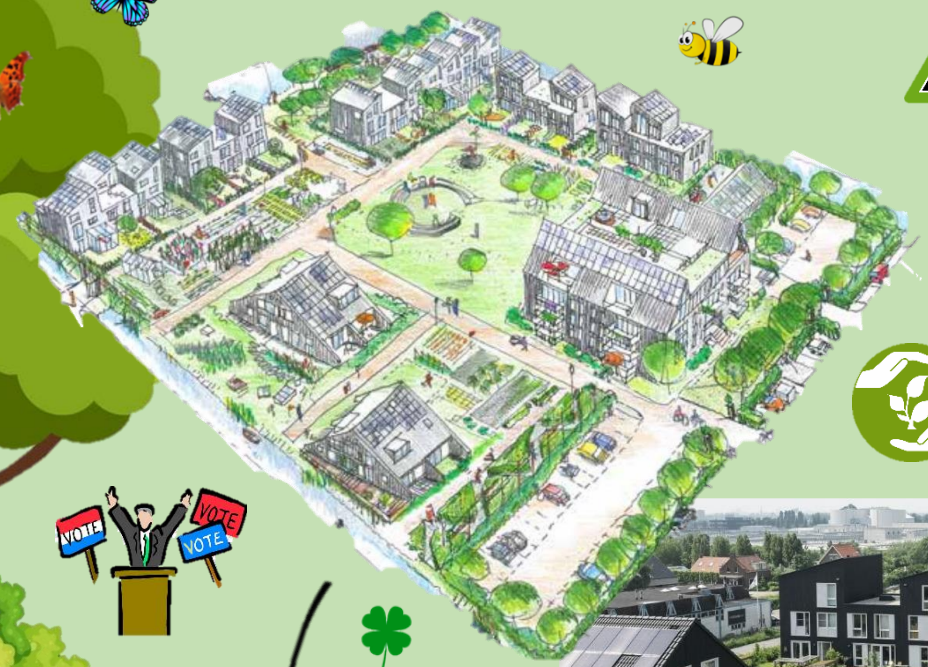
Creating Space for Sustainable Communities

Exploring the affect of a municipality's willingness and ability to realize eco self-build community housing in the Netherlands



Author	*Robert Arie Adrianus (R.A.A.) den Boer*
Student number	*S5023882*
Master programme	*Society, Sustainability & Planning*
Place	*Uithuizen (Groningen)*
Date	*January 6th, 2023*

rijksuniversiteit groningen

gemeente Het Hogeland

Master Thesis R.A.A. den Boer
Creating Space for Sustainable Communities

Exploring the affect of a municipality's willingness and ability to realize eco self-build community housing in the Netherlands

Author	Robert Arie Adrianus (R.A.A.) den Boer
Student number	S5023882
Master's programme	Society, Sustainability & Planning
Date	6th of January, 2023
Version	Final
Number of words	20.894 (introduction-references exclusive tables, figures and footnotes)
Personal email	robertdb2806@gmail.com
University email	r.a.a.den.boer@student.rug.nl (expires upon termination of Master)

University of Groningen

Faculty	Spatial Sciences
Instructing party	Municipality of Het Hogeland
Supervisor	Dr. Elen-Maarja Trell-Zuidema
Address general	Postbus 72 9700 AB Groningen Netherlands
Address faculty	Landleven 1 9747 AD Groningen Netherlands

Municipality of Het Hogeland

Supervisor	Ir. Gerben Kleiman
Department	Beleid Ruimtelijke Ordening
Address	Hoofdstraat-West 1 9980 AA te Uithuizen Netherlands

Pictures front page: CPC-project Geworteld Wonen in Rijswijk (Inbo, n.d.)

rijksuniversiteit groningen

gemeente Het Hogeland

Acknowledgements

I became acquainted with the contract form Collective Private Commissioning (CPC) a few years ago through several projects that, I felt, contributed greatly to issues surrounding self-sufficiency, climate adaptation and mitigation, biodiversity, and making a living space that provides happiness. The first CPC-project I visited was *Geworteld Wonen* in Rijswijk and I am pleased to incorporate this as a case in this thesis. Those CPC-projects were an inspiration both for how I would like to live in the future, and the direction that I wished my thesis to take. However, my search for an appropriate research question led me to discover that my perception of CPC was too optimistic. In particular, I discovered that the choice for CPC was often informed by economic rather than sustainability motives. The idea of sustainable housing was not as natural a fit with CPC as I would have liked to believe. Regardless, there are certainly opportunities to combine the two concepts, and that perceived potential propelled me forward.

Whether or not everyone must live in a highly natural environment through CPC is besides the point; it matters that the opportunity exists, or comes into existence through this study, for those who desire to do so. It matters that they are not restricted by 'standard' construction work, or by neighbors whose vision on housing is different. In short, it matters that those who wish to take strides towards living sustainably and in touch with nature are given the chance to do so by, which is collectively possible by CPC. Eco self-build community housing is a new concept in the field of spatial planning and design. Therefore, little practical distinction is drawn between housing types that give priority to sustainability. As such, much of the time that went into this study was devoted to finding a good term for (environmentally) sustainable and communal living that is internationally recognized. Furthermore, I combined this study with an internship. Bringing academic and practical issues together was harder than I thought, but in the end, this study was strengthened by its grounding in, and therefore usefulness to, both the academic and the practical sphere. Personally, I expected initiators to be eager to share their story or share their struggles in the ESBCH-process. This turned out not to be the case, partly due to the requirement that the interviews would be recorded. For additional research, when interviewing is possible, information is included in appendix VIII.

This was my first thesis at the research university, and it has taught me not to spend undue time and effort on particular questions if current literature is unable to provide an answer to it. I also strongly feel that this study has taught me to produce a truly academic work of writing, rather than a thesis at the level of the university of applied sciences. Gerben Kleiman and Huub Emons of the municipality of Het Hogeland have provided me with the insights and knowledge on the municipality's perspective on sustainability – not only in a general sense, but also particularly what makes it so difficult to strive for quality in sustainability, and the difficulties that political choices at the national level create for the functioning of a municipality. Municipalities Het Hogeland and Rijswijk have also made ardently clear that the housing market can never provide 100% of housing, and that the national housing policy of the past years has instigated the housing crisis through board choices, which, as a side effect, reduced the available (economic) opportunities for CPC-projects today. This all makes municipal facilitation necessary to provide diversified housing that does not correspond to the highest societal demand.

Moreover, I would like to thank Elen-Maarja Trell-Zuidema for guiding me towards a highly academic thesis and all the respondents of this thesis for being part of this study, because it has led me to truly innovative and insightful results. After this study, as before, I shall remain a staunch supporter of creating space for sustainable communities, but I acknowledge that the mechanics of the housing market will likely raise the prices of such unique housing for subsequent inhabitants. The housing market, too, must realize that green and sustainable living results in higher profits, just as water does, instead of facing it from a financial perspective. Despite the demand, ESBCH is and will probably stay a niche building method in the Netherlands due to the long-term concession-making process. Additionally, I am personally convinced that sustainable housing should be available for every budget. The fact that governmental support was necessary to build the ESBCH-dwellings of the project *Geworteld Wonen* makes me feel ambivalent towards the dwellings being sold for market-value after the first residents moved out. The price of the ground-level home demonstrated that housing in this ESBCH-project is not accessible to everyone's budget. Noticing this, I recommend that attention to the accessibility of forms of housing is necessary to prevent sustainable and collective housing in a highly green environment being not available for everyone.

I have experienced the Master's programme of Society, Sustainability and Planning (SSP) at the University of Groningen as very inspiring, instructive and challenging and I conclude this program with this master thesis. On the Graduate Research Day I presented my poster, which was the winning poster and is included in appendix I.

I still would love to live in an ESBCH-project. However, with the information gained by this study, I would rather join a (nearly) completed ESBCH-project than participating in the entire process taking many years.

Have fun exploring the world of Eco Self-Build Community Housing!

Robert Arie Adrianus den Boer

Signature:

Date: 6th of January, 2023

Photo author in front of the Duisenberg building at campus Zernike in Groningen

Abstract

Eco communities may help meet the United Nations' Sustainable Development Goals and the CO_2 reduction aims of the Dutch Climate Act. To create eco communities/eco-housing, Collective Private Commissioning (CPC) as contract form could be relevant, since self-build housing initiatives have the potential to be more sustainable than the large-scale housing development dominant in the Netherlands today. Simultaneously, self-build enables to create eco communities for less financial investment. Today, the number of eco self-build community housing (ESBCH) projects in the Netherlands is limited and their numbers vary by municipality, ranging from zero to multiple projects. This thesis aimed to explore the influence of a municipality's willingness and ability on the realization of ESBCH in the Netherlands. To do this, a literature study and two case studies are conducted by using interviews. The cases are the successfully realized project *Geworteld Wonen* in Rijswijk, and the anticipated but challenging development of *De Kleine Plantage* in Het Hogeland. This study's results show the municipality can have a key role in facilitating the realization of ESBCH by, for instance, applying a leasehold construction and an active land exploitation. This connects to a municipality's willingness to realize ESBCH. However, the Dutch financial situation nationally has a considerable effect on realizing ESBCH, because it affects the land prices and material prices. That affects a municipality's ability to realize ESBCH. The municipal opportunities, limitations and motivations compared make Rijswijk score relatively high on willingness and ability and Het Hogeland relatively low.

Concluding, a municipality's willingness and ability to realize ESBCH-projects does contribute to the differences in realized ESBCH-projects per Dutch municipality. This study's results on ESBCH are largely in line with previous research on elements affecting the realization of CPC, which most ESBCH-projects use, like the municipality's land position. However, the city council's actions play a larger role in realizing ESBCH than showed by previous research. Moreover, ESBCH can contribute to municipal status and achieving sustainability goals. This study adds knowledge to the field of eco-housing and spatial planning by indicating possibilities for municipalities to stimulate ESBCH. The thesis recommends focusing more on the initiators' side in follow-up research to illustrate which values and interests correspond to the municipality and which do not.

Keywords: collaborative housing, Collective Private Commissioning (CPC), eco-housing, Eco Self-Build Community Housing (ESBCH) municipal willingness and ability, sustainable housing, self-build housing

Table of contents

List of abbreviations

CE	Circular Economy
CSBH	Collaborative Self-Build Housing
DEA	Dutch Enterprise Agency
ESBCH	Eco Self-Build Community Housing
ES	Environmental Sustainability
GEN-NL	Global Ecovillage Network Nederland
GHG	Greenhouse Gas
Ibid	Ibidem, which means: used the same source as referred to above
MGA	Mutual Gains Approach
SBH	Self-Build Housing
SDG	Sustainable Development Goals
UN	United Nations
VNG	Vereniging van Nederlandse Gemeenten: Association of Dutch municipalities
VROM	(Ministry of) Housing, Spatial Planning & Environmental Management

List of tables

List of figures

1. Introduction

1.1 Relevance: background & problem definition

Greenhouse gas (GHG) emissions of human activities have caused unprecedented global warming, which results in increased droughts, floods, water shortages and heat stress (IPCC, 2021). Therefore, there is a worldwide need to transform society into a more sustainable one (Sterlin et al., 2020; Von Wirth et al., 2019), which includes the way housing projects are developed (Zamora-Polo & Sanchez-Martini, 2019). In 2020, households emitted 9,1% of the total 165,6 megatons CO_2 emissions in the Netherlands (PBL, 2021; OSJ, 2022). The Dutch Climate Law obligates a 49% CO_2 reduction by 2030 and a 95% CO_2 reduction by 2050 (Rijksoverheid/National Dutch Government, 2022). Moreover, by living more in harmony with the environment, humanity is able to meet the United Nations' Sustainable Development Goals (SDGs), stay within the limit of the 2015 climate agreement of Paris and comply with the 2030 sustainability agenda (Zhenmin & Espinova, 2019; Sterling et al., 2020). However, every climate change conference, like COP27 in Egypt November 2022, highlights the importance to take more action to not let the global temperature rise beyond 1.5C degrees to prevent devastating effects of droughts, floods, water shortages and heat stress (ANP, 2022). Every sector must contribute to meet the CO_2 reduction levels.

Eco developments and planning are preferred responses to the challenges of sustainable development (Bibri & Krogstie, 2020) as housing plays a significant role in living a sustainable life, which can either facilitate or challenge sustainable living (Adamec et al., 2021; Friesenecker & Cucca, 2021). Eco-housing is a form of sustainable housing that facilitates living a sustainable life (Ibid), which focusses on building and living in a house that has as minor impact as possible on the environment by meeting five standards. These are: using natural materials, being energy-efficient, using renewable energy, waste disposal through biological processing and using regional materials (Alajmi, 2021; Singh et al., 2022; Semenyuk et al., 2018). Thus, eco-housing can contribute to reducing the CO_2 emissions. Monahan (2013) found that eco-housing generated significant savings of CO_2 emissions compared to conventional housing. Ecovillages in the US achieved 47–80% reductions in environmental impact than a general US resident and made a 63%-71% reduction in carbon emissions compared to the country's average (Sherry, 2019). Moes et al (2006) used the ecological footprint and concluded that an ecovillage in Ithaca (US) had a 42% reduction compared to conventional housing in Ithaca and, similarly, Tinsley & George (2006) examined for Scotland that ecovillage Findhorn reduced their environmental impact by 50% compared to general citizens. These examples suggest ecovillages can achieve significant reductions in environmental impact, which make eco-housing an important contributor to meeting the Dutch Climate Act's targets and make focusing on eco developments societally relevant.

Additionally, eco-villages are often part of experimental space with room for innovations to occur (Burke & Arjona, 2013; Casey et al., 2020). Burke & Arjona (2013, p.235) define eco-villages as ''*collectives and spaces that are reinventing sustainability in their worldview, communitarian, economic and ecological dimensions*''. The experimental space is necessary for realizing zero carbon homes because such innovative projects are too complex for construction professionals (Heffernan & De Wilde, 2020). That innovative space to reinvent sustainability is necessary to enable innovations, which can trigger reaching a transformation: innovations becoming mainstream (Concilio, 2016). Just as solar panels, vegetarian burgers and windmills are products of innovative space and are means to help tackle climate change. This innovation happens in niches, of which demand-driven construction in the Netherlands is part of (Beenders, 2011). In this way, elements of zero carbon eco-villages could become mainstream later (Heffernan & De Wilde, 2020). This indicates the importance of reserving space for such developments and making it relevant for academic research to study these projects.

Although housing in the Netherlands is very standardized in appearance and type of housing, the way in which housing is constructed is exceptional compared to most other countries (Bossuyt et al., 2018; Bossuyt, 2021; Cozzolino, 2020). In the Netherlands, future residents are mostly not involved at all in the ordering and construction of the houses in which they are going to live (Van den Berg et al., 2021). This means that the choices relating to housing construction are mainly made from the project developer's point of view instead of the future residents. Those project developers mainly focus on short-term financial benefits, while long-term (financial) benefits arise for residents in (collective) private commissioning (Beenders, 2011). Beenders (2011) concludes that financial long-term benefits for the future resident are present mostly in build-by-demand, i.e. self-build. He recommends follow-up research to investigate the role of sustainability herein. Two examples of sustainability and money savings applicable to future residents, and not the project developers, are insolating the home more than required and re-using rainwater for flushing the toilet (Ibid). This illustrates the trade-off between the initial cost of building the house versus the long-term operating costs.

In the case of self-build housing (SBH) the future residents are the client of building the dwelling and will (usually) live there eventually. This means future residents are actively involved in the planning and building process of their future dwelling and can make their own choices instead of a company making them in advance for them (Bossuyt et al., 2018; Bossuyt, 2021; Cozzolino, 2020). In general, eco-friendly designs are popular amongst self-builders (NaSBA, 2008; NPBS, 2004). It gets relevant for sustainability knowing that there is general and international agreement in academic literature of (collective) self-build housing having the potential to deliver more sustainable, more affordable, more diversified housing stock as well as architecture and higher quality dwellings than standard housing developments in the Netherland (see Azapagic & Perdan, 2000; Bossuyt et al, 2018; Bossuyt, 2021; Cozzolino, 2020; Heffenan & De Wilde, 2020; Holland, 2018; Rehwinkel, 2021; Van der Kloet & Van Genne, 2014; Zamora-Polo & Sanchez-Martini, 2019). This is because self-build enables people, who aim for building a much more sustainable house than mainstream, to realize their aspirations (Rehwinkel, 2021), such as zero carbon eco-housing (Heffernan & De Wilde, 2020). In the case of quality, the project developer's profit motivation is eliminated and it is an option for the residents to build their house themselves or by family members or friends (De Decker, 2008). This results in more money being available to invest in quality of materials. Important to note is that the main aim of a person could also be to build as cheaply as possible, also when self-building (Bossuyt et al., 2018). Thus, this does not mean that all SBH-project are much more sustainable and durable, but self-build appropriates itself for those projects. This thesis focuses specifically on exploring how to stimulate self-build housing projects, which aim to focus on sustainability as a vital component in their projects.

Building a more sustainable and durable home is possible using self-build as a mechanism by which future residents engage in the design and construction process (Broer et al., 2010). When doing SBH collectively (CSBH), it can help to create more sustainable developments if it is ''cool to be green'' and by doing the best for the collective (Ibid). CBSH has many potential benefits; some Dutch CSBH-projects show that they offer opportunities to implement environmentally sustainable ideas (Van der Kloet & Van Genne, 2014). Furthermore, Heffernan & De Wilde (2020) identified a role for collective self-build housing (CSBH) initiators as zero carbon advocates. Their study confirmed that CSBH can help to transform zero carbon housing from niche to mainstream. Because CSBH has the potential to support a more environmentally and socially sustainable built environment in which zero carbon homes are facilitated, people are empowered and homes are energy efficient (Heffernan & De Wilde, 2020). CSBH forms a bottom-up approach for, for instance, those highly environmentally sustainable homes (ibid), which are the starting point of this thesis.

Connected to Dutch CSBH is collective private commissioning (CPC), which is by far the mainstream contract form used in the Netherlands when self-building collectively (Beenders, 2011; Bossuyt, 2018). In 2021, only 0.09% of the Dutch dwellings were developed by CPC (calculated from CBS, 2021a; CBS, 2022; Kesteren, 2022). More research on CPC is recommended, because it is a specific contract form, primarily used in the Netherlands, which has potential advantages for society regarding sustainability and availability of housing (De Groot, 2012; Rehwinkel, 2021; Pruim, 2012; Van den Berg, 2021; Van der Zande, 2016). This makes CPC relevant to study considering eco communities. Rehwinkel (2012) mentions that, because of the housing shortage in the Netherlands, it is relevant to do research on how to stimulate CPC-initiatives and if the number of projects can be extended. CPC implies that the inhabitants are responsible for developing their direct living environment, which provides opportunities for residents' desires and results in a different municipal attitude as facilitator of self-organisation (Pruim, 2012). Pruim (2012) concluded that CPC ensures diversity, higher spatial quality and more social cohesion enhanced by higher income groups being attracted to the area. However, a CPC-process is highly time-consuming (Bossuyt, 2018; Beenders, 2011; Rehwinkel, 2021).

Combining two concepts is necessary to study eco communities created by CPC. When CSBH meets the standards of eco-housing mentioned above, it can be termed as eco self-build community housing (ESBCH) (Newberry et al., 2021). The main difference between ESBCH-initiators and CSBH-initiators are their key priorities (Ibid). For ESBCH-initiators this is having a low environmental impact and sense of community, while for CSBH-initiators this is location and design. ESBCH-projects are CSBH-projects in which sustainable-related motives are central (Broer & Titheridge, 2010). Because those motives are central, distinctive and municipal facilitation might be based on that, it makes it valuable to zoom in on the initiators' motives for CPC and ESBCH and municipality's motives for sustainable housing. ESBCH is, so far, rarely discussed in academic papers (Ibid; Newberry et al., 2021). This thesis uses the concept ESBCH to be able to focus on eco-housing development projects which are realized collectively and are self-build. In particular, this thesis explores how Dutch local municipalities might facilitate realizing such projects and what some barriers are herein.

The work centre for sustainable development Omslag (2022) shows 40 out of the 45 ESBCH-projects in the Netherlands use the CPC contract form. ESBCH-developments offer significant potential for reducing carbon emissions by enabling low carbon lifestyles (Broer & Titheridge, 2010). ESBCH establishes communities of frontrunners in durable and sustainable housing that serve as an example and inspiration for how people may tackle environmental issues together, which could become mainstream in the future (Ibid). Furthermore, ESBCH corresponds to the SDGs (Newberry et al., 2021) that aim for a more environmentally sustainable, equitable, and prosperous world (Azapagic & Perdan, 2000). Examples of realized ESBCH-projects in the Netherlands include *Ecowijk Mandora* in Houten, *Soesterhof* in Amersfoort, *Bewust Wonen Werken Boschveld* in Den Bosch, *Groene Mient* in Den Haag, *De Buitenkans* in Almere-Buiten and *Geworteld Wonen* in Rijswijk, although this list is hardly exhaustive (Omslag, 2022).

These examples of ESBCH are a fraction of the CPC-projects in the Netherlands. Still, it shows that initiators are present and eco communities can be conducted successfully. Newberry et al (2021) indicate people are willing to pay 27% more for a highly sustainable home in the United Kingdom and there is far more demand than supply (also concluded by Broer & Titheridge, 2010). This made Newberry et al. (2021) recommend a study into why these are so under-developed. Additionally, Broer & Titheridge (2010) describes the political push for more low carbon and sustainable housing as being crucial for ESBCH-projects. A question to be asked is if this is still the case after 12 years of sustainability agenda-setting and the difference in the Dutch-context.

There is thus evidence for eco-housing in general being more sustainable than conventional housing, because it has much less CO_2 emissions (Broer et al., 2010). Furthermore, self-build housing and community housing is more financially accessible, which means more sustainable as it complies with the economic sustainable pillar of sustainability (Zamoro-Paulo & Sánchez-Martín, 2019). This last element enables having less CO_2 emissions for less money invested than conventional housing. This makes ESBCH an interesting research topic when studying how to create more space for sustainable communities in the Netherlands. Furthermore, it makes it defendable to use the concept of ESBCH and not just for example eco-housing in general for this thesis.

In the Dutch context, the question remains why there are large disparities between municipalities in realized ESBCH-projects, rating from zero to multiple per municipality (GEN Nederland, 2022; Omslag, 2022). Roetgerink (2006) investigated the numbers of CPC differing per municipality. There were seven elements found having impact: the alderman's attitude, municipality's experiences with project developers, income policy, presence of construction sites, proponents of infill sites or expansion sites and municipality's land position. Moreover, provincial policies and the municipal council are involved limitedly. However, this is not a recent study, and this was not about ESBCH specifically. It is interesting if those elements affect realizing ESBCH as well. The municipal focus of Roetgerink (2006) is focussed on the general agreement in literature that the municipality is the public body involved in experimental projects including CPC and ESBCH (Kronsell, 2017; Newberry et al., 2021; Pruim, 2012; Roetgerink, 2006). Simultaneously, the scope for municipalities to engage in projects experimenting on environmental, climate and sustainability issues varies between municipalities (Kronsell, 2017). This could be questioned as having a relation with the numbers of ESBCH-projects per municipality, which this thesis investigates.

Broer & Titheridge (2010) conclude that ESBCH are environmental pioneers in experimenting what is possible within current legislation and introducing new ways of building or using materials. Those implications could be implemented on a wider scale. ESBCH is interesting for local governments as those practice-based innovations can help achieving local sustainability goals, like the VNG's accumulated SDGs (Newberry et al., 2021; VNG, 2018). Kronsell (2017) concludes innovations occurring in experimental space can accelerate the transition towards more sustainable and climate-resilient places. The municipality is mostly involved and decides whether or not an experimental project takes place and which measures regarding, for instance, sustainability are required (Broer & Titheridge, 2010; Pruim, 2012). Kronsell (2017) states that even when the municipality takes a non-role, they are technically involved. Every municipality has the ability to decide how to be involved in demand-driven projects (Beenders, 2011), such as ESBCH. This suggests a municipality's willingness is crucial for to what extent a municipality is involved in ESBCH-projects.

This makes it interesting for this study to evaluate if this municipality's willingness and ability to be involved affects the realization of ESBCH-projects. In figure 1 the Dutch ecovillages, developed by CPC, are visible on a map. Beenders (2011) concluded the municipality's attitude regarding knowledge, experience and support are major external factors, just as much as the state of the housing market, for realizing demand-driven projects. Therefore this thesis focuses on the municipal level and in particular, explores a project that can be termed ESBCH. Such an ESBCH-project has already been realized in Rijswijk, a municipality that has been successful in stimulating such projects. In addition, a sustainable project is explored which still should be developed located in Het Hogeland, where no other ESBCH examples exist yet.

Summarizing, international agreements oblige societies to build and live more sustainably, which means quantifiably lower CO_2 emissions. Eco-housing fulfils those goals and experiments with sustainable measures, which can be useful for mainstream housing developments. Because eco-housing limits the CO_2 emissions (environmental sustainability) optimally and CSBH augments the accessibility to build an eco-house (economic sustainability), ESBCH is more sustainable than conventional housing developments. This suggests municipalities are willing to facilitate these initiatives. Moreover, it is relevant to dive into the concept of ESBCH as (i) ESBCH divides the high-potential eco community initiatives using self-build from the general CSBH-projects (ii) ESBCH has the potential to play a role in moving elements of ecovillages from niche to mainstream (iii) eco communities in the Netherlands make use of the CPC contract form, which is predominantly used by ESBCH-initiators.

Simultaneously, it is unclear why the number of ESBCH-projects in the Netherlands differs per municipality and if these are the same factors indicated by Roetgerink (2006) for CPC in general. Het Hogeland wants to attract ESBCH-projects to have more sustainable and diversified housing to contribute to the SDGs, while today there are zero located in Het Hogeland and only one in the region, in Ten Boer (see figure 1). This differs from other municipalities in the Netherlands (see Omslag, 2022), like Rijswijk, where the pressure on spatial planning regarding land are larger and, therefore, land prices are higher. Why are some municipalities able and successful in facilitating eco-housing projects and others not? What could be learned from the success of an established eco community for the benefit of future communities and initiatives in other municipalities? At the moment not enough is known about specific elements relevant for realizing ESBCH in the Netherlands which could explain the difference between municipalities. The concept of ESBCH, combining the concepts eco-, self-build and collaborative housing, has received hardly any academic attention (Broer et al., 2010; Newberry et al, 2021). This study identifies the municipal opportunities, limitations and motivations to realize ESBCH in the Netherlands to explore if the willingness and ability of two municipalities could possibly explain the difference in realized ESBCH-projects per Dutch municipality.

Figure 1: Ecovillages in the Netherlands, developed by CPC (adjusted from GEN-NL, 2022).

1.2 Research aim & questions

This thesis aims to explore the influence of a municipality's willingness and ability on the realization of ESBCH in the Netherlands. The underlying goal is to possibly explain the difference in realized ESBCH-projects per Dutch municipality by identifying the municipal opportunities, limitations and motivations present. This aim contributes to the knowledge concerning the creation of space for sustainable communities.

The research' aim resulted in formulating the main research question:
How does the municipal willingness and ability affect the realization of Eco Self-Build Community Housing in the Netherlands?

The theoretical part objectified to identify the urgency to build more sustainably and the opportunity for self-build herein, the potential of CPC for people's sustainable motives and demystifying ESBCH. In addition, possibilities stimulating or enforcing sustainable behavior result from a municipality's willingness and ability. The underlying elements are, therefore, useful to dive into. Moreover, understanding initiators' and municipal motivations for engaging in CPC and ESBCH-projects is necessary to find out what drives them and creates both parties' willingness.

This resulted in four theoretical subquestions:
1) *What is the value of self-build housing for stimulating sustainability?*
2) *How does collective private commissioning relate to realizing Dutch sustainable housing projects?*
3) *What impacts the municipality's willingness and ability to stimulate sustainable behavior?*
4) *What are the municipal and citizen-initiators' motives for collective private commissioning to create sustainable housing?*

The empirical part objectified to explore the elements of success for the ESBCH-case *Geworteld Wonen* in Rijswijk to draw lessons for Het Hogeland. Moreover, it strives for identifying the problems Het Hogeland faces with CPC and the case *De Kleine Plantage* faces to be realized. This should enable to indicate the municipality's willingness and ability.

This resulted in two empirical subquestions:
5) *What are the municipal motivations, opportunities and limitations for eco self-build community housing in Rijswijk and Het Hogeland?*
6) *What elements concerning the willingness and ability of the municipalities of Rijswijk and Het Hogeland influence their comparative realization of eco self-build community housing?*

1.3 Outline and structure research

This study consists of a theoretical, methodological and empirical part. Chapter two discusses the theoretical basis of this research, including the central concepts, theories, and motivations informing ESBCH, as well as a municipality's willingness and ability. Chapter three, the methodology, provides detailed insight into how the research is conducted. The results of this research concerning motivations, opportunities and limitations are shown in chapter four. These are discussed and conclusions drawn in chapter five concerning the municipality's willingness and ability to influence the realization of ESBCH. Chapter six contains the recommendations from this study and suggestions for additional research.

2. Theoretical Framework

2.1 Housing influencing sustainability, affordability & self-build's sustainable potential

The introduction discussed why ESBCH could be more relevant for the sustainability transition than conventional housing by combing the strengths of eco-housing and CSBH. This section, firstly, discusses the role of housing in influencing sustainability in general to indicate the urgency and legal obligation to have a sustainability transition in the housing sector. Secondly, it critically discusses the potential impact of self-build housing on affordability and sustainability to play a role in the sustainability transition.

Housing & sustainability

Before diving into the concepts driving ESBCH, it is relevant to make clear why the transition to more sustainable housing and its role in the sustainability transition is necessary. Drought, floods, water shortages and heat stress are the four main effects of climate change worldwide and it is urgent that humanity reduces GHG emissions considerably in every sector (UN, 2021). The latest IPCC report (2021) states human influences have warmed the global temperatures unprecedentedly in the last few decades versus the last two thousand years (see figure 2), which is primarily caused by the most emitted GHG today: CO_2. This will result in more and more places on Earth becoming uninhabitable due to drought, floods, water shortages and heat stress (Ibid)

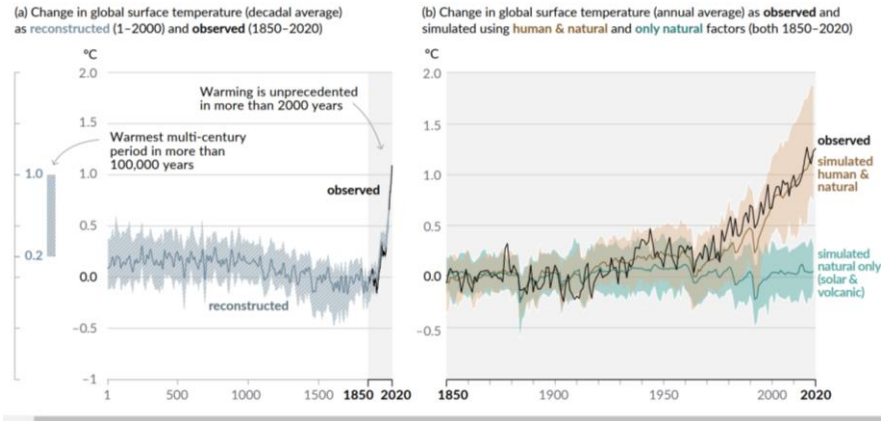


Figure 2: Changes in global surface temperature in the last 2.000 years (IPCC, 2021).

To limit those effects, which have already started, international agreements, like the Conference of Parties in Paris in 2015, are made. This specific agreement was signed by 189 countries who are responsible for 96.98% of the GHG-emissions (French Ministry for Europe and Foreign Affairs, 2020). All signatories must do everything in their power to hold temperature increase below 2.0 degrees, by targeting 1.5C degrees, compared to pre-industrial levels by limiting their GHG emissions (Rijksoverheid, 2022). In response to the Netherlands' signing the Paris' agreement, the Netherlands installed, in 2019, their first Climate Law to provide a legal framework for national policies to reduce GHG-emissions (Dutch Ministry of BZK, 2019). This entails a 49% reduction of GHG emissions by 2030 and 95% by 2050, compared to 1990 (Rijksoverheid, 2022). This aim for 2030 is higher than the European 40%. In addition, this law includes a fully CO_2 neutral production of electricity in 2050 (Ibid). It is necessary that every sector limit CO_2 emissions. There were even juridical claims in the Netherlands, like the Urgenda-case, which have obliged the Dutch government to limit CO_2-emissions by 25% in 2020 (Rijksoverheid, 2022). The reduction achieved was 24,5%, which falls within the uncertainty range (CBS, 2021). However, the reduction was a side-effect of incidental COVID-measurements, like lockdowns, and not the effect of structural measurements in, for instance, housing developments (Ibid; RIVM, 2021).

In 2020, the Netherlands emitted 165,6 megatons of CO_2 (PBL, 2021). 13% of the total emissions originates from the construction sector, of which 70% is emitted by households (OSJ, 2022). This means households produced 15,07 megatons of CO_2, which corresponds to 9,1% of Dutch CO_2-emissions. Cooking (5%), hot water (20%) and heating (75%) mainly cause those CO_2 emissions by burning fossil fuels (natural gas) in over 8.000.000 dwellings. There are differences per dwelling as these numbers are a Dutch average. The Climate Law prescribes that all dwellings should be off-fossil gas by 2050. Other measures prescribed are better insolation, compensation, requirements, smart technology and modern technology. Producing concrete contributes to 8% of the CO_2 emissions worldwide (Bruggink, 2019). In figure 3 the CO_2 storage per material is visualised. A negative number illustrates CO_2 emissions, which means that wooden constructions of eco-houses store CO_2 instead of the construction only emitting CO_2.

