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Re-thinking sustainable housing from a community perspective : The case study of an Urban eco-villages in the Netherlands.

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Summary

The current urban challenges of expanding urban housing, the crisis of material resources, climate change, and the ever-increasing detachment from nature, demanded a new type of architectural, urban, and strategic development schemes. Urban eco-villages in the Netherlands are working on realistic solutions and effective alternatives for our methods of living. They are inspiring visions with the ability to radically change the idea of home and the being-together. While the focus has been extensively put on urban eco-villages' eco-environmental benefits, the author developed this research with a purpose to explore how urban eco-villages, beyond their green niche, contribute to a community's social sustainability. The research discussed firstly the co-production and social sustainability concepts through the literature. In a second stage, the research assessed qualitatively through a case study approach, the co-production process of *Groene Mient* village in the Hague, and the contribution of such process on the social sustainability of the community itself, positively and negatively. The author used primary data through participant observations, and interviews of experts and the villagers. In addition of secondary data of community published articles, online/offline. The analysis, developed through the *Atlas* software revealed that an influential and reciprocal relationship is established between co-production and social sustainability of *Groene Mient*. Co-production is important for the social transformation that affected the villagers' human performances, from economic, to environmental along with the social connections it built. It is a tool that enhanced the community's social equity and sustainability. However, no story can be definitely written; It is up to its actors to add new chapters because it is not an end state, rather a process in constant progress. The importance of this community-based actions, in a Dutch context, is contextualized and tied to an enabling governance of resources. Therefore, different contexts may lead to different outcomes and conclusions.

Keywords

Urban eco-village ; Community; Co-production; Participation ; Social sustainability ; Urban sustainability; Social equity.

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You gave me strength when I was weak.

You gave me the will to carry on.

Abbreviations

| | |
|-----|----------------------------------|
| CPO | Collective private commissioning |
| SDG | Sustainable development goals |
| SS | Social Sustainability |
| UN | United Nations |

Table of Contents

| | |
|--|------------|
| Summary | ii |
| Keywords | ii |
| Acknowledgements | iii |
| Abbreviations | iv |
| List of Figures | vii |
| List of Photographs | vii |
| List of Tables | vii |
| Chapter 1. Introduction | 1 |
| 1.1 Background and problem statement | 1 |
| 1.2 Relevance of the research topic | 3 |
| 1.2.1 Social relevance | 3 |
| 1.2.2 Scientific relevance..... | 3 |
| 1.3 Research objectives | 3 |
| 1.4 Research questions | 3 |
| 1.4.1 Research main question | 3 |
| 1.4.2 Research sub-questions..... | 3 |
| a. Sub-question 1..... | 3 |
| b. Sub-question 2..... | 4 |
| 1.5 Research framework..... | 4 |
| Chapter 2. Literature review and assumptions | 5 |
| 2.1 Co-production process..... | 5 |
| 2.1.1 The context of a definition..... | 5 |
| 2.1.2 Co-production, the characteristics | 7 |
| 2.1.3 Co-production, the expected outcomes..... | 8 |
| 2.1.4 Co-production, theoretical framework..... | 10 |
| 2.2 Social Sustainability (SS) | 11 |
| 2.2.1 Social sustainability the core of urban sustainability..... | 11 |
| 2.2.2 Social sustainability, key dimensions on community scale | 13 |
| 2.2.3 Social sustainability, theoretical framework..... | 16 |
| 2.2 Research conceptual framework..... | 17 |
| | 18 |
| Chapter 3. Research design, methodology | 19 |
| 3.1 Description of the research design and methods | 19 |
| 3.2 Data collection..... | 19 |
| 3.2.1 In depth Interviews | 19 |
| 3.2.2 Observations | 20 |
| 3.2.3 Secondary data collection | 21 |
| 3.3 Sampling..... | 21 |
| 3.4 Validity and reliability..... | 21 |
| 3.5 Data analysis method..... | 21 |
| 3.6 Identified challenges and limitations | 22 |
| 3.7 Operationalization : Variables, indicators | 22 |
| Chapter 4. Results, analysis, and discussions | 25 |
| 4.1 The case study of Groene Mient | 25 |
| 4.1.1 Location and description..... | 25 |

| | | |
|---|--|-----------|
| 4.1.2 | History and vision..... | 26 |
| 4.1.3 | The Living in <i>Groene Mient</i> | 29 |
| 4.2 | Data description, analysis and discussions..... | 29 |
| 4.2.1 | Co-production, findings and discussions | 32 |
| 4.2.1.1 | Characteristics of co-production | 32 |
| a. | Who are the co-producers?..... | 32 |
| b. | Where do they co-produce?..... | 33 |
| c. | How do they co-produce? | 33 |
| 4.2.1.2 | Outcomes and challenges | 36 |
| a. | Partnerships..... | 36 |
| b. | Acceptability | 37 |
| c. | Empowerment | 38 |
| d. | Social Interactions..... | 38 |
| e. | Challenges | 40 |
| 4.2.2 | Social sustainability, findings and discussions | 41 |
| 4.2.2.1 | Social equity..... | 41 |
| a. | Recognition | 41 |
| b. | Access to resources | 41 |
| 4.2.2.2 | Sustainability of the community..... | 42 |
| a. | Social networks within the community | 42 |
| b. | Participation in collective groups | 42 |
| c. | Community stability..... | 43 |
| d. | Place attachment..... | 43 |
| e. | Safety and security | 44 |
| 4.3 | Main discussion, analysis summary | 45 |
| Chapter 5. Conclusions..... | | 48 |
| Bibliography | | 52 |
| Appendix 1: Research instruments | | 57 |
| 1. | Consent letter | 57 |
| 2. | Exploration survey..... | 59 |
| 3. | The village founder interview template | 60 |
| 4. | The village residents interview template | 63 |
| Appendix 2: Data samples..... | | 66 |
| 1. | Code tree from <i>Atlas.ti</i> | 66 |
| 2. | The new codes list and explanations..... | 67 |
| 3. | Motivation of living in <i>Groene Mient</i> | 68 |
| 4. | Scale of participation in co-production activities | 68 |
| 5. | Respondents' list..... | 69 |
| 6. | Secondary data list | 70 |
| 7. | Secondary data summary | 71 |
| 8. | Summary of findings on co-production | 73 |
| 9. | Summary of findings on social sustainability | 75 |
| 10. | Summaries of observation visits..... | 76 |
| 11. | Place attachment results..... | 78 |
| 12. | Interactive map, social networks. | 79 |
| 13. | Case study Network..... | 80 |
| Appendix 3: IHS copyright form..... | | 81 |

List of Figures

| | |
|---|----|
| Figure 1 Research framework | 4 |
| Figure 2 Co-production approaches to user involvement..... | 6 |
| Figure 3 A framework of participation in community organizations..... | 7 |
| Figure 4 Citizen participation ladder model..... | 8 |
| Figure 5 Co-production outcomes diagram | 9 |
| Figure 6 Co-production theoretical framework | 11 |
| Figure 7 Three-ring sector view..... | 12 |
| Figure 8 Concentric circles | 12 |
| Figure 9 Breaking down boundaries | 13 |
| Figure 10 Social sustainability framework | 13 |
| Figure 11 Urban social sustainability contributing factors | 14 |
| Figure 12 Theoretical framework of SS on community level | 17 |
| Figure 13 Research conceptual framework | 18 |
| Figure 14 Interviews framework. | 20 |
| Figure 15 Groene Mient annotated plan | 26 |
| Figure 16 Groene Mient timeline..... | 28 |
| Figure 17 Number of quotations per indicator..... | 30 |
| Figure 18 Co-occurrence table..... | 31 |
| Figure 19 Sankey Diagram-Relationship between characteristics and outcomes..... | 35 |
| Figure 20 Sankey diagram-Analysis summary..... | 47 |
| Figure 21 Inductive conceptual framework..... | 51 |

List of Photographs

| | |
|--|----|
| Photo 1 Groene Mient aerial view | 25 |
| Photo 2 Groene Mient community in 2019 | 27 |

List of Tables

| | |
|--|----|
| Table 1 Operationalization table-Independent variable..... | 23 |
| Table 2 Operationalization table-Dependent variable..... | 24 |

Chapter 1. Introduction

1.1 Background and problem statement

Cities, with its increased growth rates, are estimated to host 60% of the world's inhabitants by 2030. The constant attraction of the population is led by the economic performance and prosperity that urban areas and cities brings about, while their contribution to economic growth is estimated to be more than 75% of global GDP highlighting their immense potentials (United Nations, 2018). On the other hand, urban areas are argued to be responsible of 60-80% of the world's energy consumption and carbon emissions as stated by the United Nations (2018), leading to the conclusion that cities are the pioneers of not only global productivity and consumerism, but also to greenhouse gas emissions contributing to environmental degradation that affect the cities' quality of life (Sukhdev, 2009, as cited in McCormick, Anderberg, Coenen, & Neij, 2013). Thus, the need for a multi-dimensional urban transformation towards more sustainable cities has become an imperative goal for modern urban strategies since the living trends are driven by constant growth in a world with finite and limited resources (McCormick et al., 2013).

While cities tend to be the root cause of the problem, there is a common consensus among scholars that urban areas can be also an effective part of the solution for sustainable growth (McCormick et al., 2013). This was stated in the European sustainable cities report with great emphasis on the engagement of local communities, where innovative approaches towards urban planning and developments are encouraged (Fudge, 1999). The policy report suggests that “*city managers must seek to meet the social and economic needs of urban residents while solving problems locally where possible, rather than passing them on to the future*” (Fudge, 1999, p.153). This call is merely a replication of the Brundtland report which invites urban developments to meet its current demands without causing any harm on the needs of future generations (WCED, 1987).

Sustainability defined as “*a global process that tries to help create an enduring future where environmental and social factors are considered simultaneously with economic factors*” (Newman & Director, 2002, p.1) clearly put forward the assumption that any form of development requires an integrated approach among the pillars of sustainability (Johnston, Everard, Santillo, & Robèrt, 2007). While we cannot afford not to build green, the necessity for a radical transition towards a sustainable development as a long-term vision brought along a variety of urban concepts, among which is the *sustainable urban design* and the *green neighborhoods* (Dempsey, Bramley, Power, & Brown, 2011; Kozłowski, 2019). Such urban approaches tend to be supported by the sustainability agenda of European cities, among which is the Netherlands. The dominant priority was set on energy efficiency and innovative solutions on one hand, and market competitiveness on the other hand. Hence, the social perspective seemed to be shifted to the background (Giddings, Hopwood, & O'brien, 2002). And this showed, in the European context as well as the Dutch one, a contradiction with the ‘*Bristol Accord*’ report (2005) that did put a large emphasis on the social sustainability dimension. The report addressed sustainable communities as places that are “*active, inclusive and safe, well run,*

environmental sensitive, well designed and built, well connected, thriving, well served, and fair for everyone” (Odpn.2005, p.6-7), in other words, places where people desire to live (Vallance, Perkins, & Dixon, 2011). As a social movement, the concept of sustainability became to be promoted through grassroot community-led organizations in taking a lead in dealing with societal problems, emphasizing on the role of citizen engagement as a catalyst for social sustainability (Waerther, 2014). Urban eco-villages, the urban context of this research, is one of those self-organized communities.

Urban eco-villages were ranked among the 100 top excellent models of sustainable living by the UN in 1998 (GEN, n.d). They address complex society issues with alternative approaches that are more just and sustainable. Through their urban composition, they work towards the SDG not only on the ecological and environmental levels, but also by contributing to building safe inclusive communities that promote social interactions, well-being, recognition and empowerment of its residents (GEN, n.d; Penha-Lopes & Henfrey, 2019). Urban eco-villages are supported by the Dutch government via ‘*Do-it-yourself Democracy*’ paper published by the Ministry of the Interior in 2013 (Pareja-Eastaway & Sánchez-Martínez, 2017). The question remains on how does the process of community involvement in co-shaping their built-up environment contribute to social sustainability. On one hand, scholars argue that there is no guarantee that locality-based activities will lead to a cohesive sustainable environment among residents, while other living experiences of bottom-up community enterprises in Britain have shown successful results in its contribution to sustain their communities (Pareja-Eastaway & Sánchez-Martínez, 2017). This contradiction was also highlighted by Fotopoulos (2006) who questioned if urban eco-villages are part of the solution or adding to the problems of our modern society. Therefore, it is important to investigate how urban eco-villages, beyond their green niche, can contribute to the social sustainability of the community itself.

The concept of eco-villages is a dynamic process rather than an end state (GEN, n.d; Penha-Lopes & Henfrey, 2019). They are a form of intentional communities where a group of people gather together with their common shared values of ‘building a sense of community and the thrive for ecologic and sustainable changes’ (Gilman, 1991). They are perceived as a social movement linked to the *Degrowth* concept that seeks to challenge the current paradigm of growth, with a dominant aim to improve the social well-being and enhancing the ecological conditions, locally and globally (Penha-Lopes & Henfrey, 2019; Xue, 2014). Eco-villages are contextualized, each community may have its own vision, strategy and different practices, however their core approach is always based on collaboration and co-production within an ecological friendly approach. On the spatial level, they are addressed as human-scale settlement with low to medium density (Gilman, 1991). They are not isolated communities, they exist in both contexts of rural and urban ones, while being connected and depending on their larger urban surrounding (Ergas, 2010; Garden, 2006).

While the literature show ample studies on the effectiveness of sustainable developments from the technical and environmental aspects, there is a lack of research linked to their social dimension, which by itself is the least investigated on an academic scale compared to the other sustainability pillars (Cucca, 2017). Therefore, the identified gap is the exploration of the social

dimension in the field of eco-villages and its contribution towards social sustainability, with a focus on the co-production approach. The relationship between co-production and social sustainability is an element worth exploring in-depth.

1.2 Relevance of the research topic

1.2.1 Social relevance

Urban eco-villages as grassroots innovative potential solutions to our unsustainable living, they demonstrate ‘how living together’ with the least damage to the environment is possible which is essential for a sustainable future. The social significance of the study is to highlight, for researchers and future community developers, the complexities and the trade-offs of the co-production approach in an urban context. This research will critically reflect on that by exploring how such process contributes to the social sustainability of the community itself.

1.2.2 Scientific relevance

The significance of this study on a policy level is to shade light on the debate of the co-production and social sustainability interconnectedness. The outcomes of this paper will contribute to a better understanding on the role of small-scaled urban settlements, beyond their green niche, as catalysts of social sustainability. The understanding of the eco-friendly urban forms, on a social level, is still the least produced in academic literature while the focus has been intensified on their energy efficiency schemes. Therefore, this research study will add new valuable insights to the existing literature. By critically examining the relationship between the concepts, this paper will add knowledge for future researchers, since the community engagement in co-shaping their environment is becoming a common approach globally.

1.3 Research objectives

The main objective of this research is to critically explore how the process of co-production in urban eco-villages contributes to its social sustainability, while the analysis will focus on the exploration of the case study ‘*Groene Mient*’ in the Hague.

1.4 Research questions

1.4.1 Research main question

How does the co-production approach of urban eco-villages, in the Netherlands, contribute to social sustainability ?

1.4.2 Research sub-questions

a. Sub-question 1

Co-production is an umbrella concept and although there is no ‘one model’ of co-production, the processes, and challenges involved can be generalized. The first sub-question is divided

into two sections aiming to address the process of co-production and its expected outcomes/challenges.

How is the co-production process defined in an urban eco-village?

b.1 *What are the characteristics of co-production in an urban eco-village ?*

b.2 *What are the expected outcomes and challenges of co-production in an urban eco-village?*

b. Sub-question 2

The following question attempts to review the various interpretations of social sustainability and identifies its framework on a community scale.

What are the key dimensions of social sustainability in an urban eco-village?

1.5 Research framework

Figure-1 illustrates the main structure of this research.

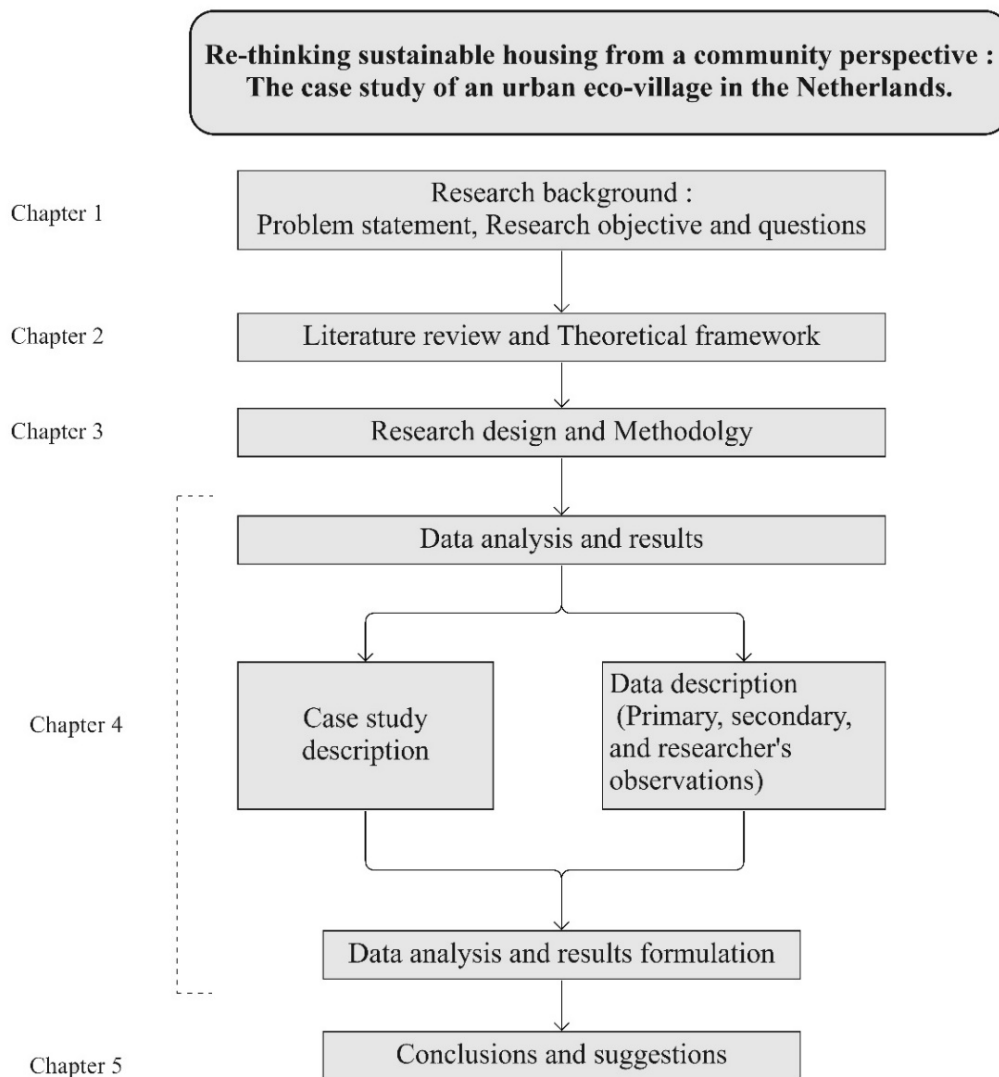


Figure 1 Research framework
Source: Author (August-2022)

Chapter 2. Literature review and assumptions

This chapter addresses the sub-questions, while understanding the concepts of co-production and social sustainability, separately.

