change in the near future.

5. Conclusion, Recommendations, and Reflection

5.1 Conclusion

Collectively, the sub-questions of this research have provided an answer to the twofold-, main research-question: *How can ecovillages contribute to local sustainability goals, and what are enabling- or constraining factors for ecovillages to establish in a Dutch local governing context?* This research adds to Ulug's et al. (2021) call for more research to 'radical' considered initiatives (e.g., Ppauw) for transformations in sustainability-oriented processes. The first part of the main research question, the results, and the findings revealed that ecovillages potentially contribute to LSGs through: (1) providing 'social safety nets' for people in need whether or not beyond neighborhood borders and without significant assistance of local-governments; (2) creating objects, organizing projects and installing systems such as solar panels, halophyte water-filters, and organic gardens, that aim to (re-) generate-, re-use, and provide sustainable energy-, land, water-, and food production, and; (3) education, within the borders of- or outside ecovillage-sites and via tours, events, or other (creative-) ways. The 'spatial and temporal aspect', that is considered important for ecovillages impacts on strategics and (local-) policies according to Singh et al. (2019), is therefore clearly connected to local context. It can be concluded that ecovillages in Wageningen and Nijmegen indeed are contributing to LSGs, mainly through taking a pioneering role in society concerning sustainability-oriented lifestyles and sustainable building. Consequently, this research contributes to a basis for policymakers willing to at least consider ecovillages usage in local planning visions and/or projects for means of a sustainability transformation. For answering the second part of the main research question, it can be concluded that *communication* and *interactions* between ecovillages and local-governments, and national-level *policies* and *laws*, can both enable- and constrain ecovillages to establish themselves. This conclusion derives from the results showing: (1) implicated non-static and dynamic relations between ecovillages (-inhabitants) and local-governments, mainly induced by diverging interpretations and prioritizations for sustainability-related issues, this adds to the call from Kaika (2017) to further investigate civil-governmental differences in approaching policies, and; (2) predominate Dutch neoliberal policies of last decades, resulting in increasing marketization and competition in (available-) land, which Segeren (2007) argues. At the same time, enabling factors for ecovillage to thrive can arise due to these developments as municipalities can take control by buying up land, and compete with land developers. There is a financial cost for municipalities using this strategy, however, this research assumes ecovillages add to LSGs, therefore this tradeoff should be worth considering in local policies. At last, Ppauw was characterized as ecovillage acting within invented spaces of participation, while IEWAN was characterized as ecovillage acting through invited spaces of participation. It can be concluded this presumption is not entirely fitting Miraftab's (2004) and Cornwall's (2004) definitions of the concepts as IEWAN also takes initiatives bottom-up, without predetermined ideas of the City of Nijmegen (e.g., the neighborhood citizen-initiative), and Ppauw also acts within the rules of the City of Wageningen (e.g., obedient to police

instructions). As Leitheiser et al. (2021) argues, the two ecovillages were rather 'sparring partners' with their local governments, making the character of the dynamic between the different parties go beyond the notion of invited- and/or invented spaces of participation.

5.2 Recommendations for Ecovillage-initiators, Policymakers, and Scholars

As result of the conducted research and the conclusions that derived from it, some recommendations can be made for (future-) ecovillage-initiators, (local-) governmental employees, and scholars researching similar- or related research. This research focuses on the potential ecovillage contributions to LSGs, subsequently, as concluded, ecovillages potentially contribute to LSGs in various ways. However, apart from the wooden buildings around IEWAN, the physical impact of contributions is seemingly little, especially environmental-oriented LSG contributions. Besides, as explained in the theory chapter, Horlings (2015) argues the study of sustainability should not be approached as value free but should include values and responsibilities. A logic follow-up would be studying the (local-) impact and scalability more thoroughly concerning these values and responsibilities for greater societal impact. Therefore, the first recommendation is to conduct research focusing on the (societal- and environmental) impact of ecovillage LSG-contributions throughout the Netherlands. Additionally, the theme *education* should receive extra attention as this research showed the educative- and exemplary role ecovillages take is significant. As Ulug et al. (2020), Singh et al. (2019), and Stevens & Kanie (2016) argue, the ecovillage as pioneering citizen-initiative in sustainability transformations is a relevant phenomenon in spatial- and social sciences, and should receive more in depth-, and contextual research to gain (academic-) knowledge for sustainability-related issues. The illustrative quote of respondent 1 on children switching from 'apocalypse doom thinking' into enjoying sustainability-related activities, sketches the potential education can have for future generations.

The second recommendation is to scrutinize different approaches for improving citizen-(local-) governmental communication. As both ecovillage-inhabitants and local-governmental employees were not aware of the specific content of the LSGs, communication and interactions between the two parties concerning sustainability-oriented societal contributions can be vague and open to personal prioritization. A roadmap tool, accessible for both citizens and (local-) governmental employees, customized for sustainability-oriented policies like LSGs, functioning as nexus between citizens (-initiatives) and (local-) governments, is therefore advisable. In potential, this tool enables ecovillages to establish themselves as they can identify their (potential-) contributions, which in turn potentially incentivize local-governments to support/facilitate ecovillages, resulting in expected LSG-contributions, which presumably, in turn is beneficial for local-governments. This tool can be useful as a foundation for "sparring partners" (Appendix 7). As Leitheiser et al. (2021) called for, this way the sparring process goes beyond the concepts of invited versus invented spaces of citizen participation, and rather facilitates both predetermined and/or unsettled interactions, activities, and values.