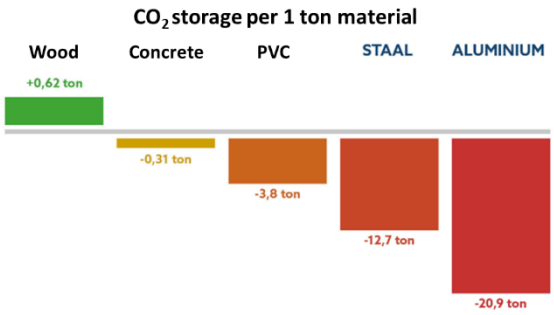


Figure 3: Comparison of CO_2 storage per material (translated from Bruggink, 2019).

Not only household activities influence sustainability, but also constructing homes, which is very topical in the Netherlands due to the nitrogen crisis the Netherlands is facing. Among other even more larger emitters, such as the agricultural sector, the current construction sector is emitting nitrogen compounds (Erisman et al., 2021). These are emitted in such large numbers that nature experiences considerable damage from this, which can only be countered by measures at source (Ibid). On November 2nd, 2022, the Council of State's judgement included that for smaller housing developments, just as for larger ones, a permission for emitting nitrogen compounds must be requested as well (NOS, 2022). Constructing an eco-house emits less nitrogen compounds than traditional developments, because ecological timber constructions require less activities emitting nitrogen compounds (Bruggink, 2019).

Self-build & affordability

Self-build commissioning has distinguishable quality and affordability benefits over housing provided by housing associations or developers (Bossuyt et al., 2018). Benson & Hammiduddin (2017) have concluded that hundreds of innovative CSBH-projects around the world are completed, which could not be built affordably or would not be built at all by property developers. Literature in general describes the international situation of self-build, while in the Netherlands self-build is mainly performed by the upper class (Lloyd et al, 2014). An example is Brazil, where people in the slums are forced to self-build with all the materials they can find and build houses themselves with help from friends and family to have a home (D'Ottaviano et al., 2020). De Decker (2008) gives as reasons that, when not self-build, labour costs are included for the project developer and profit is made on the house. Those costs are not included if the future residents (partly) build the house themselves or use people in their family and friends' network who do not, or only partly, charge for the labour. However, most Dutch self-builders hire someone for building their house and do not have this advantage.

Self-build & sustainability

Heffernan & De Wilde (2020) found that CSBH can help to transition zero carbon housing, such as eco-housing, from niche to mainstream. Consistently, as mentioned in the introduction, there is general agreement in academic literature of (collective) SBH to potentially deliver more sustainable dwellings than housing developments dominant in the Netherlands (Van der Kloet & Van Genne, 2014). Also, literature tends to agree about the potential for self-build to be more sustainable than regular housing developments (Rehwinkel, 2021). Still, it also indicates not every self-build house is more sustainable compared to general dwellings. Therefore, this study focusses on ESBCH which is more sustainable than a general dwelling, but there are reasons for (C)SBH having that potential.

The money saved through self-building being more affordable could be invested in sustainability measures (Heffenan & De Wilde, 2020). Still, these could also be invested in, for instance, more qualitative homes, like more sound insulation or longer service life materials. Still, there is always the possibility the owner does not want to or is not able to invest in extra sustainability measures. However, Beenders (2011) states CPC, so CSBH-initiators, are mostly more sustainable as the future residents consider the long-term financial returns of sustainable investments. Project developers are focused on making profit by selling a market-based product, a product that most residents want (Beenders, 2011). Because of the profit-range, project developers aim to limit risks, which results in few incentives for innovation (Ibid). Especially today, when the Netherlands is experiencing a housing shortage, applicants for dwellings are limited in their ability to demand sustainability measures of newly built homes (Van Wijnen, 2020). Then, the future resident mostly can not add specific requirements, like a better insolated home. Thus, self-build's potential for sustainability is the ability to invest the money that would normally be profit and personnel costs into sustainability measures, which future residents could benefit from.

In other words, the question is how to get the self-build group to invest in more sustainable options and measures, since SBH in itself does not set any requirements regarding sustainability. It is all up to individual preferences and choices. By promoting SBH, there is no guarantee sustainability will also be promoted. Only stimulating SBH, does not determine the extent to which people take sustainability into account in their projects. It is about the initiators' motives. Therefore, it is worthwhile to investigate ESBCH-initiators' motivations (see paragraph 2.4).

2.2 Dutch historic context of (C)SBH

Having the potential of SBH for sustainable housing discussed, this paragraph dives into the concept of (C)SBH and explains the reasons behind the Dutch SBH-numbers effecting ESBCH.

Defining self-build housing

Self-build housing is defined as ‘’*the practice where people, as a group or individually, commission the production of housing for their own use*’’ (Bossuyt et al., 2018, p.525). This resident’s involvement varies from sharing construction and design responsibilities with others to fully hand-built homes. SBH entails ‘’*residents control over and obtaining responsibility for the development of their (future) dwelling’’* (Ibid, p.524). This has been increasingly encouraged in providing for housing for decades, originating from the assumption that dwellers’ control of producing houses has the potential to improve social and individual well-being (Turner, 1972). Moreover, the upcoming liberalization of economies and decentralization of service provision entailed the general growing expectation of more actively involved citizens in building housing and owning houses worldwide (Bossuyt, 2021). Minora et al. (2013) state institutional support is a key condition to augment SBH’s potential by minimising barriers for initiators regarding skills, capital, land and risk. Governments pay insufficient attention to this (Ibid).

Self-build housing in the Netherlands

Looking at the Dutch SBH-numbers, only 14.75% of newly built houses in 2017 were self-build (CBS, 2018) compared to 62% in Germany, 65% in Belgium, and 80% in Austria (Lane et al., 2020). This is relevant as it shows how mainstream self-build is, which has consequences in which way municipalities are accustomed to guiding or stimulating SBH-initiatives, like ESBCH. In figure 4, countries with a comparable state of welfare are placed alongside comparing the SBH-numbers of 2008 that have hardly changed in the Netherlands to date (Ibid).

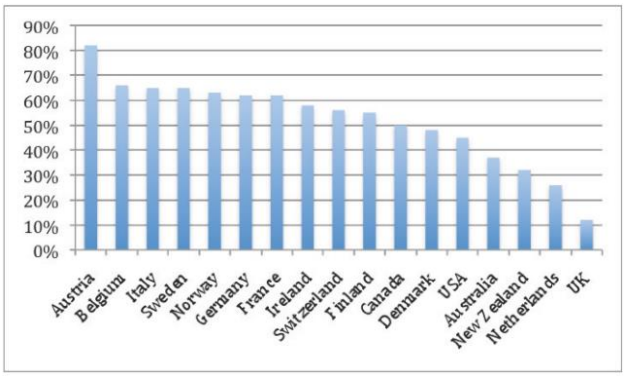


Figure 4: Comparing SBH to the total housing stock per western country (NaSBA, 2008).

The Netherlands is experiencing low SBH-numbers for a reason. Globally, SBH has been around for as long as people started building their ''house'' to stay in (Boelens & Visser, 2011). Until the 20th century it was the worldwide norm for residents to build a home themselves (Ibid). However, in the Netherlands, after the industrial revolution of 1850, this slightly changed with upcoming housing associations and private individuals collectively providing decent housing for others. However, the real impulse of future residents to not build or not even be involved in the building process was given by the Woningwet of 1901 (Beekers, 2012; Casciato et al., 1980). This law contained government-regulated rules to combat poor and unhealthy housing conditions, such as overcrowded houses, resulting in organisations and the government building licenced houses for residents.

A new period in building dwellings started after WWII, since 25% of the housing stock was destroyed or uninhabitable (Boelens & Visser, 2011). The Dutch government had a strong role in the reconstruction process. This resulted in an enormous house production of 80.000-100.000 homes per year tackling housing shortages (Ibid). From WWII onwards, that system has been kept in place by three main parties: i) *large developers* ii) *housing associations,* which focus on building, maintaining, and renting out affordable and high-quality homes for people with a limited budget iii) *municipalities* (Bossuyt et al., 2018).

These parties placed the Netherlands on the global map for spatial planning, specifically regarding highly functional housing. Eventually, the planning system evolved into a procedural (Faludi, 1987), well-structured, and comprehensive doctrine (Boelens, 2009; De Roo, 2003 & Van der Cammen & De Klerk, 2003) that provides housing for Dutch society. The leading role of large parties in developments meant that future residents were mostly not in charge or involved in planning their future homes, including not making any relevant decisions about the homes' sustainability (Bossuyt, 2021). This led to a path of dependency in which the system is not accustomed to self-build initiatives in general, whether individual or collective (Bossuyt et al., 2018; Bossuyt, 2021; Cozzolino, 2020).

From the 1990s onwards, liberal political ideas gained increased traction on the housing market with the transfer of housing as a task from the government to project developers and the privatization of housing associations (Beekers, 2010). Moreover, the Dutch National Government decided from 2001 onwards to focus on homeownership and SBH to provide more control and choice in housing for future residents (Bossuyt, 2021). The Ministry indicated developers only aimed for building values, resulting in standardisation, and municipalities being focussed on quantitative maximization of housing. The Dutch National Housing report of 2001 stated that 33% of the newly built houses should be self-build by 2040 (Lloyd et al., 2014). This influence did result in increased homeownership, but it did not result in more SBH (Bossuyt, 2021) with a stable amount of SBH of 15% between 2001 and 2014 (Lloyd et al., 2014). The reason to have more self-build was, according to the Dutch Ministry of Housing, Spatial Planning & Environmental Management (2001), that no other party than the future residents had an interest in higher identity, diversity or quality of homes. Moreover, more affordable housing for lower classes, demand-oriented constructions were main reasons (Lloyd et al., 2014). Subsequently, this should result in society preserving housing itself with less dominance of housing corporations (Ibid). However, the retreating government involvement and the financial crisis resulted in only 45.200 dwellings being built in 2014 (Lloyd et al., 2014). The municipality of Almere is an exception experiencing higher SBH-rates. In *Almere Poort*, land was bought from the government by individuals and groups with a small down payment, enabling residents to build their own house (McLaren, 2016). The municipality made this form of experimental space possible (Ibid).

The more liberal political influence is crucial in the housing system the Netherlands faces today. This reflects governmental willingness. Simultaneously, the past made that the Dutch system is designed for large organisations who are fully familiar with the considerable degree of governmental regulations and comprehensiveness (Bossuyt et al., 2018). All this regulation (registration), privatisation (political choices) to project developers, laws and policies, construction densities, land use planning, history (habituation) and political influences of the past results in the low SBH-numbers when compared to other western countries (Lloyd et al., 2014; Lalor, 2022).

2.3 Concepts related to Eco Self-Build Community Housing

To explore the concept of ESBCH in the Dutch context, this paragraph discusses eco-housing, self-build commissioning, sustainable housing and collaborative housing. This enables to set criteria and select the case studies that comply with ESBCH.

Eco and Sustainable Housing

The concept of eco-housing is all about the bio-ecological autonomous house (Van der Stadt, 2018). This is supplemented by the principles: living together respecting nature, harmony between people and nature, combining living and working and organizing self-sufficiency together. Singh et al. (2022) state ecovillages are groups who combine lifestyle and supportive social surroundings with minimal effects on the environment, independent of rural or city location. In practice, the emphasis for eco-housing is on limiting the environmental effects (OVO Energy, 2021). Diving into different studies resulted in distinguishing five key elements of eco-housing:
(i) Using natural materials originating from sustainable resources (Semenyuk et al., 2018). This includes using recycled or reclaimed materials, such as lime and wood to build timber frames and straw bales or bamboo for insulation (OVO Energy, 2021).
(ii) Being energy-efficient; the house's design makes little heat or coolness escape (Alajmi, 2021). This includes insulation and the dwelling's layout, like the stairwell being northly based.
(iii) Using renewable energy instead of burning fossil fuels causing climate change in combination with smart gadgets (Alajmi, 2021; Semenyuk et al., 2018). These are, for instance, tidal, sunshine, wind energy, heat pumps, smart meters and smart thermostats. However, generating electricity on and surrounding the house is not a requirement.
(iv) Waste disposal through biological processing (Semenyuk et al., 2018).
(v) The building materials originate from the region. Singh et al. (2022) conclude the carbon footprint could be reduced considerably when 90% of the materials originate from within 100km of the house.

The starting point of eco-housing is to minimize the environmental footprint of housing (Admin, 2019), which measures the multiple environmental impacts of an activity instead of focussing on one impact. Eco-housing focusses primarily on the key elements mentioned above, while conventional housing (profit and non-profit) focusses primarily on having a desired and cost-effective product as action is taken when there is governmental subsidy or legislation (Filippidou, 2018). This makes the footprint of eco-housing score lower than conventional housing. As addressed in the introduction, experimental space with eco-housing could help to roll-out innovations at a larger scale in conventional housing.

Sustainable housing is defined more broadly than eco-housing. Similar to the SDGs, sustainable housing contains economically, socially and environmentally sustainable elements (University of Mary Washinton, 2018). However, the definition of eco-housing limits itself to environmental sustainability, which is explained by practical indicators in appendix II. This difference shows it is a much broader concept and is relevant for this thesis as it also focusses on sharing economy and equal citizenship. Singh et al (2022) conclude six sustainable housing criteria by comparing different studies: (a) availability & price, (b) values & culture, (c) water & wastewater, (d) waste, (e) energy and (f) physical building.

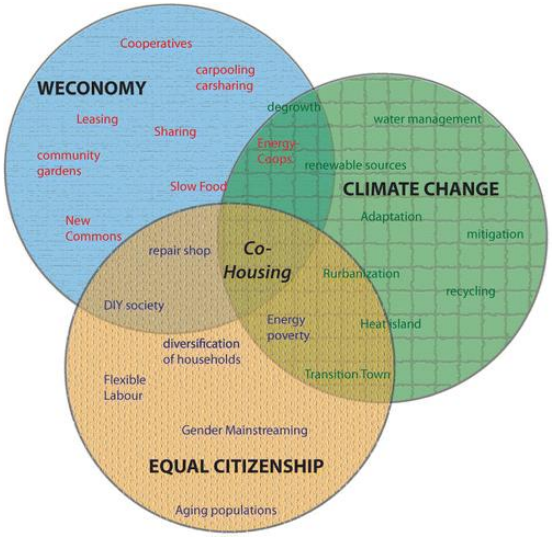


Figure 5: Co-housing as a combination of three societal themes: environmental, societal and economical sustainability (Tummers, 2015a).

Collaborative housing

This thesis is about sustainable communities, which is all about collaboration and sharing. Shared mobility and decision-making for group interests can have positive consequences for more sustainable housing, because individual choices have higher chances to give a disadvantage for the collective and lower sustainability levels (Tummers, 2015b). While a collective mindset helps working towards a more sustainable community (Ibid), because in a community people are more likely to do their share for sustainability and try innovations (Meroni, 2007). Collaborative housing, also known as collective, community or co-housing, is defined by Lang et al. (2020, p.10) as ''*an umbrella term for collective self-organised forms of housing provision*''. Co-housing enables combining equal citizenship, climate mitigation as well as adaptation and a shared economy in co-housing; illustrated in figure 5. A (re)emergence of collaborative housing is generally taking place in Europe, which the Netherlands deviate from, as most collaborative housing projects use CSBH-forms (Czischke, 2018; Lang et al, 2020; Tummers, 2015b).

Collective Private Commissioning in the Netherlands

Boelens & Visser (2011, p.109) define CPC as *"a form of commissioning whereby a collective of like-minded private parties acquire a piece(s) of land and jointly decide how, and with which parties, the homes, private spaces and sometimes even public spaces are designed and constructed*''. CPC is a contract form that empowers sustainable communities to put their aspirations into practice, resulting in 40 of 45 Dutch ecovillages being CPC (Omslag, 2022). At 0.09%, CPC is an exceedingly small proportion of all Dutch housing developments[1]. This means 6.4% of SBH in the Netherlands is CSBH, which makes CPC a niche (Kesteren, 2022). Despite municipalities having positive experiences with CPC, they do not expect numbers to increase (Rehwinkel, 2021). The reason lies in three main obstacles, mainly caused by housing policies that lack focus on CPC (Ibid): (i) lack of municipal land due to passive land policy and CPC not being sufficiently profitable (ii) personnel shortages, while extra guidance is necessary, and (iii) differences in CPC-initiator's and municipal policy goals. It is interesting whether the empirical study will confirm these findings for ESBCH specifically.

The national Expert Team Housing helps municipalities to create possibilities for CPC-projects (DEA, 2018). DEA (2021) indicates an optimal CPC-group size is 20-40 households, despite the land-size, because more households enhance the chance of delay and less households reduce the benefits from the economies of scale. Van der Zande (2016) concluded expectation-management can result in higher satisfaction for CPC. Therefore, municipal experts should communicate and register expectations regularly and the possible professional contribution (Ibid). CPC's freedom enables bringing personal sustainability aims of communities into practice by freedom of choice and design (Ibid). The empirical study compares if these elements also apply to ESBCH in particular.

[1]*Calculated from CBS, 2021 & Kesteren, 2022: 7.500/8.005.000 Dutch dwellings*

Mostly, CPC-groups organize themselves in an association as non-profit legal entities and own surrounding land (DEA, 2021; Pruim, 2012). Nevertheless, a self-selected contractor, architect and construction supervisor mostly participate in CPC (Ibid). It is not required that only owner-occupied houses are built. (Social) rental housing or a mix of the two can be build via CPC as well (Pruim, 2012). Altogether, CPC includes: a group of people who together, mostly in a non-profit entity ensure their houses and living space are built on, mostly, owned ground according to their joint design.

ESBCH

ESBCH is more sustainable than conventional housing due to significantly less CO_2-emissions (Broer & Titheridge, 2010; Newberry et al, 2021) and more accessible for groups who can not afford an individual eco-house (Zamoro-Paulo & Sánchez-Martín, 2019). The reason lies in combining the advantages of eco-housing with CSBH. ESBCH aims to provide an ecologically sustainable housing and living space, which focuses on durability as well as sustainability (Broer & Titheridge, 2010; Newberry et al, 2021). In figure 6 the concept of ESBCH is visualized. Broer & Titheridge (2010) state that ESBCH could reduce carbon emissions significantly by enabling a low-carbon lifestyle in an accessible way. Moreover, there is a market for this particular form of housing in the United Kingdom, which makes the potential higher building costs financially viable (Ibid). It mostly is a premium market (Ibid), which means ESBCH is not accessible for everyone. This makes the financial accessibility Zamoro-Paulo & Sánchez-Martín (2019) discuss doubtable.

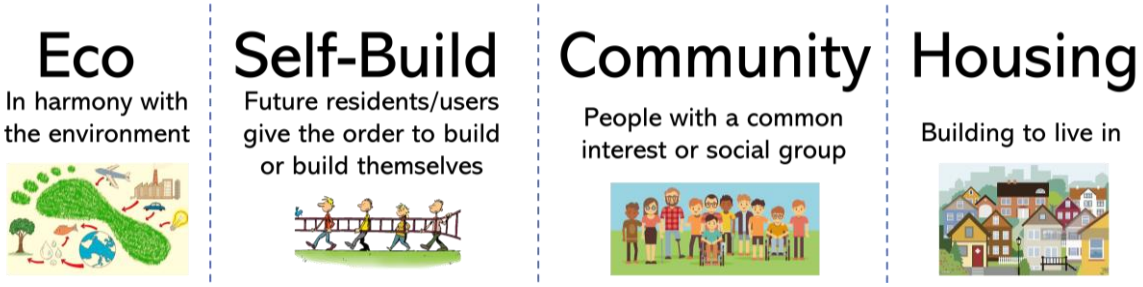


Figure 6: The concept of Eco Self-Build Community Housing illustrated (by author).

ESBCH is characterised by green lifestyle, community spirit, construction quality and style (Newberry et al., 2021), which give major possibilities for durable, environmentally friendly and sustainable housing and living (Dorst, 2018). This enables to have frontrunners in this field showing how it is possible to tackle societal issues with others from society following (Ibid). The same applies to building nature-inclusive, which apart from being frequently suggested for climate adaption and biodiversity purposes, is shown to be technically easy. ESBCH corresponds to the SDGs (Newberry et al., 2021) that aim for a more environmentally sustainable, equitable and prosperous world (Azapagic & Perdan, 2000). The various stages of the ESBCH-process are attached in appendix III. ESBCH is applied worldwide as eco communities apply and build housing themselves, but exact numbers in any country are lacking (Broer & Titheridge, 2010; Newberry et al., 2021). However, Omslag (2022), an organization tracking sustainable developments, listed 45 realized ecovillages in the Netherlands of which 40 are self-build by CPC. Furthermore, there are 37 initiatives for ecovillages in general (not realized) in the Netherlands of which 20 own land already (Omslag, 2022). Still, no academic research on ESBCH-numbers has been conducted (Newberry et al., 2021).

Evaluating, it is relevant to have eco- and sustainable housing individually and collectively. The concept ESBCH is relevant due to this research focussing on eco communities, which in the Dutch context primarily use CPC. As a municipality that wants to stimulate ecovillages, it is thus necessarily to have CPC as part of the stimulation. ESBCH's practical value for municipalities is being able to select the projects that comply with the criteria and knowing how to support them when using CPC.

2.4 Initiators' motives for engaging in CPC and ESBCH

Paragraph 2.1 clarified SBH's potential for affordability and sustainability, in which initiators' motives already could be discovered, and paragraph 2.3 showed the meaning of CPC and ESBCH. This paragraph identifies motives of initiators for engaging in CPC and ESBCH and how those motives relate or differ from each other. This connects to the willingness and ability of initiators.

Motives initiating self-build housing

Affordability is for every form of SBH, like ESBCH, a crucial factor for making housing more accessible and, therefore, an important motive for initiators (De Decker, 2008; DEA, 2014). Mostly, self-builders do not strive for a maximum profit (Bossuyt et al., 2018) and use help from their family or friends' network to lower costs (De Decker, 2008). Besides affordability, initiators can have the motive to build a house the market does not offer (De Jong, 2015). The market could not build the sustainable house that the initiator aims for (Barlow et al., 2001; Van Wijnen, 2020). Priorities for self-build in general are a unique lifestyle and aesthetic preferences (Newberry et al., 2021). Overall, psychological and emotional grounds are important for self-builders and way less for project developers (Brown, 2007).

Motives building collectively via CPC

CPC-initiators are mostly dissatisfied about the offer the market generates and are convinced they can provide in housing suiting them (Smeets & Van de Ven, 2002; Perlaviciute & Steg, 2011; De Jong, 2015). However, in practice future residents do not have the means to actually do everything themselves, such as knowledge, financial resources and experience (Boelens & Visser, 2011; Tummers, 2015b). This results in contacting professionals, which means process supervisors, contractors and architects are also involved in CPC. The DEA (2014) describes two main motives for building collectively via, for instance, CPC. Firstly, improving quality of living, which means being able to express personal housing requirements fitting shared ideas regarding living together, architecture, food cultivation, the environment and use of materials. Secondly, building collectively gives an extra scale-advantages, augmenting the affordability motive. Simultaneously, Rehwinkel (2021) critically discusses the affordability motive as it is only a motivation for the first-generation CPC residents. The owner(s) can namely sell the house for a market price. In other words, CPC/CSBH enables to bring certain ideals more affordably into practice, but only for the first-generation of residents.

Motives ESBCH-initiators

Newberry et al. (2021) conclude that ESBCH-initiators' motives as prospective homeowners differ from the more general (community) self-build-initiators regarding key priorities. Those key priorities are for ESBCH-initiators eco-housing and a sense of community, whereas for general (C)SBH the house its design and location are the most important aspects (Newberry et al., 2021). The ESBCH priorities are key to explore how municipalities can stimulate the projects in which sustainability related motives are central, like in ESBCH. The eco-housing principles mentioned in paragraph 2.3 enable to limit CO_2 emissions and, eventually, reach (governmental) sustainability goals. Besides key priorities, the study describes two main drivers of ESBCH-initiators, which are (i) reducing their environmental impact and (ii) reducing their home running costs. Those two can go hand-in-hand enabled by self-building. Looking at initiators' motivations for sustainable housing (see table 1), 54% is interested to do their bit saving the planet and 35% to reduce costs (Ipsos MORI, 2006). Today, these percentages could be much higher due to more people being informed about and experiencing the effects of climate change and the rising costs of fossil fuels.

Table 1: What attracts people to sustainable housing developments (Ipsos MORI, 2006).

Why if at all would you be interested in living in a sustainable housing development?	Percentage of people answering yes in Ipsos MORI study
It would help me do my bit to save the planet	54%
It would reduce the amount I pay on bills	35%
It would increase the quality of life for me and my family	25%
It would be cleaner and "fresher" to live in	24%
It would be a better place for bringing up children	20%
It would have a close-knit community feel	18%
It would be safer than other places to live	16%
It would have cutting edge design and technology	16%

Relating CPC and (E)SBCH motives to each other

Almost all Dutch environmentally idealistic sustainable villages are developed by CPC (Van der Kloet & Van Genne, 2014). This, again, endorses that CPC and CSBH fulfill the environmentally sustainable ideals of future residents. Bayulken & Huisingh (2015) concluded that residents of eco-developments perceived a higher quality of life than residents of conventional developments. Ecovillages rely strongly on the human-ecosystem interdependence by offering high-quality living space from their desires and limiting their environmental impact by living environmentally sustainably (Sherry, 2019). Another aspect of eco-villages is the social and personal value experienced while working together (Pisters et al., 2022), which corresponds to CSBH and CPC (Rehwinkel, 2021). An overview of CPC-initiators' motives in general and additional motives of ESBCH-initiators are visible in figure 7.

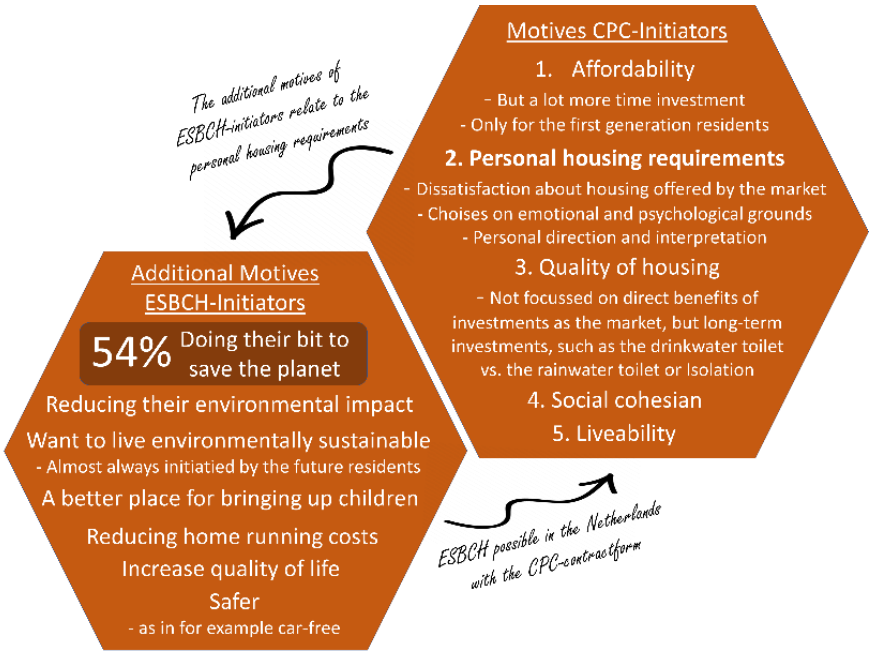


Figure 7: Motives CPC- and ESBCH-initiators (by author, based on Bossuyt et al., 2018; Newberry et al., 2021; Rehwinkel, 2021)

2.5 Willingness and ability of municipalities concerning sustainability

This paragraph dives into willingness and ability of municipalities in relation to sustainability.

Willingness and ability

The concepts willingness and ability are mostly discussed in literature as willingness-to-act and ability-to-act. Literature shows willingness and ability are connected to a person's or organization's motivations, opportunities and limitations (Debellis et al., 2021; Urban, 2008). Willingness links to Ajzen and Fishbein's (1975) theory of reasoned action (Rutter, 1989). This theory describes that beliefs lead to attitudes, which turn to intentions influenced by subjective norms and intentions result in behavior (Ibid). When discussing sustainability, willingness is a more useful construct than the concept intentions (Abdul-Muhmin, 2007), because it implies a less definite plan for action (Zabkar & Hosta, 2012). Zakcar & Hosta (2012) conclude environmental concern relates positively to be willing to act environmentally conscious. When a person or organization is also able to act this way and it has considerable impact, this results in environmentally conscious behavior (Ibid). Concern is an integral part of forming attitudes and beliefs towards environmental issues (Bamberg and Moser, 2007). This influences a person's behavioral intentions, i.e. willingness (Ibid). In other words, willingness can be defined as a preparedness to act on the part of an individual or organization; it is the existence of a potential to reach certain goals or meet certain criteria, which can be realized under certain circumstances. From these papers it can be assumed that people within eco communities stimulate each other by subjective norms and sharing knowledge, which encourages individual willingness to harm the environment less. This could result in more sustainable behavior. The same applies to municipalities as organizations, when employees and the city council stimulate each other to facilitate sustainable communities, which influences a municipality's willingness.

Willingness and ability are interrelated. For instance, consumers claim to be willing to purchase environmentally sustainable goods (intentions). However, consistent marketplace behaviors are mostly inconsistent with that due particularly to financial means (Chang, 2011). Ability connects to financial means for individuals as well as organizations, like municipalities, which enable a certain behavior (Fu, 2020). This makes financial means possibly constraining to a municipality's willingness-to-act as a municipal council considers how much she is willing to spend on, for instance, subsidies for sustainable housing projects. Besides that, ability also refers to the governmental layer a government being able to do a certain task or make decisions, which often is connected to laws and regulations (Jans et al., 2016). In short, ability can be defined as the capability to act a certain way as an individual or organization; it is about the circumstances to possibly reach certain goals or meet criteria. The willingness and ability of a person or organization can be visualized in a quadrant as visualized in figure 8, which enables to compare two municipalities' willingness and ability in this study.

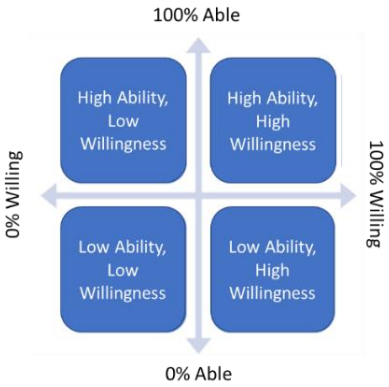


Figure 8: Quadrant to classify willingness and ability (Adjusted from Sommers, 2020).

Registering municipal rules and stimulation after goal setting

Cultural, economic, environmental and political elements influence governmental policy implementations, like for sustainability (Staley, 2006; Bibri & Krogstie, 2020). Staley (2006) emphasizes the importance of markets, the institutional decision-making process of having sustainability goals and technology (innovations) herein. Today, the fewer gas transfers from Russia have influenced the worldwide gas market by rising prices, which reduced the gas consumption worldwide. This might work positively towards a certain sustainability objective.

This example shows achieving sustainability goals is complex and unpredictable. Staley (2006) announces that just sustainability programs with goals do not guarantee success, but cultural and political elements also play a role. Bibri & Krogstie (2020) conclude that to achieve urban sustainability, technology and design are key strategies that should be supported by behavioral change. Technology comprises waste management systems, energy efficiency technologies and green technologies. Design encompasses diversity, mixed land use, sustainable transportation (bike, public transport), passive solar houses and greening. The behavioral change is associated with energy consumption, waste separation and travelling sustainably. This makes technology contribute to the economic and environmental sustainability goals and design to economic, environmental and social sustainability goals (Bibri & Krogstie, 2020).

The Dutch municipalities are in the position to establish rules in the *bestemmingsplan* for their territory, which changes into the *Omgevingsplan* by July 1st, 2023 (Informatiepunt Leefomgeving, 2022a). In the omgevingsvisie municipalities firstly discuss the central aims applying to their area. Subsequently, the Omgevingsplan enables to incorporate specific municipal rules (Omgevingsweb, 2016). In that way, municipal rules for sustainability-issues, like separation of waste can be established legally to reach the omgevingsvisie's aims. Simultaneously, this can contribute to achieving the global SDGs (see figure 9). Moreover, municipalities have a certain power over how the citizens work towards sustainability by setting obligations and standards and facilitate initiatives working towards their goals (Ibid). A society's reaction is to keep innovating to meet those regulations and standards. This makes the setting and achieving of sustainability goals an interaction between the government and society (Ibid). Thus, municipalities can register additional sustainability rules, however, they must be willing as well to do this.

Connecting the information to willingness and ability shows that municipalities can make certain legislation for and contribute to (elements of) sustainability in the Omgevingsplan (Iplo, 2022). The willingness is especially a political choice to have additional requirements that municipalities must incorporate in their Omgevingsplan, which is decided by the National Government (Ibid). A measurement could also be a subsidy to stimulate certain actions, which is partly willingness and partly ability as the motivation and financial means must be there. Again, the municipal politics decide the distribution of public money. Hoppe & Coenen (2011) found a positive relationship between (i) subsidies and rules on environmental sustainability per municipality and (ii) the local sustainability performance. Due to decentralization, the Environmental Act will give the municipalities more responsibilities and possibilities for legislation. This will add complexity to certain issues and reduces possibilities for municipalities to focus on predefined goals (Zuidema, 2016). On the contrary, it increases the municipality's ability to take measures, including measures influencing the type of housing in a municipality.

Figure 9: The SDG's of the UN (UN, 2017).

2.6 Dutch municipalities' motivations for sustainable housing

Paragraph 2.1 showed the relevance for Dutch municipalities to limit CO_2 emissions considering housing and paragraph 2.5 explained a municipality's willingness and ability to reach sustainability goals. This paragraph dives into the possible motivations of Dutch municipalities for sustainable housing, which form an explanation why a municipality would be willing to take action.