2.1 Co-production process

This section addresses the sub-question ‘*How is the co-production process defined in an urban eco-village?*’. The first part discusses co-production as a definition. While its characteristics, expected outcomes and challenges are discussed in the following two parts, respectively.

2.1.1 The context of a definition

The emphasis on community engagement in the decision-making grew wider in Europe since the inauguration of the European sustainable cities report (1996). The advocacy of the report embraced innovative grassroots initiatives towards sustainable planning approaches, where the local communities are envisioned as key stakeholders. The Netherlands has officially adopted this approach through ‘*Do-it-yourself Democracy*’ policy since 2013 which up-scaled the role of citizens in co-producing practical solution to solving societal problems (Pareja-Eastaway & Sánchez-Martínez, 2017).

The concept of co-production is not new on the socio-political agenda. It dates back to the 70’s when *Elinor Ostrom* introduced the term for the first time during her studies on Chicago police. Similarly in the UK, the term was used to express voluntary approaches in the delivery of public services (Boyle & Harris, 2009; Brandsen & Pestoff, 2006). Co-production identifies users as hidden resources for building the core economy, a term used to express the operating system that consists of families, communities, and neighbourhoods. An economy that does not rely on price to enable the exchange of services and activities between users, rather it is the social network that builds mutual respect, trust, engagement, and social equity, which broadens up the human side of communities (Boyle & Harris, 2009; New Economics Foundation, 2008).

According to Pestoff (2009), *participationalism* is a type of a citizen’s involvement in co-production. He identifies other types ‘*welfarism, consumerism, professionalism, and managerialism*’, arguing that these types leave no space for the user’s control over process unlike *participationalism* (Figure-2). This consolidates the fact that co-production has no single definition. It can mean different things even to the same people because its depends on the topic, time and urban context (Boyle & Harris, 2009).

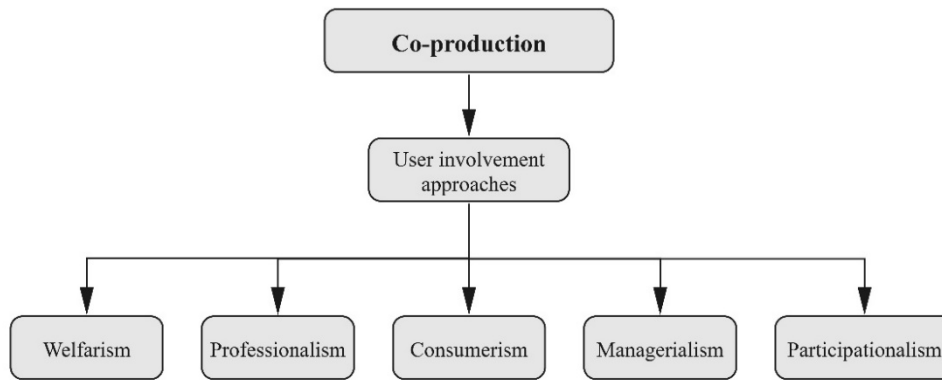


Figure 2 Co-production approaches to user involvement
 Source: Adapted from the literature Pestoff (2009), developed by Author (June-2022)

Participationalism promotes on-site collaborations between the experts and the service users who became co-producers of their own needs and demands. This shows a shift in the definition of the community participation concept towards more of shared responsibilities among the stakeholders rather than volunteering approach (Langton, 1978; Pestoff, 2009). It is identified as web of connections among people with shared common values residing in a specific geographical region (Warburton, 2013). Common values are ‘*the glue*’ as argued by Gilman (1991) in his framework of eco-village planning, that keeps the whole system functioning which would arguably lead to a cohesive livelihood.

Bovaird (2007) elaborated further on the definition of co-production emphasizing on the relationship between ‘user and community’. He argues that the process leads to better results and enhanced efficiency since the involved users tend to make a best use of each others’ resources, showing reciprocal relationships and a catalyst of reinforcing the core economy of a community (Boyle & Harris, 2009; New Economics Foundation, 2008). Those outcomes are only one of the methods to evaluate the positive potentials and limitations of co-production. Understanding co-production goes beyond the definition of *what is co-production*. The emphasis is put on the process versus the outcomes (Bovaird, 2007; Fainstein, 2014).

Participation in the decision-making is not a panacea to solve societal problems, there is much more complexity that covers the mechanism (Bracht & Tsouros, 1990; Verschuere, Brandsen, & Pestoff, 2012; Wandersman, 1981). The most direct framework highlighting this complexity is by Wandersman & Florin (2000) (Figure-3). It expresses that co-production is not a unidirectional relationship, rather it is the transaction of several elements. The diagram (Figure-3) shows that the effects/outcomes of participation are in a feedback loop. It is affected by the context as *where* the activity is taking place, *who* is involved as the individual characteristics, and the parameters of participation as *how* -the scale of engagement-. The outcomes also affected by the -*where, who, and how*- defined as the main characteristics of a co-production process tackled in the following section (Bracht & Tsouros, 1990).

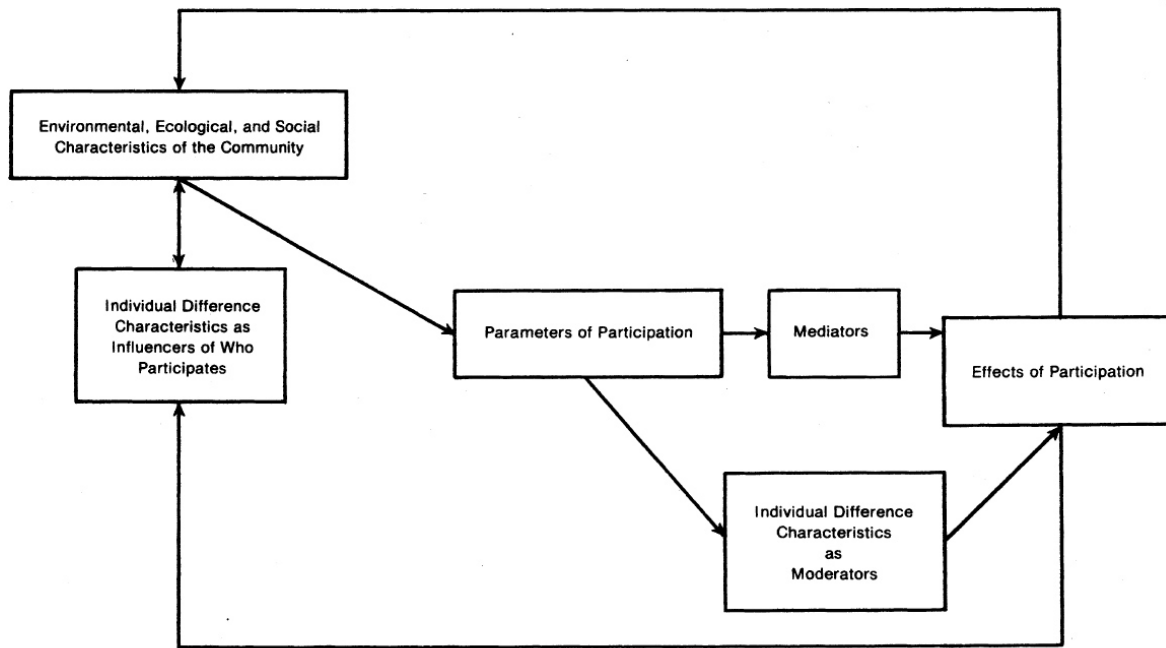


Figure 3 A framework of participation in community organizations.

Source: Adapted from Wandersman & Florin (2000, p.30)

2.1.2 Co-production, the characteristics

In order to comprehend the concept of co-production, the literature argues that it is important to understand the characteristics, as *where* the process takes place as which activity as well, *who* is involved, and *how* it is processing and the co-producers' scale of engagement. They might seem as simple questions, yet they are crucial question to answer before addressing the potential outcomes (Pestoff, 2009; Verschuere et al., 2012; Wandersman & Florin, 2000).

Urban eco-village are best identified as small-scale human settlements, where people are able to interact with each other (Gilman, 1991). Scholars argue that participation tend to be harder and less efficient as scale increases. Spatial proximity is argued to promote a reciprocal exchange among the people, which would enable trust and cohesion (Van Tilburg, Van Sonderen, & Ormel, 1991a). Co-production activities within a community may differ from gardening, to construction, yet the web of connections created are argued to be potential common outcomes. While this remains an ideological assumption, it is the residents' willingness to participate as argued by Bovaird (2007) that would lead to more effective results, since proximity can lead to diverse results of success (Bracht & Tsouros, 1990; Brandsen, Steen, & Verschuere, 2018; Wandersman, 1981).

The definition used in this research identifies co-producers as the individuals with common values and ambitions to create and enhance their built-up environment. That involves the engagement of the community members with stakeholders from outside the community (Boyle & Harris, 2009). For an effective co-production, the emphasize is on the role of citizens who tend to become equal partners in the process through the evaluation of *how they co-produce*

and their scale of engagement in the process. Arnstein ladder (Figure-4) argues that citizen's power is at the top of the ladder (Bracht & Tsouros, 1990).

| | | |
|---|-----------------|-------------------------|
| 8 | Citizen control | |
| 7 | Delegated power | Degree of citizen power |
| 6 | Partnership | |
| 5 | Placation | |
| 4 | Consultation | Degrees of tokenism |
| 3 | Informing | |
| 2 | Therapy | No participation |
| 1 | Manipulation | |

Figure 4 Citizen participation ladder model

Source: Adapted from Arnstein (1969, p.2).

Bovaird (2007) identifies citizen's involvement as an interval between *360 degree committed co-production* and *minimalist co-production*. For an effective co-production the commitment needs to ensure equal partnership among the different parties, acknowledging that a professional assistance is always part of the process (Boyle & Harris, 2009).

2.1.3 Co-production, the expected outcomes

The gained rewards of co-production are considered as main motivations that encourage people to participate. The driving forces are highly related to the importance of the service itself, and whom it affects. Is it *'them, their families, loved-ones, a relative, a friend or not?'* (Verschuere et al., 2012). While the terms *rewards* and *benefits* may address the successful aspect of co-production, the literature highlights its limitations and challenges. A greater participation may not ultimately lead to more positive effects, rather it is the transaction of the various interdependent variables –*who, how, where-*. The literature argue that people tend to be driven by tangible rewards, however co-production outcomes can be non-materialistic (Bovaird, 2007; Verschuere et al., 2012; Wandersman, 1981). Therefore, co-production outcomes are identified as: instrumental - *participation as a means-*, and expressive –*participation as an end*. The latter tends to address the non-monetary results such as social interactions, empowerment, and active partnerships, in other words the operating social system of a community (Figure-5) (Bovaird, 2007; Bracht & Tsouros, 1990; Mitlin & Bartlett, 2018; Verschuere et al., 2012). The instrumental outcomes focuses on the physical outcomes, which leads to tailored solutions to users' specific needs, impacting positively their socio-cultural well-being. People are able to address what is an acceptable quality for them which enhances their sense of attachment to the place (Ayala, Eerd, & Geurts, 2019). People are empowered not only with their equal accessibility to decision-makings but also through developing technical and social skills. Boyle & Harris (2009) argue that the reason co-production is considered to be cost-effective is credited to those additional social outcomes it brings simultaneously. While this research is focusing on the social outcomes of co-production, it is worth mentioning that the distinction

between both outcomes may be analytically relative, however technically it would be hard to discern merely because they both empower one another (Mikkelsen, 2005; Warburton, 2013).

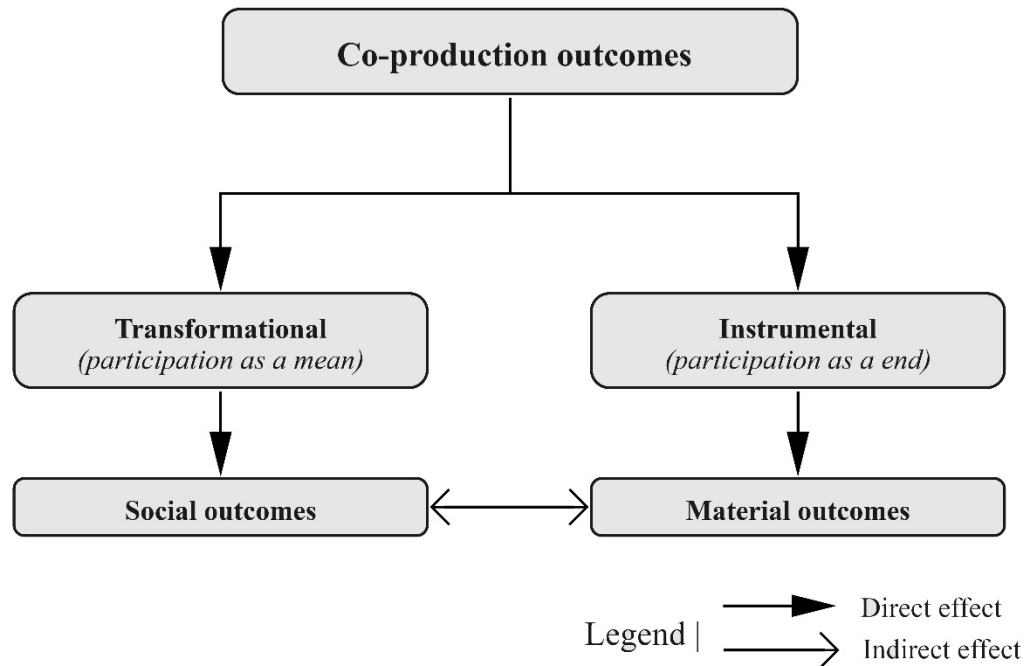


Figure 5 Co-production outcomes diagram

Source: Author (June-2022) based on literature from (Bovaird, 2007; Bracht & Tsouros, 1990; Mitlin & Bartlett, 2018; Verschuere et al., 2012)

The literature argue that an effective co-production leads to building a cohesive social structure and creates a balance of power, between citizens themselves or with experts collaborating in the process (Boyle & Harris, 2009; Mitlin & Bartlett, 2018). Power here means the control over the process by the citizens (Brandsen et al., 2018; Mitlin & Bartlett, 2018). Co-production empowers them and leads to reduced reliance on professionals. A balanced power leads to a successful developments in a community and a well-run society (Odpn.2005; Godschalk & Mills, 1966). Co-production is identified ‘*as a tool to enhance social equity and urban sustainability*’ (Mitlin & Bartlett, 2018, p.357).

Fainstein (2014) argues that people are the *actors of change* while the experts are the facilitators. Both efforts can also be joined in a collective manner towards more innovative solutions (Brandsen et al., 2018). Those solutions are argued to be the more efficient ones since they are responsive to the real people’s needs. This brings the notion of *civic science* where scholars argue that science should be linked to ‘*empowerment, activism, transfer of respect and powers*’ (Warburton, 2013, p.3). The term *civic science* conceptualizes the environmental social movement, among which is urban eco-villages, that contribute to sustainable development beyond the conventional methods (Ergas, 2010; Warburton, 2013). In co-production, every member of the community has something valuable to contribute, each one of them at their own capacity. That promotes inclusion, trust, and empowerment. Those aspects

are solid features of a socially sustainable society as perceived in the Agenda 21 from a community participation perspective (Warburton, 2013).

This mutual exchange of services increases the interaction among the community members. This web of connection is argued to build new relationships, enhances the existing ones and deepens them (Boyle & Harris, 2009; Mitlin & Bartlett, 2018). Co-production contributes to strengthening meaningful social networks, it promotes reciprocity behaviour and helps building an intuitive cooperation attitude within the community (Boyle & Harris, 2009; Dempsey et al., 2011). Reciprocity behaviour is a tangible result of the trust built among the residents, indicating the level of intimacy created between them (Van Tilburg, Van Sonderen, & Ormel, 1991b). This cannot be achieved without a balanced communication among the involved members, where each has something to provide along the chain of co-production. This enhances their well-being, reduces feelings of alienation, and increases feelings of ownership to the place (Brandsen et al., 2018; Van Tilburg et al., 1991b; Wandersman, 1981).