The third recommendation is to conduct research on local-governmental and citizen-led strategies to contest marketization of land. Dutch land policy constrains ecovillages to establish themselves as land prices are high due to neo liberalization-related developments over the past decades, partially responsible for scarcity in land availability. Like the strategy of the Municipality of Nijmegen and the Ppauw-initiator, buying-up land to subduct land from the market, might increase opportunities for citizen-initiatives like ecovillages as the spatial development of this land is outside the reach of purely profit-oriented parties. The tradeoffs between financial gains and added societal (sustainability-) value of these land should be central in this research.

5.3 Relevance for (Future) Planning

The global SDGs guide nations in sustainable development strategies, and LSGs are to be accomplished by local governments for contributing to these SDGs. The CBS SDG-monitoring report for the Netherlands implies there is room for improvement when looking at challenges concerning SDG 11 Sustainable Cities and Communities (combined environmental- and social- oriented SDG), SDG 15 Life on Land (environmental oriented SDG), and SDG 16 Peace, Justice and strong Institutions (social oriented SDG) (CBS, 2021; UN, 2021). This research contributes to knowledge of these subjects relevant for Dutch planning, as it scrutinizes local-level opportunities for contributing to these SDGs. The context taken in this research, I.e., ecovillages and citizen-(local-)governmental interactions, are relevant for Dutch society and -planning as the new upcoming 'Omgevingswet' (environmental law) indicates increasing relations and collaborations between citizens and local governments in the near future, especially concerning citizen-initiatives that focus on sustainability-oriented spatial projects. Through the scope of invited and invented spaces of citizen participation, this research emphasizes a gap of knowledge by both ecovillage-inhabitants and local-governmental employees concerning LSGs. The wishes of the Dutch Government to build one million new homes as fast as possible to contest the current housing crisis, and to do this as sustainable as possible to meet European-level decisions, implies upcoming tradeoffs between short-term efficiency and long-term sustainability. This research aims to provide knowledge for (local-) governments, (future-) ecovillage initiators, and scholars that focus on citizen-governmental interactions concerning SDGs, and especially LSGs, to cope with the wishes and design of the spatial development of the Netherlands. In the field of planning, and especially Dutch planning, the conclusive insights and recommendations of this research should add to the knowledge gap concerning the implicated upcoming issues related to building one million new homes, and the upcoming 'Omgevingswet' that presumably increases citizen-(local-)governmental relations and interactions.

5.4 Reflections

5.4.1 Research Limitations

There were some limitations in conducting this research. Before outlining the limitations, I recall the ontology of this thesis, as mentioned in chapter 3, which is that I took a relativist perspective in approaching reality in this thesis: There is not one single truth concerning ecovillage contributions to LSGs or enabling- and constraining factors between local governments and ecovillages. I merely aimed to provide a framed contextual approach, relevant for Dutch planning issues.

A first limit of the research is that there is no available procedure that discusses ecovillages and their potential contributions to LSGs in general. The lack of comparable research makes the implications of this research more open to subjective interpretation. Arguably, it fits a relativist approach, however limits replicability for future research.

Second, concerning enabling- and constraining factors between local governments and ecovillages to establish themselves, the themes in the empirical results were partly predetermined because of the desk-research and theoretical framework. The themes were used in interviews as they most frequently came forward in the desk-research and theory sector. Hereby, it is possible that during interviews with ecovillage-inhabitants and local-governmental employees, a certain direction was taken while possibly other enabling- and constraining factors were underrepresented in the answers. This limit is a result of the framing of the research.

Third, the Municipality of Wageningen was not available for interviews. The City of Wageningen is relatively small, and the interviewed police officer has (significant-) ties with the municipality and mayor, however, cannot speak on behalf of them. Interviewing the community police officer was useful as he frequently had to deal with Ppauw-inhabitants and works under jurisdiction of the authority of the public prosecutor and mayor of Wageningen. Nevertheless, the absence of municipal-employees during the interviews of local-governmental employees in Wageningen is a limit in this research as the research aims to add to spatial planning issues in the Netherlands. Consequently, the representation of authorities for local spatial strategies is underrepresented, and arguably the representation of judicial execution overrepresented.

5.4.2 Personal Reflections and Learning Points

After conducting the research there are some learning-points to be mentioned. First, the theoretical framework discusses some aspects that, in hindsight, were not indispensable in answering the main research question. For example, although spheres of transformation, as introduced by O'Brien (2018), were expected to have a more prominent role in the research, the knowledge stayed on the background. Additionally, concerning the theory, after conducting the empirical research, more emphasis and elaboration on literature that focuses on citizen-governmental relations and marketization of land would be wise. The lesson for me is to re-evaluate the design of the study more frequently and check out whether some aspects should receive more, or less attention. Nevertheless, the conceptual

framework supported me throughout the process and functioned as a guideline. The importance of building a logic conceptual model became crystal-clear to me.