Status

It is optimal to have a sort of competition to arise within those municipalities to stimulate sustainability. An example is the Circular Economy (CE), where strategies of Dutch cities make them front runners in Europe (Van Buren et al., 2016). The Hague, Utrecht and Amsterdam aim to be fully circular by 2050, which puts pressure on other municipalities to have this aim as well. Municipalities are willing to have this status, because of having an (international) business climate for sustainable compagnies and developments (Campbell-Johnson et al., 2019).

Climate action

Every Dutch municipality must limit CO_2 emissions to contribute to reducing the emissions nationally. The Dutch municipalities perform actions locally to obtain climate goals, like the program natural gas-free neighbourhoods (VNG, 2020). Moreover, regional covenants are signed by municipalities to build climate neutral and adaptive (De Brug, 2020). Rehwinkel (2021) differentiates two municipal motivations for CPC: maintaining liveability and improving social cohesion. The liveability-motive could apply more to rural shrinking areas due to young people leaving, while social cohesion is something that could apply to any place. Krause (2013) distinguishes three motivations for municipal climate engagement: (i) contribute to the public good by limiting climate change (ii) respond to the pressure and preference of influential political actors and (iii) local co-benefits. The study shows that in the US a more comprehensive climate-planning process is implemented if there is a stronger direct concern about climate change. This indicates willingness-to-act for municipal climate engagement. If this concern is not (fully) there, the motivation for climate mitigation is purely from a financial perspective approached (Ibid). This makes investing in sustainable housing differ per local state in the rate of being concerned about (experiencing effects of) climate change. This connects to the motivation of cost saving as a society by investing in sustainability (Krause, 2013). As a result health care costs can be lowered by providing cleaner air due to climate measures.

The Netherlands are breaking new ground in spatial planning by implementing the Environmental Act on July 1st, 2023. The governmental bodies will adopt a different attitude in planning policy by moving from planning-by-admission to planning-by-invitation. This means municipalities must actively seek out and encourage potential initiators (Buitelaar et al., 2012). Facilitating and finding initiatives in society is of importance (Van Baardewijk et al., 2013; Van Rooy, 2011), which makes stimulating ESBCH-initiatives a municipal motive.

Scarcity or financial crisis

Self-build is stimulated by capitalistic governments in times of financial crisis and scarcity to stimulate the ''cash-flow'' and let building-numbers rise in society (Aalbers & Christophers, 2014; Bossuyt, 2021; Ward, 1976). However, Beenders (2011) states the self-build numbers even declined in the financial crisis of 2008, despite the stimulation. Lloyd et al. (2015) relate this to neoliberal politics and critically indicate that, looking at the low Dutch self-build numbers, its limited provision is not likely to solve the housing shortage. Moreover, it will definitely not get the housing sector out of an economic recession (Lloyd et al., 2015). Nevertheless, self-build does contribute to more housing and is less vulnerable to effects of the financial crisis (Bossuyt et al., 2018).

Adaptivity

Cozzolino (2020) describes self-building as being one way of adaptive planning to avoid building new anti-adaptive neighbourhoods. Most 20th century buildings are namely anti-adaptive (Ibid), which implies that the built environment is not able to respond to changing circumstances and people's needs over time. Cozzolino (2020) states that (collaborative) self-building has the potential to distribute ''design control'' which naturally results in reaching complexity and variety in housing. Characteristics of adaptive neighbourhoods that relate to CSBH are small-scale design, multiple people involved in the designing process and (mostly) independent ownership per unit. The underlying motive of the government is to serve the public interest and to prevent deterioration.

2.7 Conceptual model and operationalisation

This chapter's information enabled the construction of the conceptual framework visible in figure 10.

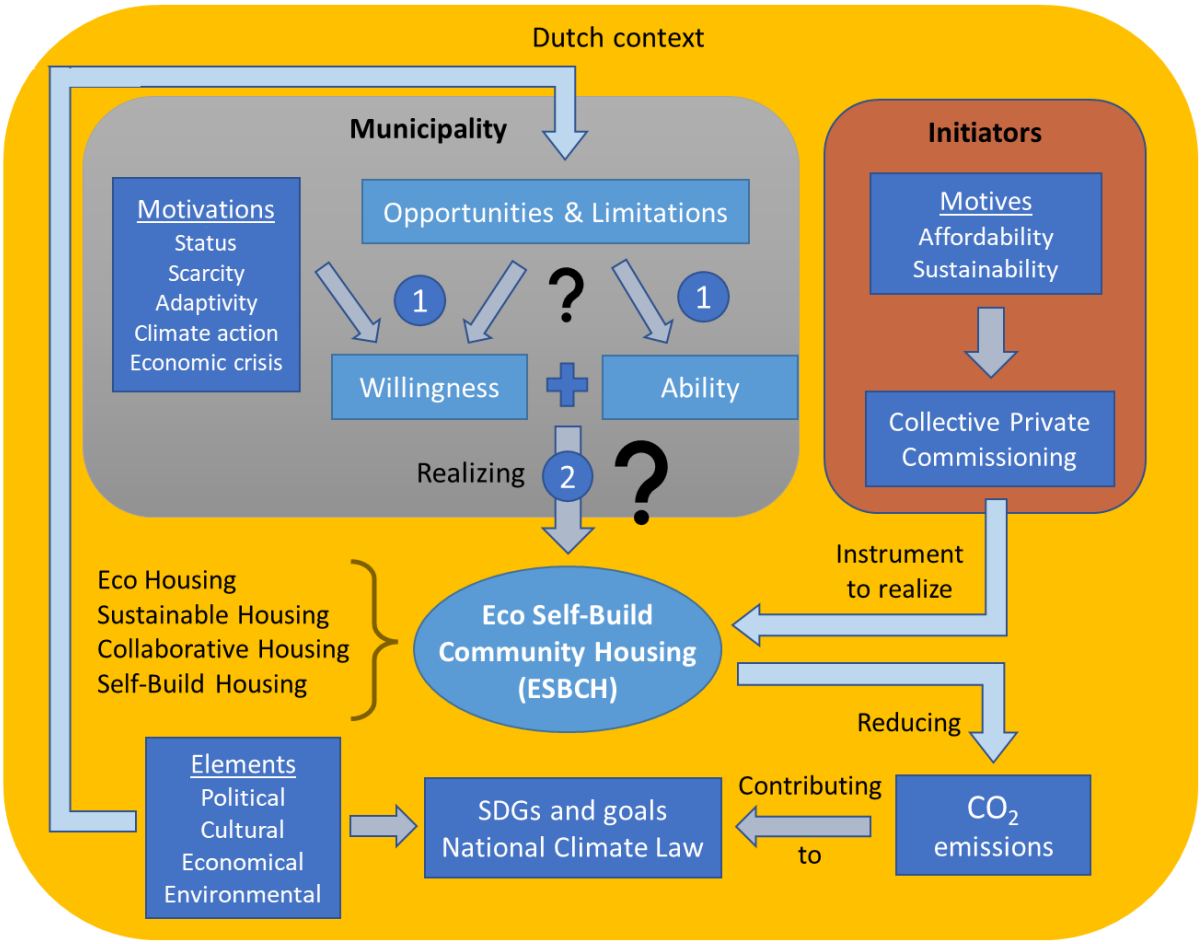


Figure 10: Conceptual model of this study (by author).

ESBCH is predominantly relevant for sustainability as it uses no fossil energy. This enables reducing CO_2 emissions for the housing sector, which contributes to obtaining the international SDGs and the Dutch National Climate Law's goals. These sustainable goals are influenced by political, cultural, economic and environmental elements, which also influence the municipality's willingness and ability regarding political ambitions and financial possibilities. A municipality's willingness is also influenced by their motivations. In the literature study the municipality and initiators are emphatically highlighted and, therefore, obviously present in figure 10.

CPC is used to make ESBCH in the Netherlands possible. ESBCH is more sustainable and has the potential to be more affordable than conventional housing in the Netherlands, which are motives to conduct eco-housing collectively via self-build. The concept ESBCH is formed by combining the concepts eco, sustainable, collaborative and self-build housing. Opportunities, limitations and motivations are elements that enable indicating a municipality's willingness and ability (Urban, 2008). This study's empirical part, first, identifies the motivations, opportunities, limitations and motivations present in Rijswijk and Het Hogeland for realizing ESBCH-projects, which can be connected to a municipality's willingness and ability. This enables to discover the affect of a municipality's willingness and ability on the realization of ESBCH-projects.

3. Methodology

It is crucial to have a well-planned research design to ensure the used methods match with the study's aims. This study aimed to identify municipal opportunities, limitations and motivations in realizing ESBCH in the Dutch context. These opportunities, limitations and motivations connected to willingness and ability of a municipality can help find an explanation for the differences in ESBCH-projects per municipality, but also, help explain how municipalities could better stimulate such initiatives. The main research question *What are the municipal opportunities, limitations and motivations for realizing Eco Self-Build Community Housing in the Netherlands?* calls for a qualitative approach. Qualitative research enables to figure out those opportunities, limitations and motivations, because it allows to very specifically obtain and delve into new information, pulling-out information that would otherwise stay hidden.

Lichtman (2013) states qualitative research is a method to study humans' interactions that occur naturally, where the researcher understands, interprets and legitimately describes the acquired information. In this way, qualitative research uncovers the impact and meaning of certain behavior like experiences, evaluations, and motivations (Lichtman, 2013). This corresponds to this study's aim to identify municipal opportunities, limitations and motivations in realizing ESBCH. This chapter justifies the methodological choices made in this study and reasoning behind these choices.

3.1 Collecting theoretical data

To be able to answer the four theoretical subquestions, existing data and insights of different authors have been collected by means of a literature review as those questions are more theoretical and exploratory in nature. By doing so, a picture of the main statements and concepts investigated in this study can be obtained. The sources used for the literature review were selected via Google Scholar, SmartCat and the University of Groningen Library using predominantly the variously combined keywords: eco communities, eco-housing, climate change, CPC, CSBH, Dutch context, Netherlands, ESBCH, sustainable communities/housing, SBH, sustainability goals, willingness, ability, spatial planning context, motivations, motives, initiators, municipality, role of housing in CO_2-reduction, SDGs.

3.2 Collecting empirical data

The empirical study aims to get an in-depth understanding and explanation of the differences in conditions between (i) a municipality having successfully stimulated an ESBCH-project and (ii) a municipality which aspires to stimulate ESBCH-projects but has, so far, not found a way to do so. To investigate two municipalities as case studies, semi-structured in-depth interviews are used. Because this study was conducted alongside an internship at the municipality of Het Hogeland in the province of Groningen, conversations parallel to the recorded interviews were also held. Moreover, supplementary materials of written documents and emails were used for verification-purposes, (additional) questions and additional information for the cases. The cases are subsequently investigated in case study research.

Case study research used in analyzing two projects

A case study investigates a contemporary phenomenon within a real-life context and the ability of case studies is getting grip on that phenomenon to discover characteristics, meanings and implications in a certain context (Flyvbjerg, 2006). This enables making statements on a larger level and, for example, discover reasons behind differences between cases (Ibid). This study analyses thoroughly the realized ESBCH-project *Geworteld Wonen* in the municipality of Rijswijk and *De Kleine Plantage* in the municipality of Het Hogeland as a project getting close to ESBCH. This study gathers new information and is characterized as a descriptive and explorative case study.

Case studies are often used in situations where finding a precise solution is hard, just as in this case as any municipality has a different composition, and similarly the projects are always context dependent (Flyvbjerg, 2006; Gustafsson, 2017). This study attempted to gather new information from the case studies to unravel what makes the relevant project successful or experience struggles. This study focusses on the municipal opportunities, limitations and motivations to realize ESBCH, in which the process of two ESBCH-projects from the idea towards realization is analysed. Due to the aim of explaining and exploring a project in depth, not all initiatives in the Netherlands labelled ESBCH could be analysed, which makes this a typical case study research. Seawright & Gerring (2008) state that, to have representative cases, a case study has to comply the phenomenon's typical characteristics. Operationalising ESBCH, the housing development and associated land should (i) be significantly more sustainable than general housing developments (ii) the future residents be involved in the construction and (iii) people with a common interest or social group work and share space together. These are already criteria for selecting cases, which were found on ''www.omslag.nl''. Those examples were categorised as ecovillages, and it was noticed that most projects used CPC. Moreover, Het Hogeland did want to know what their possible role in facilitating/stimulating ecovillages by CPC could be.

The major entity analysed in this study as unit of analysis (Yin, 2003) are the municipality, the company Inbo as initiator and an association's initiator as initiator involved. Moreover, the Netherlands are the geographical unit and process is defined from initiation to today's status. Geographically, this research examines Dutch cases to make a meaningful comparison, whereby Dutch policymaking and policy implementation relate to the cases and thus the Dutch borders. Moreover, the cases create geographical boundaries of municipalities as each municipality has own city council for political considerations and is unique. In table 2, the case selection criteria for the best-practice case *Geworteld Wonen* are visible.

Table 2: Case selection criteria case I Geworteld Wonen (by author).

1.	The case is a realized housing project located in the Netherlands	Dutch housing
2.	The case is in line with a minimum of 4 out of 5 criteria of eco-housing	Dutch eco-housing
3.	The case represents collaborative housing	Dutch eco community (housing)
4.	The case is self-built by using the CPC contract form	Dutch eco self-build community housing
5.	The municipality is known for sustainable housing projects	Best practice municipality

Het Hogeland is a municipality aspiring to get more eco communities, but faces difficulties stimulating and facilitating such projects. They had questioned why Het Hogeland did not have eco communities at all, related to CPC, in comparison with other municipalities. The spatial planning experts of Het Hogeland provided the case *De Kleine Plantage*, because it is a project in progress which is located and gets the closest to ESBCH in Het Hogeland.

Since an underlying aim is to explore, compare and contrast in what ways case I and II are different to explain why there is an ESBCH-project in municipality A and not in B. Furthermore, the way in which the cases are selected and basic knowledge on the municipal's sustainability goals and practices were discussed. The information expected from the cases is a description from the process from initiation until the current situation that relates to municipal opportunities, limitations and motivations.

Figure 11: Geworteld Wonen in Rijswijk (province of South-Holland) and De Kleine Plantage in Eenrum (province of Groningen) (adjusted from Google Maps, 2022).

Case I: Geworteld Wonen in Rijswijk

Over the years, national newspapers and gardening magazines paid frequently attention to *Geworteld Wonen* as an example for and a new perspective on Dutch housing. The newspaper AD (2014) mentioned the project as a typical example for the participative society and residential group 2.0; standing out of other projects. Tuinjournaal (2015) paid attention to the unique community garden uniting people. The municipality of Rijswijk is known as a front-runner in sustainable housing in the Netherlands by having the most sustainable residential area of the Netherlands: *RijswijkBuiten* (Dekkers, 2018). The reason is Rijswijk being the first Dutch municipality building natural-gas-free on larger scales, installing heat pumps, recycling heat from sewages and CO_2-driven ventilation (Setz, 2014). Rijswijk is in many innovative projects the prominent municipality in the Netherlands. For instance, on March 30th, 2022, Rijswijk was the first municipality applying co-commissioning in apartment constructions (Rijswijk, 2022). However, Rijswijk on average scored, in 2021, even lower on sustainable housing than the Dutch average (GDindex, 2022). While on average Rijswijk does not have the most sustainable housing, they are front-runner in experimental space for sustainable housing.

The project *Geworteld Wonen* is located in the municipality of Rijswijk, the Netherlands (see figure 11). It has the principles of eco-housing, with as a starting point wooden constructions, natural and recycled material use, no use of fossil energy, waste-limitation and using compost biodegradable residues (Inbo, 2018; Seegers, 2015). The project is built fossil gas-free, generates energy by solar panels, biological food production on site and uses, for example, recycled façade panels. This makes *Geworteld Wonen* meet 4 out of 5 criteria of eco-housing. The use of materials from the region could not be verified. A principle is the collaborative housing manifested by designing dwellings' architecture and plot collectively and having group facilities, like a shed and community garden (Inbo, 2018). Self-build housing is a principle in this as the future residents decide the design of the housing and the plot themselves, which is conducted by using CPC. These made *Geworteld Wonen* a realized case correspond to the criteria. Figure 12 and in appendix IX impressions of *Geworteld Wonen* are displayed.

Figure 12: Impression of the ESBCH-project Geworteld Wonen in Rijswijk (Inbo, 2018).

Geworteld Wonen focusses primarily on ecology, sustainability, social cohesion and urban agriculture (Ibid). In total, 20 apartments, 27 single-family homes, (vegetable) gardens and a communal shed were completed in 2018. *Beyond Now* and *Inbo* are companies with experts in the field of project development (Ibid). *Inbo* initiated the idea for this project before the future residents were present and energized this CPC-project as an overarching party and architectural firm. This made it interesting to interview someone from Inbo as well. The current residents have united as future residents as a residents' association (Ibid): *Bewonersvereniging Geworteld Wonen*.

Case II: De Kleine Plantage in Eenrum, Het Hogeland

The project *De Kleine Plantage* in Eenrum is located in the municipality of Het Hogeland with the central garden visualised in figure 13. Participant X, one of the project's initiators, indicated the homes will have wooden constructions as natural materials, use no fossil energy and are built energy-efficient. Collaborative housing expresses itself in a group of future residents deciding about the shed, designing and maintaining the shed and garden. Besides that, every individual plot-owner decides the house they would like to be built, thus SBH. At the municipality, the initiative was registered as a CPC-project (Het Hogeland, 2022d). However, during the interviews it was found out not being a CPC-project, but a collective operating in an association. Today, the project is at a standstill, but has potential regarding the ESBCH-motives for more eco/sustainable housing in the region. Moreover, there is way less pressure on space in this municipality than in Rijswijk. Thus, pressure on space is apparently not the primary reason for the difference in ESBCH-projects per municipality, which makes *Geworteld Wonen* even more relevant to study.

The team sustainable development of Het Hogeland takes the UN's SDGs as starting point, which are captured in the municipal policy of Sustainable Development. De VNG (2018) has conducted guidelines for implementing the SDGs as municipalities (see appendix VII). For each project that team examines the existing links with the SDGs and takes opportunities to make links, as the policy advisor sustainable entrepreneurship indicated: *We* (team sustainable development) *concluded that many SDGs are actually the municipality's daily work, but it is important to attach a goal to existing activities to create insights. However, this takes much time. Many colleagues are still unfamiliar with the goals and do not know how to translate them into their own policy area. While they do often have been working on achieving those goals for a long time.*

Looking at subsidy schemes, the municipality has, for instance, the Regional Energy Desk regarding using (sustainable) energy with i.e. energy coaches. Yet, the policy advisor indicates that, apart from specifically for homes affected by earthquakes (Het Hogeland, 2022a), there are no municipal subsidies for the measures themselves. Concerning livability, this is only possible for public activities and events (Het Hogeland, 2022b). Regarding climate adaptation or SDGs regards housing, there are no subsidies of the waterboard Noorderzijlvest as well. According to the policy advisor, the municipality does have two loans: the starters and stayers scheme that can be used for numerous investments, such as sustainability. Still, there is a homeowner incentive scheme and business incentive scheme as a council proposal programmed. All loans correspond to SDGs 7, 10 and 11 (Het Hogeland, 2022b).

Figure 13: The central garden of De Kleine Plantage (NPO, 2019).

Semi-structured in-depth interviews

To answer the empirical questions, the case studies are conducted, which are mainly answered by data from semi-structured in-depth interviews. The cases determined from which representatives of municipalities, organizations and initiators could be interviewed. Interviewing enables to really dive into a subject and give respondents the freedom to express their detailed view expressing thoughts, meanings, intentions, feelings and context (Lichtman, 2013). This connected to this study's empirical questions considering municipal motivations, opportunities and limitations in realizing ESBCH and comparing Rijswijk's and Het Hogeland's willingness and ability influencing ESBCH's realization. It was relevant to get in-depth information on experiences, opinions and expectations on the topic ESBCH, which is not yet studied that widely, to answer the empirical questions. Therefore, interviews are most suitable. Moreover, the one-hour interviews allowed to ask follow-up questions directly to go into detail. The interviews were all audio-recorded and all interviewees have been informed about the study's goals and signed a consent form before conducting the interview.

The conducted interviews in this study are semi-structured; a medium form between unstructured and structured interviews (Lichtman, 2013). That choice depends on the studied situation. In an unstructured interview, questions vary per interview and a fixed structure in questions in advance is absent (Ibid). This makes new information easier to find, because the interview can be tailored to the interviewee's expertise. Moreover, if something interesting is indicated, there is continued on without having to stick to an underlying structure. By contrast, structured interviews have predetermined questions that are identically asked in different interviews (Ibid). Fontana & Prokos (2007) explain that structured interviews limit the interviewer's freedom to respond to new information. Verification is important, which is easier with structured interviews, but necessary for all types of interviews when audio recorded. This simplifies comparing quotes. Semi-structured interviews imply some general broader topics of interests loosely structuring the interview's focus and, within the topic, questions are often tailored per respondent (Fontana & Prokos, 2007). As a result, more attention can be paid to the respondent's input, while the underlying structure is remained. This study applied three different interview guides per subtopic (see appendix VI). Semi-structured interviews are best suited to this study, because it allows to easily compare different answers from respondents as well as for further questioning on specific information in a flexible way.

This study's semi-structured interviews are in-depth, which differ from other interviews due to their broader scope (Lichtman, 2013). This enables respondents to give their input, based on their own assumptions and terms, while the in-depth technique considers that the interviewer does not know all the applicable questions to ask (Ibid). Thus, there is elaborated on the respondent's answers for which semi-structured interviews enhance opportunities.

Supplementary material: Written documents and email

After the interviews, additional information from respondents was received as reports. An example is a process-documentation by Inbo of realizing *Geworteld Wonen*, in which various stories of residents are discussed. Furthermore, a few (additional) interview questions were sent per email for i.e. verification. When online documents or websites were used, the expertise of the author was checked, like Inbo or governmental documents.

3.3 Selection of respondents for interviews

The respondents were chosen based on their involvement in the two cases. For Het Hogeland, extra interviews for sustainable CPC-projects were held to provide insight in the municipality's general role in ecovillages using CPC. Moreover, a preference for municipality officials existed, as this study specifically focusses on the municipality's role in realizing ESBCH. This is the reason, together with the fact that many initiators did not want to cooperate in this study, why only one initiator (simultaneously initiator) is interviewed. Nevertheless, it was valuable to not only interview municipal officials as this initiator could indicate thoroughly why *De Kleine Plantage* is at standstill. Besides, for *Geworteld Wonen* an architect of *Inbo* was interviewed who was involved from initiating the project until today. Some interviews took place in real-life and some through online services, like Google Meet and Microsoft Teams. Almost all interviews took an hour or more, because the purpose of the interviews was to really dive into the whole process of the case's realization.

Considering the transparency of the research, all interviews have been recorded and anonymised versions of transcripts can be requested from the researcher via his email address (see title page). Table 3-6 show this study's respondents per sub-study. For anonymity reasons, participants are numbered, their function is generalized, and the interview date is omitted. In the chapter results is referred to the respondent's function to indicate their expertise and connection to the project.

Table 3: Interviewee Het Hogeland & goals sustainable housing (by author).

Name	Representative organization	Function as referred to in the results
Participant 1	Municipality of Het Hogeland	Advisor sustainability

Table 4: Interviewees case I project Geworteld Wonen in Rijswijk (by author).

Name	Representative organisation	Function as referred to in the results
Participant 2	Municipality of Rijswijk	Representative RijswijkBuiten
Participant 3	Inbo	Architect
Participant 4	Municipality of Rijswijk	Financial advisor

Table 5: Interviewees sustainable CPC-projects in Het Hogeland (by author).

Name	Representative organisation	Function as referred to in the results
Participant 5	Municipality of Het Hogeland	Urban designer (I)
Participant 6	Municipality of Het Hogeland	Project leader area development (I)
Participant 7	Municipality of Het Hogeland	Project leader are development (II)
Participant 8	Municipality of Het Hogeland	Spatial planner (I)

Table 6: Interviewees case II project De Kleine Plantage in Eenrum (by author).

Name	Representative organisation	Function as referred to in the results
Participant 9	Municipality of Het Hogeland	Urban designer (II)
Participant 10	Vereniging De Kleine Plantage	Initiator
Participant 11	Municipality of Het Hogeland	Spatial planner (II)

3.4 Data analysis

During the interviews notes were taken, which provided an initial hold on interesting contributions for the study. Considering all interviews were audio-recorded by permission, the opportunity arose to transcribe the interviews. Based on the main research question and the literature study, certain predetermined concepts, phrases and words could be coded. Coding is the process of assigning categories to collected information (Barbour, 2013). This study used inductive and deductive coding. For the deductive coding, the codes originated from the theoretical framework and are incorporated in the conceptual model. This enabled to evaluate similarities and differences between existing data and this study's results. Inductive coding involves using new data to formulate codes, which can lead to new theory. This is relevant as ESBCH is a limitedly discussed concept (Newberry et al., 2018). There were quotes from the interviews that did not correspond to the deductive codes from the literature study. Therefore, this study formed inductive codes as well from the respondent's answers. For example, the concepts personnel and active/passive land policy are mentioned in the literature study (deductive coding), but the leasehold arrangement is not (inductive coding).

Coding enabled to structure the interview data. In figure 14 and 15 the code trees for willingness and ability are visualised. These provide insight in which code corresponded to which overarching theme (the aggregate dimension) and relate to the conceptual model (literature study) and results. To clarify, different colours per group of concepts are used. The concepts are used to attach codes to quotes from the interviews. The second order concepts illustrate the overarching concept of the coded concept and the aggregate dimension. All quotes in the chapter results are literal quotes from the interviews, but have been translated from Dutch into English for this thesis. While translated as carefully as possible, this could mean that something is interpreted slightly differently than it means in Dutch. To prevent this, the quotes were returned to the respondents. A few respondents requested this themselves prior to the interview.

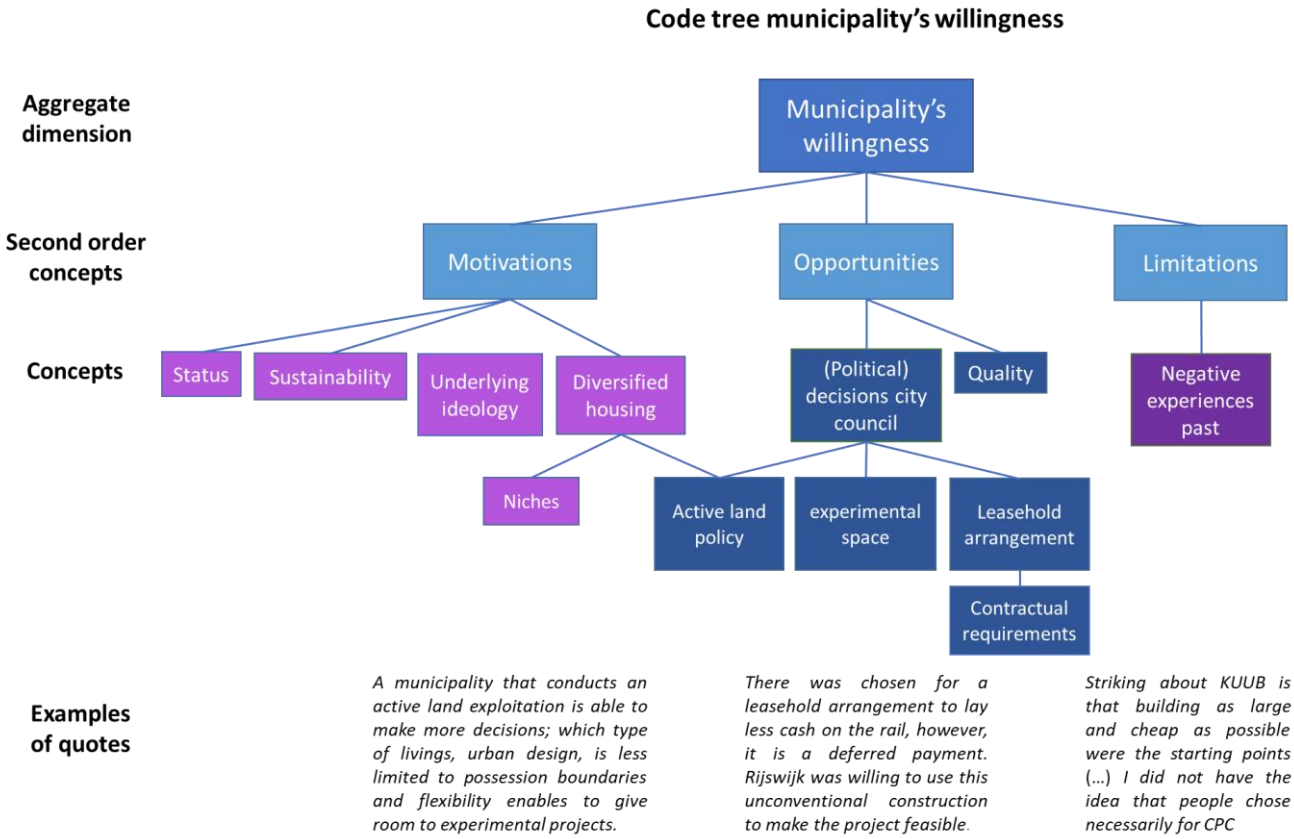


Figure 14: Code tree willingness illustrating how the aligning data has been coded (by author).

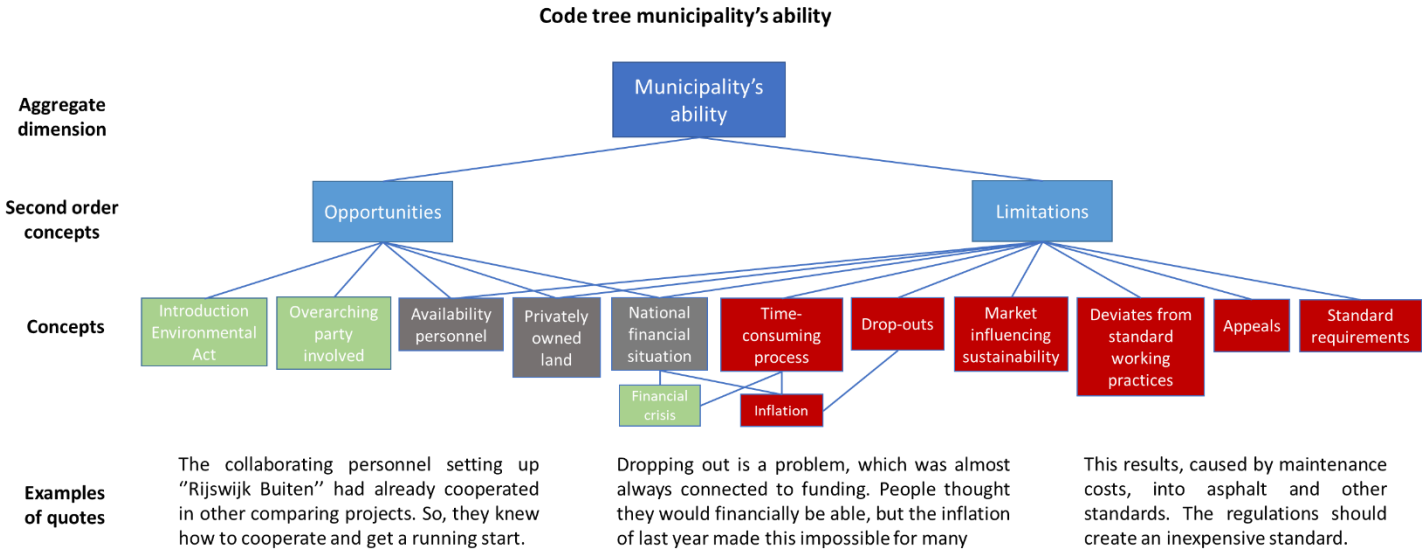


Figure 15: Code tree ability illustrating how the aligning data has been coded (by author).

3.5 Ethical considerations and research limitations

Lichtman (2013) indicates that regarding objectivity, validity and reliability, qualitative research is slightly different in comparison with other forms of research, but incredibly important. An interview examines people's perceptions and that is by definition subjective. This also applies to the researcher who interprets the information. Therefore, ensuring the research is verifiable is important. For instance, the quotes from the interviews with interpretation are fed back to the respondents. Concerning validity, the research should measure what it is supposed to. This study used triangulation concerned multiple interviews using the same interview guide and ecological validity for the colliding of results with previous research. Subsequently, it was examined whether there are similarities in the literature (with corresponding concepts). Regarding reliability, the context has been described as clearly as possible above indicating which experts were interviewed with which expertise, how the participants are chosen, the questions that were asked and in which circumstances the research was conducted. Moreover, all interviews are audio-recorded. This paragraph continues on objectivity, validity and reliability.

Questions were asked as neutrally as possible by ensuring questions were asked that did not point in a particular direction and adopting a neutral tone. O'Leary (2010) argues that for the ethicality of a study the researcher is well prepared, has a professional attitude and performs aftercare to the study devotedly. The respondents were informed about the study and objectives at the study's start and their rights respecting i.e. cancelling the interview at all times using the informed consent form (see appendix V) besides information per email or verbally. When the study was completed, the respondents were sent the study as a thank you for participation. The study having no embargo enabled this.

Specifically for interviewing, due to diligence being required concerning informed consent, privacy and protection from harm (Fontana & Frey, 1994). Informed consent means that the respondent (interviewee) agrees to participate in the interview and is fully informed about the study's objective. This study did this by using the informed consent form in appendix V. The signed ones are not included for safeguarding anonymity. Right to privacy contains protecting the identity of the respondents. The real names are not used and replaced by numbers. This is of importance for ethicality as the anonymity and privacy of the respondent has to be respected, which means that no information could be traced back to a certain person (Lichtman, 2013).