Bovaird (2007) argues that co-production promotes collective participation within a platform of common interests which may be developed informally among the community members. This questions the aspect of transparency of the process, where the involvement of certain individuals may be constrained, leading to unequal partnership and imbalance of power (Bracht & Tsouros, 1990; Verschuere et al., 2012). This can be highly related to the diverse backgrounds and roles played by the different members, which may lead to potential conflicts affecting the social environment. While this aspect of diversity is evaluated as an asset, it may have negative influence on the process. Therefore, this is an aspect of co-production challenges that requires coordination and time. This shows the importance of co-production when addressing the SS of a community which will be thoroughly addressed in section 2.2.

Therefore, the assumption of '*the greater the participation, the more positive effects*' (Wandersman, 1981, p.29) is not a solid statement, merely because the co-production process is not unidirectional. In that sense, co-production process and outcomes may have significant undesired impacts on the community development and its social sustainability. Citizens are not *jack-in-the-box* as Pestoff et al. argued (2012). Their involvement in co-production activities requires a full settings of personal motivation and ease of engagement.

2.1.4 Co-production, theoretical framework

The theoretical framework (Figure-6) is built from the literature on co-production. It underlines the relationships between the dimensions of the process. The expected social outcomes are defined as *partnership*, *acceptability*, *empowerment*, and *social interactions*. The characteristics of the process *who*, *where*, and *how* have a moderating effect on those outcomes affecting their quality, leading to diverse results of success.

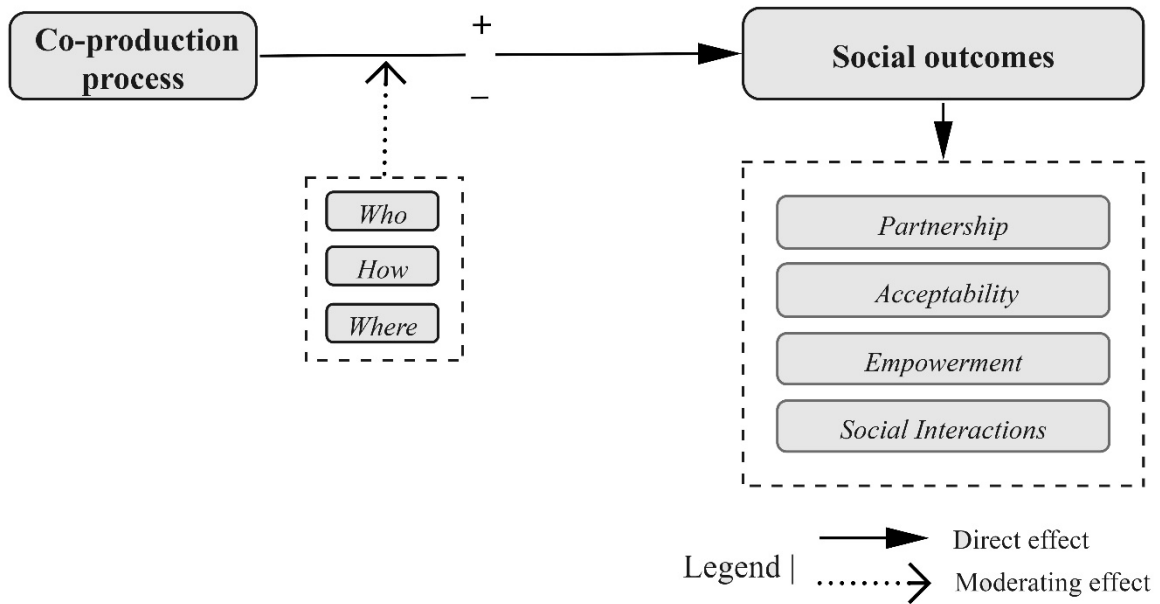


Figure 6 Co-production theoretical framework

Source: Author (June-2022) - Content derives from the literature

2.2 Social Sustainability (SS)

This section address the second sub-question. The first part discusses SS as a core element of urban sustainability, the following part identifies the key dimensions of SS on a community scale.

2.2.1 Social sustainability the core of urban sustainability

Sustainable development or the *triple bottom line* became an international guiding framework for urban development schemes (Johnston et al., 2007; McKenzie, 2004). The interlinkage relationship between the three pillars of sustainable development are viewed within the two models: *the overlapping circles* and *the concentric circles* (Hajirasouli & Kumarasuriyar, 2016; McKenzie, 2004).

- a- The overlapping circles (Figure-7) shows the constant unison of the pillars, while critics assume they are seen as separated elements. It encourages technical environmental fix to sustainability issues, risking diverting the attention on wider social issues (Giddings et al., 2002).

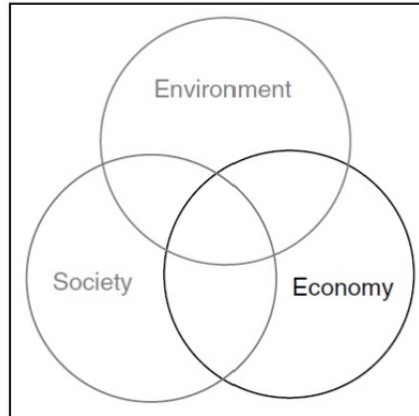


Figure 7 Three-ring sector view

Source: Adapted from Giddings et al.(2002, p. 193)

- b- The Concentric circle (Figure-8) has the social aspect in the middle emphasizing on the dependency of society on both pillars. The economy is a sub-system of society and the environment. Scholars argue that the unified entities reinforce the concept of a static world (Giddings et al., 2002).

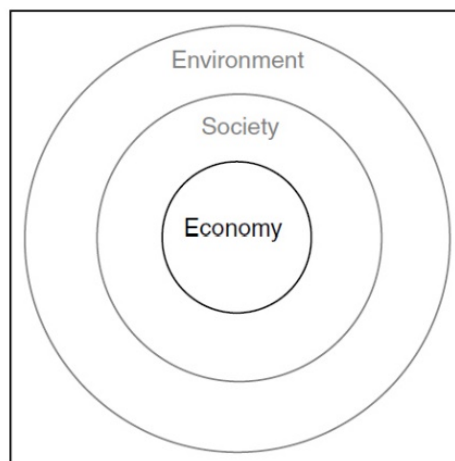


Figure 8 Concentric circles

Source: Adapted from Giddings et al.(2002, p. 192)

- c- The idea of embracing diversity in close proximity envisioned a third perspective: the Breaking down boundaries (Figure-9). It highlights human activities as a central element where the economy is a daily societal activity within the environment (Giddings et al., 2002).

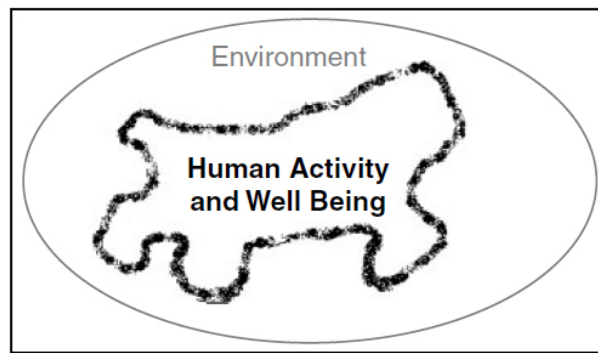


Figure 9 Breaking down boundaries
 Source: Adapted from Giddings et al.(2002, p.189)

This diagram stresses on the need of working-together as a ‘whole systems approach’ embracing the complexities of daily social life (Giddings et al., 2002). Amin (2006) introduced the notion of *‘being-togetherness’* as a core element of the urban life, while he imagines an urban space that is inclusive and of a good quality. This approach is embedded in anthropocentricity of sustainable development definition, where the human well-being tend to be a central focus (Giddings et al., 2002; Vallance et al., 2011) . Cuthill (2010) argues that our economic and environmental problems are merely societal problems. Therefore, the understanding of sustainable development is argued to be largely based on its social aspect (Figure-10).



Figure 10 Social sustainability framework
 Source: Adapted from Cuthill (2010, p.366)

2.2.2 Social sustainability, key dimensions on community scale

The challenge of reaching a solid definition of SS is an on-going process in the academic literature (Dempsey et al., 2011; McKenzie, 2004). Woodcraft argues that *‘Social sustainability combines design of the physical realm with design of the social world, systems for citizen engagement and space for people and places to evolve[...]and a process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work’* (2011, p.16). This definition emphasizes on SS as a long-term relationship between the society and its context, highlighting the aspects of time and scale. That validates the argument that SS is a dynamic concept, which is better understood through

key components that affects the liveability of its built-up environment (McKenzie, 2004). Social sustainability is a dynamic concept that changes with time, even within the same place. Those changes can be prompted by external factors, or maybe by events at the local scales that would alter the social activities of the community. Dempsey argues that "*social sustainability is a wide-ranging multi-dimensional concept*" (2011, p.290) that focuses on answering the social aims of sustainable development (Figure-11).

| Non-physical factors | Predominantly physical factors |
|---|--|
| <ul style="list-style-type: none"> • Education and training • Social justice: inter- and intra-generational • Participation and local democracy • Health, quality of life and well-being • Social inclusion (and eradication of social exclusion) • Social capital • Community • Safety • Mixed tenure • Fair distribution of income • Social order • Social cohesion • Community cohesion (i.e. cohesion between and among different groups) • Social networks • Social interaction • Sense of community and belonging • Employment • Residential stability (vs turnover) • Active community organizations • Cultural traditions | <ul style="list-style-type: none"> • Urbanity • Attractive public realm • Decent housing • Local environmental quality and amenity • Accessibility (e.g. to local services and facilities/employment/green space) • Sustainable urban design • Neighbourhood • Walkable neighbourhood: pedestrian friendly |

Figure 11 Urban social sustainability contributing factors
Source: Adapted from Dempsey et al.(2011,p.291)

Scholars stress on the notion of scale as an important factor when considering the impacts on social sustainability. While social cohesion is examined on a national level, job employment on the city scale, it is argued that on a community scale, concepts as "*social interaction and local environmental quality*" contribute more to the understanding of everyday life patterns in relation with their built environment (Bramley, Dempsey, Power, Brown, & Watkins, 2009, p. 292). Amin (2006) argues that those mundane aspects of an urban context are sources of inspirations for bigger policy decisions. This is related to the understanding of the everyday life of city neighbourhoods, which can reveal much about its social complexity. Observing and understanding a neighbourhood can explain the resilience and the quality of life of its community. The focus on living experiences in a given space teaches urban developers about the working dynamics of the city as a whole (Woodcraft, 2012). Several researches on community-based activities have revealed the strong relevance between the local community activities and what social sustainability can involve, arguing that social sustainability is best

understood at the community level (Cuthill, 2010). There are arguments among international scholars that the above mentioned concepts of social interaction and environmental quality at local levels, are associated with larger concepts namely '*social equity* and *community sustainability*'. The combination of both concepts is used to define SS at community level (Bramley et al., 2009; Dempsey et al., 2011).

a. Social Equity is addressed through three dimensions : *Redistributive* that recognizes the just distribution of resources and accessibility to them. *Equality of condition* encompassing the *procedural* and *recognitionnal* dimensions of social equity. While the *procedural* dimension focuses on equal inclusion in the decision-making, the *recognitionnal* identifies people's capability to access resources and power. Dempsey et al. (2011) emphasize on the importance of scale when addressing social equity within an urban context, because its methods of measurement differ recognizing accessibility as a fundamental element. It includes access to decision-making, and in geographical sense it focuses on the access to services either directly or through connectivity via transport (Bramley et al., 2009; Dempsey et al., 2011). While Bramley et al. (2009) identified access to employment and affordable housing as criterion of social equity assessment, he argues that they are affected by a wider city scale rather than a micro scale (Dempsey et al., 2011; Eizenberg & Jabareen, 2017).

b. Sustainability of community is defined by Bramley et al. (2009) through five interlinked factors.

- i. **Social networks** are argued to contribute towards building a community by promoting exchange of knowledge, and dialogue among community members, with reference to the ties between them. The literature identifies strong and weak ties . It is argued that both relationships are needed to develop a cohesive community, emphasizing of the latter's positive impact on the social well-being and the '*sense of identity, security and feeling of home*' as argued by Kearns & Forrest (2000, p 1000). Scholars identify that those individuals with high education, and a professional status tend to be less interested in local social networks since they are more open to wider societies. On the other hand, those people with physical or/and socio-economic dependencies tend to invest more in local social networks. It is also argued that the length of residency within the same community affects the social networks, positively and/or negatively. Therefore, the assessment of social networks is a difficult one since the same factors that enhances its qualities, can hinder them simultaneously (Dekker & Bolt, 2005; Dempsey et al., 2011).
- ii. **Participation in collective groups:** As argued above, the attitude of intuitive participation is relatively connected to the quality of ties within a community. However, less participation does not ultimately mean an unsustainable community since the motivation of participation is affected by the individuals capacity to collaborate. Scholars argue that participation in group activities is highly related to a person's sense of belonging. It is encouraged by stability of the social environment itself (Bramley et al., 2009; Dempsey et al., 2011).

- iii. **Community stability** is widely referred by the low residential mobility which has a strong influence on sense of attachment to the place and the strength of ties built between the members. However, the literature argues that external factors may affect residents' relocation decisions. Therefore, residents' turnover is not necessarily an indicator of community failure. It is argued that it may improve the overall SS of the community being adaptive to change. It is worth mentioning that civic participation is highly encouraged in stable communities merely due to the feeling of safety that it projects (Bramley et al., 2009; Dempsey et al., 2011).
- iv. **Place attachment** is associated with the sense of ownership of the place which is argued to be accelerated by face-to-face connections. A contra-argument states that social ties may be negatively affected in high proximity. Place attachment can be social as well as a physical one, where individuals tend to identify with the places they create by themselves. Place attachment can be reflected in people's willingness to participate in collective activities, care for the other which contributes to an increased sense of safety and security (Bramley et al., 2009; Dempsey et al., 2011).
- v. **Safety and security** for an urban environment can affect its livelihood. In a safe neighbourhood, the residents are encouraged to interact, thus increasing social networks, feelings of trust, and enhancing reciprocity behaviours. And that ultimately increases the sense of attachment to the place. It is also argued that safety can be measured within the community where the residents have no fear from their neighbours. And while safety may be less secured in dense areas, it is also affected by the remoteness of the urban context (Bramley et al., 2009; Dempsey et al., 2011; Kearns & Forrest, 2000).

2.2.3 Social sustainability, theoretical framework

The theoretical framework (Figure-12) is built from the literature on SS underlining the connections between the variables. Being equally recognized in a community enhances the networking among the residents, which encourages the participation process. Those aspects do affect the sense of belonging, stabilizes the community engendering feelings of safety and security. The latter is also affected by the location of the community within the city. Therefore, SS is not a linear concept, it is a whole systems approach embracing the complexities of the daily social life where people do enjoy living together (Bramley et al., 2009; Dempsey et al., 2011; Giddings et al., 2002).

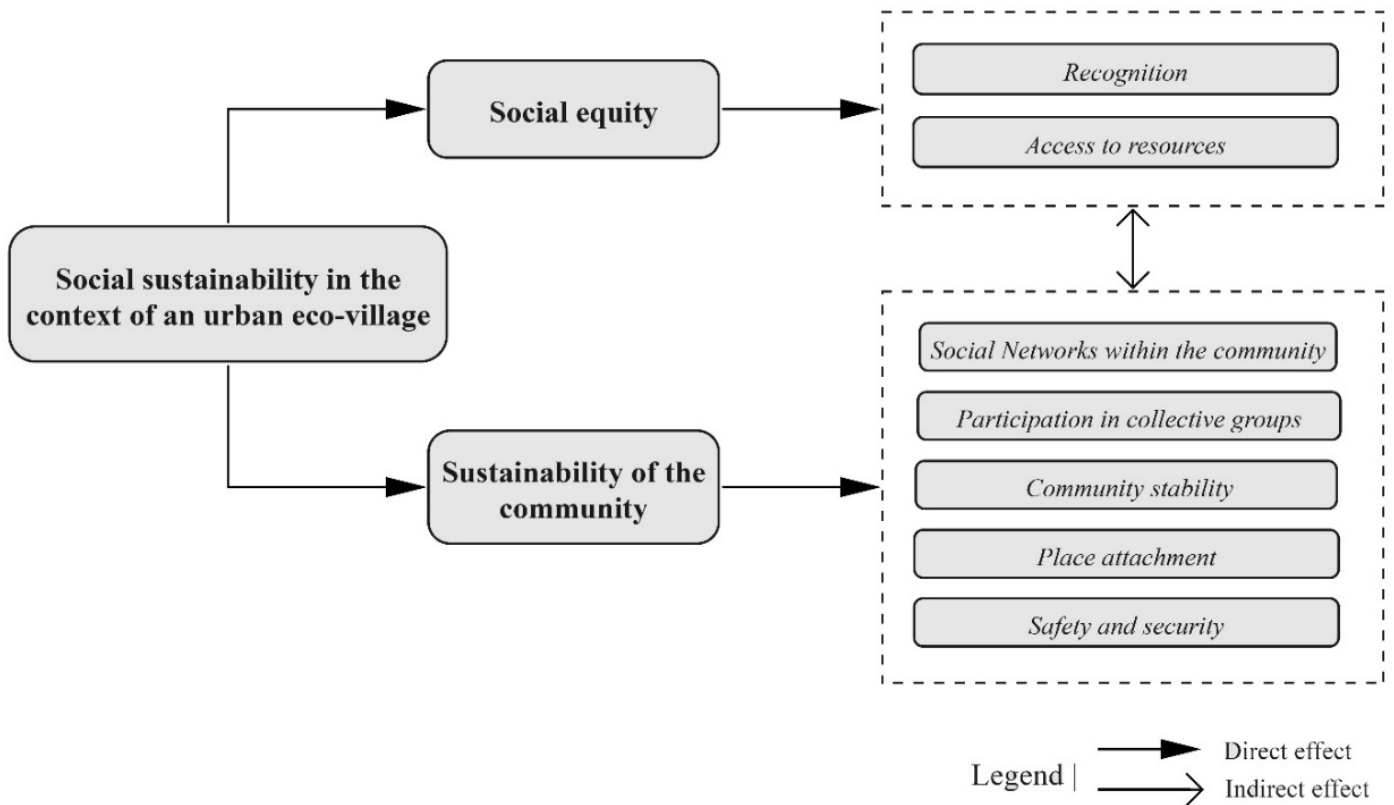


Figure 12 Theoretical framework of SS on community level
 Source: Author (May-2022) - Content derives from the literature

2.2 Research conceptual framework

The theoretical framework (Figure-13) is built from the literature. It underlines the relationship between *co-production process* -independent variable- and *social sustainability* -dependent variable.