Second, concerning the research methodology, on paper it should provide me sufficient data to make a strong argument in answering the main research question. However, the collecting of data appeared to be more difficult in practice. After many calls and emails, I got an email the Municipality of Wageningen officially did not want to cooperate with the research. In hindsight I wonder if my approach has been too aggressive. If a similar situation occurs in the future, I will stop bombing the potential respondents with emails and calls and take a more sophisticated approach that offers an alternative. For example, offering a (small) questionnaire which respondents can answer in their own time.

Third, the results showed that communication between citizens (-initiatives) like ecovillages and local governmental employees is key in understanding interactions between these parties. The Wageningen respondents named trust and familiarity as important factors, whereas in the Nijmegen case, the different personal priorities and beliefs between municipal employees appeared as important. These insights are useful for recommendations as mentioned in sector 5.2, for example a roadmap or tool functioning as interaction nexus between citizen (-initiatives) and local governmental employees. Beforehand writing this thesis, I hoped to contribute to knowledge on civil-governmental interactions. I belief by the hand of the results and conclusions, I contributed to this knowledge gap, especially in a Dutch local-governing context.

Altogether, writing this thesis helped me understand the complex and dynamic nature of civil-governmental interactions. Before conducting the interviews, my presumption was that local-governmental employees would stick to a certain protocol that should make their decisions easy and consistent. However, I found out it is impossible to see 'the municipality' or 'the police' as one entity, and that these organizations consist of employees with personal values, differences, and beliefs. On the same note, this also counts for citizen-initiatives like ecovillages. This realization made me recommend a simple roadmap tool (Appendix 7), that should make this process easier by identifying core values and connect them to LSGs. Nevertheless, I realize a tool like this is at best a catalyst focusing on sustainability-oriented objectives and citizen-participation to contribute to LSGs but can never function as the ultimate consensus tool: personal beliefs, values and priorities will eventually influence the process. Also, it can only be used when the 'sparring partners' both pro-actively reach out to others for achieving their objectives. However, it potentially functions as contribution to ease- and improve the quality of civil-governmental interactions in local spatial issues concerning sustainability-oriented developments, especially to LSGs.

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Appendixes

Appendix 1: Interview guide for ecovillage interviews

Introductie

Bedankt voor uw medewerking met dit interview. Dit interview zal ca. een uur duren. Uw antwoorden helpen mij bij het onderzoek hoe ecodorpen kunnen bijdragen aan lokale duurzaamheidsdoelen en wat verbindende- en beperkende factoren zijn voor ecodorpen om te gedijen in een lokale bestuur context.

- **Toestemming**: Voor we beginnen vraag ik u om het informatieformulier te lezen en het toestemmingsformulier te ondertekenen. U kunt ten alle tijden het interview stoppen of onderbreken en uw antwoorden blijven anoniem voor de lezer van het onderzoek. Vind u het goed dat ik dit **interview opneem** en dat ik later uw antwoorden overtyp?

- Kunt u bevestigen dat u ca. **een uur** de tijd heeft voor dit interview?

Hoofdvragen
Ecodorpen en duurzaamheidsdoelen

1. Ik doe onderzoek naar ecodorpen en ben geïnteresseerd in hoe zij mogelijk bijdragen aan lokale duurzaamheidsdoelen. Hoe denkt u dat ecodorpen in het algemeen kunnen bijdragen aan lokale duurzaamheidsdoelen?

   A. Bent u op de hoogte welke duurzaamheidsdoelen uw gemeente heeft, zo ja, welke vindt u belangrijk?
   B. Hoe denkt uzelf bij te kunnen dragen aan lokale duurzaamheidsdoelen?
   C. Hoe denkt u dat IEWAN/Ppauw bij kan dragen aan lokale duurzaamheidsdoelen?
   D. Wat zou de gemeenten kunnen doen om lokale duurzaamheidsdoelen te kunnen halen?

Verbindende en beperkende factoren voor ecodorpen om te bestaan

2. Naast mogelijke bijdragen van ecodorpen aan lokale duurzaamheidsdoelen, onderzoek ik ook de dynamiek tussen ecodorpen en de gemeenten waarin ze zich bevinden. Zou u mij kunnen vertellen hoe IEWAN/Ppauw wordt opgevangen door de gemeente?

   Invited and invented spaces

3. Wat was de rol van de gemeente in de beginfase van IEWAN/Ppauw?

   A. Hoe is de samenwerking met de gemeente op dit moment?
   B. Geeft de gemeente de mogelijkheid voor IEWAN/Ppauw om te ontwikkelen?
   C. Is IEWAN/Ppauw genoodzaakt om de gemeente te confronteren in hun beleid?
   D. Vindt u dat IEWAN/Ppauw dient als lokaal voorbeeld van duurzame transformatie?
   E. Ervaart u de opties die de gemeente biedt, of heeft geboden, als een verbindende-, of wellicht als beperkende factor voor IEWAN/Ppauw om te kunnen bestaan?

Sociale inbedding van ecodorpen

4. Ik ben ook geïnteresseerd in de mate waarin ecodorpen zich verbinden met de lokale samenleving. Kunt u mij iets vertellen over de maatschappelijke rol van IEWAN/Ppauw in de lokale maatschappij/gemeente?