This means that the respondent should be able to say anything without negative consequences for, for instance, redundancy. Moreover, the collected data is treated confidentially as the recordings will not be shared to third parties and are kept confidentially as a password protected encrypted file on a password protected computer.

Some interviews are conducted digitally. Fielding et al. (2008) argue that digital software could be perceived to advanced for (potential) respondents and technological issues can occur. Looking at the dated source and the corona epidemic in which everything went online, most people will be acquainted with digital interviews and for every interview there was an option to conduct it on location. In addition, a constant internet connection was used and 5G of a phone was an option if this failed. Bias means that the interviewee has prejudices, and this influences the conduct of the research. Because, for instance, personal characteristics, values and beliefs can negatively influence the objectivity of the research, everything was done to counter bias. Examples are basing interview questions on input from literature and conversations by experts, asking questions in a neutral tone, asking questions that do not point in a certain direction and prevent to express the researcher's personal opinion. This is done when possible and if something related to this is indicated, it is mentioned in the discussion chapter. There is some bias for choosing Het Hogeland as municipality as the internship obligated to choose a project within Het Hogeland. The next chapter discusses this study's main results.

4. Results

This chapter explains the municipal motivations, opportunities and limitations of realizing ESBCH in the municipalities Rijswijk and Het Hogeland. This is based on, first, the already established ESBCH-case via CPC: *Geworteld Wonen* in Rijswijk by discussing the reasons for success. Second, the present interaction of Het Hogeland with CPC is discussed; a municipality aiming for more eco-housing. Third, the collective project *De Kleine Plantage* in Het Hogeland, which is under construction, is discussed to discover the difficulties faced by realizing this collective and sustainable project. Lastly, the two case studies are compared on elements affecting their realization.

4.1 Case I: Geworteld Wonen Rijswijk

Motivations

Diversified housing

The financial advisor and representative of RijswijkBuiten[2], both connected to area development RijswijkBuiten, indicated that in 2005 municipalities wanted to expand their built-up areas to meet housing demands. The municipalities of Delft and The Hague tried to claim greenhouse area ''Rijswijk-Zuid'' via project developers, which would become ''RijswijkBuiten''. In response, the city council of Rijswijk decided to apply the ''Wet Voorkeursrecht'' to actively develop the area themselves corresponding to their goals and desires. The representative explained: ''*This law entails that the land for sale should be offered first to the relevant municipality''.* The financial advisor explained the motivation to exploit land actively for Rijswijk was to meet the diversified housing demands of inhabitants instead of only having standard dwellings and being able to take bigger steps in sustainable development. Part of this is reserving experimental space for Geworteld Wonen. This indicates the municipality's willingness for the realization of RijswijkBuiten and subdevelopment Geworteld Wonen.

The city council's decisions and actions were crucial for developing RijswijkBuiten. The representative explained that the city council decided, considering the municipality's sustainability ambitions, to redeem greenhouse owners and build the entire project gas-free. This decision in 2007 and realization later was unique on this scale for the Netherlands according to all three respondents. Gas connections were obligated back than, thus, a reasoned deviation was required. The financial advisor emphasized that even the location did not detract the sustainability motivation. He exemplified: ''*It was a greenhouse area, thus, the municipality had to pay for removing all gas pipes, which cost 150.000 euros for central-located dwellings.* This shows the city's progressiveness and willingness to first-ever build a whole neighbourhood gas-free.

Sustainability

An additional positive effect of future residents being so involved in the designing process is that they barely move house, when compared to Dutch average as the architect stated: ''*CPC counteracts moving out. When people move out a house, they throw away much stuff and buy lots. The new habitants do that as well with new kitchens and bathrooms as a result. When people hold to a certain dwelling, it promotes safety and limits environmental impact. Furthermore, in this project re-using products is incredibly important for the habitants''.* The financial advisor stated: ''*every move out results in seven moving outs''.* Every house is reoccupied after previous residents left it. This makes involving future residents in the designing process of dwellings a motivation to stimulate sustainable behavior and contributes to the municipality's willingness to realize CPC- and ESBCH-projects.

[2]*Hereafter referred to as ''representative''*

Status

Municipal status was a motivation as well. The representative announced that each cooperating party benefited: ''*Eventually, happy habitants with their dwellings, happy architect for advertisements, happy municipality with a national impression''.* The financial advisor emphasized municipal advertisement cost money, which substantiated this investment and illustrated Rijswijk's willingness to realize *Geworteld Wonen*. The architect identified *Geworteld Wonen*'s importance as advertisement for Inbo: ''*It is about having courage.* (…) *If we at Inbo talk about social impact, we immediately say: Geworteld Wonen. It is all about social* (…) *energetic* (…) *and material sustainability, like the façade material made of recycled plastic''.* This corresponds to how Newberry et al. (2021) described ESBCH. All parties have contributed to *Geworteld Wonen*'s success, which do not all visitors understand directly. The representative mentioned the example of the Minister of Housing visiting *Geworteld Wonen*, who simply concluded that building gas-free was possible without subsidies. He ignored all the parties' dedication and necessary actions to come to achieve this success, just to confirm his liberal point of view that no subsidies were necessary for such projects.

Opportunities

Active land exploitation & reserving experimental space

The financial advisor and representative emphasized the city-council made use of the opportunity to create preconditions, like the active land policy and type of housing, whereafter the project team started. The financial advisor explained the opportunities of active land exploitations: ''*Facilitating land exploitations concerns the zoning plan* (municipal requirements)*, while active land exploitations imply the municipality acquiring land herself. Municipalities conducting active land exploitations can make more decisions; type of livings, urban design, less limitation to possessional boundaries and more flexibility for experimental projects''.* ESBCH-projects practice this innovative, experimental space. The municipality still owns the land, which is special, according to the financial advisor: ''*Normally, the project developers have much money and want to develop their plan. Here, Rijswijk decided by conditions who is allowed to build''.* He explains this is possible as the municipality does not have a profit target, but a profit prospect, for a cost-neutral area development. The municipal council deciding to use an active land policy and reserve experimental space corresponds to Rijswijk's willingness to facilitate experimental projects. He states that a large development as RijswijkBuiten entails opportunities for experimental space, like CPC-projects, by making more profit on subarea X and acceptable loss on subarea Y. This occurs in larger extents for social housing. Moreover, the financial advisor noticed that time-investment of the alderman of GroenLinks[3], which connects to the administrator's willingness, helped the project's realization.

Overarching party involved

For the experimental space a project had to be found. From here, the designing company ''Inbo'' got involved by presenting the municipality the project *Geworteld Wonen*. The representative indicated this fitted the municipal aims perfectly for diversity in housing stock and biodiversity. However, Inbo had to prove that future residents could be brought together, which was difficult during the financial crisis (2011/2012). The architect explained *Geworteld Wonen* differs from general CPC-projects: *Normally, CPC-projects start with a group of people with certain ideas. Here, Inbo was the initiator taking the area's horticultural history as starting point and attracted future residents.* Inbo saw the added value of CPC according to the architect: *''CPC is about the most shared opinion, the most optimal choice group-wise. On your own you go faster, but together you achieve more!''.* Inbo's presence to construct a CPC-project coinciding with their aims was an opportunity for the municipality and formed the ability to realize *Geworteld Wonen*.

[3]*Political party striving locally primarily for an open, social and green Rijswijk, see:* Home | GroenLinks Rijswijk

Leasehold arrangement

Rijswijk enabled future residents financially to purchase dwellings by a leasehold arrangement. The representative explained: ''*Rijswijk was willing to use this unconventional construction to make the project feasible, however, it is a deferred payment''.* The financial advisor pinpointed: ''*Residents only pay* (yearly) *for the collective land and that land is tax deductible. This results in more financing capacity than when taking out and repaying a mortgage.* (…) *The collective responsibility limited the construction's risk''.* Only the land beneath the dwellings can be bought, which most residents already did. The leasehold arrangement demonstrates Rijswijk's willingness to enable realizing *Geworteld Wonen*.

An opportunity of the leasehold arrangement that has strengthen the municipality's willingness to enter the leasehold arrangement is that obligations for semi-public space can be included. The financial advisor demonstrated: ''*Listed in the contract is a ban on parking, a certain amount m^2 of green space and maximum paved surface.* The representative added: *You want new residents to have the same ideals.* (…) *according to the contract the middle area should be designed as a publicly accessible natural garden. The same applies to playground equipment paid by the municipality and the vegetable garden's required educational function.* The semi-public space and education are important parts of the project, which the information board in figure 16 illustrates.

Figure 16: The 'house rules' when entering the semi-public space of Geworteld Wonen (photo by author).

Personnel & agreements

An opportunity was the experienced personnel working on RijswijkBuiten according to the financial advisor: ''*The collaborating personnel setting up RijswijkBuiten had already cooperated in other comparing projects. Thus, they knew how to cooperate and get a running start''.* He also advised this for other CPC-projects and to have financial agreements: ''*Ensure having a project leader experienced in CPC and listed agreements, financially in particular. For example, the communication about land prices, what is inclusive and exclusive''.* Besides, he expressed it could be more feasible to build CPC-projects more extensively to need less municipal financial support, like Mandora in Houten. However, there are even more opinions to deal with, increasing the chance of delay.

All respondents agree that the financial crisis contributed to realize *Geworteld Wonen*, such as the then related availability of personnel. The architect indicated that such CPC-projects can be a huge chance in financial crises. The architect enclosed by saying: ''*Nowadays, there is a huge staff shortage at municipalities, despite the challenges society faces*[4]*''.* This points out the availability of personnel was an opportunity during the realization of Geworteld Wonen, but today's shortage is a limitation. This connects to a municipality's ability to support projects.

Financial advantages

The initiators did not pay the highest price. The financial advisor gave tree out of four reasons. First, due to the financial crisis. Second, the area was in a pioneering phase: ''*In an area that is under construction people must wait for a supermarket, school and experience nuisance of building activities. They receive a financial advantage, no discount, for that situation''.* Third, the public space was not constructed by the municipality: ''*Instead of paying the municipality in the land price, they kept that money to install, for instance, streetlights and infrastructure themselves''.* Fourth, the representative said the future residents did not pay the market-value, but Rijswijk was willing to facilitate it by not selling it for market-value, because: ''*Rijswijk was very much into sustainability and, as an advertisement, this project was perfect to contribute to our goals''* (see motivation status). The financial advisor announced that the financial crisis and location were an advantage: ''*The acquisition prices were generally excellent, however, for viable greenhouses overcharging happened. The location enabled this; well connected by rail, road and located in the Randstad, resulting in a higher selling price. Thus, in my opinion, this would not have been possible at every location in the Netherlands''.* The national financial situation and location relate to Rijswijk's ability to realize an ESBCH-project as *Geworteld Wonen*. The financial crisis, the area's pioneering phase, location and the future residents constructing the area were financial opportunities for Geworteld Wonen.

Limitations

Having the positive elements of *Geworteld Wonen* in mind, the question is why there are not considerably more ESBCH-projects constructed, for instance, in RijswijkBuiten.

Dropouts & Time-consuming process

There was absolutely no consistent group during the process as, according to the representative and architect, 37 out of the 40 original households quit and changed. They indicated time-investment, being too expensive and interest as main reasons to quit, which result in a longer-lasting process. The architect announced the intensive consultation structure: ''*I was facing the future inhabitants every three weeks to personally go through the situation. They suggested improvements and questions, we drawn, it went back to the contractor and a quotation returned to the future inhabitants''.* This does not only request time-investment from the initiators, but also from the municipality, the financial advisor: ''*CPC-initiators appear doing the commissioning. However, the municipality must invest time too''*. The representative indicated: ''*This time-consuming process acquires stamina and energy from both the municipality and initiators, because of consequently slow decision-making''.* The time-consuming process and dropouts, which reinforce each other, are limitations for the municipal ability to realize CPC- and ESBCH-projects.

[4]*The time has passed by that a piece of agricultural land was bought and build. Everything will get intensively complex, complex integration in my vision.* (…) *The storyline becomes intensively important and instead of the globalism, we are focusing on the local level regarding materials, living together, generating energy, cultivate food, becoming less dependent on the global economy''.* These elements recurred in *Geworteld Wonen*

Economical elements & niche

The architect explained the main reason why there are not considerably more ESBCH/CPC-projects constructed: ''*It is not financially feasible to construct an entire area this way''.* However, he emphasized: ''*Social housing and care homes result in much lower financial returns than CPC*''. This means the construction of earning money back within an area development is conducted more frequently for projects and the government plays a role in facilitation. This construction is necessary, otherwise the local authority's budget would be used pinpointed the financial advisor: ''*Using the municipal's budget is unfair towards Rijswijk's current inhabitants who would, then, pay for housing developments via municipal taxes. However, it is difficult to estimate property values of these highly uncommon dwellings* (ESBCH)*, the collective land and the apartments functioning slightly different than the soil-based dwellings''.* In other words, financially the municipality is limited in the ability to financially facilitate more ESBCH-projects. This financial constrain corresponds to Fu (2020) stating that financial ability can constrain willingness-to-act.

Additionally, the initiators-side causes the low ESBCH- and CPC-numbers as well. The financial advisor explained: ''*it is not feasible for every citizen to invest that amount of time and money in a project.* (…) *Moreover, it also depends significantly which alderman and city council is present with which ambitions.* (…) *It is difficult to come towards a collective agreement. Many people, many opinions''.* He also announced that plan-economically *Geworteld Wonen* could have been built somewhere else within the area development RijswijkBuiten at a lower land price, because the current location by navigable water for boats enabled selling the subarea for a higher price. For instance, the money could be invested in a larger ESBCH-development. This makes the location affecting the land price, which influences the ability to realize an ESBCH-project.

In the construction-phase the dwellings needed municipal investment, while they are sold nowadays for market-value. The financial advisor expressed: ''*The first family home was sold; 185m2 for 895.000 euros, exclusive the obligated 5.500 euros leasehold arrangement per year.* (…) *Altogether, this amounts 1.050.000 euros, which is 5.000 euros per m2, while the original dwelling was not even half of the price''.* All respondents were stunned about the more than doubled price. This is a limitation as it makes this CPC-project unaffordable for lower income households when sold in a later stage. This corresponds to Rehwinkel (2021) stating CPC-projects only being more affordable just when they are built for the first residents and are sold later for normal market-value later.

4.2 Het Hogeland: the view from the municipality on ESBCH-projects

This paragraph dives into the perception and experiences of staff of the municipality of Het Hogeland staff with (sustainable) CPC-projects in order to find an explanation why there are difficulties with CPC and, therewith, ESBCH-projects. This includes how Het Hogeland interacts with those initiatives and why those initiatives are not (yet) prioritized. This section is also relevant and underlying for the case discussed in section 4.3.

Motivations

Supporting niches

Employees of Het Hogeland have different opinions about if CPC has potential to better connect with people's housing requirements. The focus and ideology are according to spatial planner (I) clear: ''*A developer focusses on making profit* (…) *CPC-initiators are enthusiastic about an ideology and consciously choose to share land to cohabit instead of just a house''.* Urban designer (I) added to this developers' point of view: ''*It is all about making profit, not about doing the best for society. Ideal people to be project developers do not become it''.* In contrast, project leader area development (I)[5] indicated financial enforceability always plays a role for everyone, next to ideology, but project developers do not focus primarily on making profit: ''*I do not share the supposition of project developers only aiming for the maximum profit. A project developer aims for a saleable product with the price-quality-ratio being important.* (…) *Therefore, the largest-common-denominator is always his starting-point. They will offer a product, which matches the demand of 60-70% of the people, the mass-market. It gets difficult for the 30% who do not want the regular product. The government enforces qualitive restrictions, resulting in the inconvenience of very few niches being build''.* The latter corresponded to urban designer (I): ''*The market only builds for certain segments''*. Moreover, the project leader (I)'s quote corresponds to Beenders (2011) stating that project developers aim for a market-based product[6]. Because of the general rules not benefiting niches, which does not stimulate CPC, the motivation from Het Hogeland to help CPC-initiators is to foresee in more varied housing. However, spatial planner (I) indicated this happens insufficiently, because the municipality is not used to their role in facilitating CPC-initiatives. Nevertheless, Het Hogeland's motivation to support niches indicates the municipality's willingness to realize ESBCH-projects.

Political elements

The motivation, and therewith municipal willingness, to facilitate CPC-initiatives depends on the incumbent political parties as the distribution and type of dwellings are connected to political parties. Urban designer (I) explained: ''*CPCs are often derived from housing corporations* (…) *Because housing corporations corresponded to the PvdA's* (labour party) *political ideology, the VVD* (liberal party) *tried to break down housing corporations.* (…) *It is a mortal sin that spatial planning is connected to political parties*''. Project leader area development (II)[7] endorsed this political connection for KUUB[8]: *''KUUB's founder had a PvdA background''.* Thus, connecting CPC to a certain political party has the effect that other parties oppose CPC. This is a disadvantage for CPC-developments if counterparts of the labors are in charge and a municipal investment is necessary for the project's success, like for *Geworteld Wonen.* By contrast, according to Bossuyt (2021) and Lloyd et al. (2014), CPC is stimulated by liberal ideologies encouraging self-build. This does not correspond to CPC being labor-oriented.

[5]*Hereafter referred to as project leader (I)*
[6]*Beenders (2011) states this is a product that corresponds to the desires of as many people as possible*
[7]*Hereafter referred to as project leader (II)*
[8]*KUUB supports CPC-initiators developing their ideal home; see: Home - KUUB*

Underlying ideology

Previously, the municipal council and administrators of Het Hogeland spoke in favor of facilitating CPC. Moreover, political decisions enabled extra facilitation of *Stee en Adorp* by allocating extra money[9] and facilitating CPC was part of the housing vision of the municipality of Winsum[10]. This indicates the willingness of Het Hogeland to facilitate CPC-projects. Project leader (I) indicated the motivation originated from: ''*The idea that future residents coming up with a project is preferable over the municipality initiating a project''.*

Opportunities

CPC & quality

The literature study discussed self-build in relation to quality. Money saved by self-build could be invested in sustainable measures by initiators. Urban designer (I) argued that Het Hogeland can contribute to increased quality as well: ''*Objection procedures, administrative law, do not focus on content, but passing through the process.* (…) *With less process time-investment secure everything legislatively, there can be achieved much more in peoples' direct living environment by spending money differently. If 3% of the cases fails, that is much, thus, 97% of the time fictious certainties are created. The bottom-line is: the government does not focus on output, but process-wise''.* Spatial planner (I) nuanced this: *''Arrangements must be made between the municipality and citizens, so citizens know which obligations they must comply with before we approve the quality. This should be legally verifiable.* (…) *If someone receives a permit, this should endure. No one benefits if it is withdrawn later, definitely not a CPC as it will go bankrupt. Thus, you must be sure foolproof permits are assigned by following the procedural steps''.*

Project leader (I) accents the municipals' function is to review and facilitate, which makes less process-management and more investment in qualities difficult. He exemplified this struggle: ''*Responsibility for the process and quality includes the juridical quality preventing plans to fall at the Counsel of State. The policy advisors only focus on their policy principle. Thus, the area development is a large concession-making process between quality with corresponding costs and limiting the expenditures''.* Spatial planner (I) indicated possibilities for direct aid face restrictions: ''*The municipality can not help initiators by taking over necessary documents as a licensing authority. A conflict of interest appears when handing in a self-made permit. The municipality can advise initiators to reputable offices''.* In other words, the opportunity lies in advising initiators, which corresponds to Het Hogeland's willingness. Simultaneously, opinions differ about the opportunity to invest time and money in project quality instead of process-management.

Additionally, sustainable housing is thwarted by policy regulations, urban designer (I): ''*Ecologically building niches do not fit in most urban quality plans. Those plans raise projects scoring below the sustainable minimum, but simultaneously counteracts outstanding projects. To break that average and with rules as minimum starting-points, you need CPC-comparable projects, which allow initiators to create their living environment''.* In other words, CPC is a municipal opportunity to bring housing to a higher standard when rules allow them to. This affects the municipal willingness to stimulate CPC-initiatives. Project leader (I) urged to single out the eco communities from the standard CPC-initiatives.

[9]*According to project leader (I) KUUB could not bear the risk of developing Stee en Adorp's semi-public space, while the land price took that in account*

[10]*The municipality of Winsum is one of the municipalities that fused into the municipality of Het Hogeland*

Environmental Act 2023

The Environmental Act (2023) will decline the bureaucracy, which is an opportunity for CPC-initiatives, according to spatial planner (I): *''I expect that introducing the Environmental Act facilitates the tempo of licensing, as more work is done in a preliminary stage. This means a maximum of 6-8 weeks for licensing. This could be a salvation for CPCs as eight weeks are accessible''.* Project leader (II) indicated that the availability of municipal land and the city council being in favour of stimulating CPC-initiatives will not be an obstacle for the new Act's opportunity. By reason of the Environmental Act being a national law, this affects the municipality's ability to realize CPC-projects. This endorses Jans et al. (2016) indicating that laws are often connected to a governmental layer being able to do a certain task. In this case the Environmental Act enables municipalities to stimulate ESBCH-projects as the initiators have less chance of delay.

Limitations

National financial situation

Project leader (I) announced financial feasibility always plays a part in projects. However, urban designer (I) exemplified that from former financial advantages, which connects to financial ability (Fu, 2020), is not always been benefit of. The amount of land was only on Funda.nl indicating price on request, which suggests high prices and initiators did not seduce the municipality in the thirteen years they could. Today is not the right time for CPC-projects. Urban designer (I) explained: ''*These days everything is scarce, no materials to be found, tenders are only valid for one week due to rising prices. These are no desired conditions for a decision-making process of a group initiators''.* Project leader (II) added: ''*The opportunity of building ecovillages arises when the market is dozed off and no one takes the risk to build and buy a dwelling''.* In other words, CPC and ESBCH have more chance of success in financial crises. This also applies to the materials used, which today get increasingly expensive, which can be especially for time-consuming CPC-projects a dealbreaker. This limits the municipal ability to facilitate CPC-initiatives. Besides that, project leader (II) emphasized financially municipal follow-up actions must collide if Het Hogeland desires stimulating CPC, like obtaining and building plots and locations. Today, this happens too little, which makes an evident prioritization of CPC lacking.

Time-consuming process

Literature discusses the highly time-consuming CPC-process (Bossuyt, 2018; Beenders, 2011; Rehwinkel, 2021). The longer duration of CPC-projects is a limitation according to the respondents. For instance, project leader (II) announced: ''*People are mistaken in the duration. CPC does not anticipate in short-term housing demands.* (…) *Developing dwellings could easily take 15 years in the Netherlands, while mostly people need a dwelling immediately. This does totally not relate to the realization of an eco-village''.* Project leader (I) continued: ''*CPC is all about attunement. Many people, many opinions, many ideas. If a municipality must build 200 houses, houses must not be built via CPC as those people are discussing a considerable period to create a detailed plan, if they ever reach that* (…) *The society is too individualistic to obtain CPC''.* In other words, working towards consensus delays plans, especially in the Netherlands where from scratch until construction takes many years. This limits the municipality's ability to incorporate a CPC in an area development, especially when there is time-pressure on building dwellings. Project delay can also result in less sustainability due to rising material prices. Urban designer (I) exemplified: ''*A highly sustainable plan including sedum roofs and wooden constructions, but the quotation showed an increase of 200.000 euros. This made the project's sustainable intention impossible, resulting in more standard dwellings''.*

Personnel

This time-consuming CPC-process results in more municipal guidance than at a regular project according to spatial planner (I): ''*It mainly considers people who are accomplishing this process for the first time, which requires extra guidance''.* The capacity to guide initiators is a national Dutch problem according to him. Additionally, Het Hogeland has large numbers of long-term ill employees. Project leader (I) agrees with this. This all does not benefit CPC-projects. Moreover, hiring personnel is not optimal. Spatial planner (I) stated this results in unnecessary discussions and project leader (I) gave as reasons having no continuity in historic discussions taken place, less engagement in municipal policies and every expert having a different opinion. This does not benefit already time-consuming CPC-projects and limits the possibility of Het Hogeland prioritizing and facilitating CPC-initiatives. This makes the availability of personnel effect the ability of municipalities to facilitate and accompany CPC-projects.

Market influencing sustainability

The market influences measuring sustainability too. Urban designer (I) exemplified: *''The calculation tools measuring sustainability of materials are determined by the government coopering with the market, resulting in products they use being favored while being less sustainable''.* Moreover, concerning recycled materials he said: ''*The system is not designed to build sustainably as, for instance, product certificates must be delivered to applicate a license, which is not possible when using recycled materials. Therefore, the whole system is focused on new materials instead of recycled materials''.* However, in *Geworteld Wonen* recycled materials are successfully implemented. A reason why other respondents did not introduce this, is, according to his feedback, that they are not building their own dwelling from recycled materials and do not face this problem. This can counteract realizing ESBCH-initiatives using recycled materials and is therefore limiting the ability to realize ESBCH-projects. This corresponds to Bibri & Krogstie (2020) concluding that sustainable designs should be supported by regulations to achieve sustainable habitats. Additionally, sustainable and durable are both translated as ''duurzaam'' in Dutch. In order to stimulate ESBCH, urban designer (I) indicated that making a differentiation in sustainability and durability would benefit the realization of ESBCH and other sustainable housing on the market, because it makes an additional distinction and clarification for projects.

Requirements for CPC

General requirements limit the possibilities for personal terrain designs, project leader (I) stated: ''*Even if it is no public space, it must be accessible for emergency services''.* By contrast, spatial planner (I) does see opportunities here: ''*Normally, the public space returns to the municipality by a symbolic amount, which is undesirable for CPC, because consequently you must comply with standard rules for garbage trucks, parking spaces, road width. This results, caused by maintenance costs, into asphalt and other standards. The regulations create an inexpensive standard''.* Urban designer (I) indicated approximately the same. Furthermore, all respondents agree fewer regulations for CPC are beneficial to let them work out their desires. The requirements are for both the municipality and CPC-initiators a limitation in their ability to realize their ideals.

Standard working practices

Het Hogeland is very accustomed to the current situation with experienced project developers and not accustomed to helping CPC-initiators. This limits the municipality's ability to successfully support ESBCH-initiatives. Project leader (II) expresses: ''*This municipality is used to a project developer or private initiatives taking care of themselves.* (…) *so, when a collective comes forward, Het Hogeland is totally not ready to guide internal CPC-processes''*. This habituation of municipalities to project developers is endorsed in literature (see Bossuyt et al., 2018; Bossuyt, 2021; Cozzolino, 2020).

Meanwhile, spatial planner (I) did pinpoint the municipality is willing to help, but the question is how. However, the municipality did not react adequately to previous CPC-initiatives according to urban designer (I): ''*There was a collective looking for land, whereafter the responsible colleague redirects them to Funda.* (…) *You want those initiatives to trigger a village, bring life''.* He illustrated the problem facilitating and prioritizing CPC in Het Hogeland: ''*There are loads of physical space, but there is still room for more mental space''.* In other words, there are many opportunities that are standardly not benefit from by the municipality. This can be seen as a cultural element Staley (2006) discusses, because Het Hogeland's ''municipal culture'' to not take advantage of or stimulate initiatives affects according to urban designer (I) the chance to reach their sustainability aims.

The negative experiences with KUUB do not benefit CPC-initiatives. Project leader (II) gave an example of this: ''*Striking about KUUB is that building as large and cheap as possible were the starting points* (…) *I did not have the idea that people chose necessarily for CPC''.* Simultaneously, he does not see chances in self-maintenance of public space due to negative experiences. If as a result of those experiences the initiators are not allowed to maintain the (semi) public space owned by the municipality, which limits putting their aspirations into practice, this might prevent them initiate or participate in an ESBCH-project in Het Hogeland. Moreover, project leader (I) does not see chances for greener neighborhoods while having the same number of houses due the dependence on the car in Het Hogeland. This does not benefit the chances an ESBCH-project offers. Besides, project leader (II) did not believe in a construction to help initiators financially, giving as reason: ''*Otherwise all municipal residents will pay for them''.* The negative experiences of the past limit Het Hogeland's willingness to stimulate CPC-projects.

4.3 Case II: De Kleine Plantage Het Hogeland

This paragraph clarifies what encounters the sustainable housing project *De Kleine Plantage* in Het Hogeland from being realized.

Motivations

Unique housing development

De Kleine Plantage has been a plant nursery of which the owners are retired. Individual plots are sold and there is a collective garden. Participant 6 was interested in a plot and explained as initiator: ''O*n those individual plots people build their own dwelling, which means the owner is responsible, simplifying the construction of agreement''.* This shows it is not a CPC-project as registered at Het Hogeland (2022d) as the exact designs are not decided collectively, which is according to the initiator confusing for parties involved. Still, *De Kleine Plantage* is, just as most CPC's, an association to build and maintenance the shared garden and shed.

In regular development the municipality designs and maintains the public space. However, the initiator explained the difference in this project: ''*It is a private property, so, we must take care of the utility construction. We felt the municipality did not want it as they said we had to take care of it ourselves.* (…) *The municipal involvement is minimal anyway, limited to facilitation and information supply''.* This suggests that the municipality, as indicated in the previous paragraph by the staff, limits itself to facilitation and regulation. Additionally, it suggests the absence of municipal motivation to realize the project.

However, urban designer (II) indicated the municipality has helped the initiators, who as in most cases initiated such project for the first time: ''*Initially, initiators chose the most standard, not desirable, advisor and no process supervisor was available. So, I went by to emphasize the creative significance with the plantation's quality as starting point. This resulted in hiring a magnificent designer and architect.* Correspondingly, he pinpointed the location's convenience: ''*Fortunately, De Kleine Plantage is located on the border of the built-up area. Otherwise the open landscape is retained by the province''.*

Still, the private plots must adhere to certain collective rules. The initiator indicated rules are set for all dwellings regarding material use, one construction moment by one contractor and a maximum of one car on the private plot. All the plots' purchasers must agree with this to buy a plot. Those agreements are based on a majority clause. This also includes mandatory effort and contributions as the initiator announced: ''*Plot's purchasers must agree with the associations' compulsory financial and physical contributions''.* So, to simplify the decision-making process, the plan can only partly be seen as CPC. A lesson learned pinpointed by the initiator is describing even more precisely the conditions to build and live, such as wood stoves, all unsustainable or not, and building height.

Sustainability

Due to sustainability considerations and earthquake problems, the initiator indicated a wooden frame construction of homes is mandatory. He added that, considering biodiversity, special attention is present: ''*The garden will be maintained biologically and organically. Of course, pesticides are not used. Research shown the relatively large amount of garden makes it easy for animals to settle''.* This could be a motivation that supports Het Hogeland's willingness to help realizing *De Kleine Plantage.*

Opportunities

Privately owned land

An opportunity of the private development is the possibility of having more green space and a low-car traffic terrain, the initiator exemplified: ''*Private property is incredibly important for our garden design with more space for greenery. When constructed by the municipality, it would be standardized and public space, resulting in more activities. Besides, the standards ensure it becomes a broad road, while we want a low-car traffic terrain''.*

Limitations

Privately owned land & time-consuming process

The initiator indicates it is a costly and time-consuming process, which is way harder for a group initiators than a project developer who has multiple projects and knowledge. He calculates the total expenditures: ''*A total amount of 60.000 euros is spent, exclusive any compensation for the initiators' effort. Losing the investments is a huge risk for collective projects owning land. Those costs are obligated when not having the knowledge yourselves''.* This all forms a negative aspect of the private development. Everything is the initiators' responsibility, even if they do not have the required knowledge. Literature endorses this: in practice future residents do not have the means to do everything themselves, such as knowledge, financial resources and experience, resulting in contacting professionals (Boelens & Visser, 2011; Tummers, 2015b).

Appeals & inflation

The initiator explained the recent situation: ''*Last week, the city council has decided unanimously to adjust the zoning plan''.* Urban designer (II) mentioned this is a culmination of the project. Despite this, a stakeholder response (NL: zienswijze) salts the game. In short, the initiator explained that the man using land close at *De Kleine Plantage*, owned by the municipality who is in favor of this project, submitted a ''zienswijze''. New habitants might complain about his working activities, which includes cleaning tractors, while currently two/three dwellings are located even closer. The initiator is convinced he only wants delay as they even received extortion from him, the initiator: *''Hand over 40.000 euros and then I quit''*. The initiator expects another 3-6 months delay.

There were already ripple effects of previous objections. Rising building costs are the prime effect, the initiator states: ''*Today, building houses is extremely expensive. Cost calculations show the building costs of our house have risen 100.000 euros since September 2021''* (less than a year). Then the date with the constructor should be rescheduled, resulting in even more delay and costs.

The initiator announced there would be no permit for cleaning activities, and he could invoke the ''Gewoonterecht''. This could result in a delay for years. The initiator illustrated: *''Then you have a two-year delay, which means the project fails''.* However, spatial planner (II) has different details: *''A company is allowed to be located here.* (…) *Especially noise pollution is important here as the new dwellings will be located three meters from this plot, which is allowed. However, some other dwellings are located closer and those can limit the business activities''.*

Moreover, he pinpointed there is no question of ''Gewoonterecht'', but appealing against could easily result in delay: ''*You lose a year before being heard in the Counsel of State. Formally, the municipality can only wait for the verdict. Only informally a conversation is possible''.* In other words, this is a limitation as the rising prices can tear down the project, leaving the initiators with debs. Furthermore, the municipality is out of the game, affecting Het Hogeland's ability to help realizing the project of which the total city council was in favour of.

According to urban designer (II) sustainable housing evokes more objections by differing in appearance to regular buildings in this rural municipality: ''*You need outsiders for sustainable projects. Deviating projects are in cities common, but when a project deviates from a regular project in Het Hogeland, you get resistance. I am surprised by the number of objections against designs having a higher ambition than standard with statements as this is terrible.* An example is a wooden construction: *To deal with the earthquakes wooden constructions are used more often, which results in much CO2-reduction. Subsequently, citizens join the conversation, resulting in applying the wooden construction, but having brick sides. The unnecessary consequence is that a heavy foundation is needed and bricks.* This is unsustainable and costs more money, while you want to stimulate the people who build sustainably. He continues: *You need that 5% to get the other people along.* Not having that 5% and shooting down sustainable designs by neighbours is a limitation of Het Hogeland that affects the municipality's ability to realize ESBCH-projects.