Co-production is identified as a tool to enhance the social equity and social sustainability of its urban context. The balance of power contributes to enhancing the quality of interactions among the residents. It builds partnerships and reciprocity behaviour. This interactive approach widens up the social networks, builds trust, and a sense of attachment to the place which eventually contributes to the community stability. Co-production encourages a behaviour of collective participation and fosters self-help attitudes among the residents.

However, the assumption of '*the greater the participation, the more positive effects*' is not a solid statement, merely because it is not a unidirectional process. It may have significant undesired impacts on the social sustainability of the community. Therefore, the assumption that co-production contributes positively to the social sustainability of a community needs to be explored in-depth.

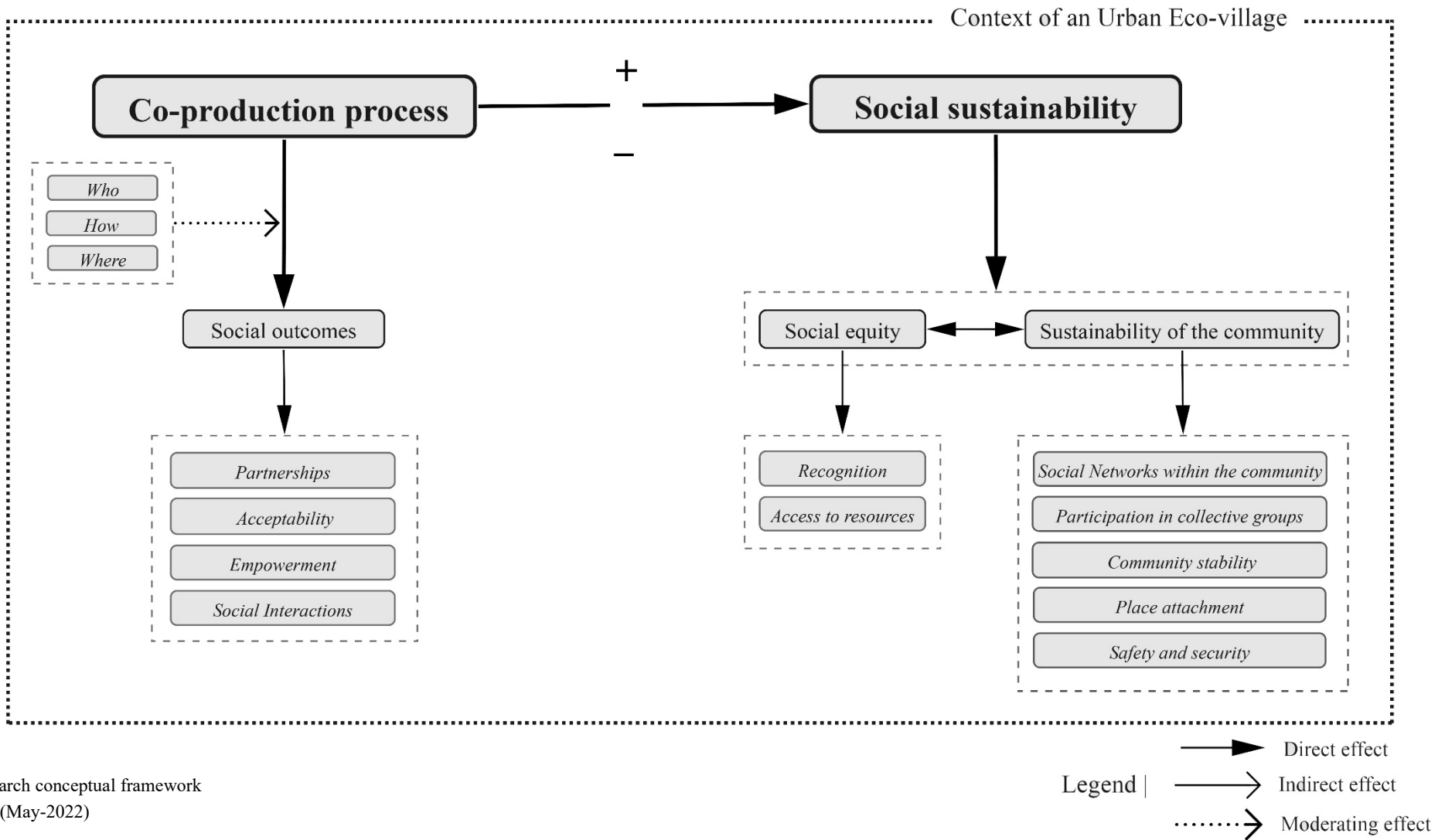


Figure 13 Research conceptual framework
Source: Author (May-2022)

Chapter 3. Research design, methodology

3.1 Description of the research design and methods

The research is structured in two main parts. The first part looks at the literature, whereas the second part is an empirical case study, used as the research strategy. A single case study has been selected, which is Groene Mient village in the Hague. The research is exploratory and qualitative type of analysis, which is applicable for the case study approach. The latter is the best suited for exploring human interactions within a geographical context (Fischetti, 2008; Godschalk & Mills, 1966). The research aims to explore how the concept of co-production contributes to social sustainability.

3.2 Data collection

The research method is using three data collection tools for triangulation purposes and internal validity (Ergas, 2010; Van Thiel, 2014)

3.2.1 In depth Interviews

Semi-structured interviews were conducted to explore the particularities of the co-production process of the case study with the founder, identified as an expert, and the resident (Section 3-Appendix 1). This interview used a mixed type of closed and open-ended questions. The latter creates an opportunity for a somewhat free conversational exchange among the interviewee and the researcher, as argued Godschalk & Mills (1966). On the other hand, the structured interviews with a similar mix of closed and open-ended questions were used to interview the residents in order to explore their involvement in the co-production process in addition to evaluate the contribution of such process to the quality of life of their community (Section 4-Appendix 1). All interviews were conducted in English.

An exploration survey was conducted prior to any interviews. The researcher distributed one survey sheet per household to the 33 houses of the village (Section 2-Appendix 1). The exploration survey served to understand the demographic composition of the community and the role played by its members. Within the residents groups the categories that were identified are: initial residents, a new comer, single households, retired couples, and young couples with children. The exploration survey helped to enhance the quality of the structured interview questions, which was developed after receiving the results of the exploration survey. The figure-14 illustrates the technical process between the exploration phase and interviews development.

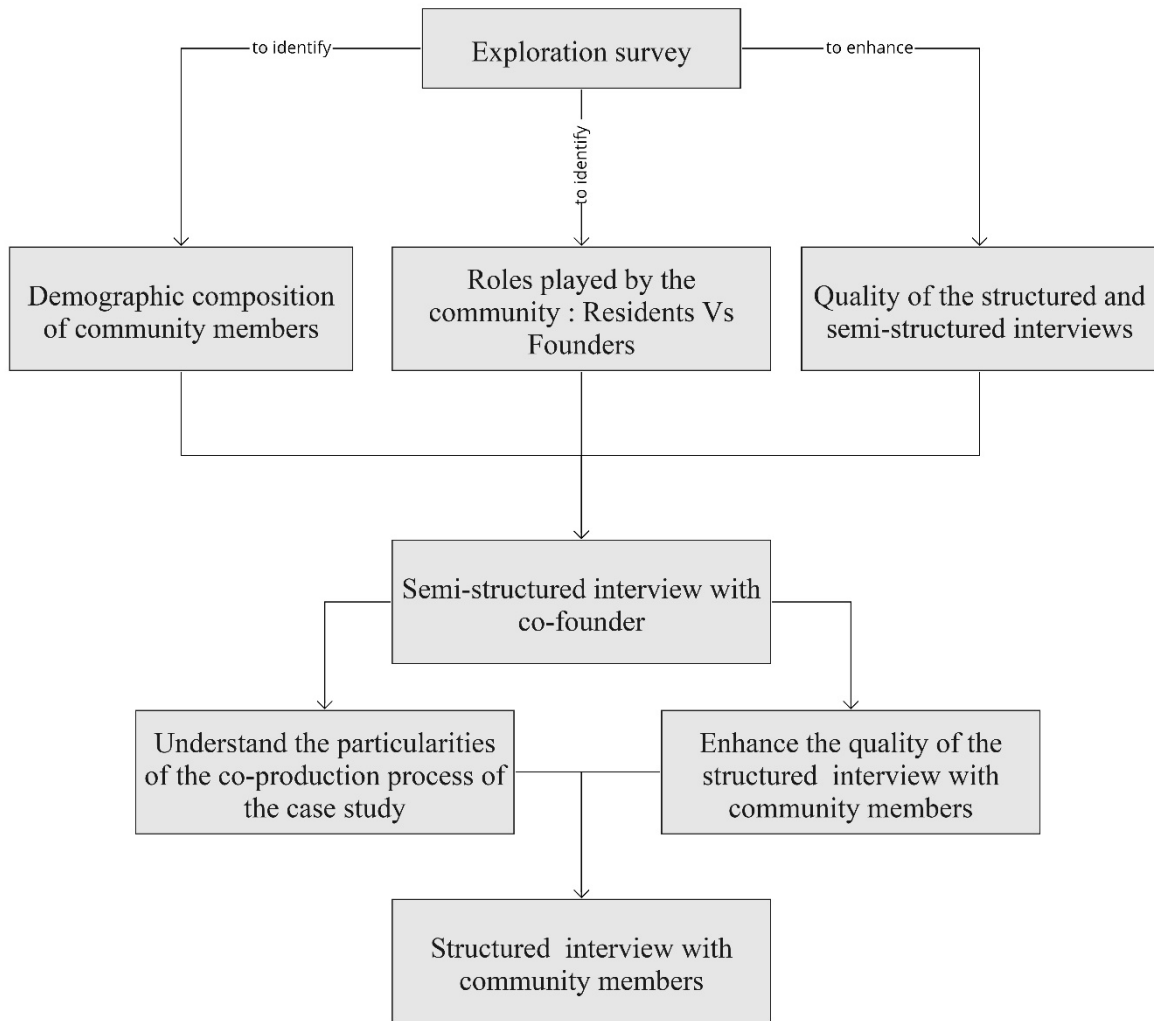


Figure 14 Interviews framework.
Source: Author (June-2022)

While some interviews were conducted face-to-face on site, the interviewee signed a consent letter to approve the recording of the meeting (Section 1–Appendix 1). Other interviews were conducted online via Zoom and an oral consent was given.

3.2.2 Observations

This method of observing the community residents' by the researcher, in their real life settings is to have an insight on their actual behavior, and to answer questions regarding the location and the physical aspect of the case study. The collection of such data was performed through a non-participant observation after taking a permission from the community. It indicates that the researcher's identity is known to the unit of study without involvement in the activities performed by the latter. Observations are taken in a form of descriptive record of field notes based on the researcher's focus on the research's sub-questions, variables and indicators (John W.Creswell, 2016).

3.2.3 Secondary data collection

This type of data is collected from various sources. The documents come from online webpages, online reports, and existing online interviews. These data are used to support the primary data collected. The list of the used secondary data is presented in Section 7-Appendix 2 followed by a content summary for each document.

3.3 Sampling

The selection of experts was done through a mixed sampling methods. The list of responded is attached in Section 5-Appendix 2.

The non-probability purposive sampling is a method that allows selecting people with strong relevance to the research topic in order to gain new insights about the addressed situation. And it is argued to be applied when there is, relatively, few number of units to study (Van Thiel, 2014), and it was used to identify the experts. Three main experts were identified : *G01* one of the co-founders and resident who agreed to conduct an official interview. A second co-founder/resident provided insights through informal conversation during the site observation day. A third expert, non-resident, was identified but choose not to conduct an official interview. This was added as part of the limitation of this study. The researcher used this expert's website to collect additional information.

Among the residents, a total of 9 people conducted the interviews. The selection aimed to achieve maximum representation of a diverse group of people, therefore the researcher used the stratified random sampling method. One interviewee per household was interviewed in order to have different perspectives. The number of sample used of this research was based on the saturation aspect which was reached at a number of 9 respondents among the nominated interviewees (Van Thiel, 2014).

3.4 Validity and reliability

The literature identifies internal validity and external one. Acknowledging that the main findings are only applicable to the case itself and it cannot be generalized which is a common limitation of the case study approach in terms of external validity. The internal validity of the findings is resolved through data triangulation using primary, secondary data, and observations. The reliability which is related to the replicability of the process, remains a limitation. However, this type of limitation can be reduced through setting a protocol (recording), and a case database (material collected), which would allow future replicability of the study either on the same setting or a similar ones elsewhere (Van Thiel, 2014).

3.5 Data analysis method

The data analysis is done through *Atlas.ti* software. The interviews, secondary data, and observations are coded, deductively based on the concepts and dimensions previously identified in the operationalization table. A list of memos were created and used for the analysis and conclusion. Some codes were split within the same dimension for a more focused analysis,

and that explains why the code tree (Section 1-Appendix 2) is more detailed than the operationalization table. Section 2-Appendix 2 shows the added codes and their explanations.

The findings were interpreted using *co-occurrence* table and *query* tools which showed the relationship between the variables/sub-variables. Results are graphically presented in the forms of networks, and Sankey diagrams. An iterative process was taking place for the analysis. The researcher kept shifting between codes and their interpretation, memos, secondary data, and the researcher's observations, all to provide a richer understanding of the research questions. The strategy of the analysis relied on finding patterns through the code combinations. Internal validity was strengthened when the relationship discussed in the literature where applicable in the empirical findings (Yin, 2014). The analysis is presented in a narrative explaining why or/and how such relationship occurred. The findings are interpreted and analysed in chapter 4, and main conclusions in chapter 5.

3.6 Identified challenges and limitations

The case study location is in the Hague, the commuting was time consuming and costly. Viewing the limited time frame of the field work period, the site visits were limited. A set of on-site face-to-face interviews were conducted in the three visits to the village; and other interviews were conducted online via Zoom. The visits varied between weekdays and a weekend in order to capture the most of the residents' behaviour. The willingness of the people to participate and provide information about their involvement in the community may have affected the results of the research. Some relevant respondents choose not to conduct the interview among which is the new comer to the village, and another co-founder of the project who has a different perspective on the living environment. Therefore, only the informal conversations with the latter are taken into account. The refusal of the external expert to respond is part of the limitations. In addition, one of the challenges was the language barrier, thus the selection of the interviewees had to consider his/her ability to speak English which might also affect and impact the findings.

3.7 Operationalization : Variables, indicators

Table 1 and table 2 present the sub-variables/indicators as identified from the literature for both concepts co-production and social sustainability .

| Independent Variable | Sub-variables | Indicators | Explanation | Data collection | Data source |
|---|---|--|--|---|--------------------------------------|
| <p>Co-production process</p> <p><i>(Boyle & Harris, 2009; Bracht & Tsouros, 1990; Wandersman, 1981; Verschuere et al., 2012; Ayala, Eerd, & Geurts, 2019).</i></p> | <p>Characteristics of co-production</p> | <p>Who are the <i>co-producers</i></p> | <p>Individuals who are involved in the co-production activity (residents vs experts, gender)</p> | <p>Semi-structured in-depth interview / observations/ Desk research</p> | <p>Primary data / Secondary data</p> |
| | | <p>How <i>they co-produce</i></p> | <p>The scale/range of participation in the activity of co-production, and which method (consent, voting...)</p> | <p>Semi-structured in-depth interview / observations/ Desk research</p> | <p>Primary data / Secondary data</p> |
| | | <p>Where <i>they co-produce</i></p> | <p>The location (scale of the place) and typology of co-production activity which is related to the individual's capability and availability(gardening, construction, design, organizers ...)</p> | <p>Semi-structured in-depth interview / observations/ Desk research</p> | <p>Primary data / Secondary data</p> |
| | <p>Social outcomes of co-production</p> | <p>Partnership</p> | <p>Partnership between stakeholders involved in the co-production activities :</p> <ul style="list-style-type: none"> • Residents and experts where the former are perceived as non-passive recipients, and experts are the facilitators. • Residents themselves where everyone has equal access to decision-making. | <p>Structured in-depth interview / Observations / Desk research</p> | <p>Primary data / Secondary data</p> |
| | | <p>Acceptability</p> | <p>People tailoring their built-up environment according to their specific needs, aspirations, and financial instruments.</p> | <p>Structured in-depth interview / Desk research</p> | <p>Primary data / Secondary data</p> |
| | | <p>Empowerment</p> | <p>Building capacities through the collaborative activities: socially knowing the other, and technically learning new skills.</p> | <p>Structured in-depth interviews / Desk research</p> | <p>Primary data / Secondary data</p> |
| | | <p>Social Interactions</p> | <p>Social connections between the co-producers which can be positive, such as reciprocity, trust, or negative such as contact avoidance, conflict.</p> | <p>Structured in-depth interviews / Desk research</p> | <p>Primary data / Secondary data</p> |
| <p>Table 1 Operationalization table-Independent variable. Source: Author (May 2022)</p> | | | | | |

| Dependent Variable | Sub-variables | Indicators | Explanation | Data collection | Data Source |
|---|---------------------------------|---|--|--|-------------------------------|
| Social sustainability <i>(Bramley et al., 2009; Dempsey et al., 2011; Pareja-Eastaway & Sánchez-Martínez, 2017, Amin, 2006)</i> | Social Equity | Recognition | Equal accessibility to the decision making | Structured in-depth interviews | Primary data / Secondary data |
| | | Access to resources | Ability to access public resources by direct provision or through transport. | Observation / Desk research | Primary data / Secondary data |
| | Sustainability of the community | Social networks <i>within the community</i> | The degree of social ties between the community members that brings mutual support (and it may be affected by socio economic factors as education, income) | Structured in-depth interview | Primary data |
| | | Participation in collective groups | Involvement in activities within the community | Structured in-depth interview / Observations | Primary data |
| | | Community stability | Long term residency in the same place | Structured in-depth interview | Primary data |
| | | Place attachment | Attachment to the place physically and psychologically | Structured in-depth interview | Primary data |
| | | Safety and security | Place free of disorder and violence ; Safety in terms of communication between members; Covid safety. | Structured in-depth interview / Observation | Primary data |

Table 2 Operationalization table-Dependent variable.