   A. Wat doet IEWAN/Ppauw om andere burgers bij het project te betrekken?

B. Vindt u dat er meer, of misschien minder, gedaan kan worden op dat vlak?

C. Ervaart u dit als een verbindende, of wellicht als beperkende factor voor IEWAN/Ppauw om te kunnen bestaan?

Communicatie

5. Op welke manier wordt er besluitvorming gevoerd binnen IEWAN/Ppauw?

A. Kunt u mij iets vertellen over hoe u de communicatie binnen IEWAN/Ppauw ervaart?

B. Is er ook sprake van communicatie met de gemeente, zo ja, hoe wordt er gecommuniceerd?

C. Hoe ervaart u de communicatie met de gemeente?

D. Ervaart u dit als een verbindende, of wellicht als beperkende factor voor IEWAN/Ppauw om te kunnen bestaan?

Nationale factoren die bestaan van ecodorpen beïnvloeden

6. Verder kijk ik in mijn onderzoek ook naar wetten en politieke en/of ontwikkelingen op nationaal niveau die betrekking hebben op het bestaan van ecodorpen. Ervaart u nationale ontwikkelingen die invloed hebben op lokaal beleid en de ecodorpen in uw gemeente? Kunt u uw antwoord toelichten?

Afsluiting

- Is er nog iets wat u mij wilt vragen of wilt u graag nog iets toevoegen in dit interview?
- Als u nog vragen heeft over het interview kunt u altijd contact met mij opnemen. Mijn gegevens staan op het informatieformulier.

Hartelijk bedankt voor uw medewerking.

Appendix 2: Interview guide for local-governmental employees

Introductie

Bedankt voor uw medewerking met dit interview. Dit interview zal ca. een uur duren. Uw antwoorden helpen mij bij het onderzoek hoe ecodorpen kunnen bijdragen aan lokale duurzaamheidsdoelen en wat verbindende- en beperkende factoren zijn voor ecodorpen om te gedijen in een lokale bestuur context.

- **Toestemming**: Voor we beginnen vraag ik u om het informatieformulier te lezen en het toestemmingsformulier te ondertekenen. U kunt ten alle tijden het interview stoppen of onderbreken en uw antwoorden blijven anoniem voor de lezer van het onderzoek. Vind u het goed dat ik dit **interview opneem** en dat ik later uw antwoorden overtyp?

- Kunt u bevestigen dat u ca. **een uur** de tijd heeft voor dit interview?

Hoofdvragen
Ecodorpen en duurzaamheidsdoelen

1. Ik doe onderzoek naar ecodorpen en ben geïnteresseerd in hoe zij mogelijk bijdragen aan lokale duurzaamheidsdoelen. Welke duurzaamheidsdoelen vindt u belangrijk binnen uw gemeente?

   A. Op welke manieren draagt de gemeente bij aan lokale duurzaamheidsdoelen?
   B. Hoe denkt u dat ecodorpen in het algemeen kunnen bijdragen aan lokale duurzaamheidsdoelen?
   C. Hoe denkt u dat IEWAN/Ppauw bij kan dragen aan lokale duurzaamheidsdoelen?

Verbindende en beperkende factoren

2. Naast mogelijke bijdragen van ecodorpen aan lokale duurzaamheidsdoelen, onderzoek ik ook de dynamiek tussen ecodorpen en de gemeenten waarin ze zich bevinden. Zou u mij kunnen vertellen hoe de gemeente Nijmegen/Wageningen IEWAN/Ppauw opvangt?

   Invited and invented spaces

3. Wat was de rol van de gemeente in de beginfase van IEWAN/Ppauw?

   A. Hoe is de samenwerking met de IEWAN/Ppauw op dit moment?
   B. Geeft de gemeente de mogelijkheid voor IEWAN/Ppauw om te ontwikkelen?
   C. Heeft IEWAN/Ppauw het gemeentelijke beleid geconfronteerd, zo ja, hoe?
   D. Vindt u dat IEWAN/Ppauw dient als lokaal voorbeeld voor duurzame transformatie?
   E. Ervaart u de opties die de gemeente kan aanbieden aan IEWAN/Ppauw als een verbindende-, of wellicht als een beperkende factor voor IEWAN/Ppauw om te kunnen bestaan?

Sociale inbedding van ecodorpen

4. Ik ben ook geïnteresseerd in de mate waarin ecodorpen zich verbinden met de lokale samenleving. Kunt u mij iets vertellen over de maatschappelijke rol van IEWAN/Ppauw in de lokale maatschappij/gemeente?

   A. Wat doet IEWAN/Ppauw om andere burgers bij het project te betrekken en heeft de gemeente hier een rol in?
   B. Vindt u dat er meer, of misschien minder, gedaan kan worden op dat vlak?

C. Ervaart u de maatschappelijke rol van IEWAN/Ppauw in de gemeente als een verbindende-, of wellicht als een beperkende factor voor IEWAN/Ppauw om te kunnen blijven bestaan?

Communicatie

5. Kunt u mij iets vertellen over hoe er wordt gecommuniceerd met IEWAN/Ppauw?

    A. Hoe ervaart u de communicatie tussen met IEWAN/Ppauw?
    B. Ervaart u de communicatie als een verbindende-, of wellicht als een beperkende factor voor IEWAN/Ppauw om te kunnen bestaan?

Nationale factoren die bestaan van ecodorpen beïnvloeden

6. Verder kijk ik in mijn onderzoek ook naar wetten en/of politieke ontwikkelingen op nationaal niveau die betrekking hebben op het bestaan van ecodorpen. Ervaart u nationale ontwikkelingen die invloed hebben op lokaal beleid en de ecodorpen in uw gemeente? Kunt u mij daar meer over vertellen waarom wel of niet?