Dropouts

The rising building costs are an important reason to quit collective project as well as underestimating the time the process takes. The initiator indicated: *Dropping out is a problem, which was almost always connected to funding. Recently two new participants are dropped out due to financial matters.* (…) *Many people have underestimated the process, who thought ''when the zoning plan is approved, we are finished''. Last year's inflation made it impossible for many initiators to continue.* (…) *The land prices are different in the Netherlands, but the material prices are equal. So, would you still consider Eenrum?* Four plots have steady owners, while six plots have changed frequently of owner. Because dropouts cause even more delay with additional building costs, this is a huge limitation affecting the municipality's ability to facilitate realizing ESBCH-housing.

4.4 Comparing case I and II

In figure 17 the elements affecting the realization of *Geworteld Wonen* are visualized in a conceptual model and in figure 18 this has been done for realizing *De Kleine Plantage*.

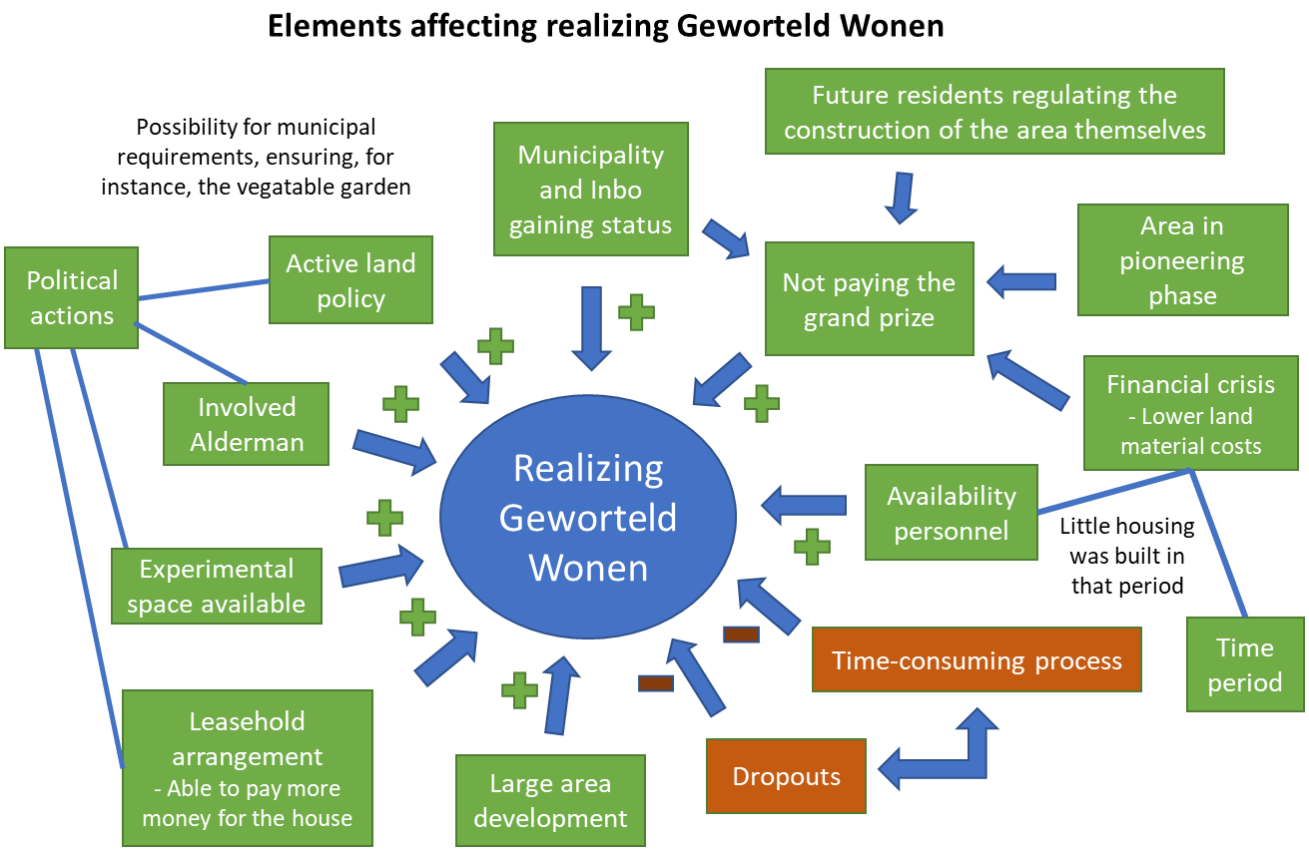


Figure 17: Conceptual model of elements affecting the realization of Geworteld Wonen (by author).

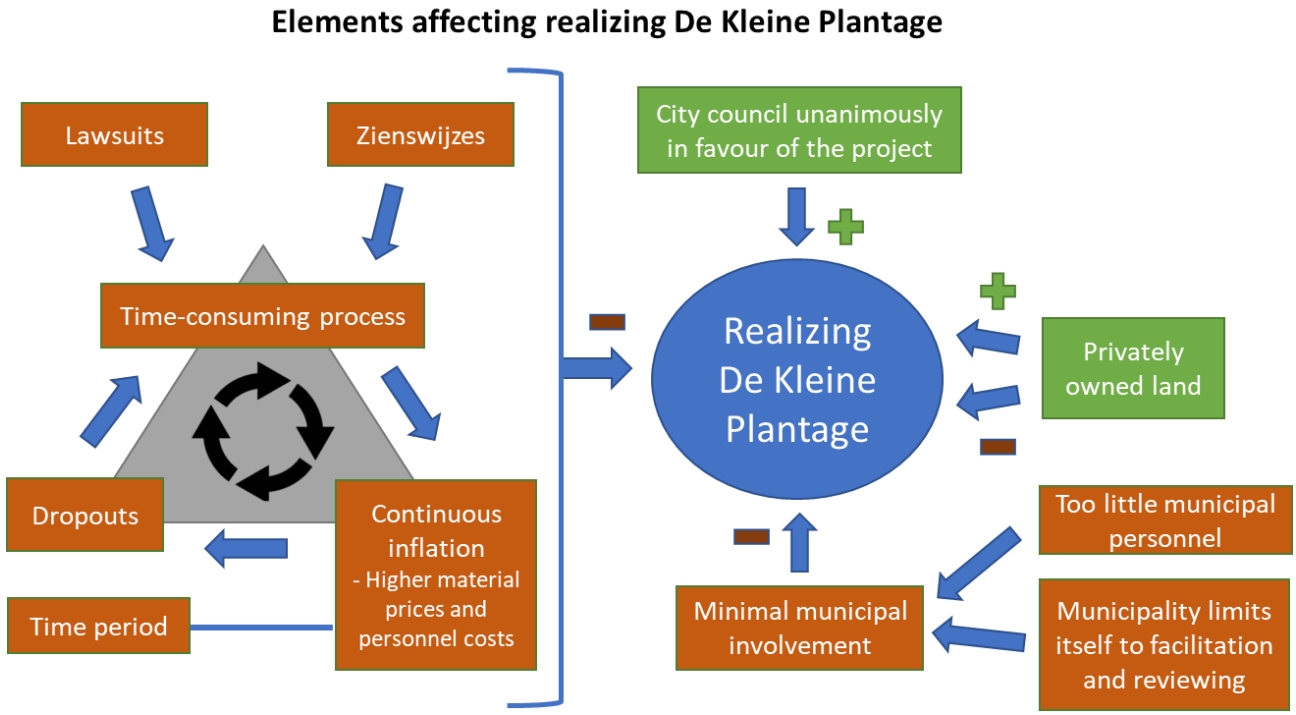


Figure 18: Conceptual model of elements affecting the realization of De Kleine Plantage (by author).

When comparing *Geworteld Wonen* and *De Kleine Plantage* it stands out that the municipality's role in the realization process differed considerably. Where political actions of the municipality of Rijswijk created most opportunities to realize *Geworteld Wonen*, the municipality of Het Hogeland is hardly involved in realizing *De Kleine Plantage*. Additionally, the number of elements having a negative effect (red squares) are considerably higher for *De Kleine Plantage* than for *Geworteld Wonen*, while the reserve is true for the positive elements (green squares).

The active land policy, involved alderman, experimental space being available and a leasehold arrangement enabled by Rijswijk were essential for *Geworteld Wonen* to be realized. In contrast, even if the city council was unanimously in favor of *De Kleine Plantage*, there is minimal municipal involvement. In paragraph 4.2 is discussed that employees of Het Hogeland were convinced that municipal involvement should be limited to facilitation and reviewing on laws and regulations. This involvement is not fully comparable as it concerns a single private development in Het Hogeland and a total area development in Rijswijk, which enabled Rijswijk to earn money back within a larger area development. This possibility does not occur at *De Kleine Plantage*. The current personnel shortage is something Het Hogeland can hardly do something about. It was a chance for Rijswijk that there was enough and experienced personnel available. Additionally, Het Hogeland aims for the minor rules for CPC and the initiators buying land, while Rijswijk enabled to lease the land to the future residents which lent itself for registering extra requirements.

The time-period of realizing the two developments is a major underlying reason for the exact success of these projects. The financial crisis was crucial for *Geworteld Wonen* to not pay the grand price and have more time to let discussions (the collective process) take place. However, *De Kleine Plantage* still has to be realized, which is difficult in this time-period as there is continuous inflation and the project is delayed for different related reasons. The biggest concern the initiators have, is an ongoing lawsuit, which will delay the project in such a way it will fail and the initiators remain with a debt. The zienswijze[11] has already resulted in delay. Those elements make the collective process take more time, which is already more time-consuming than regular developments via a developer. The inflation today goes rapidly and makes the project more expensive, like the 100.000 euro's extra for a home in less than a year. Some initiators can not afford that anymore, resulting in people dropping out and more delay. *Geworteld Wonen* uncovered that even without considerable inflation there are many dropouts. This negatively influences the realization. Moreover, a difference is the collective land of *Geworteld Wonen* being owned by the municipality, which empowered future residents by the leasehold arrangement for paying more for the dwellings, and the collective land of *De Kleine Plantage* being privately owned by the collective. This creates opportunities for the design, but limitations regarding construction costs of utility services. These elements can be connected to the willingness and ability of Rijswijk and Het Hogeland.

[11] *Official comments of stakeholders on the zoning plan change(s)*

Determining the willingness and ability of Rijswijk and Het Hogeland

Het Hogeland does own municipal land and much space is still available compared to other Dutch municipalities, which makes Het Hogeland not fully unable to realize ESBCH-projects. However, personnel to guide projects is scarce and current land prices as well as construction materials are relatively high. This makes Het Hogeland score relatively low on ability. Although Het Hogeland's municipal council prioritized CPC, there is practically no municipal guidance. Furthermore, the municipality does neither lease land to future residents of CPC, nor has an active role in the CPC-process except for advising for professionals. This results in Het Hogeland scoring relatively low on willingness as well. Rijswijk has bought the land where *Geworteld Wonen* is part of by implementing a law and leases the land to the residents. The municipality has even prioritized CPC, even though a different form of housing, such as waterfront houses, would have yielded more money. This makes Rijswijk score relatively high on willingness. Additionally, the financial crisis, location and the offer of Inbo to develop *Geworteld Wonen* enabled the development. This makes Rijswijk score relatively high on ability.

A nuance for ability must be made, because when comparing the cases, *De Kleine Plantage* is currently under development, while *Geworteld Wonen* was developed years ago. This influences ability, because the financial crisis gave opportunities for developing *Geworteld Wonen*, like initiators being able to pay material costs more easily. However, the current inflation complicates developing *De Kleine Plantage* and, simultaneously, other projects. Moreover, today, there is way less staff available to guide projects than the demand compared to ten years ago, which causes an increasement in personnel costs and reduction in available time.

Altogether, this makes Rijswijk score significantly higher on willingness and ability than Het Hogeland. In figure 19 the differences in willingness and ability of Rijswijk and Het Hogeland are visualized. The next chapter will draw conclusions from this results chapter on realizing ESBCH in both municipalities and for the Netherlands in general.

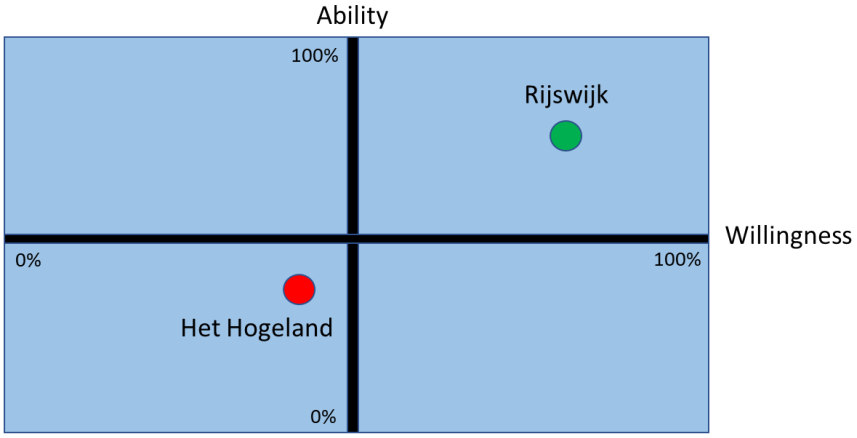


Figure 19: Comparison of willingness and ability of the municipalities Het Hogeland and Rijswijk (by author).

5. Conclusion, discussion & recommendations

5.1 Research findings

This thesis aimed to explore the influence of a municipality's willingness and ability on the realization of ESBCH in the Netherlands. The underlying goal was to possibly explain the difference in realized ESBCH-projects per Dutch municipality by identifying the municipal opportunities, limitations and motivations present. This study contributed to literature in the field of eco communities, specifically in the Netherlands, by focusing on realizing ESBCH and conducting two case studies.

The theoretical data demonstrated the potential of and motivations for ESBCH. Self-build creates possibilities for implementing sustainability measures more affordably than general Dutch housing developments. Future CPC-residents consider the long-term financial returns of sustainable investments, which does not apply to project developers aiming for more profit (Beenders, 2011). Moreover, self-build can help elements of niches of sustainable housing to become mainstream in society (Heffernan & De Wilde, 2020). Dutch sustainable communities often use CPC to be able to implement their aspirations (Van der Kloet & Van Genne, 2014). This links to affordability (De Decker, 2008) and better quality of living (DEA, 2014). Eco-housing is more sustainable than general housing developments, because of emitting considerably less CO_2 (Broer & Titheridge, 2010; Newberry et al., 2021). ESBCH-initiators' key priorities turned out to be of major importance to distinguish in ESBCH- and general (C)SBH-initiators, especially regarding the motivation of having a low environmental impact (Ibid). Cultural, economic, environmental and political elements influence sustainable policies' implementation (Staley, 2006). Municipal motivations, related to willingness, to stimulate sustainable housing are predominantly impacted by concern (Bamberg & Moser, 2007), climate action to comply to the Climate Act (VNG, 2018) and counteract scarcity of housing and stimulate the cash-flow in financial crises (Bossuyt, 2021). A municipality's ability is primarily influenced by financial means (Fu, 2020) and being legally allowed to perform a certain task (Jans et al., 2016).

The empirical data exposed municipal motivations, opportunities and limitations for ESBCH in the Dutch municipalities Rijswijk and Het Hogeland and connected these elements to comparable municipal willingness and ability to realize ESBCH. Dominant in Rijswijk for realizing ESBCH are the (i) motivation to facilitate diversified and sustainable housing, (ii) opportunities to conduct an active land policy in a larger area development and the initiators not having to pay the grand prize and (iii) limitation that it was a time-consuming process. Central for realizing ESBCH in het Hogeland are the (i) motivation to support unique sustainable housing developments, (ii) opportunity that the Environmental Act's introduction will reduce the time of licensing and (iii) limitation of the effect of appeals and today's inflation. Figure 19 showed how Rijswijk and Het Hogeland scored on willingness and ability concerning the investigated cases. This affects realizing ESBCH in those municipalities. The national financial situation, time-consuming process and personnel shortage are major elements concerning municipal ability. *Geworteld Wonen* in Rijswijk is built in a financial crisis when staff was present, while *De Kleine Plantage* is not realized yet in a period when municipal personal to support is absent and appeals lodge alongside inflation. Rijswijk's city council's actions facilitating *Geworteld Wonen* and Het Hogeland intending to stimulate sustainable niches illustrated municipal willingness.

Concluding, this study has shown that a municipality´s willingness and ability can be crucial for the realization of ESBCH in the Netherlands. Municipal willingness predominantly manifest itself in actions of the city council, which can be conducting an active land policy and enabling a leasehold arrangement. Municipal ability is essentially influenced by ESBCH being highly time-consuming and the national financial situation. A municipality's willingness and ability to realize ESBCH-projects does contribute to the differences in realized ESBCH-projects per Dutch municipality.

5.2 Research connections to previous studies

This study investigated the realization of ESBCH in two Dutch municipalities and compared that to the current literature studied and unanswered questions discussed in the introduction. The empirical data largely supports previous research on CPC in general. The elements Roetgerink (2006) mentions affecting CPC-numbers correspond to ESBCH, especially the municipality's active land position was of importance. However, this study showed the municipal council's involvement played a key role in realizing *Geworteld Wonen*[12], while Roetgerink (2006) mentions this a limited influence. Moreover, *Geworteld Wonen* demonstrated ESBCH is, just as regular CPC-projects, seen as experimental. The external elements relevant for realizing demand-driven projects in general[13], indicated by Beenders (2011), do also correspond to ESBCH. *Geworteld Wonen* and *De Kleine Plantage* proved that the influence of the housing market can be crucial for such projects to fail or have success regarding personnel guidance and material costs. These elements' presence led to the *Geworteld Wonen*'s success, but these elements were absent in *De Kleine Plantage,* which makes it difficult to realize the project when faced delay.

The municipality's attitude regarding experience and support as Beenders (2011) mentioned are relevant as well for ESBCH. An experienced team worked together on *Geworteld Wonen* and the municipal supporting measures, like the leasehold arrangement, were of high importance. The slightly negative experiences of Het Hogeland with KUUB, an organisation guiding CPC, does not benefit the stimulation of collective projects. *Geworteld Wonen* contributed to meeting municipal aims, which was a reason for the municipality to stimulate the project, and resulted in status for Rijswijk. Acquiring status is conforming to the study of Campbell-Johnston et al. (2019) and contributing to sustainability aims is harmonious with Newberry et al. (2021)'s study. The recommendation of Newberry et al. (2021) to study why few ESBCH-projects are developed has been answered. This study demonstrated that the main elements having effect on the number of ESBCH-developments are the national financial situation, the time-consuming process and the necessary (financial) support of the municipal council. The last element implies that the political push is still necessary for realizing ESBCH, which corresponds to the conclusion of Broer & Titheridge (2010). Political decisions by the municipal council enabled the active land policy, reservation of experimental space and leasehold arrangement. That experimental space provided by the municipality turned out to be essential for *Geworteld Wonen*, which confirms Pruim (2012)'s conclusion that municipal action is crucial for enabling experimental space. The general agreement in literature that a CPC-process is highly time-consuming (Bossuyt, 2018; Beenders, 2011; Rehwinkel, 2021) is endorsed by this study, which has far-reaching consequences. It results standard in dropouts as both cases showed, but *De Kleine Plantage* demonstrated that delay results in higher material prices due to the current inflation that, again, results in dropouts.

Lloyd et al. (2014) describe that it is interesting for governments to stimulate SBH in times of financial crises. When focussing on CPC in Het Hogeland, there was mentioned that the financial crisis is the moment for a collective decision-making process as CPC. The case *Geworteld Wonen,* realized in the financial crisis, endorsed that it gives opportunities for land prices and the time-consuming collective process, which enables realizing ESBCH. These are all elements to learn from for future ESBCH-projects, but it is also emphasized that in the collective decision-making many delays occur. However, it stays unclear why SBH-numbers are stable over time if the time-period, correspondingly the national financial situation, is such an important element for CPCs to succeed.

[12]By enabling the active land position, to have a larger area development, foresee in experimental space and, especially, a leasehold arrangement

[13]Knowledge, experience, support and low demands on the housing market

5.3 Research implications: facilitating eco communities

When a municipality's aim is to stimulate eco communities, there are follow-up actions necessary to increase the chance of making the project a success. A financial crisis is the optimal moment for a municipality to purchase land for future developments and more time is available for the collective decision-making to take place. An active land exploitation results in the municipality staying in control by formulating precise conditions and plans to build. Within a larger area development, a municipality should reserve space for eco communities as, for instance, experimental space. This provides an opportunity to offer a land price that is lower than the market-value by which eco communities are stimulated. The difference can be recouped by another development within the larger area development. The same construction is used in much larger amounts for social housing.

Another possibility to facilitate as a municipality is to lease land to the initiators as this gives them more financial possibilities to live there. Simultaneously, leasing land suits itself well to set requirements for, for instance, public accessibility and minimum amounts of certain green space. When the surrounding land, which would normally be public space, is hired or owned by the initiative, there are chances for the area not being developed according to the municipal cheap standard. Eco-minded projects suit this construction due to their motivations. Agreements of responsible tasks and decision-making are important to avoid misunderstandings later. Furthermore, as most initiators participate in this process only once, the municipality should share knowledge about what the initiators lies ahead. Therefore, personnel should be available for supporting them.

5.4 Research reflection and recommendations for future research

Limitations are unavoidable and present themselves in this study as limited in time, no recorded discussions between experts, one researcher, no generalisable results, online interviews and bias. The semi-structured in-depth interviews took, individually at average, more than one hour. This is very intensive and time-consuming, which make only a limited number of interviews possible, just as Newcomer et al. (2015) indicate. An exception to this is asking written questions to two respondents. Furthermore, discussions between experts were not possible as the conducted interviews were one-to-one. Hennink et al. (2020) indicate that more information could be obtained by discussions which strengthen the interviews. Corresponding to the guidelines of the Master thesis, this study is conducted by one researcher. However, Carter at all. (2014) discusses the added value of multiple researchers as this results in multiple observations and conclusions. This means findings can be confirmed and different perspectives are brought in. Considering the fact that this study uses case studies, the limitation occurs that by too specific elements the results can not be generalised (Lichtman, 2013). Therefore, for example, this study emphasizes that the elements of success of *Geworteld Wonen* are a possibility to consider as a municipality aiming for stimulating ESBCH.

ESBCH, ecovillages and CPC were related concepts used in this study. However, acquiring insight is hampered by the fact that several loosely related terms exist in the current literature, and it is unclear which term, if any, most accurately encompasses eco communities using CPC. Nevertheless, the introduction has thoroughly discussed why the concepts ESBCH and CPC are used. The problem occurring was respondents not being familiar with ESBCH, which resulted in changing the concept in the questioning to sustainable CPC-initiatives, dividing regular CPC-initiatives from sustainable ones. Project leader (I) of Het Hogeland justifiably questions this: *Behind the question is the assumption that a CPC-project is more sustainable than a regular project, what I strongly doubt.* For future research, eco communities is a better term to prevent misunderstandings. Additionally, a limitation is that not both cases were ESBCH-projects, because there did not exist any ESBCH-cases in Het Hogeland. Nevertheless, a project is investigated that enabled to set generalizable conclusions for developing ESBCH considering collective, sustainable and self-build housing as discussed in chapter 3.

The first ground-level dwelling at *Geworteld Wonen* was sold for more than twice the market value. Rehwinkel (2021) demonstrated that for CPC in general second owners pay way more than the original owners. A study is suggested to a construction that makes CPC-projects structurally accessible for a certain income group. Furthermore, respondents indicated that greenery and water cause housing prices to rise. This might suggest more climate-adaptive housing and ecovillages, which are known for a green environment, are more expensive. Hence, a study is recommended to investigate how ecovillages and climate-adaptive living can be more accessible for lower-income groups. Further research on realizing is encouraged to focus more thoroughly on the initiators-side than was possible in this study, which could reveal similarities and differences in the initiators' and municipality's values and interests. This might be done by using the Mutual Gains Approach (MGA), which is explained in appendix VIII. Moreover, it is clear what some possibilities are for facilitating ESBCH-projects, however, it is not clear if this stimulates more people to initiate an ecovillage or only facilitates existing initiatives. An additional study on this is suggested. Because this study demonstrated ESBCH-projects' potential and ESBCH-projects have been studied very limitedly (Newberry et al., 2021), more research on ESBCH is strongly recommended.

During the final stages of this study, Het Hogeland received three new CPC-initiatives: *Goudoud* in Warfum, *Winsum 55+ wonen* and *the town hall* in Bedum. These are currently not considered ESBCH, but it does show new CPC-initiatives are present. Moreover, the municipality has recently purchased land near Winsum, which is a further demonstration of available municipal land. Having this study's implications in mind, proposing a lease construction under certain conditions, for instance, might attract initiators to comply with ESBCH. This could subsequently result in municipal status and help reaching sustainability goals. Currently, Het Hogeland just started working on the Environmental Plan (NL: Omgevingsplan). The expert on this at Het Hogeland emphasized this enables to legally incorporate regulations concerning sustainable material use and maximum pavement surfaces.

References

Aalbers, M.B., Christophers, B., (2014). Centring housing in political economy. Hous., Theory Soc. 31 (4), 373–394. http://dx.doi.org/10.1080/14036096.2014.947082.

Abdul-Muhmin, A.G. (2007) Explaining consumers' willingness to be environmentally friendly. International Journal of Consumer Studies, 31, 237–247.

AD. (2014, July). *De mens is nu eenmaal een sociaal dier - Geworteld Wonen*. https://www.beyondnow.nl/wp-content/uploads/2014/07/artikel-ad.jpg.

Adabre, M. A., & Chan, A. P. (2019). The ends required to justify the means for sustainable affordable housing: A review on critical success criteria. *Sustainable development*, *27*(4), 781-794.

Adamec, J., Janoušková, S., & Hák, T. (2021). How to Measure Sustainable Housing: A Proposal for an Indicator-Based Assessment Tool. *Sustainability*, *13*(3), 1152.

Admin, L. (2019, March 5). *What Is an Environmental Foot Print? (Ecological Footprint) – Livestock and Poultry Environmental Learning Community*. Lpelc.org. https://lpelc.org/what-is-an-environmental-foot-print-ecological-footprint/.

Azapagic, A., & Perdan, S. (2000). Indicators of sustainable development for industry: a general framework. *Process Safety and Environmental Protection*, *78*(4), 243-261.

Bamberg, S. & Moser, G. (2007) Twenty years after Hines, Hungerford, and Tomera: a new meta-analysis of psycho-social determinants of pro-environmental behaviour. Journal of Environmental Psychology, 27, 14–25.

Barbour, R. (2013). *Introducing qualitative research: a student's guide*. Sage.

Barlow, J. G., Jackson, R., & Meikle, J. (2001). Homes to DIY for. *The UK's Self-Build Housing Market in the Twenty-First Century*.

Bayulken, B., Huisingh, D. (2015). Perceived 'Quality of Life' in eco-developments and in conventional residential settings: an explorative study. J. Clean. Prod. 98, 253e262. https://doi.org/10.1016/j.jclepro.2014.10.096.

Beekers, W.P. (2010). Woonbeleid in Nederland (1). Hoe woningcorporaties ontworteld raakten. Socialisme & Democratie, 5/6, pp. 54-60.

Beekers, W.P. (2012). Het bewoonbare land: Geschiedenis van de volkshuisvestiging in Nederland. BOOM.

Beenders, R. (2011). Vraaggestuurd bouwen: Een processtructuur voor de samenwerking tussen een particulier collectief en een marktpartij.

Benson, M., & Hamiduddin, I. (2017). Self-Build Homes (p. 332). UCL Press.

Berger, G. (2003). Reflections on Governance: Power Relations and Policy Making in Regional Sustainable Development, Journal of Environmental Policy & Planning, 5 (3), pp.219-234.

Bewust Wonen Werken Boschveld. (2022). Bewust Wonen Werken Boschveld – Samen duurzaam wonen in hartje Den Bosch. https://bwwb.nu/.

Bibri, S. E., & Krogstie, J. (2020). Smart eco-city strategies and solutions for sustainability: The cases of Royal Seaport, Stockholm, and Western Harbor, Malmö, Sweden. *Urban Science*, *4*(1), 11.

BNR. (2022, November 20). *Rutte: uitkomst klimaattop Egypte is niet genoeg*. Bnr.nl; BNR nieuwsradio. https://www.bnr.nl/nieuws/duurzaamheid/10494834/rutte-uitkomst-klimaattop-egypte-is-niet-genoeg.

Boelens, L., & Visser, A. J. (2011). Possible futures of self-construction: post-structural reflections on ten years of experimentation with (C) PC. *Making Room for People: Choice, Voice and Liveability in Residential Places, edited by Lei Qu and Evert Hasselaar*, 103-28.

Boelens, L. (2009). *The Urban Connection: An Actor-Relational Approach to Urban Planning*, Rotterdam, 010.

Bonsdorff, E. (2021). Eutrophication: Early warning signals, ecosystem-level and societal responses, and ways forward. *Ambio*, *50*(4), 753-758.

Bos, J., Van Loon, A.J. & Licht, H., (2013). Programmatisch Creëren. Schiedam: Scriptum.

Bossuyt, D. M. (2021). The value of self-build: understanding the aspirations and strategies of owner-builders in the Homeruskwartier, Almere. *Housing Studies*, *36*(5), 696-713.

Bossuyt, D., Salet, W., & Majoor, S. (2018). Commissioning as the cornerstone of self-build. Assessing the constraints and opportunities of self-build housing in the Netherlands. *Land Use Policy*, *77*, 524-533.

Broer, S., & Titheridge, H. (2010). Eco-self-build housing communities: Are they feasible and can they lead to sustainable and low carbon lifestyles?. *Sustainability*, *2*(7), 2084-2116.

Broer, S.; Titheridge, H. Eco-Self-Build Housing Communities: Are They Feasible and Can They Lead to Sustainable and Low Carbon Lifestyles? Sustainability 2010, 2, 2084–2116. [CrossRef].

Brown, R. (2007). Identity and narrativity in homes made by amateurs. Home Cult. 4 (November), 261–285. http://dx.doi.org/10.2752/174063107X247305.

Bruggink, G. (2019, November 12). *Emissieloos bouwen doe je met hout*. ORGA Architect. https://www.orga-architect.nl/nieuws/emissieloos-bouwen-met-ecologische-houtbouw/.

Brundtland Commission. (1987). Our Common Future: Report of the World Commission on Environment and Development. doi:10.1080/07488008808408783.

Buitelaar, E., Feenstra, S., Galle, M., Lekkerkerker, J., Sorel, N. & Tennekes, J. (2012). Vormgeven aan de spontane stad: belemmeringen en kansen voor organische stedelijke herontwikkeling. Den Haag: Uitgeverij PBL.

Burke, B. J., & Arjona, B. (2013). Creating alternative political ecologies through the construction of ecovillages and ecovillagers in Colombia. *environmental anthropology engaging ecotopia: Bioregionalism, Permaculture, and ecovillages. Nova Iorque: Berghahn Books*, 235-250.

Campbell-Johnston, K., Cate, J. ten, Elfering-Petrovic, M., & Gupta, J. (2019). City level circular transitions: Barriers and limits in Amsterdam, Utrecht and The Hague. *Journal of Cleaner Production*, *235*, 1232–1239. https://doi.org/10.1016/j.jclepro.2019.06.106.

Carter, A., Daley, A., Humphreys, L., Snowdon, N., Woodroofe, N., Petty, J. & Saxton, J. M. (2014). Pragmatic intervention for increasing self-directed exercise behaviour and improving important health outcomes in people with multiple sclerosis: a randomised controlled trial. *Multiple Sclerosis Journal*, *20*(8), 1112-1122.

Casciato, M. (1980) De Woningwet: 1901-1912; in: Casciato, M. et al. (eds.) (1980) Architectuur en Volkshuisvesting: Nederland 1870-1940. Nijmegen: SUN. pp. 24-29.

Casey, K., Lichrou, M., & O'Malley, L. (2020). Prefiguring sustainable living: An ecovillage story. *Journal of Marketing Management*, *36*(17-18), 1658-1679.

CBS. (2018) Bouwvergunningen woonruimten; type, opdrachtgever, eigendom, gemeente [online]. *Centraal Bureau voor de Statistiek*. Available at https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83671NED/table?ts=1547037815860 (accessed 14-05-2022).

CBS. (2021, March 12). *Uitstoot broeikasgassen 8 procent lager in 2020*. Centraal Bureau Voor de Statistiek. https://www.cbs.nl/nl-nl/nieuws/2021/10/uitstoot-broeikasgassen-8-procent-lager-in-2020.

CBS. (2021a, August 31). *8 miljoen woningen in Nederland*. Centraal Bureau Voor de Statistiek. https://www.cbs.nl/nl-nl/nieuws/2021/31/8-miljoen-woningen-in-nederland (accessed 17-07-2022).

CBS. (2021b). Welke sectoren stoten broeikasgassen uit? Centraal Bureau Voor de Statistiek. https://www.cbs.nl/nl-nl/dossier/dossier-broeikasgassen/welke-sectoren-stoten-broeikasgassen-uit- (accessed 28-06-2022).

CBS. (2022, Januari 26). Bijna 69 duizend nieuwbouwwoningen in 2021. Centraal Bureau Voor de Statistiek. https://www.cbs.nl/nl-nl/nieuws/2022/04/bijna-69-duizend-nieuwbouwwoningen-in-2021 (accessed 09-08-2022).

CBS. "Uitstoot Broeikasgassen 8 Procent Lager in 2020." *Centraal Bureau Voor de Statistiek*, 12 Mar. 2021, www.cbs.nl/nl-nl/nieuws/2021/10/uitstoot-broeikasgassen-8-procent-lager-in-2020. Accessed 23 Oct. 2022.