Source: Author (May 2022)

Chapter 4. Results, analysis, and discussions

This chapter presents the findings in a qualitative analysis. It addresses the research questions, through empirical findings. Section 4.1 discusses the case study context. Section 4.2 illustrates the concepts' findings and their analysis. Section 4.3 illustrates a main summary of the analysis.

4.1 The case study of Groene Mient.

4.1.1 Location and description

Groene Mient is a socio-ecological intentional community, developed through a CPO model (collective private commissioning) by the community members. It is identified as the first CPO project of such scale developed in the Hague. The 33 energy-neutral private houses are located in a quiet mixed-use middle-class residential neighbourhood, the Vruchtenbuurt. The neighbourhood is highly connected to the city centre via public transport, and within 12 to 15 cycling distance estimated through google maps, and a shorter distance to the beach (Photo-1).



Photo 1 Groene Mient aerial view

Source: Extracted from www.groenemient.nl—Annotations developed by Author (June-2022)

The project resides on a plot of 7600 m² including a central area of 3500 m² dedicated for a communal garden, designed and developed by the residents based on permaculture landscape vision, guided by ‘Puur permacultuur’ firm. Within these spaces, there is a community building ‘Ei’ meaning the Egg, inspired from its shape (Figure-15). The houses have different sizes which is related to the household personal affordability (Haacs, 2018; Van Eren, 2017).

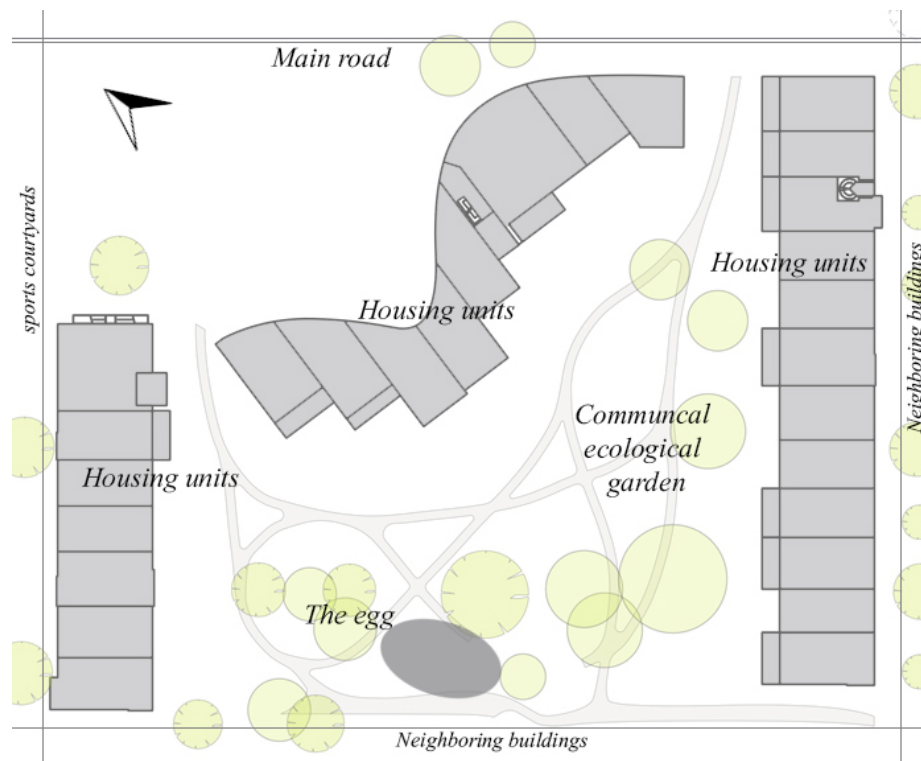


Figure 15 Groene Mient annotated plan

Source: Extracted from www.groenemient.nl –Annotations developed by Author (June-2022)

4.1.2 History and vision

The initial project started with Vormidabel foundation in collaboration with the Hague municipality, and a partnership with Vestia housing association. The Waterspin ecological social housing project in Den Haag was an inspiration for the community. Vestia withdrew from the initiative in 2012 after its financial crisis, and Groene Mient association was created replacing Vormidabel. In 2013, the interested group of people re-launched their initiative acting as Collective Private Client (CPO) which is defined as the group of people who are willing to develop their own houses together. The group have full control on choosing the plot, the experts selection, and the full realization of the project following their own visions and values. The selection of the plot of Groene Mient village was done through an auction regulated by the municipality, whom by itself has been facilitating and encouraging self-build housing in certain allocated municipal lands in the Vruchtenbuurt neighborhood since 2014, following the *Do-it-yourself* policy. The full realization of the project was completed in September 2017. The project was developed physically in two main stages, after years of collaboration, planning and co-designing which is summarized in the timeline graph (Figure-16) (Groene Mient, nd; Haacs, 2018).



Photo 2 Garden design workshop
Source: www.groenemient.nl (June-2022)



Photo 3 The community in 2019
Source: www.groenemient.nl (June-2022)

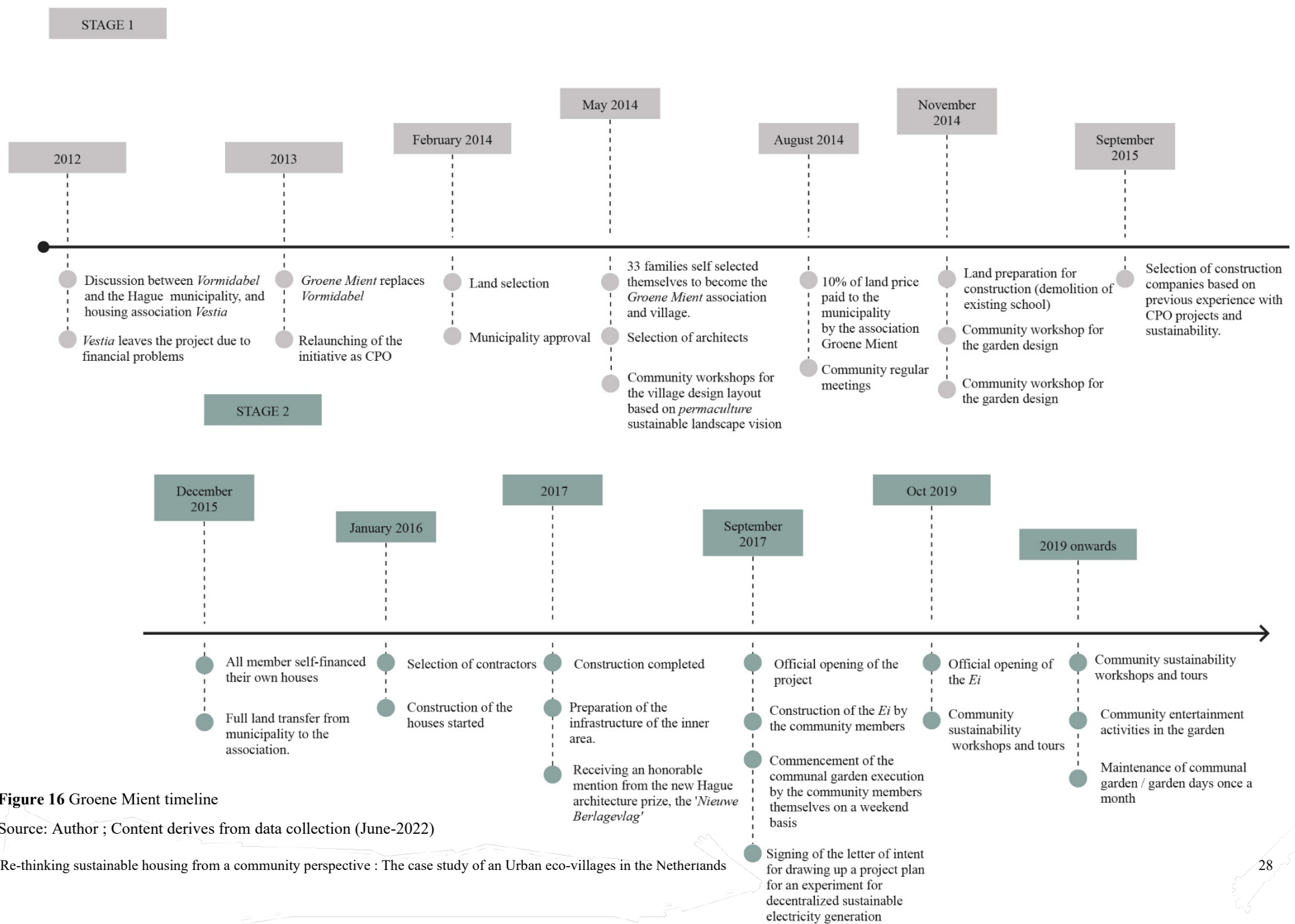


Figure 16 Groene Mient timeline

Source: Author ; Content derives from data collection (June-2022)

Re-thinking sustainable housing from a community perspective : The case study of an Urban eco-villages in the Netherlands

4.1.3 The Living in *Groene Mient*

Groene Mient is a village in the middle of the city where likeminded people had their own shared vision. The housing project values are defined in themes connecting the social with the ecological (Groene Mient, nd):

- Social diversity,
- Living together,
- Ecologically responsible living,
- Affordable and accessible.

Groene Mient community identified the ‘*lack of social cohesion, reduction of nature, environmental pollution and problems related to well-being and healthy living*’ as objectives to overcome. *Groene Mient* is built on the basis of developing of living together in respect of diversity and care for the other, while acting responsibly towards the environment. Energy self-sufficiency, circularity of material and water collection are basic concept rules. The village wants for its people to feel connected to nature, and to see themselves as a unified community (Groene Mient, nd).

During the fieldwork, the respondents expressed their motivation for choosing *Groene Mient* (Section 3-Appendix 2). The answers highlighted the social need of being within a community of diverse backgrounds and age groups. They want to live an ecological sustainable life, and to be able to design a house with a garden at low cost. The village was described as a good place to live and an extended family to others.

“Because you can rely on one another; you can speak about things bothering you, and we share a lot” (G05-Resident-2022).

While other opinions confirmed the intimacy built between them, yet within certain social boundaries.

“but not everybody is your friend” (G06-Resident-2022).

Those web of connections varied. They are the social outcomes of the living together since the initiation of the project’s concept, to constructing it, towards building the community socially and physically, and maintaining it.

4.2 Data description, analysis and discussions.

This section presents findings on both concepts, co-production and social sustainability, and their analysis per variable as outlined in the conceptual framework. An interesting insight on the findings is that the sub-variables are not discussed in isolation, due to their strong interlinkage. For each indicator, the findings are presented, and their analysis underlining the relationship of the indicator with other indicators.

The qualitative data (primary, secondary and observations) were coded deductively through *Atlas.ti*, based on the operationalization table. Secondary data were limited, yet they helped in the triangulation providing additional insights. Observations notes were used to evaluate and contextualize villagers’ responses. The findings from the various sources aligned with each other,

consequently contributing to the strengthening of the research’s internal validity. Some variables were split for more focused analysis (Section 5-Appendix 2). Figure-17 shows the number of quotations per indicator.

| Concept | Code group | Code | No. Of quotations |
|-----------------------|----------------------------------|------------------------------------|-------------------|
| Co-production process | Characteristics of co-production | How | 56 |
| | | Where | 51 |
| | | Who | 52 |
| | Social outcomes | Partnership Active | 47 |
| | | Partnership Passive | 15 |
| | | Acceptability | 54 |
| | | Empowerment | 21 |
| | | Social Interaction Positive | 67 |
| | | Social Interaction Negative | 16 |
| | Challenges | Social | 27 |
| | | Financial | 9 |
| Time | | 4 | |
| Social sustainability | Social Equity | Recognition | 34 |
| | | Access to resources | 4 |
| | Sustainability of the community | Social Networks | 25 |
| | | Participation in collective groups | 22 |
| | | Community stability | 26 |
| | | Place attachment | 26 |
| | | Safety Social/Covid | 46 |
| | | Safety Violence | 8 |

Figure 17 Number of quotations per indicator

Source: Author, developed through *Atlas.ti* (July-2022)

Co-occurrence table, networks, and Sankey diagrams are used as analysis tools, illustrating the relationships between the various codes. The top co-occurring codes are highlighted in figure-18.

| | How | Where | Who | Partnership: Active | Partnership: Passive | Acceptability | Empowerment | Social interactions: Positive | Social interactions: Negative | Challenges: Financial | Challenges: Social | Challenges: Time | Recognition | Access to resources | Social networks | Participation in collective groups | Place attachment | Community stability | Safety: Social/covid | Safety: Violence |
|------------------------------------|-----|-------|-----|---------------------|----------------------|---------------|-------------|-------------------------------|-------------------------------|-----------------------|--------------------|------------------|-------------|---------------------|-----------------|------------------------------------|------------------|---------------------|----------------------|------------------|
| How | | 18 | 8 | 12 | 4 | 10 | 3 | 2 | 4 | 2 | 6 | | 18 | | 1 | 8 | 1 | 5 | 3 | |
| Where | 18 | | 14 | 9 | 4 | 2 | 2 | 3 | 1 | | 1 | | 4 | | 1 | 8 | | | 2 | |
| Who | 8 | 14 | | 3 | 10 | 4 | 1 | | 1 | 1 | 1 | | 2 | | | 1 | | | 1 | |
| Partnership: Active | 12 | 9 | 3 | | | 26 | 1 | 4 | | 1 | 1 | | 16 | | 2 | 9 | 2 | 5 | 2 | |
| Partnership: Passive | 4 | 4 | 10 | | | 1 | 1 | | | | 1 | | 2 | | | 1 | | | 2 | |
| Acceptability | 10 | 2 | 4 | 26 | 1 | | 1 | 2 | | 5 | 6 | | 19 | 1 | 2 | 5 | 4 | 6 | 6 | 1 |
| Empowerment | 3 | 2 | 1 | 1 | 1 | 1 | | 3 | | 1 | 2 | 3 | 2 | | 2 | 2 | | | 3 | |
| Social interactions: Positive | 2 | 3 | | 4 | | 2 | 3 | | 1 | | | | | | 26 | 10 | 10 | 7 | 19 | |
| Social interactions: Negative | 4 | 1 | 1 | | | | | 1 | | | 6 | | | | 1 | | | 1 | 3 | 1 |
| Challenges: Financial | 2 | | 1 | 1 | | 5 | 1 | | | | 3 | 3 | | | | | | | | |
| Challenges: Social | 6 | 1 | 1 | 1 | 1 | 6 | 2 | | 6 | 3 | | | | | 1 | | 1 | | 2 | |
| Challenges: Time | | | | | | | 3 | | | 3 | | | | | | | | | | |
| Recognition | 18 | 4 | 2 | 16 | 2 | 19 | 2 | | | | | | | | 1 | 5 | 1 | 6 | 4 | |
| Access to resources | | | | | | 1 | | | | | | | | | | | | | 2 | |
| Social networks | 1 | 1 | | 2 | | 2 | 2 | 26 | 1 | | 1 | | 1 | | | 4 | 4 | 3 | 5 | |
| Participation in collective groups | 8 | 8 | 1 | 9 | 1 | 5 | 2 | 10 | | | | | 5 | | 4 | | 1 | 2 | 3 | |
| Place attachment | 1 | | | 2 | | 4 | | 10 | | | 1 | | 1 | | 4 | 1 | | 13 | 11 | |
| Community stability | 5 | | | 5 | | 6 | | 7 | 1 | | | | 6 | | 3 | 2 | 13 | | 9 | |
| Safety: Social/covid | 3 | 2 | 1 | 2 | 2 | 6 | 3 | 19 | 3 | | 2 | | 4 | 2 | 5 | 3 | 11 | 9 | | |
| Safety: Violence | | | | | | 1 | | | 1 | | | | | | | | | | | |

Figure 18 Co-occurrence table. Source: Author, developed through *Atlas.ti* (July-2022)

4.2.1 Co-production, findings and discussions

This section addresses the findings of co-production process in Groene Mient, the social outcomes and challenges, within a qualitative analytical narrative highlighting the interlinkage between the variables/sub-variables. A summary of the findings is presented in Section 8-Appendix 2.