Afsluiting

-   Is er nog iets wat u mij wilt vragen of wilt u graag nog iets toevoegen in dit interview?
-   Als u nog vragen heeft over het interview kunt u altijd contact met mij opnemen. Mijn gegevens staan op het informatieformulier.

Hartelijk bedankt voor uw medewerking.

Appendix 3: Identified LSGs of Municipality of Wageningen

All goals are identified and translated from the coaltion agreement document "Een nieuw perspectief, Duurzame verandering voor elkaar"

Chapter	Local sustainability goals	LSG.) – Label (Environmental, social, combined)
1. Quality of life	1.) The health benefits of greenery, exercise, healthy food, and culture as important medicine and translate it into a range of concrete activities (p. 9). 2.) Reducing the large health differences between groups and actively and structurally solving welfare problems caused by poverty (p. 9).	1.) – Combined 2.) – Social
2. Social climate-neutral	3.) The green economy is strengthened. Climate ambitions create new jobs, we encourage local entrepreneurs to make a switch to new economic opportunities (p. 12). 4.) The municipality sets a good example by making municipal real estate more sustainable (p. 12). 5.) We involve everyone; financial support where financing is a bottleneck: funds and loans to make homes and businesses more sustainable (p. 12). 6.) Commitment to a combination of sustainable forms of generation, including solar panels, wind turbines, geothermal energy, and innovative solutions such as energy from plants and the Rhine (p. 12) 7.) Offer residents of Wageningen the opportunity to participate in large-scale energy projects (via local energy cooperatives). 8.) Two 'Neighbourhoods of the future' are added every year (getting rid of gas, but at the same time looking at green/climate adaptation, solar energy; and realizing this in combination with other works, such as sewerage). No gas connections in new construction (p. 12). 9.) Wherever possible, solar panels/collectors are installed on roofs (p.12). 10.) Further strengthen Wageningen Works Sustainably and Wageningen Lives Sustainably (p. 12). 11.) Updating climate neutral roadmap: what do we want and need to have achieved in 2022-2026 in order to be climate neutral in 2030, when it comes to energy saving, sustainable generation, gas-free	3.) – Social 4.) – Combined 5.) – Combined 6.) – Environmental 7.) – Combined 8.) – Environmental 9.) – Environmental 10.) – Social 11.) – Environmental 12.) – Environmental 13.) – Combined 14.) – Combined 15.) – Environmental

		neighborhoods and mobility? (p. 12). 12.) Investigate where wind turbines are possible and desirable and draw up a spatial assessment framework for sustainable energy generation (p. 13). 13.) Making current homes more sustainable is handled per neighborhood or street. **Residents are actively approached**, and options are presented to them. In the context of the energy transition, it is good to ensure energy storage and generation together with residents (p. 13). 14.) Provide sufficient greenery and water in the neighborhoods to combat heat stress, create a healthy living environment, and facilitate walks with benches to rest and socialize (p. 13). 15.) Focus on climate-controlled roofs, either: insulated, equipped with solar panels, boiler or green (p. 13).	
3.	Economics: circular and social	16.) Developing a vision for Economy 2030: Circular, social, and entrepreneurial, including a clear definition of the role of the municipality, a concrete implementation program and financial translation, so that it becomes clear how circular and social entrepreneurship in Wageningen can be strengthened (p. 14). 17.) Forming a driving team for the circular and social economy (p. 14). 18.) Reducing income differences, but above all increasing participation opportunities. Make sure everyone comes along (p. 14). 19.) From benefits to basic income. We aim for a healthy balance between leisure, care and work and would like to experiment with this (p. 14). 20.) The municipality is setting a good example. Besides, implements circular procurement as a standard, also encourage other parties (p. 14) 21.) Number of pilot projects to kickstart the circular and social economy, for example a job plan with entrepreneurs, converting short chains and industrial waste into raw materials, a pilot with industry and at the port (p. 15).	16.) – Combined 17.) – Combined 18.) – Social 19.) – Social 20.) – Combined 21.) – Combined
4.	Food	22.) Using Wageningen as a living testing ground: Together Against Food Waste, such as, for example, the 'Waste' at the Jumbo (grocery store) (p. 16). 23.) One or more projects to reduce health differences in the city by means of food (education), such as school fruit, hot meals	22.) – Social 23.) – Social 24.) – Combined 25.) – Social