Chang, C. (2011). "Feeling ambivalent about going green: implications for green advertising processing", Journal of Advertising, Vol. 40 No. 4, pp. 19-31.

Cozzolino, S. (2020). The (anti) adaptive neighbourhoods. Embracing complexity and distribution of design control in the ordinary built environment. *Environment and Planning B: Urban Analytics and City Science*, *47*(2), 203-219.

Cozzolino, S., Buitelaar, E., Moroni, S., & Niels, S. (2017). Experimenting in urban self-organization. Framework-rules and emerging orders in Oosterwold (Almere, The Netherlands).

Czischke, D. (2018). Collaborative housing and housing providers: towards an analytical framework of multi-stakeholder collaboration in housing co-production, International Journal of Housing Policy, 18:1, 55-81, DOI: 10.1080/19491247.2017.1331593.

D'Ottaviano, C., Majoor, S., Pasternak, S., & Salet, W. (2020). The implications of self-build for the social and spatial shape of city-regions: exemplifying the cases of São Paulo and Amsterdam. *The Self-Build Experience: Institutionalization, Place-Making and City Building*, 209.

De Brug. (2020, February 21). *Gemeente ondertekent Convenant Klimaatadaptief Bouwen*. Weekblad de Brug. https://www.weekbladdebrug.nl/nieuws/gemeente-ondertekent-convenant-klimaatadaptief-bouwen/.

De Decker, P. (2008). Facets of housing and housing policies in Belgium. J. Hous. Built Environ. 23 (3), 155–171. http://dx.doi.org/10.1007/s10901-008-9110-4.

De Jong, M. (2015). Coalition Planning. Groningen: University of Groningen and Twynstra Gudde.

De Roo, G. (2003). *Environmental Planning in the Netherlands Too Good to be True- From Command-and-Control Planning to Shared Governance*, Aldershot: Ashgate.

Debellis, F., De Massis, A., Petruzzelli, A. M., Frattini, F., & Del Giudice, M. (2021). Strategic agility and international joint ventures: The willingness-ability paradox of family firms. *Journal of International Management*, *27*(1), 100739.

Dekkers, D. (2018, November 14). *De duurzaamste wijk van Nederland breidt uit*. RijswijkBuiten. https://www.rijswijkbuiten.nl/de-duurzaamste-wijk-van-nederland-breidt-uit/.

Den Boer, R. (2021). *Omgevingswaarden voor klimaatadaptatie: een uitkomst?!.*

Dong, Y., & Hauschild, M. Z. (2017). Indicators for environmental sustainability. *Procedia Cirp*, *61*, 697-702.

Dorst, M. van. (2018). Sustainable Housing, Sustainable Living: Duurzaam wonen, duurzaam leven. *DASH | Delft Architectural Studies on Housing*, *07*, 48–55. https://journals.open.tudelft.nl/dash/article/view/4715.

Dutch Enterprise Agency (DEA). (2014, April). *Collectief particulier opdrachtgeverschap Expertteam Eigenbouw in opdracht van het ministerie van Binnenlandse Zaken en Koninkrijksrelaties*. Published on this website in 2018 https://www.rvo.nl/sites/default/files/2018/11/Expertteam%20Woningbouw%20-%20CPO.pdf.

Dutch Enterprise Agency (DEA). (2018, February 9). *Zelfbouw*. RVO.nl. https://www.rvo.nl/onderwerpen/expertteam-woningbouw/zelfbouw. Accessed 03-02-2022.

Dutch Enterprise Agency (DEA). (2021, September). *Collectief Particulier Opdrachtgeverschap (CPO) | RVO.nl | Rijksdienst*. Data.rvo.nl. https://data.rvo.nl/initiatieven/financieringsvoorbeelden/collectief-particulier-opdrachtgeverschap-cpo accessed 03-05-2022.

Erisman, J. W., Strootman, B., Bastmeijer, K., Jongeneel, R., Poppe, K., van den Wittenboer, S., & van Dorp, M. (2021). Naar een ontspannen Nederland: hoe het oplossen van de stikstofproblematiek via een ruimtelijke benadering een hefboom kan zijn voor het aanpakken van andere grote opgaven en zo een nieuw perspectief kan opleveren voor het landelijk gebied.

Evers, F. (2020, October 9). *Wat is er toch met MGA? – Mutual Gains Netwerk*. Mganetwerk. https://mutualgainsnetwerk.nl/wat-is-er-toch-met-mga/.

Ezennia, I. S., & Hoskara, S. O. (2021). Assessing the subjective perception of urban households on the criteria representing sustainable housing affordability. *Scientific African*, *13*, e00847.

Faludi, A. (1987). *A Decision-Centered View of Environmental Planning*, Oxford: Pergamon Press.

Fielding, N. G., Lee, R. M., & Blank, G. (Eds.). (2008). *The SAGE handbook of online research methods*. Sage.

Fisher, R. & Ury, W., (1983). Getting to Yes: Negotiating Agreement Without Giving In. New York: Penguin Books.

Fisher, R., Ury, W., & Patton, B. (1991). Invent options for mutual gain - in Getting to YES: negotiating agreement without giving in (2nd Ed.). Penguin Books USA Inc.: New York, NY. pp. 56-80.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219-245.

Fontana, A. & Frey, J.H. (1994). Interviewing: The Art of Science. In N.A.Y.L. Denzin (Red.), *The Handbook of Qualitative Research*, pp.361-376. Thousand Oaks: Sage Publications.

Fontana, A., & Prokos, A. H. (2007). *The interview: From formal to postmodern*. Left coast press.

French Ministry for Europe and-Foreign Affairs /Ministère de l'Europe et des Affaires. (2020, Dec.) "COP21: The Key Points of the Paris Agreement." *France Diplomacy - Ministry for Europe and Foreign Affairs*, Dec. 2020, www.diplomatie.gouv.fr/en/french-foreign-policy/climate-and-environment/the-fight-against-climate-change/2015-paris-climate-conference-cop21/cop21-the-paris-agreement-in-four-key-points/.

Friesenecker, M., & Cucca, R. (2021). Towards socio-ecological inclusion: Scaling up housing innovation in Vienna. In *Environmental Justice in the Anthropocene* (pp. 63-75). Routledge.

Fu, J. (2020). Ability or opportunity to act: What shapes financial well-being?. *World Development*, *128*, 104843.

GDindex. (2022). *Hoe duurzaam is mijn gemeente*. Gdindex.nl. https://gdindex.nl/content/mijn-gemeente.

Geiger, F., Bengtsson, J., Berendse, F., Weisser, W. W., Emmerson, M., Morales, M. B., Ceryngier, P., Liira, J., Tscharntke, T., Winqvist, C., Eggers, S., Bommarco, R., Pärt, T., Bretagnolle, V., Plantegenest, M., Clement, L. W., Dennis, C., Palmer, C., Oñate, J. J., & Guerrero, I. (2010). Persistent negative effects of pesticides on biodiversity and biological control potential on European farmland. *Basic and Applied Ecology*, *11*(2), 97–105. https://doi.org/10.1016/j.baae.2009.12.001.

GEN-NL. (2022). *Overzichtskaart alle initiatieven*. GEN-NL - Global Ecovillage Network Nederland. https://gen-nl.nl/overzichtskaart-alle-initiatieven/#close.

Gerring, J. (2001). *Social Science Methodology: A Critical Framework*. Cambridge.

Groot, M. D. (2012). *Social cohesion:'Collectief Particulier Opdrachtgeverschap'two case studies in the Netherlands* (Doctoral dissertation).

Grzybowski, A. & Morris, C. (1998). Canadian negotiation, mediation and communication training materials. Victoria, British Columbia, Canada, Institute for Dispute Research, University of Victoria and Pacific Resolutions.

Grzybowski, A., McCaffrey S.C., Paisley, R.K. (2010). Negotiating Mutual Gains Agreements for International Watercourses. Global Business and Development Law Journal, 22 (2), pp. 139-154.

Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study.

Hall, L. (1993). Negotiation: Strategies for Mutual Gain. London, United Kingdom.

Healey, P., (2006). Collaborative planning: shaping places in fragmented societies. 2nd ed. Basingstoke: Palgrave Macmillan.

Heffernan, E., & De Wilde, P. (2020). Group self-build housing: A bottom-up approach to environmentally and socially sustainable housing. *Journal of Cleaner Production*, *243*, 118657.

Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods*. SAGE Publications Limited.

Holland, C. (2018). Wild Architecture: The Potential of Self-Build Settlements. *Architectural Design*, *88*(3), 102-109.

Hoppe, T., & Coenen, F. (2011). Creating an analytical framework for local sustainability performance: a Dutch case study. *Local Environment*, *16*(3), 229-250.

Inbo. (2018). *Bekijk De kracht van het collectief - Geworteld Wonen in Rijswijk op Inbo.com*. Inbo - Urban Strategy, Architectuur, Bouwkunde En Interieur. Retrieved April 19, 2022, from https://www.inbo.com/nl/projecten/geworteld-wonen-in-rijswijk.

Innes, J.E. & Booher, D.E. (1999a). Consensus Building and Complex Adaptive Systems: A Framework for Evaluating Collaborative Planning. Journal of the American Planning Association, 65(4), pp.412-23.

IPCC. (2021). *Climate Change 2021 Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf.

IPLO. (2022a). *Omgevingsplan op hoofdlijnen*. Informatiepunt Leefomgeving. https://iplo.nl/regelgeving/instrumenten/omgevingsplan-hoofdlijnen/omgevingsplan-hoofdlijnen/.

IPLO. (2022b). *Afval in het omgevingsplan*. Rijksoverheid. https://iplo.nl/thema/afval/omgevingsplan/.

Ipsos MORI. Eco Chic or Eco Geek—The Desirability of Sustainable Homes; Sponge Sustainability Network: London, UK, 2006.

IVN. (2022, May 8). *Plant inheems! De kracht van onze wilde planten*. Www.ivn.nl. https://www.ivn.nl/tinyforest/plant-inheems-de-kracht-van-onze-wilde-planten.

Jans, W., Denters, B., Need, A., & Van Gerven, M. (2016). Mandatory innovation in a decentralised system: The adoption of an e-government innovation in Dutch municipalities. *Acta Politica*, *51*(1), 36-60.

Johnson, S. (2017, November 3). *What is Ecological Sustainability? – CourseBB*. Coursebb. https://www.coursebb.com/2017/11/03/what-is-ecological-sustainability/.

Keulartz, J., Van der Windt, H. & Swart, J. (2004). Concepts of Nature as Communicative Devices: The Case of Dutch Nature Policy. Environmental Values, 13(1), pp.81-99.

Klein-GroenLand. (2022). *Het terrein -*. https://klein-groenland.nl/het-terrein/ accessed 31-08-2022.

Koninkrijksrelaties, M. van B. Z. en. (2020, December 17). *Verduurzamen van koopwoningen - Nieuwsbericht - Rijksoverheid.nl*. Www.rijksoverheid.nl. https://www.rijksoverheid.nl/actueel/nieuws/2020/12/17/verduurzamen-van-koopwoningen.

Korthals Altes, W. K. (2016). Planning reform beyond planning: the debate on an integrated Environment and Planning Act in the Netherlands. *Planning practice & research*, *31*(4), 420-434.

Krause, R. M. (2013). The Motivations Behind Municipal Climate Engagement: An Empirical Assessment of How Local Objectives Shape the Production of a Public Good. *Cityscape*, *15*(1), 125–141. https://www.jstor.org/stable/41958960.

KTH. (2021, November 2). *Ecological sustainability*. KTH. https://www.kth.se/en/om/miljo-hallbar-utveckling/utbildning-miljo-hallbar-utveckling/verktygslada/sustainable-development/ekologisk-hallbarhet-1.432074.

Kurland, N. B., & Zell, D. (2011). Regulating water: A naturological analysis of competing interests among company, town, and state. Business & Society, 50: 481-512.

Lalor, A. (2020, January 27). Why is there a housing shortage in the Netherlands? The Dutch housing crisis explained. *Dutchreview.com*. https://dutchreview.com/expat/housing/why-is-there-a-housing-shortage-in-the-netherlands-the-dutch-housing-crisis-explained/.

Lane, M., Van der Horst, D., Tingey, M., Smith, C., & Webb, J. (2020). Social innovation in the shadow of policy failure: Energy efficiency in self-build housing. *Global Transitions*, *2*, 180-189.

Lang, R., Carriou, C. & Czischke, D. (2020) Collaborative Housing Research (1990–2017): A Systematic Review and Thematic Analysis of the Field, Housing, Theory and Society, 37:1, 10-39, DOI: 10.1080/14036096.2018.1536077.

Lichtman, M. (2013). *Qualitative research for the social sciences*. SAGE publications.

Lloyd, M.G., Peel, D., Janssen-Jansen, L.B. (2015). Self-build in the UK and Netherlands: mainstreaming self-development to address housing shortages? Urban Plan. Transp. Res. 3 (1), 19–31. http://dx.doi.org/10.1080/21650020.2014.987403.

McLaren, L. (2016, August 10). *What Canada could learn from a Dutch self-build housing movement*. Macleans.ca. https://www.macleans.ca/news/world/canada-learn-netherlands-self-build-movement/.

Meroni, A. (2007). *Creative communities. People inventing sustainable ways of living*. Edizioni Polidesign.

Ministerie van Binnenlandse Zaken en Koningkrijksrelaties. (2019, July 2). *Klimaatwet*. Wetten.overheid.nl. https://wetten.overheid.nl/BWBR0042394/2020-01-01.

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2020, December 17) “Verduurzamen van Koopwoningen - Nieuwsbericht - Rijksoverheid.nl.” Www.rijksoverheid.nl, 17 Dec. 2020, www.rijksoverheid.nl/actueel/nieuws/2020/12/17/verduurzamen-van-koopwoningen. Accessed 23 Oct. 2022.

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2022, June 1). *Duurzaam wonen voor iedereen - Nieuwsbericht - Rijksoverheid.nl*. Www.rijksoverheid.nl. https://www.rijksoverheid.nl/actueel/nieuws/2022/06/01/duurzaam-wonen-voor-iedereen.

Minora, F., Mullins, D., Jones, P.A. (2013). Governing for habitability: Self–organized communities in England and Italy. Int. J. Co-Oper. Manage. 6 (2).

Moldan, B., Janoušková, S., & Hák, T. (2012). How to understand and measure environmental sustainability: Indicators and targets. *Ecological Indicators*, *17*, 4–13. https://doi.org/10.1016/j.ecolind.2011.04.033.

Monahan, J. (2013). *Housing and carbon reduction: Can mainstream ‘eco-housing’deliver on its low carbon promises?* (Doctoral dissertation, University of East Anglia).

Municipality of Groningen. (2022a). *Natuurinclusief Bouwen | Gemeente Groningen*. Gemeente.groningen.nl. https://gemeente.groningen.nl/natuurinclusiefbouwen (accessed 14-04-2022).

Municipality of Groningen. (2022b). *Natuurinclusief bouwen*. https://gemeenteraad.groningen.nl/Documenten/Raadsvoorstellen/Bijlage-1-Beleidskader-Natuurinclusief-bouwen.pdf.

Municipality of Het Hogeland. (2022a). Regionaal Energieloket | Gemeente Het Hogeland. Regionaalenergieloket.nl. https://regionaalenergieloket.nl/het-hogeland (accessed 14-08-2022).

Municipality of Het Hogeland. (2022b). Subsidies leefbaarheid - Gemeente Het Hogeland. Hethogeland.nl. https://hethogeland.nl/subsidies-en-leningen/subsidies-leefbaarheid (accessed 04-08-2022).

Municipality of Het Hogeland. (2022c). *Omgevingsvisie - Gemeente Het Hogeland*. Hethogeland.nl. https://hethogeland.nl/plannen-en-projecten/default-2778e58b66/omgevingsvisie (accessed 13-09-2022).

Municipality of Het Hogeland. (2022d, March). *Eenrum, De Kleine Plantage - Gemeente Het Hogeland*. Hethogeland.nl. https://hethogeland.nl/plannen-per-dorp/eenrum (accessed 24-06-2022).

Municipality of Rijswijk. (2022, March 30). *Eerste vrij indeelbare appartementen van Nederland zijn opgeleverd in De Buitenparel in RijswijkBuiten*. Www.rijswijk.nl. https://www.rijswijk.nl/nieuws/eerste-vrij-indeelbare-appartementen-van-nederland-zijn-opgeleverd-in-de-buitenparel-in.

NaSBA (National Self-Build Association). Self-Build as a Volume Housing Solution; National Self-Build Association: Bristol, UK, 2008

National Self-Build Association (NSBA). (2008). *Self-Build as a Volume Housing Solution*; National Self-Build Association: Bristol, UK, 2008.

Newberry, P., Harper, P., & Morgan, T. (2021). Understanding the Market for Eco Self-Build Community Housing. *Sustainability*, *13*(21), 11823.

Newcomer, K. E., Hatry, H. P., & Wholey, J. S. (2015). *Handbook of practical program evaluation*. John Wiley & Sons.

NOS. (2022, November 2). *Uitspraak Raad van State toont nog eens urgentie stikstofaanpak, zegt kabinet*. Nos.nl. https://nos.nl/artikel/2450790-uitspraak-raad-van-state-toont-nog-eens-urgentie-stikstofaanpak-zegt-kabinet.

NPBS (Norwich and Peterborough Building Society). Survey of the self-build market. Self-Build Des. 2004, September Issue, p. 6.

NPO. (2019, October 10). *De kleine plantage in Eenrum, Groningen gemist? Start met kijken op NPO Start*. Www.npostart.nl. https://www.npostart.nl/de-kleine-plantage-in-eenrum-groningen/10-10-2019/WO_KN_15692667.

O'Leary, Z. (2010) The essential guide to doing your research project. SAGE Publications Ltd. London.

Omgevingsweb. (2016, October 7). *Duurzaamheid in de Omgevingswet*. Omgevingsweb. https://www.omgevingsweb.nl/nieuws/duurzaamheid-in-de-omgevingswet.

Omgevingsweb. "Duurzaamheid in de Omgevingswet." *Omgevingsweb*, 7 Oct. 2016, www.omgevingsweb.nl/nieuws/duurzaamheid-in-de-omgevingswet. Accessed 24 Oct. 2022.

Omslag.nl. (2022). *Ecowijken en -dorpen - Anders Wonen Anders Leven*. Www.omslag.nl. http://www.omslag.nl/wonen/ecodorpen.html#ecodorpachtige_initiatieven.

OSJ. (2022, November 1). *Gebouwen | Sector | OSJ*. Our Sustainable Journey (OSJ). https://www.oursustainablejourney.nl/sectoren/gebouwen/.

OVO Energy. (2021, August 27). *What is an eco house? 10 amazing eco-friendly homes | OVO Energy*. Www.ovoenergy.com. https://www.ovoenergy.com/blog/green/10-amazing-eco-friendly-houses.

PBL. (2021, October 25). *Klimaat- en Energieverkenning 2021*. PBL Planbureau Voor de Leefomgeving. https://www.pbl.nl/publicaties/klimaat-en-energieverkenning-2021.

Perlaviciute, G., & Steg, L. (2011). Satisfaction with residential environments: effects of participation. Paper presented at 9th biennial conference on Environmental Psychology. Eindhoven, Nederland.

Pisters, S. R., Vihinen, H., Figueiredo, E., & Wals, A. E. J. (2022). "We Learned the Language of the Tree" Ecovillages as Spaces of Place-Based Transformative Learning. *Journal of Transformative Education*, 154134462110685. https://doi.org/10.1177/15413446211068550.

Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in nursing & health*, *29*(5), 489-497.

Pruim, J. (2012). *Collectief Particulier Opdrachtgeverschap bij Stedelijke Vernieuwing* (Doctoral dissertation).

PvdD. (2021, January 6). *Haagse PvdD wil kikkers een trap geven - Den Haag*. Partij Voor de Dieren. https://denhaag.partijvoordedieren.nl/nieuws/haagse-pvdd-wil-kikkers-een-trap-geven.

Ramirez, A. (2020, June 21). *Difference Between Eco Friendly and Sustainable!* Puratium. https://puratium.com/difference-between-eco-friendly-and-sustainable/.

Rehwinkel, S. T. (2021). *Collectief particulier opdrachtgeverschap: een druppel op een gloeiende plaat. Onderzoek naar motieven en ervaringen van gemeentes met betrekking tot collectief particulier opdrachtgeverschap om te voorzien in de woningbehoefte van jongeren* (Doctoral dissertation).

Rice, S. (2010). Sampling in Geography. In N. Clifford, S. French & G. Valentine (Eds.), *Key Methods in Geography* (pp.35-48). London: Sage Publications Ltd.

Rijksoverheid/Dutch National Government. (2022). *Klimaatbeleid*. Rijksoverheid.nl. https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/klimaatbeleid.

Ritchie, H., & Roser, M. (2017). Micronutrient deficiency. *Our World in data*.

RIVM. (2021, March 12). *CO2 emissies in 2020 versneld afgenomen, deels door lockdownmaatregelen | RIVM*. Www.rivm.nl. https://www.rivm.nl/nieuws/co2-emissies-in-2020-versneld-afgenomen-deels-door-lockdownmaatregelen.

ROMBAUT, D. E. (2009). Duurzame Architectuur, Ecologische Stedenbouw en Biodiversiteit: Naar een klimaatbestendige ecopolis. Pleidooi voor de Lobbenstad.

Rutter, D. R., & Bunce, D. J. (1989). The theory of reasoned action of Fishbein and Ajzen: A test of Towriss's amended procedure for measuring beliefs. *British Journal of Social Psychology*, *28*(1), 39-46.

Seawright, J., & Gerring, J. (2008). Case selection techniques in case study research: A menu of qualitative and quantitative options. *Political research quarterly*, *61*(2), 294-308.

Seegers, F. (2015, June 1). *Geworteld Wonen Fase 1 (Schuur)*. Constructie-Adviesbureau S3 B.V. http://www.constructie-adviesbureaus3.nl/gallery/geworteld-wonen-fase-1-schuur/.

Semenyuk, O., Abdrashitova, T., Beloussova, E., Nechay, N., Listkov, V., Kurbatova, V., & Niyazbekova, S. (2018). The influence of ecology and economic factors on eco-architecture and the design of energy efficient buildings. *World Transactions on Engineering and Technology Education*, *16*(2), 186-192.

Semenyuk, O., Beloussova, E., Nechay, N., Listkov, V., Kurbatova, V., Niyazbekova, S., & Abdrashitova, T. (2018). The influence of ecology and economic factors on eco-architecture and the design of energy efficient buildings.

Setz, H.-J. (2014, May 30). *De duurzaamste wijk van Nederland komt in Rijswijk - HetkanWEL*. Groener, Eerlijker & Leuker Leven. https://www.hetkanwel.nl/de-duurzaamste-wijk-van-nederland-komt-rijswijk/.

Sherry, J. (2019). The impact of community sustainability: A life cycle assessment of three ecovillages. *Journal of cleaner production*, *237*, 117830.

Singh, R., Rahi, T., & Kulshrestha, V. (2022). BUILDING THE UNCOMMON IN ECO-VILLAGE USING ENVIRONMENTALLY SUSTAINABLE DESIGN TECHNIQUES.

Singh, T., Solanki, A., Sharma, S. K., Nayyar, A., & Paul, A. (2022). A Decade Review on Smart Cities: Paradigms, Challenges and Opportunities. *IEEE Access*.

Smeets, J., & van de Ven, L. (2002). Customer-oriented Housing Development in the Netherlands: a Challenge. USO-Built Report Series, pp. 1-5.

Staley, S. R. (2006). Institutional considerations for sustainable development policy implementation: A US case study. *Property Management*.

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M. & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *science*, *347*(6223), 1259855.

Sterling, E. J., Pascua, P., Sigouin, A., Gazit, N., Mandle, L., Betley, E. & McCarter, J. (2020). Creating a space for place and multidimensional well-being: lessons learned from localizing the SDGs. *Sustainability Science*, *15*(4), 1129-1147.

Stetinger, E. (2017). *Building consensus in a complex multi-actor setting between the agriculture and water sector* (Doctoral dissertation).

Susskind, L. & Cruikshank, J. (2006) Crafting "nearly self-enforcing" agreements - in Breaking Robert's Rule: the new way to run meetings, build consensus, and get results. Oxford University Press: New York, NY. pp. 133-153.

Susskind, L.E. & Landry, E.M. (1991). Implementing a Mutual Gains Approach to Collective Bargaining. Negotiation Journal, 7(1), pp.5-10.

Tinsley, S., & George, H. (2006). Ecological footprint of the Findhorn foundation and community. *Sustainable Development Research…. Available at: http://www. ecovillagefindhorn. com/docs/FF Footprint. pdf*.

TNO. (2022). *Capturing carbon emissions from industry | TNO*. Tno.nl/En. https://www.tno.nl/en/sustainable/co2-neutral-industry/industrial-carbon-capture/capturing-carbon-emissions-industry/ accessed 25-04-2022.

Tuinjournaal. (2015, September). *Een tuin als bindmiddel - Geworteld Wonen in het blad Tuinjournaal*.

Tummers, L. (2015a). Understanding co-housing from a planning perspective: why and how? *Urban Research & Practice*, *8*(1), 64–78. https://doi.org/10.1080/17535069.2015.1011427

Tummers, L. (2015b). The re-emergence of self-managed co-housing in Europe: a critical review of co-housing research. Urban studies, pp. 1-18.

Turner, J. F. C., & Fichter, R. (1972). *Freedom to build: dweller control of the housing process*. Macmillan Company; Collier-Macmillan Lim.

UN & UK Government. (2021, November). *The Glasgow Climate Pact*. UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. https://ukcop26.org/the-glasgow-climate-pact/ (accessed 18-06-2022).

UN. (2022, July 7). — *SDG Indicators*. Unstats.un.org. https://unstats.un.org/sdgs/report/2022/.

UN. (n.d.). *Climate Adaptation*. United Nations. https://www.un.org/en/climatechange/climate-adaptation (accessed 29-05-2022).

UNDP. (2015). *Sustainable Development Goals*. Sustainable Development Goals. https://www.undp.org/sustainable-development-goals (accessed 06-03-2022).

UNESCO. (2015, August 20). *Sustainable Development*. UNESCO; UNESCO. https://en.unesco.org/themes/education-sustainable-development/what-is-esd/sd (accessed 07-03-2022).

UNESCO. (2021, March 31). UNESCO “World in 2030” Survey Report highlights youth concerns over climate change and biodiversity loss. UNESCO. https://en.unesco.org/news/unesco-world-2030-survey-report-highlights-youth-concerns-over-climate-change-and-biodiversity (accessed 12-04-2022).

United Nations. (2021). *Climate Change*. United Nations; United Nations. https://www.un.org/en/global-issues/climate-change (accessed on 31-05-2022).

University of Mary Washington. (2018, May 30). *Economic Sustainability*. Sustainability. https://sustainability.umw.edu/areas-of-sustainability/economic-sustainability/.

Urban, B. (2008). Entrepreneurial cognitions: Linking willingness and ability expert scripts to self-efficacy and new venture creation decisions. *SA Journal of Industrial Psychology*, *34*(3), 22-28.

Van Baardewijk, E.J., de Haan, M.J. & Hijmans, E.R. (2013). Nieuwe stijlen van gebiedsontwikkeling (deel 1): Enkele aspecten van organische ontwikkeling en uitnodigingsplanologie. Bouwrecht, 60(5), 317-327.

Van Beek, F. & Veen, F. (2013). Relaxed particulier opdrachtgeverschap. In R. Van Gameren, A. Kraaij, P. Van der Putt (Red.) Samen bouwen (pp. 43-47). Rotterdam, Nederland: nai010uitgevers.

Van Buren N, Demmers M, Van der Heijden R, Witlox F. (2016). Towards a Circular Economy: The Role of Dutch Logistics Industries and Governments. *Sustainability*. 2016; 8(7):647. https://doi.org/10.3390/su8070647.

Van den Berg, P., Van der Wielen, K., Maussen, S., & Arentze, T. (2021). A path analysis of factors influencing social cohesion and neighbor support in collective self-build housing. The importance of getting to know future neighbors. *Journal of Housing and the Built Environment*. https://doi.org/10.1007/s10901-020-09807-8.

Van der Cammen, H. & de Klerk, L. 2003. *Ruimtelijke Ordening. Van Grachtengordel tot Vinex-wijk*, Houten: Het Spectrum.

Van der Kloet, H., & Van Genne, F. (2014). Een duurzame woonwijk-wat is dat eigenlijk?. *Tijdschrift voor de volkshuisvesting*, (3), 22-26.

Van der Stadt, H. (2018). *Ecohousing - Bio-Ecologisch Architect - Hugo Vanderstadt*. Www.eco-Housing.be. http://www.eco-housing.be/ (accessed 14-07-2022).

Van der Windt, H., Swart, J. & Keulartz, J. (2007). Nature and landscape planning: Exploring the dynamics of valuation, the case of the Netherlands. Landscape and Urban Planning, 79(3- 4), pp.218-28.

Van der Zande, K. M. (2016). *We kunnen het allemaal zelf!? Een exploratief onderzoek naar de tevredenheid van bewoners over het resultaat van Collectief Particulier Opdrachtgeverschap* (Doctoral dissertation).

Van Kesteren, D. (2022, July 13). *Helpdesk: collectief particulier opdrachtgeverschap*. Vastgoed Actueel. https://vastgoedactueel.nl/helpdesk-collectief-particulier-opdrachtgeverschap/.

Van Rooy, P. (2011). Uitnodigingsplanologie als sociaal-cultureel perspectief. Building business, 13, 10. Amsterdam: Building Business Uitgeverij BV.

Van Vliet, W. (2015). Nature reflecting society. On co-governance and its role in societalizing Dutch nature development projects.

Van Wijnen, W. (2020). Sustainable timber structures: Quantitative research evaluating the potential effects of carbon sequestration and cascading strategies in the Netherlands based on a comparison of the Dutch and European life cycle assessment methodologies.

VNG. (2018). De 17 Global Goals | VNG. Vng.nl. https://vng.nl/artikelen/de-17-global-goals-0.

VNG. (2020, April 9). *Gemeenten en het Klimaatakkoord | VNG*. Vng.nl. https://vng.nl/artikelen/gemeenten-en-het-klimaatakkoord.

Von Wirth, T., Fuenfschilling, L., Frantzeskaki, N., & Coenen, L. (2019). Impacts of urban living labs on sustainability transitions: Mechanisms and strategies for systemic change through experimentation. *European Planning Studies*, *27*(2), 229-257.

Wackernagel, M., & Rees, W. E. (1997). Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective. Ecological Economics, 20: 3-24.

Ward, C., (1976). Housing: An Anarchist Approach. Freedom Press, London.

Wesselink, M. & Paul, R., (2010). Handboek strategisch omgevingsmanagement. 1st ed. Deventer: Kluwer.

Whiteman, G., Walker, B., & Perego, P. (2013). Planetary boundaries: Ecological foundations for corporate sustainability. Journal of Management Studies, 50: 307-336.

Willems, E., & Scheltema, A. (2004). Deel 4 24 Bouwen voor de markt. *Beter bouwen en bewonen*, 278.

Yin, R.K. (2003). Case Study Research: Design and Methods. 3rd Edition, Sage, Thousand Oaks.

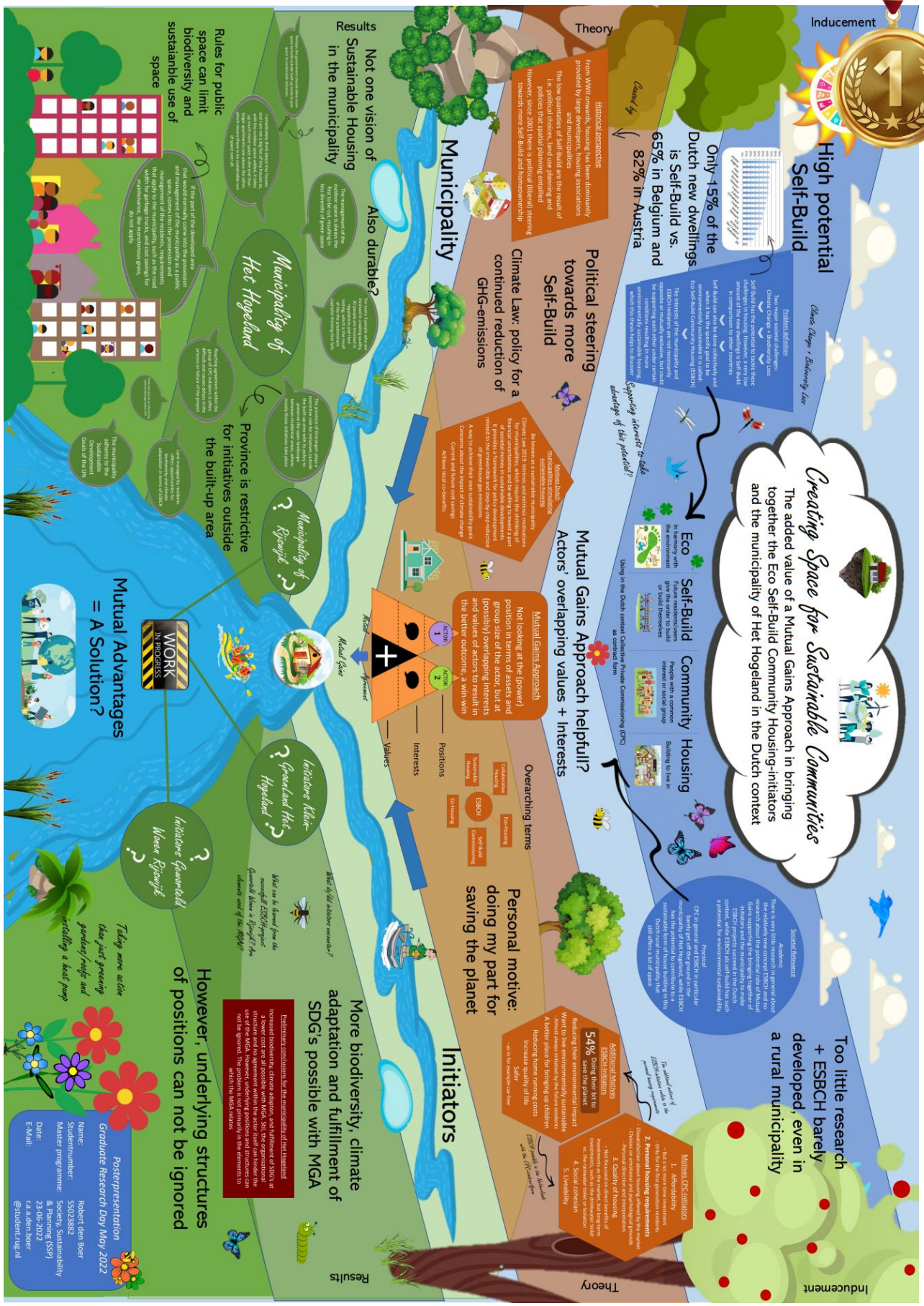
Zabkar, V., & Hosta, M. (2013). Willingness to act and environmentally conscious consumer behaviour: can prosocial status perceptions help overcome the gap?. *International Journal of Consumer Studies*, *37*(3), 257-264.