4.2.1.1 Characteristics of co-production

This section addresses the sub-question “*What are the characteristics of co-production in Groene Mient?*”

a. Who are the co-producers?

There are three main stakeholders involved in the co-production process of Groene Mient : Municipality, experts, and most importantly the residents.

The Hague Municipality identified as a facilitator of the process. It is the land provider by selling plots to interested groups through auction. The municipality supports CPO initiatives through firstly allocating lands for community development, secondly through the ‘*I build affordably in the Hague*’ following the ‘*Do-it-yourself democracy*’ paper (ikbouwindenhag, nd).

The experts teams varies from founders, to architects, landscape designer, contractors among other technical construction teams. These group of people are identified as facilitators. Their role is interlinked with the community members who are identified as joint principal and risk bearers. The residents had full control on choosing the plot, the experts, and the full realization of the project following their own vision and values (Groene Mient, nd).

The primary data showed that the community members are self-selected residents, mostly Dutch nationals. While the majority lived in Den Haag before moving to Groene Mient, others came from across the Netherlands : Groningen, Tilburg, and Zeeland. The age range varied between 35 years old up to 75 years old. Their economic status is defined as middle to high-income people, which may have affected the quality of social networks within the community.

“here are only the owners with lots of money. And in Waterspin there are the people with less money, and they have a very different behaviour” (G01-Founder-2022).

The specified economic status is a result of the increased prices imposed by the municipality. After the financial crisis with Vestia, the private banks refused to provide loans to housing corporations. Many interested members in the projects had to leave and the idea of social housing was dropped out.

“Very painful day they had to leave. they couldn't pay it” (GF01-Founder-2022).

The determination and financial capability of certain interested members, allowed them to re-group themselves and continue the project as a CPO. The self-selection process was also based

on their understanding the socio-ecological values of the Groene Mient , G01-Founder explains:

“So it was a social self selecting process[...]we had talks, then we presented the project. There were not so many people at a time, but quickly grew. There were some people who really like the pillars, and brought the project further” (G01-Founder-2022).

b. Where do they co-produce?

Groene Mient had their own board which is divided into clusters, each dedicated to certain tasks. Residents are part of one or more clusters (Groene Mient, nd):

- Cluster Construction : construction working people and materialization
- Cluster Buitenruimte : group preparing for housing, communal space and garden.
- Cluster Finance and legal : Loan fund working group, audit committee.
- Cluster Communicatie : events group, coffee servings.

The primary data findings showed that the residents were involved in more specific activities resonating with the above mentioned clusters:

- Village main layout, architects and contractors selection.
- Garden concept layout, its development and on-going maintenance.
- Community building and its construction.
- Their house design.
- Social events and coffee serving.
- Financial and technical advisory.

In short, the co-production activities took place between the resident themselves such as the on-going gardening days, and other social events. While the housing design and construction activities were guided by the experts. Almost all the residents were actively involved in the planning, design, and construction phases, based on their own personal capabilities.

c. How do they co-produce?

Groene Mient adopts a consent decision-making approach prior to any action, through a dialogue to arrive at best solutions together. Time is used to discuss, exchange ideas, and learn from others’ experiences, leaving space for creativity, and equal partnerships emphasizing on social equity, but not only. The consent approach showed mixed results of success. It contributed to certain social challenges where some individuals expressed their fear of sharing opinions in order to avoid potential conflicts.

“in the social part it's like a family how you quarrel and how you will come to a solution. that's very important for us living in a community. You don't have to be afraid that there might be some quarrel, there will be, there are” (G04-Resident-2022).

However, the community is working on enhancing their decision-making through their 'Living Together' club by creating small rounds for discussions, which may enhance the feeling of social safety between each other. The fear of expression led to passive partnerships with less impact on the decision-making. In other cases, the passive partnership is related to personal motivations rather than a conflictual matter.

“I find it hard to choose. So there's not much impact of my voice. But there are certain things who do have my attention and I will be able to then I would say yes or no what I really want” (G07-Resident-2022).

Residents showed strong involvement in the activities within certain preferences based on their motivation, time pressure, physical capabilities or/and knowledge (Section 4-Appendix 2). It is related to the activity itself -where-. While G01-Founder a physiotherapist preferred not to use her hands for construction, G05-Resident showed her preference for cooking stating :

“My younger son was then just one year old. It was really like, you have to really keep him in, I was not able to work on construction. But I made lunch while they were working” (G05-Resident-2022).

In Groene Mient everyone has something valuable to contribute each within their own capacity and expertise even if someone had only to serve coffee during the meeting allowing others with more expertise to take the lead, G02-Resident narrates.

Therefore, it can be concluded that co-production characteristics in Groene Mient are strongly interconnected, and influence each other. Although the consent approach brings recognition to the forefront of the debate, yet it has its setbacks. How they co-produce is not a cast-iron feature. The scale of engagement is related to where the activity, as well as to the individual characteristics of the who, and personal motivations. This is highlighted in figure-18 showing a relatively strong co-occurrence values and positive relationship between the three characteristics. Co-production process in Groene Mient is moderated through those characteristics leading to various social outcomes, and challenges. Figure-19 displays graphically those relationships. The most significant one is related to active/passive partnerships and acceptability indicators. While social challenges, empowerment and positive/negative social interactions came second before the least impacted indicators such time and financial challenges. A deeper analysis of those relationships is outlined thoroughly in the following section 4.2.1.2.

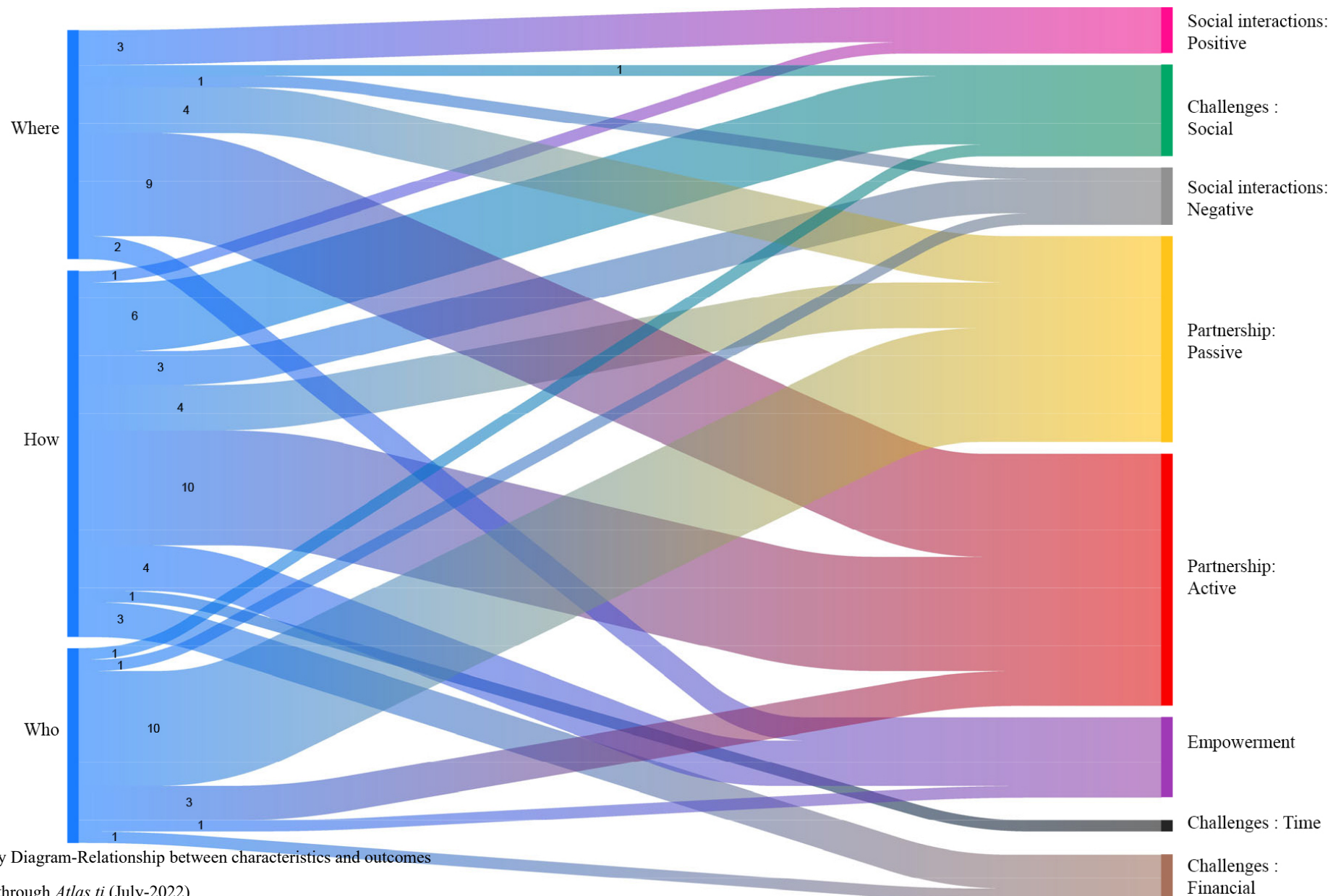


Figure 19 Sankey Diagram-Relationship between characteristics and outcomes

Source: Author through *Atlas.ti* (July-2022)

4.2.1.2 Outcomes and challenges

This section addresses the findings on the sub-question “*What are the outcomes and challenges of co-production in Groene Mient?*”

Groene Mient community envisioned the outcomes and challenges of their co-production process as the following (Groene Mient, nd) :

- Freedom to design as you see fit
- Chance to realize your dream home
- Design collective living environment
- A lot of work, consultation and a long breath
- Financial investments and risk bearing
- Decision-making via consent.

The analysis below provides a thorough understanding of these points, through primary and additional secondary data.

a. Partnerships

The partnerships indicator was divided between active and passive as per the findings. Data showed that most respondents expressed their full engagement in the decision-making, whether as a board member or in the construction of the Ei, to their housing designs. They are actors of change and socially recognized, while the experts were identified as facilitators. G02-Resident confirms while explaining the village’s layout design process against the zoning plans (Haacs, 2018).

“At first the municipality said there had to be a block like here, but we had a lot of houses who would look to a blind wall. that's not nice. But now you're all related to the garden. So changing was a good idea” (G02-Resident-2022).

At some point the residents took the lead envisioning better solutions than the experts, as G04-Resident expressed about teaching the contractor how to use Polypropylene pipes that aligns best with sustainable construction schemes, and an essential feature for the ecological village, highlighting their freedom to develop as they envisioned their socio-ecological standards. The contractor’s lack of knowledge in the field is related to community’s financial limitations. Whereas some respondents expressed being passive partners due to a lack in personal motivation. Others hinted their incapability to imagine architectural spaces, leaving all decisions to the architects, leading towards a negative impact on the acceptability indicator. Their housing needs were not met.

“At the end I decided I could make the house bigger I decided to do that last moment but the interior wasn't very well thought through and if I could do it again, I should do something different” (G09-Resident-2022).

The active partnership was also translated into participation in collective groups within the community itself as G02-Resident explained the garden terrace construction with other neighbours.

“I said to one of my neighbours. Eva, come, we make terrace here[...]then I said we just start here.it wasn't on the drawing[...]We just made it so” (G02-Resident-2022).

Figure-18 shows 8 co-occurring codes between active partnership and participation in collective groups, while the analysis reflected a positive relationship between both indicators. Active partnership shows a strong relationship with recognition indicator, while the highest co-occurrence is with the acceptability indicator. The analysis above confirmed a strong positive relationship between acceptability and active partnership. Resident were recognized with equal access to the decision-making, which empowered them to influence their spaces per their real needs.

b. Acceptability

The motivation of living in Groene Mient is a choice related to their socio-cultural values on sustainable living, in addition to the living in a community of mixed-age groups and diverse backgrounds, as most respondents explained.

The un-gated garden was described as an *‘unprecedented collective outdoor space leads to a non-Dutch spatial quality that transcends the usual norms’* (Haacs, 2018). The villagers designed their spaces based on their values of living together in solidarity as one community. They shared a garden, a community building (Ei), and most significantly they shared their private roofs to collectively install solar panels for those who houses are in the shade.

However, certain collective decisions did not meet all specific needs, thus contributing to social and economic challenges. While G06-Resident wished having more trees in the garden instead of the Ei, G04-Resident argued that the cost of the Ei was high and unnecessary. G07-Resident never approved the noisy external metallic stairs. This underpins again that how the co-production took place led to challenges which affected the personal needs of certain villagers.

The residents modelled their interior houses according to their specific needs with innovative solutions that experts did not consider. G07-Resident fought for having a covered balcony, and G05-Resident lowered the house floor level to increase the height of their living room, who nodded when asked about moving out:

“No, moving out, no, we put a lot of effort in it. We like it here we built it ourselves” (G05-Resident-2022).

This aspect highlighted a certain attachment to the place. Moreover, the shape of the external buildings from heights to volume displayed the diverse inputs of the residents as stated in HAACS magazine (2018) which reflected the various financial capability. Each family had to think about their personal investment before deciding on the location of their house within the plot, and the square meters. The project is considered affordable compared to the local market due to the economy of scale (Hague Hands-2018). It shows that co-production contributed to

making their dreams accessible and affordable. It reflected recognition, ability to create an identity. It highlights the interconnectedness between the physical outcomes of their co-production process and the social ones.

Figure-18 showed 4 codes between acceptability and place attachment, and the analysis of those codes indicated a positive relationship, yet not a strong one. Another important connection is highlighted with 9 codes between acceptability and how indicators. Their analysis expressed a moderate positive relationship, because not everyone desired to engage in the decision-making. It is the active partnership that has a significant impact on acceptability. The active decision-makers modelled their spaces to their needs.

c. Empowerment

The findings categorises empowerment in the scale of skills development, consequently more control over the settings of construction and design. Another scale is the social skill of learning to live together as G04-Resident expressed when asked about the gains of co-production, emphasizing on the importance of re-connecting with the other. Learning to construct together seemed easy for G03-Resident, but living together remained an internal social daily challenge to overcome.

“some moment I learned more what it’s like to live in a society and when how important it’s that we make the sorts of projects to learn being together” (G03-Resident-2022).

Most respondents have expressed learning to garden, build, even design and think sustainably. G06-Resident and G07-Resident wish when building a new place to use learnt sustainability norms, which reflects the potential impact of urban eco-village on the broader society.

Most importantly, they learned about each other’s characters which contributed to their social safety net in the community. Many of the relationships were built during the activities, especially during the construction period, and the on-going garden days. While some residents are inspired by the conversation with their neighbor, others were able to frame their own personal social networks.

The highest co-occurrence with empowerment is connected to positive social interactions and social networks indicators, yet not significantly because co-production had different empowerment effects on the residents relative to their scale of engagement in co-production activities.

d. Social Interactions

The web of connections created among the residents varied. The data revealed positive and negative connections. The social interactions were face-to-face and virtual ones through WhatsApp. Co-production activities were an essential platform to connect and meet on several occasions.

“I got to meet other neighbours yes and that's not only during the garden day, it's during the whole project” (G02-Resident-2022).

People were able to frame their own social networks within the community after years of living together.

“It's after well, let's say almost 10 years. I know people's characters. So I know whom to ask what and when” (G03-Resident-2022).

During the field observation (Garden day-12thJune-2022), it seemed clear that some residents were not in harmony with the community, although they were participating in gardening activities but least socializing. They worked separately, and for lunch time, they choose to leave the group.

The understanding of conflicts in Groene Mient is described as family quarrels (G04-Resident-2022). A term that indicates the mildness of the existing conflicts, and expresses certain intimacy in their relationships which was observed during a previous field observation (6th June-2022). Everyone was waving at G01-Founder as she guided me through the project, while we were stopped for a small chat about planting potatoes.

Some respondents showed strong relationships with their neighbours that developed into friendships, while others remains causal based on assistance requests from neighbours. In both situations, the residents count on each other whether to request eggs for a cooking recipe, preparing meals for a sick neighbour or taking care of each others' houses when out of the city. That goes beyond a mere reciprocity behaviour. It indicates a level of trust, social attachment, and sustainable living as the founder expressed to the Hague Hands magazine in 2018:

“If someone is sick here, three people with soup are immediately at the door. During the storm weeks ago, few of us went out to pick up stranded neighbours from all over the country. Other neighbours looked after their children. Groene Mient not only stands for ecological sustainability, but also for social sustainability” (Hague Hands-2018).

The negative social interactions did not seem to have a significant impact on its surrounding especially that the community are working on enhancing their internal communications through the 'Living Together' club. It shows their ability to adapt to changes to sustain their social stability. While the positive social interactions contributes to creating internal social networks that also varied from formal to stronger ones, the positive social interactions contributes simultaneously to creating harmony and safety in the village. It encourages to a certain extent the participation in collective activities, and contributing to place attachment and community stability through those positive dynamics.

e. Challenges

The findings classified the challenges into: social, financial, and time.

Social

The social arguments described as family quarrels are related to decision-making discussions. During the interviews, it was noticeable that some decisions are made with certain compromises leading to dissatisfaction with the outcomes. This outlines the challenge of social communication in big groups. Although the Ei is designed collaboratively, some residents wished it had more windows, which was determined in respect of the nearby houses ; they do not wish to be looked at. G06-Resident still prefers having trees in the garden instead of the Ei.