	at school or subsidy for childcare and schools for school garden education (p. 17). 24.) Bringing parties and knowledge together to stimulate short chains and affordable local products. Pilots for short chains of farmers, supermarkets, and consumers, using Noord-Veluwe as an example. Purchasing with local and regional suppliers (p. 17). 25.) Awareness campaigns aimed at consumers and producers. Food education for children so that they learn the value of food at a young age (p. 17).	
5. Livelihood and neighborhoods	26.) There will be an experimental space for modern tiny houses (p. 19). 27.) Building for encounters (living in courtyards), for young people and for the elderly. Because more and more people live on their own and still want to have something in common. Not only shared wheelie bins, but also a shared courtyard garden, joint heat pump system, shared shed/laundry room (p. 19).	26.) – Social 27.) – Combined
6. Nature and landscape	28.) Nature-inclusive development: In all (spatial) plans, nature/greenery/ecology is included in the planning from the start (p. 20). 29.) No new urbanization in the outlying area. The boundary lies with existing buildings and developments; beyond that, only developments are possible that strengthen the landscape and that fit within the vision for the countryside yet to be drawn up ('no, unless' principle). Where possible, around built-up areas a green zone, 'the green urban fringe', which forms a natural border between the city and the countryside, and which is an outlet area for Wageningen residents (p. 20). 30.) Appreciating and facilitating green volunteers, green organizations, and input from society (p. 20). 31.) Drawing up the nature and landscape vision for the rural area, in which connection is sought with the Green Policy Plan, both substantively and spatially, so that the green connections between city and rural areas are strengthened, both ecologically and recreationally. Connections are also being sought with other policy areas, such as recreation and tourism, climate, food, health, mobility, etc. (p. 20). 32.) We are working together with residents, companies, experts, knowledge institutes and (large) landowners (including	28.) – Environmental 29.) – Combined 30.) – Social 31.) – Combined 32.) – Combined 33.) – Environmental 34.) – Environmental 35.) – Social 36.) – Combined

		Wageningen UR, Staatsbosbeheer, Rijkswaterstaat) and the municipality to restore biodiversity (drawing up a 'biodiversity pact') (p. 20). 33.) There will be a spatial assessment framework for sustainable energy generation (wind and solar), so that it is clear at which locations and under what conditions sustainable energy can be generated, whereby a good landscape integration is an important aspect. We are starting a 'green for green' pilot, in which interventions for sustainable energy generation are not only integrated into the landscape but are also compensated at another location in Wageningen (p. 20). 34.) Nature-inclusive agriculture: our food policy also pays attention to the impact on nature and landscape, both globally and locally (p. 21). 35.) Enforcement on illegal activities that harm nature and prioritize it. Involve inhabitants in nature and landscape preventive work (p. 21). 36.) Sufficient budget and specific expertise to realize ambitions, including a urban ecologist and landscape coordinator, because the above challenges require a different way of thinking and thus collaboration in various fields is promoted, within the municipality, with surrounding municipalities, province(s), residents and companies/organizations (p. 21).	
7.	Sustainable mobility	37.) For the Better Accessible Wageningen file, we depend on the province, which is preparing an integration plan. We follow the province in that process critical, and we are keen on Wageningen's interests, the quality of life for people and nature. In the meantime, in collaboration with the region and the province, on concrete measures to tackle the problem of mobility (growth) limit, such as improving the Droevendaalsesteeg roundabout, setting up mobility management on the Campus and the rest of the city, and improving the bicycle routes - including the bicycle routes to/from the Campus - so that the bicycle has an alternative to the car (p. 23). 38.) Consult with the province to get started with the motion on the earlier tackling the access to the Campus from Mansholtlaan which the	37.) – Combined 38.) – Combined

	accessibility of the main entrance of the Campus and Born Oost will be improved, with the expectation that the slight congestion during rush hour for this will be resolved and sufficiently limited for the future (p. 23).	
8. Education	39.) School buildings are built future-proof with a broader view than just housing for schools (also flexibly usable for other groups inhabitants). Stimulate schools become meeting places for the neighborhood (p. 24). 40.) Good education is the foundation: preserving nature and environmental education (p. 24). 41.) Sustainability/climate neutral in 2030: schools shouldn't have budgets spend on the energy bill but on good education: There is a program for making housing more sustainable in the current budget. Plan to schools achieve energy neutral 2030 by accelerating the current sustainability programme (p. 24). 42.) Continuing (and where possible strengthening) green schoolyards (including through commitment vouchers). Not only looking at the schoolyard, but also looking at green play areas for children the borader district / neighborhood (p. 24). 43.) Deployment of the Wageningen schools as a Living Lab: in the field of food, among other things (possibility of providing healthy, hot meals in the neighborhoods). Education can be linked more to green, climate, health, technology, sport and culture. We do this together with the Green Wheel, ROC Rhine IJssel, WUR, W12, etc. (p. 25).	39.) – Social 40.) – Social 41.) – Combined 42.) – Combined 43.) – Social
9. Culture	44.) Inviting artists when it comes to creating innovative ideas and solutions concerning sustainability (p. 27).	44.) – Social
10. Finances	46.) Deploy the right to challenge in as many areas as possible, including sustainability, and draw attention a more active attitude. The proposals arising from this are considered in full, so that other policy intentions are not affected (p. 29).	45.) – x (Deleted after 2nd identification assessment) 46.) – Social

Appendix 4: Identified LSGs of Municipality of Nijmegen

All goals are identified and translated from the coalition agreement document: Coalitieakkoord 'Nijmegen: Samen Vooruit' (Gemeente Nijmegen, 2022).