Zamora-Polo, F., & Sánchez-Martín, J. (2019). Teaching for a better world. Sustainability and sustainable development goals in the construction of a change-maker university. *Sustainability*, *11*(15), 4224.

Zhenmin, L., & Espinosa, P. (2019). Tackling climate change to accelerate sustainable development. *Nature Climate Change*, *9*(7), 494-496.

Zuidema, C. (2016). Decentralization in environmental governance; a postcontingency approach, Abingdon: Routledge.

Appendix I: Poster presentation Graduate Research Day 2022



Appendix II: Environmental Sustainability

Environmental sustainability is an important element in ecovillages in addition to social sustainability (ES). Therefore, this appendix dives into ES, which can be defined as (Ibid; Brundtland Commission, 1987, p.43): meeting the needs of the ecosystems, both preserving and strengthening ecosystems, and their life support functions for humans without compromising the abilities of future generations meeting their needs. To be able to connect environmental sustainability to living and housing, some indicators are needed. It is interesting to dive into environmental sustainability indicators instead of only eco-housing key components as in environmental sustainability there are way more societal challenges than the definition of eco-housing describes. Examples of other societal challenges ES does include are climate adaptation and biodiversity loss.

Indicators

Building environmentally sustainable is all about a small ecological footprint and closing loops in the field of on water, material and energy. Dong & Hauschild (2017) distinguish three tools of measuring environmental sustainability: (i) planetary boundaries, (ii) life cycle assessment and (iii) sustainable development goals (UN). However, most elements within those tools are applicable on much larger scale (fish resources), are already forbidden (CFC's; causing ozone depletion) and housing with surrounding land can not necessarily contribute to all the goals on its own (like marine system change). Their (2017) more detailed examples are congruent to those of Steffen et al. (2015), visualised in figure 20, causing damage to ecosystems, health and natural resources.

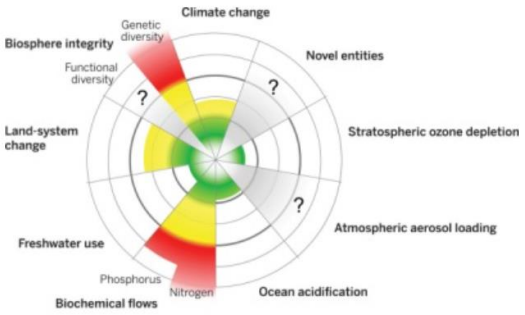


Figure 20: Nine environmental problems by crossing the environmental boundaries (Steffen et al., 2015).

In literature there is a common agreement on housing being environmentally sustainable if it contributes to: freshwater conservation, biodiversity preservation, ecosystem restoration, and pollution reduction (Dong & Hauschild, 2017; Kurland & Zell, 2011; Wackernagel & Rees, 1997; Whiteman et al., 2013). Moldan et al. (2012) and Dong & Hauschild (2017) use the SDGs as indicators cooperatively with the planetary boundaries to describe the earth-system processes of climate change, rate of biodiversity loss and the nitrogen cycle. Johnson (2017) refers to the ecological footprint as an indicator. KTH (2021) states that to be environmentally sustainable the production of services and goods is not compromising the carrying capacity of ecosystems, which corresponds to the ecological footprint. KTH (2021) connect for the functioning of the earth's biogeochemical system the elements viewed in table 7. Worldwide environmental regulations focus on these elements and GHG emissions (United Nations, 2017).

Table 7: Elements of Earth's biochemical system connected to examples (KTH, 2021).

Elements of Earth's biogeochemical system	*Examples*
Water	Alien species, Temperature, Salinity, Groundwater levels, Pollutants
Air	Noise, Climate system, Ozone layer, Particles, Pollutants
Land	Alien species, land use, Erosion, Pollutants
Biodiversity	Genetically Modified Organisms, Natural habitats of species
Ecosystem services	Climate control, Water purification, Photosynthesis, Pollination

Indicators Environmental Sustainability for the living environment

Figure 21 was created by combining different studies, displayed beneath, and linking them to the aforementioned general indicators of environmental sustainability. Den Boer (2021) brought together information about Nature Based Solutions, which are climate-adaptive measures containing a biodiversity-element. This study was about environmental rules (Environmental Law: omgevingswaarden) preventing for instance rain floodings with 70 mm/hour as one option. Chemical fertilisers containing cause child labour for getting the nutrients out of small shafts, biodiversity loss, eutrophication and micronutrient deficiency (Bonsdorff, 2021; Ritchie & Roser, 2017). Herbicides and pesticides are not part of an ecologically harmonious food production and cause great harm to biodiversity (Geiger et al., 2010). The same goes for monocultures. For limiting the freshwater (drink water) use it is required being environmentally sustainable to not utilize it for things that not get in contact with the human body, such as flushing the toilet and watering the garden (Rombaut, 2009). Buildings that generate their own sustainable energy are increasingly becoming important in a post-fossil era and are already existing in the Netherlands (TNO, 2022).

Because this is possible with both wind and solar energy, but it should not stand in the way of future sustainable innovations, the indicator remains with the generation and use of only sustainable energy. Circular and biodegradable materials are important for the element housing as it works towards a circular economy (OVO Energy, 2021). For instance, using impregnated wood is not biodegradable. Street vortexes are not environmentally sustainable as annually minimal 500.000 frogs, toads and salamanders die by falling into those vortexes and having no access to food or drowning (PvdD, 2021). In addition, mouses and birds are even found in vortexes. For the footprint, the tool ''calculating footprint'' can be used to test if the inhabitants of the houses live environmentally sustainable (Admin, 2019). Lastly, biodiversity-wise it is important for indigenous (Dutch: inheems) plants and flowers to be dominantly present (IVN, 2022).

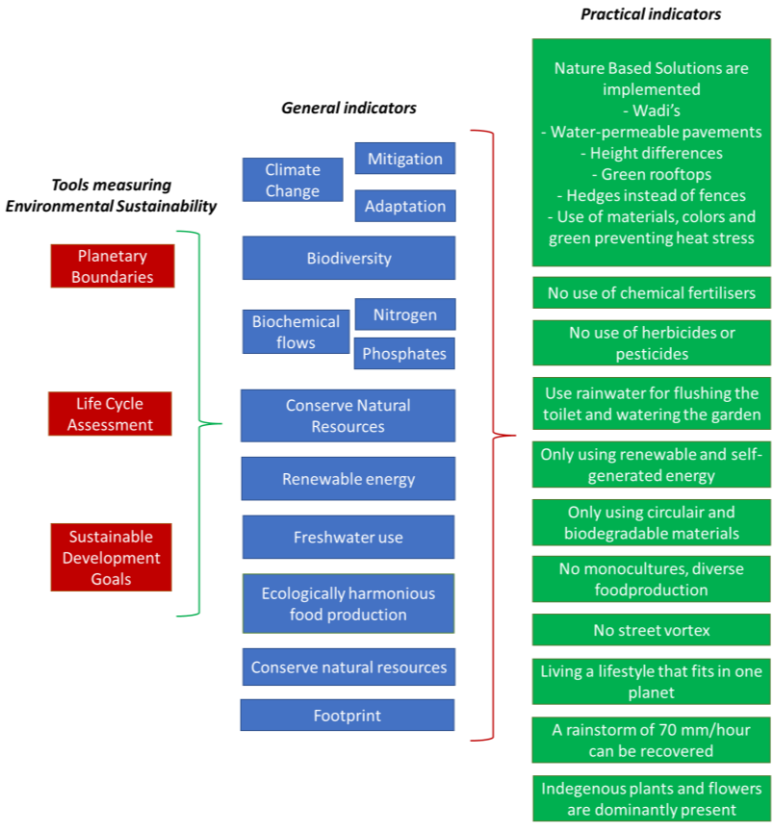


Figure 21: From tools to practical indicators of environmental sustainability (by author).

Appendix III: Task division CPC and stages ESBCH-process

Tasks municipality and initiators concerning CPC

In order to identify the potential impact of collaborative self-build Commissioning on environmental sustainability, the tasks of the main parties involved in CPC give insight into the scope of both the municipality and the CPC-initiators. The DEA has explained this by table 8.

Table 8: Tasks of the main parties involved in a CPC-process (DEA, 2014).

CPO-initiators	Municipality	Guaranter[14]	Accompaniment	Architects, advisors & contractors
Unites as legal entity	Conditions for location or existing buildings	Guarantees for x homes	Supports CPO-initiators as clients	Elaborate CPO-plans
Bring together enough candidates	Discusses with initiators location/property	Optional: providing pre-financing		
Make decisions	Option: fund plan costs	Optional: Executing MGE-construction Plan		
Arranges tenders	Tests permit & supervises	Work on behalf of the CPO-group		
Gives orders	Delivers land			
Association prepares purchase and contract agreement	Initiates project with recruitment & supports group formation up to the establishment of legal entity			
Members conclude individual purchase and contract agreements	Supports CPO-group being able to be in the client role			

[14] *Party who, if necessary, takes over (part of) a collective project*

Table 9: The various stages of an ESBCH-development process (Newberry et al., 2021, p.10).

Table 1. ESBC housing development process.

	Stage	Description
1.	Funding	ESBC developer receives investment towards project in the same way a conventional speculative housebuilder would, promising a return to investors.
2.	Land acquisition	ESBC developer finds a site and negotiates a deal with the landowner(s).
3.	Development design	ESBC developer works closely with the project architect to design a scheme that delivers environmental and social sustainability.
4.	Planning permission	ESBC developer applies for planning permission for the scheme design.
5.	Marketing and sales	ESBC developer markets the homes and customers buy into the scheme, forming the community group.
6.	Individual design sessions	Self-finishers design internal layouts with the project architect. Any significant changes require a non-material amendment (NMA) planning application. Custom builders make design choices with the interior designer.
7.	Community workshops	ESBC developer facilitates a series of workshops with the community group to support them at various stages of their project and encourages participation and collaboration.
8.	S106 and building regulations	The project undergoes Section 106 agreements and building regulations approval.
9.	Tendering	ESBC developer tenders for construction and a main contractor is appointed.
10.	Main contractor construction	Main contractor constructs the building envelopes ('shells') of the self-finish houses with services attached, the custom-build flats (fit-out by separate contractor), and the community infrastructure.
11.	Estate Management Company	ESBC developer works with the community to develop a self-management structure. This is set out contractually in an estate management company.
12.	Fit-out	Self-finishers complete the fit-out of their homes through a combination of project management, DIY, and subcontractor employment. A separate contractor completes the custom-build apartments to customer design specifications.
13.	Move-in	Residents move into their homes, taking ownership of community assets including a shared garden and community building.
14.	Reinvestment in new projects	ESBC developer aims to gain 15–20% profit and reinvest this into another ESBC housing project.

Appendix IV: Main concepts thesis

ESBCH and the related concepts are explained in table 10 by using the information of the literature study.

Table 10: Explanation of the main concepts of this study (by author).

Concept + Definition	Dimension	Indicators	Items
Eco Self-Build Community Housing: Building and living in harmony with the environment in a way that a shared piece of land/building is collectively owned/used or (ordered to) build by the future residents	Eco	In harmony with the environment	Is there considerably more attention for the environment compared to regular housing constructions?
	Self-Build	Future residents/users give the order to build or build themselves	Are the future residents/users involved as clients or build themselves?
	Community	People with a common interest or social group	Do people with a common interest/social group (will) live together?
	Housing	Building to live in	Does it concern buildings (with land) to live in?
Environmental Sustainability No damage of the existing ecosystems and enlarging that and a way of living which enables future generations to also use the environmental sources people use now	Environmental	Relating to the environment in which people, animals, and plants live	Does the action impact on the environment?
	Sustainability	Meeting the needs of the present without compromising the abilities of future generations meeting their needs	Does the dwelling not restrict the abilities of future generations in meeting their needs?
Self-Build Housing The practice where people, as a group or individually, commission the production of housing for their own use	Self-Build	The future residents/users give the order to build or build it themselves	Are the future residents/users involved as clients or build themselves?
	Housing	A building (with its surroundings) where is lived	Does it concern buildings (with land) to live in?
Collaborative Housing: A group of people takes the building process and surrounding shared space of a future building into their own hands	Collaboration	Two or more people working together to create or achieve the same thing	Do two or more people work together to create or achieve the same thing (for example housing)?
	Housing	See SBH	See SBH
Sustainable Housing Housing that does not affect future generations in the ability to live an equal or better life	Sustainability	See environmental sustainability	See environmental sustainability
	Housing	See SBH	See SBH
Willingness and Ability Capability and eagerness to act	Ability	Capability to act	What is the capability of actor X to act?
	Willingness	Disposition to act	What is the eagerness of actor X to act?

Collective Private Commissioning A group of private individuals that jointly buy one large plot or a number of plots situated next to each other for the construction of their homes.	Collective	Denoting a number of persons considered as one group	Is a group involved in the process?
	Private	Intended for or restricted to the use of a particular group/person	Is land intended for or restricted to the use of a particular group/person?
	Commissioning	The activities from completion of construction (or installed equipment) until it is placed into service	Is the collective involved in the activities from completion of construction until placing into service?
Eco-Housing An environmentally friendly house which is designed to have as little impact as possible on our planet	Environmentally low impact	Using environment friendly and energy efficient buildings, sustainable construction practices and healthy and productive indoor environment with lower natural resources use	Does the building include environmentally friendly and energy efficient buildings, sustainable construction practices and healthy and productive indoor environment with lower natural resources use?
	Housing	See SBH	See SBH

Appendix V: Agreements participants interviews

This appendix shows the form that was sent to all participants in the interviews. Because this is an (open) version for outside the University of Groningen and to ensure the privacy of the respondents, all names have been anonymized and the names with signatures of agreement are not shown here.

Agreement to participate - Research Ethics Committee (REC)
Title research project: Creating Space for Sustainable Communities

Researcher and author: Robert den Boer

Research objective: The aim of this research is to create insight into the factors which help local municipalities and initiators in realizing Eco Self-Build Community Housing projects in the Dutch context. A further objective is to explore whether these factors are attributable to ability and willingness of the municipality.

It is important that you have the following information from appendix A (see next two pages) and can answer the questions below with ''yes'':

- I have read and I understand the information sheet of the research project
- I understand that taking part in this research is voluntary and that I have the right to withdraw from it up to three weeks after the interview, as well as to decline to answer a question I do not wish to answer.
- I understand that my participation in this research is confidential. Without my prior consent, no material, which could identify me, will be used in any reports generated from this study.
- I understand that the interview data may be used in academic articles, book chapters, published and unpublished work and presentations.
- I understand that all information I provide will be kept confidentially either in a locked facility or as a password protected encrypted file on a password protected computer.

To indicate personal preferences, please highlight with **bold marking** YES or NO to each of the following statements:

I consent to my interview being audio-recorded YES / NO
I wish to remain anonymous for this research YES / NO

If YES
My first name can be used for this research YES / NO / N.A.[8]

OR
A pseudonym of my own choosing can be used in this research YES / NO / N.A.[8]

If you wish to choose own pseudonym, please mark it here:

[8]*Not Applicable*

Be aware that when the research is published publicly, names will be replaced by pseudonyms by default.

"I agree to participate in this interview and acknowledge receipt of a copy of this consent form and the research project information sheet."

Signature of participant:_____Date: _____

"I agree to abide by the conditions set out in the information sheet and I ensure no harm will be done to any participant during this research."

Signature of researcher:_____Date: _____

Appendix A: Information sheet Research Ethics Committee (REC) for the study: Creating Space for Sustainable Communities

Thank you very much for taking the time to get involved in my research project!

Researcher and author: Robert den Boer

Description of the project

Inducement: There is a general need in society to transform into a more sustainable way of living, which includes the way that housing projects are developed. At the same time, there are some promising examples in the field of environmental sustainability of Eco Self-Build Community Housing (ESBCH) in the Netherlands, such as *Geworteld Wonen* in *Rijswijk* and *Ecowijk Mandora* in *Houten*, almost all of which have collective private commissioning as a contract form in the Netherlands. While ESBCH-projects have been completed in other municipalities, in Het Hogeland, these projects have not yet been realized. In combination with the CPC contract form of such projects in the Netherlands, it is relatively new in the Netherlands and raises a lot of questions and struggles on the municipal side. A lot has been written in academic literature about eco-housing, sustainable housing, self-build commissioning, collaborative housing, co-housing and so on separately from each other. According to academia, the contribution of these concepts in the field of housing is enormous. However, connecting those concepts as ESBCH has only been researched twice and not studied in the Dutch context at all despite its potential.

Theoretical framework: The following basic knowledge has been established for the research in existing academic literature. First, several concepts related to ESBCH and the concept itself have been discussed. Secondly, self-build housing in the Netherlands and its history was discussed. Third, the motives of both the initiators of CPC and ESBCH as well as the municipality were examined. Fourthly, the terms ability and willingness and the associated theory were discussed.

Data collection: the interviews are an important part of the data collection, specifically for the empirical part of the study.

- Specifically for the case *Geworteld Wonen* in Rijswijk and *De Kleine Plantage* in Eenrum (municipality of Het Hogeland): I would like to discuss the factors that, according to you, have influenced the entire process, from initiative to realization, for *Geworteld Wonen/De Kleine Plantage*. Consider, for instance, internal and external factors. I would like to see whether these factors can be linked to the ability and willingness of the municipality to realize the project *Geworteld Wonen/De Kleine Plantage*.

Research objective: The aim of this research is to create insight into the factors which help local municipalities and initiators in realizing Eco Self-Build Community Housing projects in the Dutch context. A further objective is to explore whether these factors are attributable to ability and willingness of the municipality.

Master thesis: At the end of the Master's program Society, Sustainability and Planning at the University of Groningen, a Master's thesis is written that is linked to the study programme. The information from this interview will be incorporated into Robert den Boer his Master thesis.

Confidentiality and participant rights

- The interviews will be audio-recorded and notes will be taken during the interview.
- You have the right to ask to have the recording turned off whenever you decide and you may also end the interview at any time.
- If you wish so you will be sent a copy of the interview notes, and you will have the opportunity to make corrections or request the erasure of any materials you do not wish to be used.
- The information you provide will be kept confidentially in a locked facility or in a password protected file on my computer up to five years upon completion of my research.
- The data may be used for articles, book chapters, published and unpublished work and presentations.
- Unless you have given explicit permission to do so, personal names or any other information which would serve to identify you as an informant will not be included in this research or in any future publication or reports resulting from this project.

As a participant you have the right to:

- decline to participate;
- decline to answer any particular question;
- ask for the audio-recorder to be turned off at any time;
- end the interview at any time
- withdraw from the study up until three weeks after participating in the research;
- ask any questions about the study at any time during participation; and
- ask for the erasure of any materials you do not wish to be used in any reports of this study.

Once again, I thank you for taking the time to find out more about my research. I am at your disposal for any questions you might have. You can reach me at robertdb2806@gmail.com

Some respondents had the requirement to first check the quotes that I wanted to use for my study, before they signed the agreement for participation in this study. To perform an additional check, the quotes are sent to the respondents with the communication below:

In een groot document heb ik eerst alle interessante quotes uitgeschreven en de meest toepasbare worden gebruikt in het onderzoeksverslag. Uw naam wordt in het verslag vervangen door een pseudoniem. Indien u een voorkeur hebt, geef dit aan in het bijgevoegde formulier. Ook worden alle quotes naar het Engels vertaald in navolging van de eisen van de Rijksuniversiteit Groningen. Mocht een bepaalde uitspraak niet zo bedoeld zijn of wil je het liever niet in het onderzoeksverslag hebben, laat het mij weten.

Appendix VI: Interview guides

To ensure that the research is fully reproducible and that answers from different respondents on the same questions could be compared, the same interview guide was used for each group of interviewees. This resulted in three interview guides that are listed in this appendix. It was agreed in advance whether an interviewee wanted to be addressed with ''u'' or ''jij'' in Dutch, which both means ''you'' in English.

Interview guide interviewees case I project Geworteld Wonen in Rijswijk

Opmerking: sommige vragen zijn alleen bestemd voor één respondent.

Voorafgaand aan interview

Allereerst hartstikke bedankt voor het meewerken aan het interview. Ik heb u van tevoren het consentformulier gestuurd, waarin je hebt kunnen aangeven of je het eens bent dat het interview wordt opgenomen, pseudoniemgebruik en dergelijken. Bij openbare publicatie wordt altijd een pseudoniem gebruikt. Was alles dat daarin stond vermeld duidelijk? Heb je hierover nog op- of aanmerkingen?

1. Mag ik dit interview opnemen?
2. Mag ik uw naam gebruiken? – Bij publicatie wordt dit veranderd
3. Mag ik uw functie vermelden?

Centrale vragen om in het achterhoofd te houden (alleen voor interviewer):
What are the municipal motivations, opportunities and limitations for eco self-build community housing in Rijswijk considering Geworteld Wonen?

Which elements influenced the ability and willingness of the municipality of Rijswijk to realize Eco Self-Build Housing-project Geworteld Wonen?

What can the municipality of Het Hogeland learn from the successfully completed CPC/ESBCH-initiative Geworteld Wonen in Rijswijk?

Voorstellen

Mijn naam is Robert den Boer en ik doe onderzoek naar Eco Self-Build Community Housing. In Nederland kennen wij dat als duurzame CPO-projecten, ook wel bekend als Eco-housing. Ik wil met dit onderzoek te weten komen waarom binnen Nederland in de ene gemeente wel ESBCH-projecten zijn en in andere gemeenten niet. Dit herleid ik tot factoren die hierop van invloed zijn. Voor dit interview ben ik specifiek benieuwd naar hoe *Geworteld Wonen* tot stand is gekomen van initiatief tot realisatie en hoe het momenteel functioneert. Kortom: Waarom was dit project mogelijk en wat heeft bijgedragen tot het succes?
Heeft u voorafgaand aan het interview nog vragen?

Start interviewvragen

Wat is uw huidige functie en wat was uw functie ten tijde van het project *Geworteld Wonen*?
Hoe heeft u kennis gemaakt met het project *Geworteld Wonen*?
Wat was uw rol binnen het project *Geworteld Wonen*?

Basis interviewvragen

Ik zal nu het proces van het tot stand komen van *Geworteld Wonen* af gaan.
Hoe is de ontwikkeling van Rijswijk Buiten gestart?
Wat was de aanleiding voor het starten van het CPO project *Geworteld Wonen*?
- Was een ecovillage het uitganspunt of meer het sociale aspect?

Welke invloed heeft de gemeente gehad in de ontwikkeling van *Geworteld Wonen*?
Wordt er ook regenwater opgevangen en hergebruikt voor toilet, tuin en dergelijken binnen het project?
Wat voor belangen speelden er aan de kant van de initiatiefnemers en Inbo?
Wat voor belangen speelden er aan de kant van de gemeente?
Hoe is de keuze op de CPO-constructie gevallen, want een CPO-project is niet per definitie duurzaam.
Kun je bij een CPO-project volgens u meer kwaliteit creëren dan bij een regulier project?
Speelde de provincie Zuid-Holland een rol bij het project?

Dan meer richting het grondbezit en de financiering daarvan, waar de gemeente Het Hogeland zeer geïnteresseerd in is. Hoe is de financiering gegaan van het stuk grond?
Wordt de grond ooit eigendom van initiatiefnemers of blijft het in erfpacht van de bewoners?
Hoe wordt ervoor gezorgd dat de inrichting van het stuk grond blijft bestaan, zoals de Leeuwenstuin?
- Vind er controle plaats door de gemeente?
Wat maakt een CPO project anders voor een architect?
Wat biedt CPO voor kansen en welke onzekerheden brengt het met zich mee?
Wat voor kansen biedt het dat de grond in beheer is van de bewoners?

Vaak wordt er ingebracht dat er moeilijk van een standaard kan worden afgeweken door regels omrent bijvoorbeeld de draaicirkel van een vuilniswagen, de toegankelijkheid van hulpverleners (ambulance, politie, brandweer) en parkeernormen. Hoe kon worden afgeweken van regels?
- Hoe zorg je toch voor een zeer groen project ondanks die normen?
- Speelde het gebruik van deelauto's hier een rol in?
Het is inmiddels een erg bekend project onder planologen in Nederland. Speelde van tevoren al het imago van de gemeente een rol om voor om dit project bijvoorbeeld te faciliteren?

Welke externe factoren maakte het project *Geworteld Wonen* een succes?
Welke interne factoren maakte het project *Geworteld Wonen* een succes?
- Hangt de doorgang van het project samen met politieke besluiten?
- Zijn overheidsinvesteringen noodzakelijk bij zo'n project als *Geworteld Wonen*? Ik bedoel hiermee een ecovillage gerealizeerd met behulp van een CPO-constructie.

Afronding
Ik zag dat er een woning te koop staat voor een aanzienlijk bedrag. Hoe kijk jij hier tegenaan?
Vindt u het een succesvol project?
- Op welke onderdelen is het succesvol en op welke onderdelen minder of niet succesvol?
Waarom kan niet ieder project zo duurzaam en groen zijn als *Geworteld Wonen*?
Zullen er in de toekomst meer van dit soort projecten ontwikkeld worden of zelfs veel meer?
Dan wil ik u nogmaals heel erg bedanken voor het meewerken aan dit interview. We houden contact!

Interview guide interviewees (environmentally) sustainable CPC-projects in Het Hogeland

Voorafgaand aan interview
Ik heb je van tevoren het consentformulier gestuurd, waarin je hebt kunnen aangeven of je het eens bent dat het interview wordt opgenomen, pseudoniemgebruik en dergelijken. Bij openbare publicatie wordt altijd een pseudoniem gebruikt. Was alles dat daarin stond vermeld duidelijk? Heb je hierover nog op- of aanmerkingen?

1. Mag ik dit interview opnemen?
2. Mag ik uw naam gebruiken? – Bij publicatie wordt dit veranderd
3. Mag ik uw functie vermelden?

Centrale vragen om in het achterhoofd te houden (alleen voor interviewer):
How does the municipality of het Hogeland currently stimulate environmentally sustainable Collective Private commissioning-initiatives?

What prevents the municipality of Het Hogeland from prioritizing the CPC-initiatives which contribute to their current environmental sustainability goals?

Wat are motivations, opportunities and limitations for ESBCH/sustainable CPC-initiatives in Het Hogeland?

Voorstellen
Mijn naam is Robert den Boer en ik doe onderzoek naar Eco Self-Build Community Housing. In Nederland kennen wij dat als duurzame CPO-projecten, ook wel bekend als ecovillages. Voor dit interview ben ik benieuwd naar hoe de gemeente Het Hogeland volgens jou omgaat met CPO-projecten in het algemeen en die zich uiten als ecovillages met de gevolgen daarvan. En waarom volgens jou deze projecten nauwelijks tot niet worden gerealizeerd in Het Hogeland en waarom ze geen prioriteit hebben in navolging van de gehanteerde Sustainable Development Goals.

Heeft u nog vragen voorafgaand aan het interview?

Start interview
Kun jij je functie omschrijven bij Het Hogeland?
Hoe heb jij kennisgemaakt of ben jij betrokken geraakt bij CPO-projecten in Het Hogeland?

Basis interview
Ik zal ingaan op CPO, eco-housing en sustainable communities, waarna ik steeds verdiepende vragen stel.
Hoe gaat de gemeente Het Hogeland volgens jou om met CPO-projecten in het algemeen?
Zie jij een (groot) verschil binnen CPO-projecten in Het Hogeland?
Zijn er duurzame projecten binnen Het Hogeland die uit ecologische doelstellingen begonnen zijn?
Zijn er volgens jou duurzame CPO-projecten in Het Hogeland?
Welke voordelen zie je van CPO voor duurzaamheid in de breedste zin van het woord?
- Hoe kan de gemeente daarop inspelen?
Is er binnen de gemeente een andere manier van benaderen van duurzame CPO-projecten in vergelijking met reguliere projecten die door een projectontwikkelaar worden gerealizeerd?
- Heeft dit effect op hoe je kunt ondersteunen bij CPO-projecten?
Hoe sta je tegenover randvoorwaarden stellen aan CPO als gemeente?
Wordt er een prioritering gemaakt bij Het Hogeland voor duurzame woonprojecten?
Hoe wordt binnen de gemeente besloten of er voor een project extra middelen, zoals mankracht of subsidies worden ingezet?
Waarom zijn ecovillages niet gerealizeerd in Het Hogeland volgens jou?
Waarom worden CPO projecten nauwelijks gerealizeerd in Het Hogeland volgens jou?
Wordt er onderscheid gemaakt in hoe om te gaan met CPO projecten en reguliere projecten door Het Hogeland?
Als je kijkt naar de lijn van een CPO project van initiatief tot realisatie. Waar gaat het dan volgens jou meestal mis?
Zijn er grote verschillen binnen de CPO projecten in duurzaamheid?
Hoe kan de gemeente beter inspelen op duurzame CPO-projecten volgens jou?

Worden er bij projecten weleens constructies met randvoorwaarden of erfpacht toegepast in Het Hogeland?
Waarom is het niet mogelijk dat een gemeente taken van initiatiefnemers overneemt?
Is er meer of minder inspanning van de gemeente vereist bij CPO dan bij reguliere projecten?
Is er bij CPO gemiddeld meer aandacht voor duurzaamheid?
Heeft Het Hogeland belang bij het stimuleren van CPO projecten?
Heeft Het Hogeland belang bij het stimuleren van ecovillages?
Je ziet regelmatig dat CPO-projecten na de eerste bewoning voor marktprijzen worden verkocht. Er is dus aantoonbaar vraag naar dit type woningen. Hoe zie jij de rol van de overheid in het voorzien in een divers woningaanbod.
Wat kan de gemeente doen om initiatiefnemers van CPO-projecten te ondersteunen om misverstanden in gaten in kennis over bijvoorbeeld aanlegkosten van riolering te voorkomen?
Hoe zorg je voor een aanzienlijk groenere omgeving bij projecten volgens jou?
Hoe zie jij de rol van sustainable communities in de samenleving?
Is CPO de enige manier om sustainable communities op te zetten volgens jou?
Hoe zie jij de ontwikkeling van CPO in de afgelopen jaren, zit daar verschil in per periode?
Wat kan Het Hogeland nog meer doen om duurzame woningbouw te faciliteren of verplichten.
Wat zou volgens jou eco-housing bevorderen?

Afsluiting
Dan gaan we nu richting het einde van het interview.
Wat is jouw mening over duurzame CPO projecten?
Wat heb je geleerd van CPO projecten?
Hoe zie jij de toekomst van duurzame CPO projecten voor je?
Dan zijn we aan het einde van dit interview gekomen. Heel erg bedankt. Heb je nog vragen, opmerking of ideeën over dit interview of het onderwerp?
Nogmaals veel dank voor het meewerken aan het onderzoek. Je krijgt het uiteindelijke onderzoek toegestuurd door mij.

Interview guide interviewees case II project De Kleine Plantage in Eenrum
Sommige vragen wijken af, omdat er ook een initiatiefnemer is gesproken. Gezien het feit dat mensen buiten de organisatie Het Hogeland worden gesproken, worden zij aangesproken met u. Enkele vragen zijn alleen bestemd voor de initiatiefnemer en andere alleen voor de medewerker van de gemeente Het Hogeland.

Voorafgaand aan interview
Ik heb u van tevoren het consentformulier gestuurd, waarin je hebt kunnen aangeven of je het eens bent dat het interview wordt opgenomen, pseudoniemgebruik en dergelijken. Bij openbare publicatie wordt altijd een pseudoniem gebruikt. Was alles dat daarin stond vermeld duidelijk? Heb je hierover nog op- of aanmerkingen?

1. Mag ik dit interview opnemen?
2. Mag ik uw naam gebruiken? – Bij publicatie wordt dit veranderd
3. Mag ik uw functie vermelden?

Centrale vragen om in het achterhoofd te houden (alleen voor interviewer):
What are the municipal motivations, opportunities and limitations for realizing De Kleine Plantage in the municipality of Het Hogeland?

What elements concerning the willingness and ability of the municipality of Het Hogeland influence the realization of De Kleine Plantage?

Voorstellen
Mijn naam is Robert den Boer en ik doe onderzoek naar Eco Self-Build Community Housing. In Nederland kennen wij dat als duurzame CPO-projecten, ook wel bekend als Eco-housing. Ik wil met dit onderzoek te weten komen waarom binnen Nederland in de ene gemeente wel ESBCH-projecten zijn en in andere gemeenten niet. Voor dit interview ben ik specifiek benieuwd naar de ontstaansgeschiedenis van *De Kleine Plantage* met het hele proces tot vandaag de dag. Waar lopen jullie tegenaan? Wat heeft er allemaal gespeeld of speelt er nog steeds dat van invloed is op jullie project. Dit alles voornamelijk in het kader van ecologisch bouwen, waar het project een mooi voorbeeld van is.