Financial

Another challenges is related to the cost of the Ei. G03-Resident wished not spending a huge amount on such element, which is considered as a big storage room for some (G04-Resident, G06-Resident).

“I think the process of building the Ei was great. But it costs more than our house per square meter. Like, I didn't want to put my money only there” (G03-Resident-2022).

Groene Mient project is self-financed by the community members themselves, The residents were able to model their housing design based on their own personal financial capabilities.

“we had a great deal of freedom in design. And because we did it as a collective, it remained affordable” (Hague Hands-2018).

Affordability here targeted Groene Mient residents, mostly high-income people. It was an obstacle for low and middle-income people, who were forced to drop out of the project since the beginning. Knowing that this particular situation is related to external factors. Vestia's financial crisis and increased costs by the municipality (Groene Mient, nd; Haacs, 2018).

Time

A third challenge was the time since co-production needed long breath as the founder explained. G03-Resident considers that they could have done better, as a community, if they had more time. However, as per the findings, there we no serious indicators on that.

Figure-18 shows that the identified challenges have weak to non-existing relationships with the social sustainability indicators, especially the financial aspect, and time. While social challenges contributes to reduce the level of social safety, where people have fear of potential conflicts and opt to become passive partners. It had minor impacts on place attachment and community stability. The social challenges are merely a result of the how co-production process is taking place, and highly related to the type of activity and the individual characteristics. This is because, those who are passive partners in construction, for instance, they are mostly active in other activities, suitable to their own capabilities.

4.2.2 Social sustainability, findings and discussions

This section addresses the findings on social sustainability, within a qualitative analytical narrative highlighting the interlinkage between the variables/sub-variables. A summary of the findings is presented in Section 9-Appendix 2.

4.2.2.1 Social equity

a. Recognition

Every resident has a voice and something valuable to share. They commonly confirmed having an impact on the decision-making within their scale of engagement in co-production activities. That was reflected in their willingness to participate in collective activities such as the on-going garden day since five years now, presenting an opportunity to meet, and share new ideas to maintain their community development. However not everyone choose to take part (G07-Resident,G09-Resident).

The consent approach had its own challenges, yet it implied equal accessibility to the decision-making. The findings revealed active and passive partnerships. The latter is negatively associated with recognition, merely related the individuals motivation to be involved in the decision-making (G07-Resident) and when G09-Resident explained her inability to express her ideas to the architects.

Figure-18 indicates a relationship between recognition and how indicators (18 common codes). The analysis shows a strong positive relationship, taking into consideration the potential negative impact of the consent approach. Active partnership is in dual relationship with recognition. Residents play active roles because they have access to decision-making, thus they are more recognized with stronger impacts on shaping their community. That explains the connection with acceptability emphasizing on the strength of its positive reciprocal relationship with recognition. It additionally highlights the influence of the community's social sustainability on co-production outcomes.

b. Access to resources

While the communal garden and the Ei were designed as common spaces for everyone, the roofs were defined as private. The latter became a common resource for an adequate localization of solar panels, thus more energy efficiency for the benefit of the entire community, specially those shaded houses. This goes what is being provided tangibly, it is more of what it enables as a culture of living together. It somewhat contributes to the acceptability layer since residents were able to re-adjust their understanding of private and common areas to accommodate their own needs as a community.

“So that's the point where we said the roof belongs to the community. Put the solar systems that we can put it on the ideal places to give enough energy” (G02-Resident-2022).

However, access to resources tend to have a moderate positive relationship with acceptability, and almost weak to non-existing relationship with the remaining indicators.

4.2.2.2 Sustainability of the community

a. Social networks within the community

The findings revealed the social networks built in Groene Mient members are the weak ties type, which is highly related to the quality of their social interactions. The data were extracted from an interactive map tool (Section 12-Appendix 2). Respondents drew their movements in the village. Certain movements were for socializing, others were related to an assistance needed mostly for technical issues in the house. G05-Resident linked her social connections to her kids who regularly stop by other families for children playdates.

Few networks showed as strong where residents plan activities together even outside the village, and organize family visits to their summer house in a different region of the Netherlands G07-Resident expressed:

“I know my neighbour well and I see your she uses our summer house from Family in Zeeland. we know a lot about each other. She knows my family and all that” (G07-Resident-2022).

While others kept their network just as mere neighbours explaining their support for each other when needed.

“good social relations, but not real friendship, it is always out of the community” (G04-Resident-2022).

Those findings explain the strong co-occurrence between social networks and positive social interaction (26 codes), and the very weak relationship with place attachment. The relationships built indicated respect, trust, and somewhat positive connections, compared to negative social interaction that scored only 1 code, indicating a negligible relationship with social networks. It can be concluded that the quality of social networks are not affected by conflicts, it is related to the personal characteristics of the residents.

b. Participation in collective groups

Activities in the village varied between community duties and social events. Meetings in the Ei, and in the garden are regular social activities. While certain members organize tours and activities in the Ei welcoming individuals from outside the community to explain the atmosphere and process of their project (G02-Resident-2022, G01-Founder-2022).

Families with young children have somewhat regular meetings for playdate activities, even during the pandemic period because they did not have the fear of the other. That is when they organized gymnastics classes in their garden and piano events (G01-Founder, G04-Resident, G06-Resident).

Few members participate in a car-pooling initiative, Deal-Auto, where they share cars with other families. This activity goes beyond the community vicinity towards individuals from the nearby neighbourhood (G06-Resident). It reflects the positive impact of urban eco-villagers on the broader society through their sustainability and participatory behaviours.

Figure-18 indicates a positive relationship between participation and positive social interactions, and active partnership. Residents are encouraged to participate in social activities with particular neighbours of their choice. Participation in social activities is not significantly affected by other indicators. This does not necessarily an indicator of a negative impact on the community sustainability because participation is strongly connected to individual characteristics, and susceptible to external factors.

c. Community stability

Groene Mient has been physically established since five years and only one resident moved out for external family reasons. Therefore, it was not an indicator of social failures in the community.

“one man left already in the second year after living here because he found the love his life on the other part of Holland” (G01-Founder-2022).

The respondents evaluated positively their choice of living in *Groene Mient* with terms such as ‘good, better, happy, fantastic’ among others.

However, during the field observation (Garden day-12th June-2022) it was noticeable that there are contradicting views to this state of social harmony. Some informal conversations underlined existing conflicts in the community. Yet, none of the respondents implied regretting living in Groene Mient. That does not only show a certain stability in the community, but also a positive indicator of their sense of belonging to the place, which is illustrated with 13 common codes between community stability and place attachment. Another correlation is with positive social interactions indicating that the later contributed positively to community stability.

d. Place attachment

The respondents indicated that it is a peaceful place, while others viewed themselves as spoiled and lucky to be living in the village. G05-Resident and G08-Resident consider the community as their extended families, they rely on aspects of trust and companionship, reflecting the existing positive social interactions between them (Section 11-Appendix 2).

The respondents showed having shared sense of ownership to the place and that links to their evaluation after five years experience of living together. Some current residents did not like the area before, but now they appreciate living in Groene Mient (G04-Resident). They enjoy the garden day and other random social activities inside and outside the community, which reflects positively on the participation in collective groups indicator. G05-Resident explains:

“And I think that's one of the things of living here is that you really participate. Together, we did this effort to make it better. that's what makes it nice”

Those findings are clear in figure-18, where place attachment and positive social interactions show a positive relationship. While 4 codes connecting place attachment with social networks, their analysis indicates a weak positive relationship, merely because not all residents were equally interested in social networking within the community. They can be just neighbours. This sense of attachment strong or weak is contributing to a certain stability in the community, since no one is considering moving out.

e. Safety and security

The findings identified safety in terms of social reflecting on the pandemic period, and safety from violence.

Social safety/covid

The interviews revealed that most respondents considered the village as a safe environment. The village is a place where they shared and built their dreams together. Their social connection expanded and felt safe sharing their worries between each other. However, G06-Resident explained that some do not feel safe expressing their opinions to avoid potential conflicts with others.

“I know there are conflicts between neighbours. I know some people don't feel safe. But I think that's ok. This is hard to think about[...]how people can find solutions themselves with help of neighbours” (G06-Resident-2022).

The ‘Living Together’ club created small rounds of discussions instead of bigger groups to enhance the quality of communication, consequently affecting positively the feeling of social safety. This indicates that co-production characteristic -how- is also affected by the social outcomes, and an emphasis on the ability to re-adapt and change.

On the other hand, respondents explained the level of safety experienced during the pandemic. They knew each other, they felt safe to interact and communicate, reducing feelings of isolation and enhancing their well-being. They were able to organize community activities in the garden, the piano concert and gymnastics classes. There were encouraged to participate in collective activities.

“That it was our paradise here really in Covid times” (G04-Resident-2022).

This is reflected in the high co-occurrence between the social safety and positive social interactions indicators, where the latter contribute to the former, which may have systematically contributed to place attachment, on a larger scale.

Safety: violence

Some respondents narrated the stolen bikes incident. It was referred to the city not the community, and they expressed keeping the garden un-gated without security cameras.

Moreover, most of the respondent mentioned leaving the backyard door unlocked even during night times. G07-Resident explained wanting her close family to get in, even when absent. During the field observation (6th June-2022) it was noticeable that most of the curtains were open indicating a certain feeling of safety. The level of safety against violence is high, while the community conflicts were identified as family quarrels, with no serious impact on the living environment. Therefore, this indicator had less significant impact on other indicators.

4.3 Main discussion, analysis summary

The analysis showed that the co-production characteristics in Groene Mient are interconnected influencing each other. The consent approach brings recognition to the forefront of the debate. However, the scale of engagement -how- is related to the type of activities -where-, and the individual characteristics of co-producers -who-. The ease of participation is influencing their motivation to be fully engaged in the activities or within a minimum range, or even to remain passive partners.

Co-production led to social outcomes and challenges. The findings showed active and passive partnerships. The active citizens are actors of change of their own built-up environment, they have an important impact on the decision-making from the village shape to the minor detail inside their private residences. They are equally recognized contributing to more equity on the social level. While the garden was originally designed as a common space, the roof became shared resources due to their community values of bringing benefits to all community members. Most importantly, co-production allows them to build an environment that is responsive to their personal needs and aspirations, aligning with their socio-cultural adequacy, underpinning the acceptability indicator. The latter contributes reciprocally to their feeling of recognition. It highlights the influence of the community's social sustainability on co-production outcomes. This does not only allow them to create their own identity, but also contributes to more cost-effective solutions. The project accommodated their financial capabilities.

The active citizens became doers and not the done-for, while certain people choose not to participate. That is related to their fear of expression in public, meaning the consent aspect has its own setbacks. While the community is working on enhancing their decision-making process, it implies their ability to change, an important feature for their social sustainability. Moreover, the results showed that passive partnerships have a negative impact on the acceptability indicator. Certain respondents wish to build a new house elsewhere, which may hint to certain lack of place attachment for specific cases.

Co-production is empowering the residents on the individual and community levels. Respondents are developing skills and knowledge, which by itself, contributes to increasing their engagement in co-production activities. Some learned to garden leading to increasing their regular participation. Learnt skills such as building with sustainable norms is encouraging some residents to re-apply them elsewhere, consequently bringing the notion that urban eco-villages have an impact on the broader society. Beyond the tangible results, co-production empowers

the residents on the social level by practising the ‘being-togetherness’ in close proximity leading to various types of relationships.

The web of social connections brought various outcomes from strong relationships to casual and some less harmonious connections, consequently framing different social networks. The quality of social networks within the community are highly influenced by the positive social interactions, and mostly related to the personal characteristics of the residents. Although feelings of trust and reciprocity behaviours are somewhat common outcomes, most networks remain the casual type. The data showed that negative social interactions, framed as family quarrels, do not seem to have a strong negative impact on the social environment. There are no significant indicators that such conflicts is affecting the community stability nor their attachment to the place. Conversely, the analysis revealed an existing sense of community which contributes to increasing the levels of safety on the social level. The social safety was explored during the lockdown period, proving that it contributes to the residents’ well-being. They knew each other, and were encouraged to participate in collective activities within Covid norms. It reflects back to the quality of the environment they built together as a community. Physically they have their private outdoor oasis in the middle of the city as a platform for social interaction and communication, which consequently decreased the feelings of isolation. Moreover, the participation in collective groups attitude is expanding its positive potentials from Groene Mient towards its urban surrounding in initiatives such as the car-pooling and the heat net experiment. The latter is monitored by the municipality with the aim to be implemented on 300 houses in Vruchtenbuurt neighbourhood. That reflects the positive impact of urban eco-village on their surrounding with their positive sustainable innovative behaviours.

Grone Mient’s CPO process created a social platform for the community alongside the tangible outcomes. It can be concluded from the analysis that co-production contributed in maintaining a socially sustainable community, while the aspect of their adaptation to change is also part of being sustainable. Figure-20 highlights the impact of contribution of each co-production indicator towards the social sustainability ones. The most significant feature is connected with recognition that is affected by several interconnected indicators such as how, acceptability, active partnerships. The passive partnerships is among the least impactful indicators, because it is related to the personal motivation to engage rather than a lack of recognition. Another important feature is the contribution of positive social interactions on social networks, place attachment, community stability, and participation in collective groups. The negative social interactions had minor impact on the previously mentioned indicators. Moreover, the identified co-production challenges in terms of time and finance had no serious influence on the community from a social perspective. This explains why they do not show in figure-20.

As a conclusion, co-production contributed to creating a well-run socially stable community with no significant failures that adversely affected its social sustainability. It created a place where the resident desire to live.



Figure 20 Sankey diagram-Analysis summary
 Source: Author, developed through *Atlas.ti* (July-2022)

Chapter 5. Conclusions

The current urban challenges of expanding urban housing, the crisis of material resources, climate change, and the ever-increasing detachment from nature demanded a new type of architectural, and urban development schemes. Every urban form has an impact on its own people, and its urban surrounding. Sometimes an approach can provide radical changes presenting innovative working methods and values. That is what citizens and activists aim for when addressing current societal challenges.

Urban eco-villages in the Netherlands are working on realistic effective alternatives for the methods of living. They are inspiring visions with the ability to radically change the idea of home and the *being-together*. They aim to create liveable urban environments of human-scale that corresponds to their aspirations and values (Gilman, 1991). One may question *what is a home?* It is “*more than a roof over one’s head*” (Ayala, Eerd, & Geurts, 2019, p.40). A home is also more than everything behind the front door. The neighbourhood should also feel like a home, a place that thrives to meet its residents needs on the social, economic, and psychological levels (Leupen & Mooij, 2011). While the focus has been extensively put on urban eco-villages’ eco-environmental benefits, the purpose of this research is to explore how urban eco-villages, beyond their green niche, contribute to a community’s social sustainability.

The research discussed firstly co-production and social sustainability concepts through the literature. Secondly it assessed qualitatively through a case study approach, the co-production process of Groene Mient village and the contribution of such process on the social sustainability of its community.

The main research question ‘*how does the co-production approach of urban eco-villages, in the Netherlands, contribute to social sustainability?*’ was addressed in two main sub-questions. The first discussed the co-production process and its outcomes, while the second defined the social sustainability of the community. The analysis highlighted clearly that co-production contributed to the social sustainability of Groene Mient, positively and negatively. The case study revealed also that the social sustainability of the community had an impact on its co-production process. Both concepts tend to be in a dynamic reciprocal relationship influencing each other. This relates to Cuthill’s (2010) approach to understanding sustainable development through its social aspect, arguing that the environmental and economic activities are merely social ones.

The literature argues that co-production is an umbrella concept with no single definition. It can mean different things even to the same people because its depends on the topic, time and urban context (Boyle & Harris, 2009), which leads to different social outcomes and challenges, as clearly outlined in the case study results (chapter 4). Scholars put a strong emphasis on the process versus the outcomes because co-production is not seen as unidirectional, rather it is the transaction of three main characteristics -how, who, where-(Bovaird, 2007; Fainstein, 2014). The empirical findings showed that these elements are interconnected influencing each other, while simultaneously affecting the outcomes of the co-production, and affected by them. It

links back the theory by Wandersman & Florin (2000) that co-production process is in a feedback loop.

The analysis revealed diverse results. All Groene Mient residents are equally recognised and invited to participate in co-shaping their community, their scale of engagement empowers them, nevertheless it showed positive and negative results. Therefore, the assumed theory of '*the greater the participation, the more positive effects*' (Wandersman, 1981, p.29) was not the case. How they co-produce in an open consent discussion form contributes to establish a level of social equity in the village. While the access to resources is in reciprocal positive relationship with their socio-cultural values, however, the access to public transport as argued Bramley et al. (2009) was not part of the discussion in Groene Mient, although the village is well located in the city. This is due to the car dependency related to the residents' socio-economic status.

The consent approach has a double-edged sword. It led to active partnerships simultaneously with passive partnerships and social challenges. The negative outcomes are not related to the process' lack of transparency as the literature anticipated (Bovaird, 2007). Opting to willingly avoid engagement is merely attributed to the personal characteristics of the co-producers and activity type. This passiveness is not an absolute negative aspect, because co-production is a scale where each stakeholder fills their role depending on their capabilities and expertise (Bovaird, 2007; Pestoff, 2009). Preparing a coffee during community meetings seems as important as construction activities. Passive partnerships are also influenced by the geographical proximity as previously perceived in the literature (Bracht & Tsouros, 1990; Verschuere et al., 2012). Certain villagers remain silent to avoid potential conflicts, which may have negatively impacted their acceptability of certain outcomes. The community is adapting to its social challenges by re-forming their decision-making process. Change is an essential part of sustainability as Jane Jacobs argued in her book '*The death and life of American cities*' (Wendt, 2009). An interesting finding is that none of these challenges have an influential impact on the community stability nor place attachment. Rather, the analysis showed that the quality of their social networks has the most impact (section 4.2.2.2.a), and social networks within the community.