Chapter	Local sustainability goals	LSG.) – Label: Environmental, social, combined.
1. The City must be more Sustainable	1). Every year we start a process in two districts to make these gas-free. At the end of our coalition period, we started this in eight neighborhoods (p. 6). 2). We make agreements with housing associations, so the sale of rental housing does not adversely affect sustainability of the neighborhood; we capture this in the performance agreements (p. 6) 3.) We want to improve air quality throughout the city → reduction soot/black smoke of 40% in 2022 in comparison to 2014 (p. 7). 4.) We are fully committed to wind energy and support initiatives related to the generation of clean energy. In the city, we find space for solar energy mainly on the roofs of houses and businesses. We are committed to using all large-scale new development to generate solar energy, where possible in combination with green areas and water storage (p. 7). 5.) We stimulate sustainable behavior. In neighborhoods where households often use two cars, we challenge developers and corporations to develop facilities with us encouraging these households to use their second car as a shared car (p. 8).	1.) – Combined 2.) – Combined 3.) – Environmental 4.) – Environmental 5.) – Combined
2. Remain a Social City	6.) Healthcare reform. This new working method should lead to more inclusive, collective solutions and less bureaucracy, waiting lists and shortages (p. 10). 7.) We are an inclusive city. Not just because we make careful choices in our social domain, also because we are hospitable and tolerant. Nijmegen residents have a warm heart. We embrace the initiative 'Nijmegen city of compassion' and the principles they adopt, and various initiators are articulated (p. 12). 8.) We strive for a smoke-free generation. We are work in the context of 'green, healthy and in motion' (p. 12). 9.) We strive to ensure that poverty alleviation becomes more sustainable and appropriate (p. 13). 10.) The current bus subscription for all over-65s will be converted to a bus subscription for everyone with a lower income (up to 130%	6.) – Social 7.) – Social 8.) – Social 9.) – Social 10.) – Social

		social assistance standard) for unlimited travel on the bus during off-peak hours (p. 14).	
3.	Enforce Economic Resilience	11.) Execution agenda for promising economic sectors: logistics and water bound water-related activities, circular economy, and leisure economy including tourism and inner city (p. 16). 12.) We offer arrangements for employers to hire someone for three years or longer, in combination with smarter use of wage cost subsidies and a retraining programme. Based on major challenges and opportunities ahead, such as the energy transition and the demand for suitable personnel in, for example, care, technology and logistics, are proactively developed in arrangements (p.17).	11.) – Combined 12.) – Combined 13.) – *x (Deleted after 2nd identification assessment)* 14.) – *x (Deleted after 2nd identification assessment)*
4.	Building on Attractive City	15.) In Nijmegen there is room for innovative housing concepts. Think DIY, communal living, various target groups together, and so on. We want to provide various places with space for residents' own initiative, with support from the municipality (p. 19). 16.) The development of node 38 (Knoop 38) offers opportunities to create employment, to stimulate sustainable transport and to be able to develop the De Grift business park in the long term (p. 22). 17.) The community centers are primarily intended for residents. We would like to see the accommodations can be used more efficiently. We plea for multifunctionality and more work-spaces (p. 23). 18.) We make the residential streets green and sustainable by turning it into cobblestone streets make and combine it big maintenance with the refurbishment of walking- and cycling routes (p. 24). 19.) We will continue to add parks and green areas to the city. We have at the the layout of this takes into account the use of the greenery and the ecological value p. 24). 20.) We want to reach out to residents realize that they also have a task in keeping their own neighborhood clean. We will also continue to support residents' initiatives such as the neighborhood heroes and residents' initiatives for a clean city (p. 24). 21.) During this coalition period, we want to ensure that the buses disappear from the Burchtstraat. This creates space for refurbishment and more space for greenery and pleasant stay (p. 24).	15.) – Social 16.) – Environmental 17.) – Social 18.) – Combined 19.) – Environmental 20.) – Combined 21.) – Environmental

5. Modern Government	No LSGs are identified. This chapter describes how future policy will look like, however no goals are mentioned.	

Informatieformulier

Ontzettend bedankt dat u mee wilt doen met dit onderzoek. Dit informatieformulier legt uit waar het onderzoek over gaat en hoe u er aan deel kan nemen.

Het doel van dit onderzoek is om wetenschappelijke kennis te verschaffen over potentiële bijdragen van ecodorpen aan lokale duurzaamheidsdoelen. Daarnaast is het doel een beter begrip te bieden wat betreft de verbindende- en beperkende factoren om ecodorpen succesvol te verankeren in het lokale bestuur-milieu. Dit houdt in dat er wordt gekeken naar het (lokale-) beleid dat betrekking heeft op Duurzame Ontwikkelingsdoelen en het mogelijk maken van ecodorpen. Daarnaast wordt gekeken naar hoe de communicatie verloopt tussen de betrokken partijen zoals initiatiefnemers van ecodorpen, medewerkers van gemeenten en eventueel andere relevante betrokkenen.

Om uw mening te krijgen willen we u graag interviewen. Het interview zal ongeveer een uur duren en wordt opgenomen via geluidsopname. De informatie die door u wordt voorzien zal worden gebruikt voor onderzoeksdoeleinden. Het zal niet worden gebruikt op een manier die identificatie van uw individuele antwoorden mogelijk maakt. Kortom, u blijft anoniem voor iedereen buiten het onderzoeksproject.

Het onderzoek is goedgekeurd door de Rijksuniversiteit Groningen.

Nogmaals, ontzettend bedankt voor uw deelname aan dit onderzoek. U draagt hierdoor bij aan kennis op het gebied van ruimtelijke wetenschappen. Mocht u nog vragen hebben over het onderzoek, in welke fase dan ook, twijfel dan niet om contact op te nemen.