Start interviewvragen
Hoe bent u betrokken geraakt bij CPO project *De Kleine Plantage*?
Wat houdt *De Kleine Plantage* voor u in?
Wat is de staat momenteel van het project, wordt er al gebouwd?

Basis interview
Was de grond al in bezit van één van de initiatiefnemers of meerdere initiatiefnemers?
Hoe wijkt dit project af met een reguliere gebiedsontwikkeling door een projectontwikkelaar?
Hoe heeft het besluitvormingsproces vanaf het begin plaatsgevonden? Moet iedereen vóór een beslissing stemmen of moet de meerderheid vóór een beslissing zijn?
Geldt bij de oplevering van de woningen nog steeds hetzelfde besluitvormingsproces voor de gedeelde ruimte?
Zijn er aan het begin randvoorwaarden, en zo ja voldoende randvoorwaarden, opgesteld?
Is er sprake van een consistente groep gedurende het proces?
- Wat voor effect heeft dit?
Wat voor rol heeft de gemeente gespeeld in het proces?
Hoe is de keuze ontstaan om de aanleg van het riool, de wegontsluiting en dergelijken in eigen hand te houden qua aanleg en beheer?
Wat voor voordelen ziet u van dat zowel het groen als de infrastructuur in eigen beheer is?
- Wat voor kansen biedt dit voor het duurzaam inrichten van het terrein?
Wat voor nadelen ziet u van dat zwel het groen als de infrastructuur in eigen beheer is?
- Wat kan de gemeente doen om deze nadelen tot een minimum te beperken?
Hadden jullie zelf de kennis omtrent die verantwoordelijkheden?
Spelen ook biodiversiteits-, klimaatadaptieve en klimaatmitigerende ideeën een rol in jullie plan?
Zijn met de gemeente ook speciale randvoorwaarden afgesproken voor het project in bijvoorbeeld ruil voor financiële steun?
Hoe zijn de keuzes voor de architect en aannemer tot stand gekomen?

Afsluiting interview
Hoe ziet u de toekomst van *De Kleine Plantage*?
Dan wil ik u hartelijk danken voor dit interview en u ziet mijn rapport als het af is.

Appendix VII: SDGs and municipal action

Table 11: SDGs and possible sustainable municipal actions regarding their tasks (VNG, 2018).

Duurzaam ontwikkelingsdoel	Belangrijke taken voor de gemeente	Wat kunt u doen?
	• Omvang, aard en oorzaken van armoede en ongelijkheid in de gemeente in kaart brengen • Kinderarmoede bestrijden • Bijstand toekennen • Schuldpreventie • Schuldhulpverlening • Burgers pro-actief informeren over toeslagen waar zij recht op hebben en over beslagvrije voet • Maatregelen om woon- en zorgkosten te beperken • Inzet en professionalisering sociale wijkteams • Maatregelen ter versterking zelfredzaamheid burgers • Inzetbaarheid van mensen met een afstand tot de arbeidsmarkt versterken	• Pilots met integrale aanpak schulden-problematiek en preventie zoals Mobility Mentoring • Bieden van alternatieven voor beschermingsbewind; met scholen samenwerken aan schuldpreventie jeugd • Collectieve zorgverzekering aanbieden • Aanvraag minima-regelingen versimpelen • Innovatie wijkteams • Experimenteren met basisinkomen • Sociaal ondernemerschap stimuleren • Met kennis en expertise bijdragen aan internationale samenwerking voor armoedebestrijding
	• Aandacht voor goede voeding binnen (schuld)hulpverlening • Bevorderen gezonde eetgewoonten en voorkomen obesitas, vooral bij kinderen • Maatschappelijk verantwoord inkopen en bevorderen duurzame productie/consumptie zodat voedselzekerheid elders in de wereld en voor toekomstige generaties niet wordt ondermijnd	• Faciliteren van voedselbanken, sociale restaurants • Gezond voedsel in eigen kantine; buurttuinen, stadslandbouw faciliteren • Stimuleren dat scholen kiezen voor ‘gezonde school aanpak’ • Tegengaan voedselverspilling door vergroten bewustzijn (Foodbattle, communicatiecampagnes, 100-100-100) • Duurzame winkelroutes • Fairtrade initiatieven ondersteunen • Bijdrage aan internationale hulpacties bij hongersnood
	• Lokale regie over en inkoop jeugdzorg, ouderenzorg en zorg voor verwarde personen • Betaalbaarheid, tijdigheid en continuïteit van de zorg • Gezonde leefstijl bevolking bevorderen • Voorzieningen voor sport, recreatie en ontmoeting • Zelfredzaamheid en zelfstandig wonen van ouderen en mensen met beperking ondersteunen • Dagbesteding ouderen • Ondersteuning mantelzorgers • Ondersteuning inwoners met complexe problematiek m.b.t. straf en zorg • Tegengaan suïcide • Maatregelen gericht op preventie en behandeling verslaving • Zorgen voor verkeersveiligheid en schone lucht, terugdringen fijnstof uit verkeer en veehouderij	• Professionalisering wijkteams • Verminderen administratieve lasten zorgaanbieders; kosten niet alleen leidend laten zijn bij lokale zorgkeuzes • Zorg op maat voor iedereen regelen; collectieve zorgverzekering bieden voor kwetsbare groepen • Keuzevrijheid geven aan burgers bij zorgvoorziening • Ruimte geven aan sociale ondernemers en burgerkracht, ‘right to challenge’ • Seniorennetwerk; buurtregisseurs, opzetten/versterken • Volwaardige ondersteuning mantelzorg en vrijwilligerswerk • Actieve inzet op preventie • Tegengaan van sociaal-economische gezondheidsverschillen
	• Onderwijsinfrastructuur (gebouwen), gezonde en veilige scholen • Voor- en vroegschoolse educatie • Handhaven leerplicht, voortijdig schoolverlaten • Zorgen voor passend onderwijs • Aansluiting onderwijs en arbeidsmarkt verbeteren • Aanpak laaggeletterdheid en taalachterstanden • Segregatie en ongelijke kansen tegengaan • Brede toegang tot kunst en cultuur • Creëren zinvol werk • Onderwijs voor vluchtelingen • Soepele overgang 18- naar 18+ Effectief jongerenwerk • Ontwikkelingsmogelijkheden voor werknemers gemeente • Educatie voor duurzame ontwikkeling	• Integrale kindcentra • Lokale en Regionale Educatieve Agenda • Agenda tegengaan schooluitval • Proeftuin voor onderwijs op maat • Wijkbibliotheken behouden • Brug tussen bedrijven en onderwijsinstellingen: talentencampus, kennisagenda • Strategisch huisvestingsbeleid onderwijs • Jongerenkrediet om school af te maken • Child Friendly Cities • Voorlichtings-programma’s en budget voor ‘leren voor duurzame ontwikkeling’(scholen, GDO, IVN, NME centrum) en wereldburgerschap
	• (Huiselijk) geweld tegen vrouwen en seksuele exploitatie tegengaan, zorgen voor veilige opvang • Bevorderen participatie (laagopgeleide en allochtone) vrouwen op lokale arbeidsmarkt, in maatschappelijke en publieke functies, consultaties • Als werkgever: gelijke betaling voor mannen en vrouwen • Opties voor parttime werk • Zorgen voor evenredige vertegenwoordiging van vrouwen in leidinggevende functies • Inzet ten behoeve LHBT • Maatschappelijk verantwoord inkopen, rekening houdend met arbeidsomstandigheden	• Norm stellen voor percentage vrouwen in leidinggevende functies in de gemeente • Bevorderen actieve en evenredige deelname vrouwen in lokale politiek en bestuur • Beleid baseren op ‘gender disaggregated data’, in beleid kijken naar verschillende impact op mannen/vrouwen • Steun voor kwetsbare groepen (allochtone) vrouwen, inclusief toegang tot anticonceptie • ‘Safe Streets Gemeente’ • Fairtrade gemeente zijn • Oog voor positie vrouwen in ontwikkelingslanden in bredere zin
	• Inzameling en transport van stedelijk afvalwater • Doelmatige inzameling en verwerking van afvloeiend hemelwater • Structurele nadelige gevolgen grondwaterstand zoveel mogelijk beperken	• Regionale samenwerking via project ‘Samenwerken aan water’ • Faciliteren burgerinitiatieven • Pilots variabele rioolheffing • Join the pipe; internationale samenwerking, bijv Delta Cities

	• Met stakeholders in kaart brengen en gebruiken van het lokale en regionale (ruimtelijke) potentieel voor opwekking van hernieuwbare energie; opbrengsten herinvesteren in regio; integrale en regionale aanpak • Met burgers, bedrijven, woningcorporaties e.a. verduurzamen bebouwde omgeving; duurzaam ontwerp en beheer van het eigen en maatschappelijk vastgoed • Pro-actief handhaven energie-prestatiecoefficiënt • Stimuleren/afspraken over energiebesparing/isolatie en duurzame energie in particuliere en sociale (huur)woningen • Bij inkoop en aanbesteding sturen op energiezuinigheid en vermijden negatieve effecten elders (eg biomassa; grondstoffen)	• Aanjagen energietransitie met meetbare, ambitieuze doelen; gemeente-vastgoed naar energie-label A • Korting op OZB voor energieneutrale woningen • Energieloket om vraag en aanbod samen te brengen • Energiecoaches voor inwoners, duurzaamheidsleningen, ondersteuning sociale huurders (Stookjerijk) • Omschakelen naar energie-neutrale en aardgasloze wijken, duurzame warmtebronnen op wijkbasis introduceren, warmterotondes • Voorbeeldwoningen bouwen en energie-neutrale nieuwbouw korting geven op grondprijs • Stimuleren van energiecoöperaties en bewonersinitatief, zorgen voor kennisdeling
	• Lokale en regionale economische ontwikkeling, regionale (innovatie)clusters versterken • Samen met provincies, waterschappen, bedrijven en burgers strategie maken voor circulaire economie (zie Global Goal 12) • Lokale arbeidsmarkt versterken, begeleiding naar werk • Aantrekkelijk ondernemings- en vestigingsklimaat • (Digitale) verbindingen en bereikbaarheid • Aanpak (winkel)leegstand • Link tussen stad en platteland versterken • Als werkgever goede en gezonde arbeidsomstandigheden bevorderen en inzetten op diversiteit • Toerisme en recreatie in de regio stimuleren • Zelf maatschappelijk verantwoord inkopen en bij lokale bedrijven MVO stimuleren	• Actief verbindingen leggen tussen bedrijven en sectoren, bevorderen samenwerking 5 O's ook voor verruimen werkgelegenheid • Ondernemersloket • Bevorderen sociaal ondernemerschap en start-ups (zie ook Global Goal 12) • Fairtrade criteria ontwikkelen voor internationale economische samenwerking door lokale bedrijven(clusters) en havens, in handelsmissies link leggen met respect voor mens en milieu • Promoten duurzaamheidscertificering voor horeca en recreatie locaties • Bijdragen aan lokaal economische ontwikkeling elders via internationale projecten
	• Sturen op duurzame bouw, inrichting en beheer bedrijventerreinen, energiezuinigheid (zie ook Global Goal 7) en hergebruik materialen • Handhaving/toezicht op uitstoot en verontreiniging • Bevorderen 'smart industry', digitale bereikbaarheid vergroten; snel internet buitengebied • (Binnen)stedelijke en agrarische leegstand tegen • gaan, dorpen bereikbaar houden (doelgroepenvervoer) • Eigen wagenpark verduurzamen • Infrastructuur voor elektrisch verkeer, schoon openbaar vervoer en fiets; beleid gericht op tegengaan verstopping • Bij planning infrastructuur schade aan natuur en cultuurhistorische elementen beperken/voorkomen	• Maximaal benutten van bestaande bebouwing en terreinen en optimale keuze bedrijfsactiviteiten (bv. via BREEAM methode) • Innovatief vestigingsbeleid • Smart Cities • Handhaven energieprestatie coëfficiënt, FSC, etc. • Duurzaamheidsloket • Actief stimuleren van duurzaam bouwen en renoveren via o.a. aanbesteding • Faciliteren groene hubs, duurzaamheidsfabSmitsn, proeftuinen • Sterke inzet op schoon openbaar vervoer, laadpalen • Innovatie op gebied van afval en grondstoffen gebruik
	• Positie kwetsbare groepen in kaart brengen • Segregatie in onderwijs tegengaan, schooluitval voorkomen; participatie en zelfredzaamheid van ouderen en mensen met een beperking • Tegengaan discriminatie, intimidatie en geweld tegen minderheden • Bevorderen sociale cohesie in wijken, ook via ruimtelijke planning en woonbeleid • Sport, cultuur en kunst breed toegankelijk en maken • Culturele diversiteit stimuleren, ook in de eigen organisatie • Opvang vluchtelingen • Huisvesting, integratie, onderwijs, gezondheid en participatie statushouders	• Bevorderen inclusief onderwijs en integrale kindcentra • Jongerenraad ondersteunen • Participatie minderheden en kwetsbare groepen in activiteiten gemeente en in de raad bevorderen • Ontmoetingsplekken creëren • Evenementen/campagne rond (culturele) diversiteit, rechten van LGBT(i), wereldburgerschap • Internationale samenwerking en uitwisseling rond armoedebestrijding • Eigen sociale voetafdruk verminderen • Partnerschap Inclusie van migranten en vluchtelingen (Amsterdam) • City deal 'inclusieve stad' • Expertise internationaal ter beschikking stellen voor opvang in de regio (LOGOREP)
	• Aandacht voor goede voeding binnen (schuld)hulpverlening • Stedelijke vernieuwing in samenspel met burgers, bedrijven en maatschappelijke organisaties; (binnen)stad en dorpskernen leefbaar en toegankelijk houden o.a. door functievermenging, passende huisvesting voor iedereen, leefbaar platteland, sociale cohesie • Leegstand tegengaan • Bereikbaarheid, verkeersveiligheid, openbaar vervoer • Eigen wagenpark verduurzamen en prestatieafspraken met leveranciers • Ruimtelijke ordening/stadsplanning en regelgeving inzetten voor behoud en versterking leefklimaat • Monumentenzorg • Groenbeheer, natuur- en landschapsbeheer, beeldkwaliteit dorps-entrees • Ont-tegeling/vergroening • Waterafvoer • Toetsing, handhaving geluidshinder, geurhinder • Luchtkwaliteit (actieve monitoring rond bedrijven terreinen, wegen, veehouderij) • Afvalbeheer • Vergroening samen met bewoners; bomenbeleid • Groenvoorziening en duurzaam onderhoud groen, natuur en parken in de stad , natuurspeelplaatsen	• Bewoners actief betrekken bij stadsplanning en wijkgerichte benadering; buurtregisseurs • Fysiek, juridisch en fiscaal ruimte geven aan duurzame initiatieven van bewoners en coöperaties actief samenwerken en waar nodig regels aanpassen; duurzame ontmoetingsplaatsen; City Deals • P&R, Park & Bike projecten • Auto delen stimuleren; laadpalen elektrisch verkeer; gebruik OV en fiets aanmoedigen via investeringen infrastructuur • Waterstofbussen • Transparante belangenafweging; MKBA • Maatschappelijke en ecologische waarde zwaar laten wegen; burgers vroeg en actief betrekken bij omgevingsvisie en gebiedsontwikkeling; ruimtelijke • segregatie tegengaan • '100 Resilient Cities' • Burgers actief betrekken • Ambitieuze doelen reductie uitstoot en afval. Instellen milieuzones. Green Deals • Groen in wijken, langs wegen, op bedrijven-terreinen, braakliggend terrein. Buurttuinen, mensen met afstand tot arbeidsmarkt inzetten bij groenbeheer. • Internationale uitwisseling duurzame stedelijke ontwikkeling, via programma's VNG International zoals DEALs; samenwerkingsprojecten en netwerken als C40, Citta Slow

	• Toepassen en handhaven van duurzaamheidseisen bij nieuwbouw en renovatie • Stimulering circulaire en biobased economy, duurzame business modellen; samen met stakeholders lokale/regionale strategie uitwerken • Eigen bedrijfsvoering en gemeentelijk vastgoed verduurzamen; stadsafval hergebruiken als brandstof • Duurzaam/circulair inkopen, ook internationaal; bijscholing inkoopafdeling op duurzaamheid • Tegengaan (voedsel)verspilling • Afvalinzameling en scheiding, hergebruik, terugdringen restafval, aanpak zwerfvuil • Handhaving en voorlichting, gedragsverandering stimuleren • Eigen afvalproductie gemeenten terugdringen • Actieve voorlichting burgers en bedrijven, natuur- en milieu-educatie verzorgen	• Faciliteren duurzaamheidslabs • Partijen verbinden • Reststromen en sloopmateriaal inzetten als grondstof, warmtecircuits • Duurzame dagen organiseren • Deelname aan landelijke acties • Steun voor kringloopbedrijven en repair shops • Ambitieuze doelen en actieplan voor afvalvermindering en hergebruik, afvalcoaches inzetten, 100-100-100 actie • Duurzaam bankieren • Papierloos werken • MVI-manifest onderschrijven • Markt uitdagen tot verduurzaming via aanbesteding • Koplopers belonen • Bevorderen van eerlijke en duurzame handel: Eerlijke Winkelroutes, FairTrade gemeente, FSC gemeenten, meedoen aan keteninitatieven
	• Klimaat-robuuste ruimtelijke ordening, maatregelen om wateroverlast, droogte en hittestress tegen te gaan • Waterberging en afvoer creëren, opvangcapaciteit vergroten • Scholing personeel voor klimaat gerelateerde planning en beheer • Terugdringen uitstoot broeikasgassen via voorlichting, voorbeelden, handhaving/voorschriften, subsidies etc.	• Ambitieuze en meetbare klimaatdoelstellingen voor de gemeente (als geheel en de eigen bedrijfsvoering) voor 2030; structureel budget voor klimaatbeleid • CO2 monitoring eigen organisatie (en publiceren) • Voorbeeldwoningen en wijken • Voorlichting op scholen • Vergroening van de stad, onttegeling (steenbreek) • Aansluiten bij Klimaatverbond • Samenwerking met en capaciteitsversterking in andere ontwikkelingslanden, bv covenant of mayors, C40. Deltacoalitie
	• Rioolbeheer • Integraal plan voor aanpak zwerfvuil, plastic • Schoonhouden strand/kustgebied • Bouwvoorschriften kust, beschermen kustlijn (met Rijk en provincie)	• Actieve samenwerking zoeken om verontreiniging tegen te gaan en duurzaam afvalwaterbeheer te bevorderen • Publieksvoorlichting over gebruik van microplastics • Inzet kustgemeenten voor schone kust, acties als Juttersgeluk, lidmaatschap KIMO • Bevorderen duurzame visserij • Green deal schone stranden en Green deal visserij • Internationale samenwerking
	• Inrichting landelijk gebied, natuurbehoud, lokale flora en fauna versterken • Handhaving lucht-, water-, bodemkwaliteit, bescherming biodiversiteit • Toetsing (bouw)plannen op schadelijke milieu effecten, compensatie verloren gegane natuur • Milieuvriendelijk en actief groenbeheer, bomenbeleid gericht op behoud van bomen, landschappelijk raamwerk ontwikkelen, en behouden en versterken van waardevolle landschappen • Duurzame inkoop, minimaal volgens de wettelijke norm	• Pro-actief beleid voeren voor het versterken van natuur en landschap, voorbij handhaving wettelijke norm en samen met bewoners • Natuurinclusieve landbouw en infrastructuur bevorderen • Beleid voeren voor dierenwelzijn • Ecologisch groenbeheer, geen chemische bestrijdingsmiddelen, bomen- en bermenbeleid inzetten voor biodiversiteit, ecologische verbindingszones aanleggen • Bijhouden rode-lijst soorten, natuurfuncties versterken • Stadslandbouw, groene daken, steenbreek • MVI/duurzame inkoop • FSC-certificatie toepassen en handhaven • Natuur- en milieu-educatie aanbieden, lid zijn van GDO
	• Zorgdragen voor orde en veiligheid: toezicht en handhaving, preventie; regie op veiligheidshuizen • Publieke verantwoording begroting, monitoring maatschappelijke impact • Actuele communicatie strategie, burger (tevredenheids-)survey • Versterken lokale democratie, draagvlak voor besluiten zoeken, heldere structuren voor stakeholderbetrokkenheid bij besluitvorming en uitvoering • (Digitale) toegang tot informatie verbeteren, • Integriteit bestuur, bestrijden corruptie. • Transparant, interactief en zorgvuldig besturen	• Verbinding veiligheidstaken met zorgketen, gevoel van veiligheid in de wijken in kaart brengen, bewoners betrekken bij buurtpreventie • Dienstverlenende en lerende houding versterken • Interactieve beleidsvorming, aansluiten bij duurzaam initiatief uit de samenleving, horizontale stakeholder netwerken stimuleren • Meedoen aan democratic challenge, proeftuinen • Ruimte geven aan burgerinitiatief, directe democratie, burgerbegrotingen. Regelluwe experimenteerzones instellen
	• Deelname aan (regionale) interbestuurlijke samenwerking • Beschikbaar stellen gemeentelijk duurzaamheidsfonds, subsidies voor innovatie • Verbinden van mensen, kennis en geld; ontmoetingsplaatsen creëren • Samenwerking binnen en tussen gemeentelijke afdelingen, bijvoorbeeld duurzaamheid en inkoop	• Actief bevorderen samenwerking tussen en met maatschappelijke organisaties, bedrijven en inwoners • Initiatieven van anderen steunen en verbinden; meedoen aan proeftuinen, City Deals/Green Deals • Kennisuitwisseling, versterking van (bestuurlijke) capaciteit bij partneroverheden in ontwikkelingslanden en transitielanden; leren van ervaringen elders • MVO meenemen in handelsmissie

Appendix VIII: Additional information for supplementary studies

The Mutual Gains Approach is an approach that could have added value in the field of realizing ESBCH. Therefore, this appendix dives into the MGA for additional studies. Moreover, a potential conceptual model and case are discussed.

Mutual Gains Approach motivating working towards Shared Goals

This paragraph dives into the concept mutual gains with its theory behind it and its potential to motivate different parties to jointly work towards a shared goal. Noting that there are citizens' initiatives to develop environmentally sustainable housing and living in the Netherlands as ESBCH (see examples introduction), it has potential to make the link with societal issues which are represented by the municipality as a government. However, in practice it appears that ESBCH is not often realized. Nevertheless, opportunities rise in this housing concept to develop the living space as collective land in such a way that the initiators desires for their owned living space may connect to municipal aims regarding environmental sustainability (Van Dorst, 2018). By overlap in these desires and aims, mutual gains could be achieved. The mutual gains approach (MGA) seeks for overlapping values and interests to result in a win-win for the involved actors (Susskind & laundry, 1991).

The interests of the municipality and ESBCH-initiators are not necessarily opposite or mutually exclusive, but could be supporting each other under certain conditions. Those interests seem to be mutually exclusive as the municipality of Het Hogeland supports sustainable housing, but apparently it is not (visible) as those initiatives are not often realized in the Netherlands. Additionally, Van Dorst (2018) states that within the cultural transition in housing it is up to designers, developers and policymakers to mind trendsetters and respond to the residents' motivations. Only by these conditions, it is possible to implement the material- or energy-based approach for a humane, ecological or sustainable approach in the Dutch context (Van Dorst, 2018). That makes it interesting what an approach that looks at mutual advantages of values and interests instead of positions can mean here, related towards the factors affecting realizing ESBCH on the local level.

Defining Mutual Gains Approach

The Mutual Gains Approach (MGA) has the central principle that mutual agreements can be made between various actors with various goals in mind and containing various issues (Stetinger, 2017). Hall (1993) defines the MGA as a negotiation process that focusses on finding solutions to problems, based on agreement, with negotiation strategies instead of the idea of winners and losers. In this negotiation strategy Wesselink & Paul (2010) state that there should not be focussed on the position of the actor involved, but on the mutual advantages (gains) at the levels of values and interests.

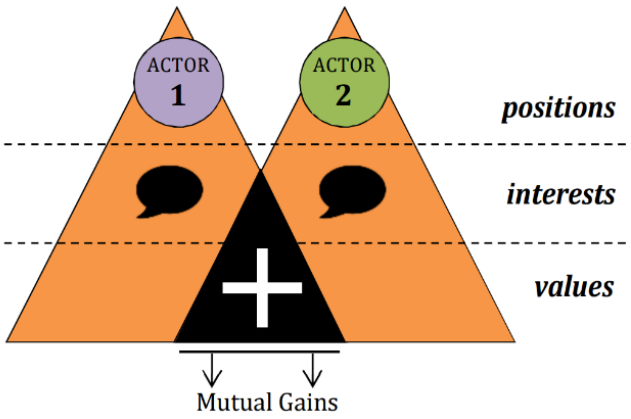


Figure 22: The model of the ''Golden Triangle'' representing Mutual Gains (Wesselink & Paul, 2010).

Motivations to start MGA

As stated before, the negotiation process of the MGA seeks for overlapping values and interests to result in a win-win for the involved actors (Susskind & Landry, 1991). This negotiation will result in the best solution possible at that moment, motivating parties to start the process. However, power differences or administrative burdens between different actor's interests make the establishment of mutual gains not necessarily easy (Berger, 2003). Nevertheless, MGA has had a significant influence on both theories and practices of planning in consensus building (Ibid) without winners and losers. Especially when you see the examples in the field of ecosystem services of resources (Wesselink & Paul, 2010), landscape change & natural development (Keulartz et al., 2004) and generating energy from rivers where multiple countries can benefit from (Stetinger, 2017).

The actors' positions have a minor focus, because of substantive synergies being not clear in applying positional negotiations for mutual gains (Stetinger, 2017). For the interests, constructive dialogues of solutions are needed, which means that relationship building and constructive solution can be realized (Ibid). Values are deeply rooted and are very personal per actor (Gryzybowski et al., 2006). This negotiation gives the actors the opportunity to provide insights to other actors in their personal values. Keulartz et al. (2004) advocate in their structuralist approach for the roles and necessity of values in implementing nature development. A trend is identified in nature policies to turn values into functional interests (Keulartz et al., 2004). Still, it is not an effective response to the challenge of pluralism, because of the lack of public discourse and its political decision-making that occurs with it (Ibid, p.82). Instead, Keulartz et al. (2004) advocate for a state of 'equal coexistence' of parties with different values towards for instance as a democratic approach, which means no 'tyranny of the majority'. This makes the MGA responsive to pluralism and must encourage, especially the smaller parties, to work with the MGA. The 'Golden Triangle,' as depicted in the figure 22, is a three-fold approach to actors' perspectives (viewpoints), integrated positions, interests, and values (Bos et al., 2013; Wesselink & Paul, 2010). There are two actors in this figure. Despite the fact that both actors' positions are opposing, their interests and values partly coincide, as illustrated by the black triangle with the white plus, which represents the mutual gains. Grzybowski & Moris (1998) illustrated about the same figure, but mentioning the plus as mutual interests and shared values.

Evers (2020) states that MGA primarily is an approach for negotiations between parties that are or may be in a conflict situation. An important motivation is the insight of the negotiation process' outcome could be better than the result of another approach and that it ensures the maintenance relationships between parties (Evers, 2020). This is important in the case of government - citizen to ensure that citizens feel heard, and that the government can motivate citizens to contribute to social issues. The result of an MGA-process is, as said, not a compromise with high stakes and surrender, but an outcome that is better than the best alternative as a negotiated agreement or that is equal for all parties (Ibid). This idea must get the parties motivated to use the MGA and use it in a future negotiating situation as they recognise their share and values they contributed (Ibid).

MGA as a collaborative approach for shared goals

MGA is a collaborative approach in which maintaining motivation and intention to reach the win-win is crucial (Fisher et al., 1991). With the MGA in mind, overlapping values and interests are thus the starting point of working towards a shared goal, which are needed ending up with a result as the better solution. Healey (2006) states that planning has been expressly characterised as a process of achieving consensus, which is frequently referred to as collaborative planning. A critical aspect of MGA consensus, as emphasized by concepts such as collaborative planning (Fisher & Ury, 1983; Healey, 2006; Innes & Booher, 1999) and the valuation approach (Van der Windt et al., 2007; Swart et al., 2001), is that there is no requirement for agreement on positions, interests, or values.

This might sound doubtable, but this means that in the MGA there is no debate about why that actor has that position/interest/value. It is seen as a given to start the negotiation process, which saves time. The phrase consensus, on the other hand, refers to agreement or coexistence among players on how to govern common environments (Healey, 2006). In practice, this means that for example in the governance of Social Ecological Landscapes, both mutual advantages and tensions can be observed (Van Vliet, 2015). The fundamental concept is that societalisation, and hence social sustainability and resilience of the socio-ecological landscape, is strengthened when consensus on positions, interests and values is effectively found in the decision-making process (Ibid).

Before an agreement or decision can be made, multiple options should be presented for mutual gains and collaboration and cooperation between actors are necessary (Grzybowski et al., 2010). Susskind & Cruikshank (2006) indicate that meeting spaces for collaborative interaction are necessary to investigate those multiple options by for instance bargaining tables. Hereby the actors can have the opportunity to negotiate, work collectively, stable coalition and build trust (Ibid). Although the MGA helps building consensus when looking at the actors' values and interests, the negotiation process is also about dealing with conflicting interests or tensions. This requires for dealing with interests and conflicts by consensus-building (Fisher & Ury, 2012; Innes & Booher, 1999). Still, as discussed in this paragraph, the MGA theory has a lot of potential in motivating parties to collaborate in terms of achieving the best alternative (solution), having no winners/losers, not looking at the actors' power or size, maintenance of relationships between actors, saving time and recognise the contributed parts.

Potential conceptual model

Regarding elements of the literature review in chapter 2 and the MGA of this appendix, important outcomes can be linked to each other. These relations from the literature review result in the conceptual model of figure 23 with the factors influencing MGA in potentially stimulating collaborative self-build housing-projects focussed on environmental sustainability. This conceptual model can be used for additional research.

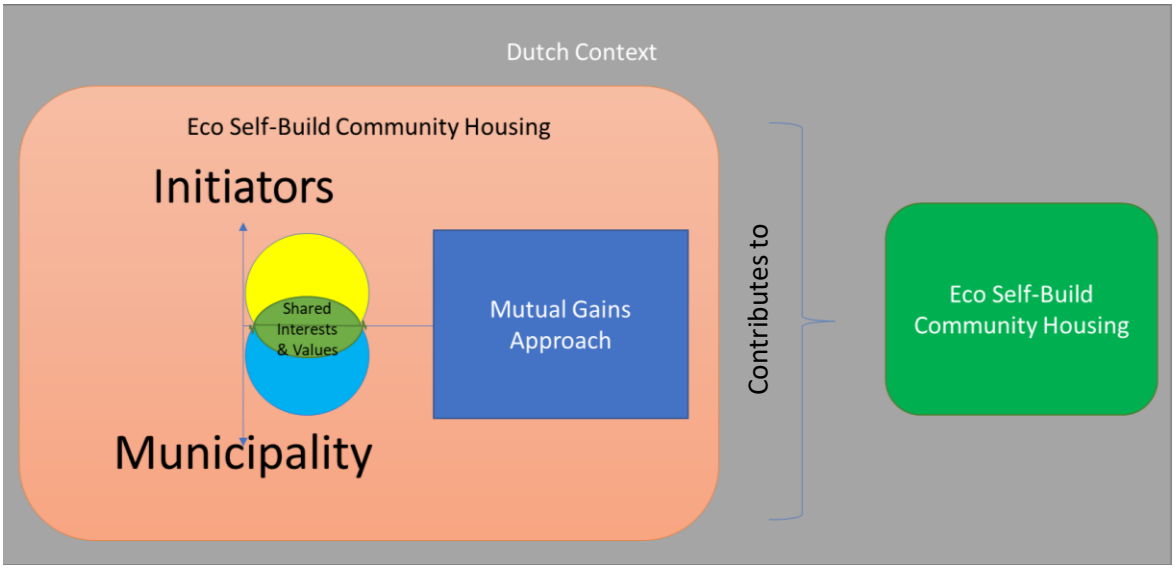


Figure 23: Conceptual model corresponding to parts of this theoretical study and the MGA (by author).

Potential case: Klein-GroenLand

During this study, potential cases are analysed. Even though *Klein-GroenLand* has not been chosen as a case, this case is interesting as the ESBCH-initiators are still looking finding a piece of land to realize their ESBCH-project.

Figure 24: Impression Klein-GroenLand (Klein-Groenland, 2022).

Almost everything is prepared for the CPC-project *Klein-GroenLand*, from short films of future residents introducing themselves to impressions what the site will look like, but no location has yet been found. The starting point is a natural area of 15-20 ecologically sustainable built dwellings, where singles, couples and families of all ages have their own garden and house caring for each other, but there is also plenty of space to share (Klein-GroenLand, 2022). This shared space contains a community building, vegetable garden, food forest, animal meadow, natural playground and central parking spots. The ecologically sustainable elements are for example a focus on biodiversity and climate change awareness by having, for instance, a food forest, natural design of grounds and gardens, permaculture, rainwater harvesting, circular material construction and nature-inclusive construction (Ibid).

Appendix IX: Impressions Geworteld Wonen in Rijswijk

Figure 25: Scale Model Geworteld Wonen (Tuinjournaal, 2015).

Figure 26: The shared vegetable garden at Geworteld Wonen (Inbo, 2018).

Figure 27: Impressions of Geworteld Wonen anno 2022 in Rijswijk (by author).

"On your own you go faster,

but together you achieve more!"

Respondent 3 – Architect Inbo