Thomas van Oijen

Mobiel: Deleted for privacy reasons, was visible to respondents

Email: t.van.oijen.1@student.rug.nl

Toestemmingsformulier

- Ik, de ondergetekende, heb het informatieformulier gelezen en begrepen.

- Ik heb de mogelijkheid gekregen om vragen te stellen over het onderzoek.

- Ik begrijp dat mijn interview is opgenomen.

- Ik heb de tijd gekregen om te bedenken of ik mee wilde doen aan het onderzoek.

- Ik begrijp dat mijn persoonlijke gegevens zoals naam en adres niet worden verstrekt aan personen buiten het onderzoeksproject.

- Ik begrijp dat mijn woorden kunnen worden geciteerd in publicaties, rapporten, webpagina's en andere onderzoeksresultaten, maar mijn naam zal niet worden gebruikt.

- Ik ga ermee akkoord het auteursrecht dat ik bezit op mijn materiaal met betrekking tot dit project over te dragen aan Thomas van Oijen.

- Ik begrijp dat ik ten allen tijden kan afzien van het onderzoek zonder verdere gevolgen.
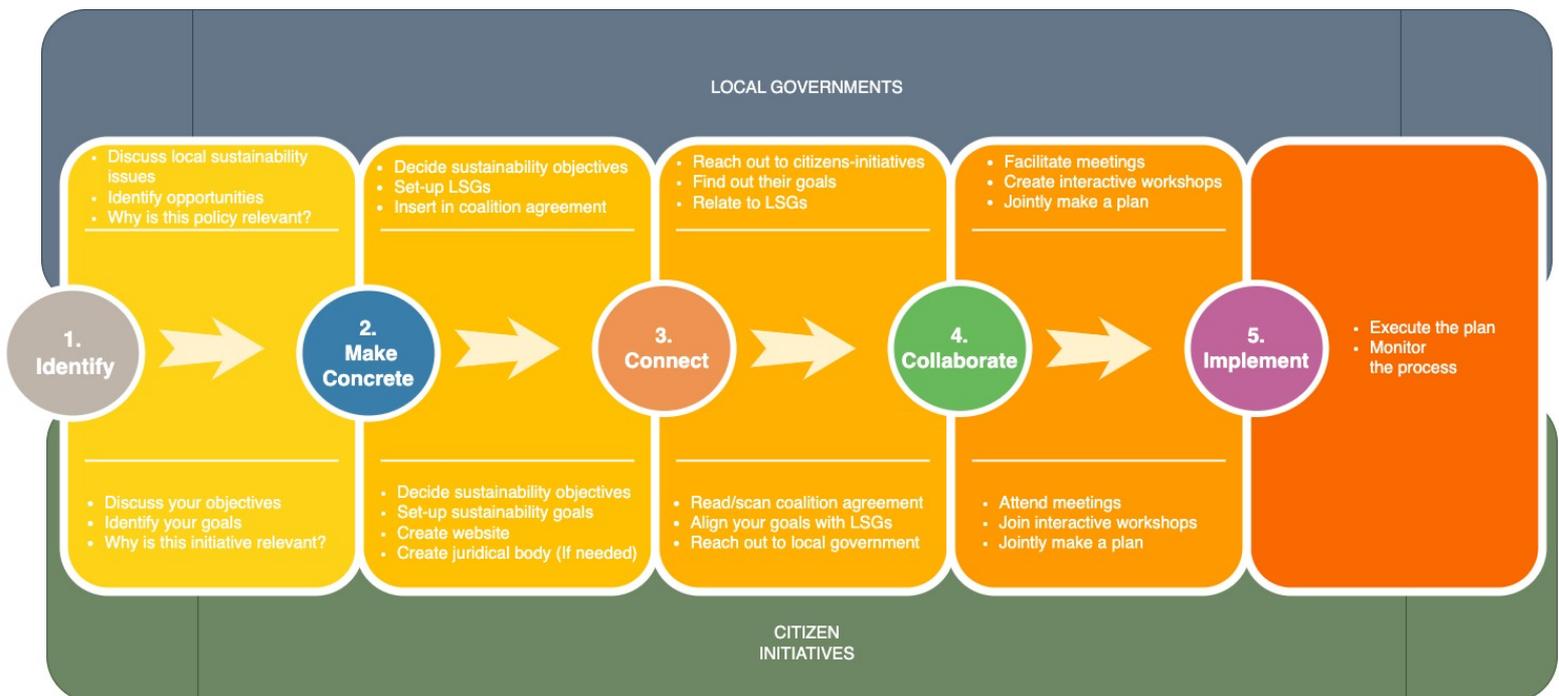
Naam van participant: _____

Datum: __ __ - __ __ - __ __ __ __

Handtekening onderzoeker: _____

Datum: __ __ - __ __ - __ __ __ __

Appendix 7: Roadmap tool

Roadmap tool for local governments and citizen initiatives.

The tool consists of five phases that might help to improve the efficiency of interactions between local governments and citizen-initiatives in order to manifest sustainability-oriented objectives and goals. The bullet points are based on interviews with both ecovillage-inhabitants and local governmental employees.

Download link:

https://drive.google.com/file/d/1pnawyvjqDz5MrfWgARcTEmvrTuKX1mXY/view?usp=sharing