Respondents expressed an important level of trust and reciprocity behaviours among each other, contributing to strong positive social interactions. The analysis identified other less harmonious social connections, consequently creating different social networks, where the majority of social networks remain within a mere neighbouring spectrum. While the emphasis is put on the positive aspect of those existing networks, the latter does not highly contribute to place attachment from a social perspective. This is attributed to the personal characteristics of the co-producers themselves. The literature argued that individuals with high-income and advanced professional status tend to be less interested in local social networks since they are more open to wider societies (Dekker & Bolt, 2005; Dempsey et al., 2011). The findings on Groene Mient align here with the literature which increases the internal validity of this research. The co-founder explicitly expressed a similar argument on the social behaviours in Groene Mient in comparison with a social eco-housing project she previously co-founded.

“here are only the owners with lots of money. And in Waterspin there are the people with less money, and they have a very different behaviour” (G01-Founder-2022).

This particular aspect presents opportunities to extend this research further. The importance of this community-based actions in a Dutch context is tied to an enabling governance of resources. It reflects on the external validity of case studies where results cannot be generalized. Therefore, the notion of context is essential to understand the evenness/unevenness of such resources and capabilities across cities that affects the livelihood of its people, and their ability to decarbonize their households. It is interesting to establish a future comparative study on an urban eco-village with similar geographical scale, yet with different socio-economic groups, in a Dutch context and/or elsewhere. It will deepen the understanding of co-production’s impact on its community’s social sustainability. Using a mixed-approach with quantitative data may assess stronger causalities. Furthermore, this particular case study of Groene Mient can be elaborated by including larger numbers of interviewees/experts and secondary data resources, which were not possible due to fieldwork time limitations. The future studies can bring additional insights on Groene Mient’s social development and changes with time.

On a final note, it can be concluded that an influential and reciprocal relationship is established between co-production and the social sustainability of Groene Mient. Co-production is important for the social transformation that affected the villagers’ human performances, from economic, to environmental along with the social connections it built. Co-production is a tool that enhanced the community’s social equity and social sustainability. It shows that the challenge of ‘being-togetherness’ as argued by Amin (2006) is possible. According to the results the conceptual framework presented in chapter-2 is elaborated, as shown in the inductive conceptual framework (Figure-21), which is a simplified form of the network analysis presented in Section 13-Appendix 2. Figure-21 is an illustration of the variations established from the case study analysis. The first distinction is that social sustainability is not only affected by the co-production process, it also affects its outcomes. Co-production outcomes are in a feedback loop with its main characteristics. In addition, the analysis highlighted the impact of such process on the community itself on a first level, as the theory indicated. The analysis revealed that such process have an influential impact on the broader society as well. The social fabric of Groene Mient community is influencing their larger context. Therefore, defying modern societal challenges is not solely in green certified skyscrapers, it is rather in those micro-communities of human scale living in harmony with the planet and their social surrounding.

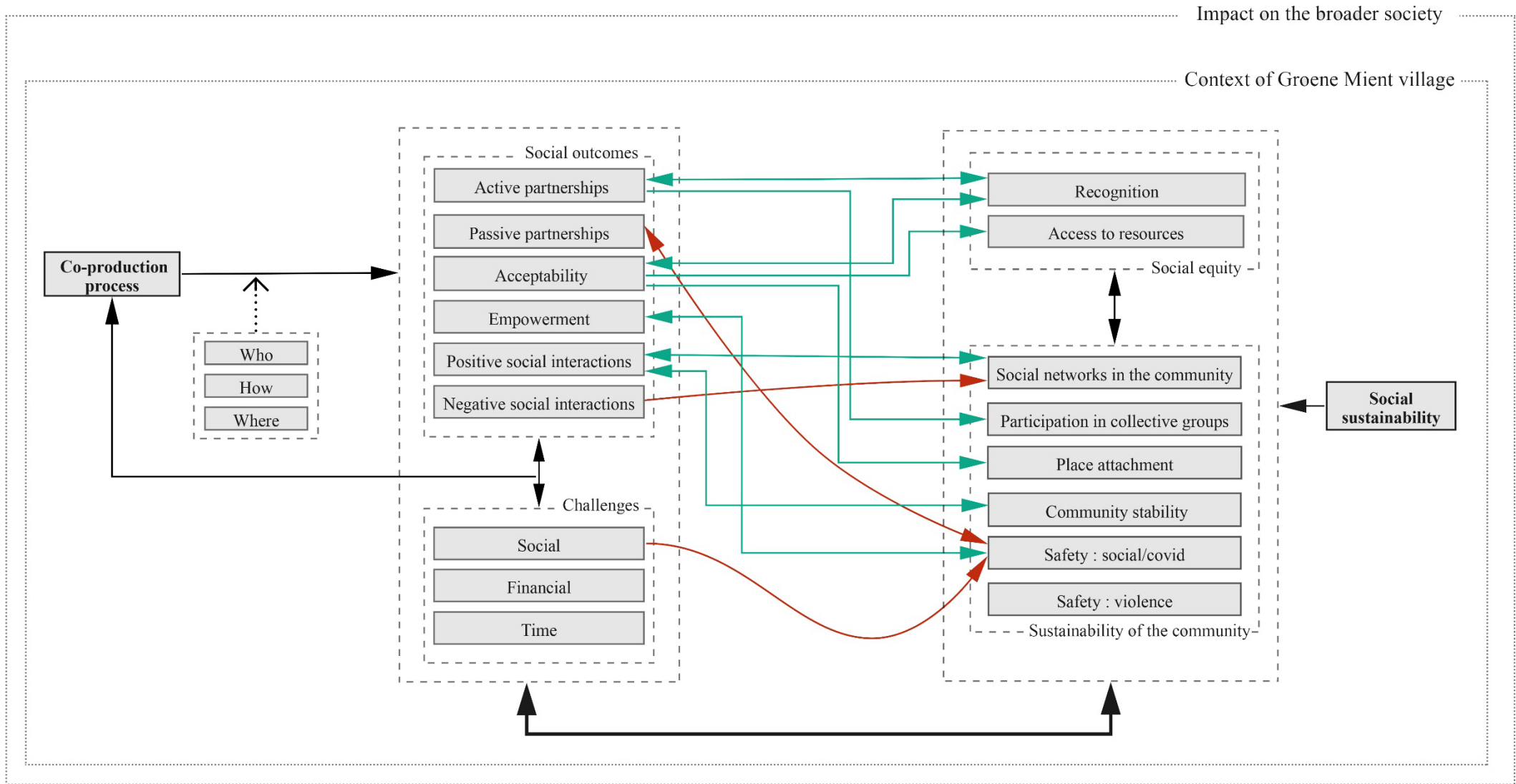


Figure 21 Inductive conceptual framework
 Source: Author (July-2022)

Legend | —▶ Direct effect —▶ Positive direct effect
▶ Moderating effect —▶ Negative direct effect

Bibliography

- Amin, A. (2006). The good city. *Urban Studies*, 43(5-6), 1009-1023.
- Ayala, A., Eerd, M. v., & Geurts, E. (2019). The five principles of adequate housing. In V. Bharne (Ed.), *Affordable housing, inclusive cities* (pp. 94-99). Navato: ORO Editions.
- Bovaird, T. (2007). Beyond engagement and participation: User and community coproduction of public services. *Public Administration Review*, 67(5), 846-860.
- Boyle, D., & Harris, M. (2009). The challenge of co-production. *London: New Economics Foundation*, 56, 18. Retrieved from http://www.camdencen.org.uk/Resources/Public%20services/The_Challenge_of_Co-production.pdf
- Bracht, N., & Tsouros, A. (1990). Principles and strategies of effective community participation. *Health Promotion International*, 5(3), 199-208. doi:rg/10.1093/heapro/5.3.199
- Bramley, G., Dempsey, N., Power, S., Brown, C., & Watkins, D. (2009). Social sustainability and urban form: Evidence from five british cities. *Environment and Planning A*, 41(9), 2125-2142. doi:rg/10.1068/a4184
- Brandsen, T., & Pestoff, V. (2006). Co-production, the third sector and the delivery of public services: An introduction. *Public Management Review*, 8(4), 493-501. doi:rg/10.1080/14719030601022874
- Brandsen, T., Steen, T., & Verschuere, B. (2018). *Co-production and co-creation: Engaging citizens in public services* Taylor & Francis. Retrieved from <http://library.oapen.org/handle/20.500.12657/25001>
- Cucca, R. (2017). The social impact of green urban renewal in two european capital cities : Copenhagen and vienna in comparison. Retrieved from <https://hdl.handle.net/10217/183745>
- Cuthill, M. (2010). Strengthening the 'social' in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in australia. *Sustainable Development*, 18(6), 362-373.
- Dekker, K., & Bolt, G. (2005). Social cohesion in post-war estates in the netherlands: Differences between socioeconomic and ethnic groups. *Urban Studies*, 42(13), 2447-2470. doi:rg/10.1080/00420980500380360
- Dempsey, N., Bramley, G., Power, S., & Brown, C. (2011). The social dimension of sustainable development: Defining urban social sustainability. *Sustainable Development*, 19(5), 289-300. doi:rg/10.1002/sd.417

- Eizenberg, E., & Jabareen, Y. (2017). Social sustainability: A new conceptual framework. *Sustainability*, 9(1), 68. doi:rg/10.3390/su9010068
- Ergas, C. (2010). A model of sustainable living: Collective identity in an urban ecovillage. *Organization & Environment*, 23(1), 32-54. doi:10.1177/1086026609360324
- European Commission. Expert Group on the Urban Environment, European Commission. Directorate-General for Environment, Nuclear Safety, & Civil Protection. (1996). *European sustainable cities: Report* European Communities.
- Fainstein, S. S. (2014). The just city. *International Journal of Urban Sciences*, 18(1), 1-18. doi:https://doi.org/10.1080/12265934.2013.834643
- Fischetti, D. M. (2008). Building resistance from home: Eco-village at ithaca as a model of sustainable living. *Building Resistance from Home: Ecovillage at Ithaca as a Model of Sustainable Living*, Retrieved from <http://hdl.handle.net/1794/8014>
- Fotopoulos, T. (2006). Is the eco-village movement a solution or part of the problem. *The International Journal of Inclusive Democracy*, 2(3), 1-5. Retrieved from <https://www.inclusivedemocracy.org/journal/pdf%20files/pdf%20vol2/Is%20the%20eco-village%20movement%20a%20solution%20or%20part%20of%20the%20problem.pdf>
- Fudge, C. (1999). *10 urban planning in europe for health and sustainability*. London: Routledge.
- Garden, M. (2006). The eco-village movement: Divorced from reality. *The International Journal of Inclusive Democracy*, 2(3), 1-5. Retrieved from <https://www.inclusivedemocracy.org/journal/pdf%20files/pdf%20vol2/The%20eco-village%20movement.pdf>
- GEN. (n.d). What is an ecovillage - discover innovative eco communities GEN.
- Giddings, B., Hopwood, B., & O'brien, G. (2002). Environment, economy and society: Fitting them together into sustainable development. *Sustainable Development*, 10(4), 187-196. doi:rg/10.1002/sd.199
- Gilman, R. (1991). The eco-village challenge. *Context*, 29(10), 10-15.
- Godschalk, D. R., & Mills, W. E. (1966). A collaborative approach to planning through urban activities. *Journal of the American Institute of Planners*, 32(2), 86-95. doi:rg/10.1080/01944366608979362
- Groene Mient. (nd). Principles -green mient. Retrieved from <https://www.groenemient.nl/>
- Haacs. (2018). New berlage flag submission: CPO groene mient -. Retrieved from <https://www.haacs.nl/wijnhavenkwartier-wint-architectuurprijs-nieuwe-berlagevlag-den-haag/>

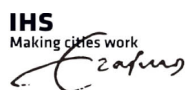
- Hajirasouli, A., & Kumarasuriyar, A. (2016). The social dimension of sustainability: Towards some definitions and analysis. *Journal of Social Science for Policy Implications*, 4(2), 23-34. doi:10.15640/jsspi.v4n2a3
- ikbouwinden Haag. (nd). I build in the Hague - lots mient. Retrieved from <https://www.ikbouwinden Haag.nl/aanbod/aanbod-kavels-den-haag/mient.htm>
- John W. Creswell. (2016). *Chapter 14 conducting a good observation* SAGE.
- Johnston, P., Everard, M., Santillo, D., & Robert, K. (2007). Reclaiming the definition of sustainability. *Environmental Science and Pollution Research International*, 14(1), 7. doi:10.1065/espr2007.01.375
- Kearns, A., & Forrest, R. (2000). Social cohesion and multilevel urban governance. *Urban Studies*, 37(5-6), 995-1017. doi:10.1080/00420980050011208
- Kozlowski, M. (2019). Sustainable urban design : A tool for creating green residential neighbourhoods. In A. Olanrewaju (Ed.), *Greening affordable housing : An interactive approach* (pp. 52-57). Boca Raton: CRC Press.
- Langton, S. (1978). *Citizen participation in America: Essays on the state of the art* Lexington Books Lexington, Massachusetts.
- Leupen, B., & Mooij, H. (2011). Housing design: A manual., 447. Retrieved from <http://www.naibooksellers.nl/housing-design.html>
- McCormick, K., Anderberg, S., Coenen, L., & Neij, L. (2013). Advancing sustainable urban transformation. *Journal of Cleaner Production*, 50, 1-11. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0959652613000085>
- McKenzie, S. (2004). Social sustainability: Towards some definitions. Retrieved from <https://www.unisa.edu.au/siteassets/epi/epi-server-6-files/documents/eass/hri/working-papers/wp27.pdf>
- Mikkelsen, B. (2005). *Methods for development work and research: A new guide for practitioners* Sage.
- Mitlin, D., & Bartlett, S. (2018). Editorial : Co-production - key ideas. *Environment and Urbanization*, 30(2), 355-366. doi:10.1177/0956247818791931
- New Economics Foundation. (2008). *Co-production: A manifesto for growing the core economy*. (). UK: New Economics Foundation London. Retrieved from https://neweconomics.org/uploads/files/5abec531b2a775dc8d_qjm6bqzpt.pdf
- Newman, P., & Director, S. P. U. (2002). Sustainability and housing: More than a roof over head. *Institute for Sustainability and Technology Policy. Murdoch University. Western Australia*,
- Odpn. (2005). (). Retrieved from https://www.eib.org/attachments/jessica_bristol_accord_sustainable_communities.pdf

- Pareja-Eastaway, M., & Sánchez-Martínez, T. (2017). In Pareja-Eastaway Monserrat, Winston Nessa (Eds.), *Sustainable communities and urban housing*. New York:
- Penha-Lopes, G., & Henfrey, T. (2019). *Reshaping the future: How local communities are catalysing social, economic and ecological transformation in europe*. (). Europe: ECOLISE. Retrieved from http://www.socioeco.org/bdf_fiche-document-7012_en.html
- Pestoff, V. (2009). Towards a paradigm of democratic participation: Citizen participation and co-production of personal social services in sweden. *Annals of Public and Cooperative Economics*, 80(2), 197-224. doi:rg/10.1111/j.1467-8292.2009.00384.x
- United Nations. (2018). *The world's cities in 2018*. New York: United Nations. doi:10.18356/c93f4dc6-en Retrieved from <http://dx.doi.org/10.18356/c93f4dc6-en>
- Vallance, S., Perkins, H. C., & Dixon, J. E. (2011). What is social sustainability? A clarification of concepts. *Geoforum*, 42(3), 342-348. doi:<https://doi.org/10.1016/j.geoforum.2011.01.002>
- Van Eren, E. (2017). Groene mient in the vruchtenbuurt in the hague.
- Van Thiel, S. (2014). *Research methods in public administration and public management: An introduction*. London: Routledge. doi:rg/10.4324/9780203078525
- Van Tilburg, T., Van Sonderen, E., & Ormel, J. (1991a). The measurement of reciprocity in ego-centered networks of personal relationships: A comparison of various indices. *Social Psychology Quarterly*, , 54-66. doi:rg/10.2307/2786788
- Van Tilburg, T., Van Sonderen, E., & Ormel, J. (1991b). The measurement of reciprocity in ego-centered networks of personal relationships: A comparison of various indices. *Social Psychology Quarterly*, 54(1), 54-66. doi:10.2307/2786788
- Verschuere, B., Brandsen, T., & Pestoff, V. (2012). Co-production: The state of the art in research and the future agenda. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 23(4), 1083-1101. doi://doi.org/10.1007/s11266-012-9307-8
- Waerther, S. (2014). Sustainability in ecovillages—A reconceptualization. *International Journal of Management and Applied Research*, 1(1), 1-16. Retrieved from <https://www.ceeol.com/search/article-detail?id=471763>
- Wandersman, A. (1981). A framework of participation in community organizations. *The Journal of Applied Behavioral Science*, 17(1), 27-58. doi:rg/10.1177/002188638101700103
- Wandersman, A., & Florin, P. (2000). Citizen participation and community organizations. *Handbook of community psychology* (pp. 247-272). New York: Springer. doi:10.1007/978-1-4615-4193-6_11
- Warburton, D. (2013). *Community and sustainable development: Participation in the future*. London: Routledge. doi:rg/10.4324/9781315066080

- WCED, S. W. S. (1987). World commission on environment and development. *Our Common Future*, 17(1), 1-91.
- Wendt, M. (2009). The importance of death and life of great american cities (1961) by jane jacobson to the profession of urban planning. *New Visions for Public Affairs*, 1, 1-24.
Retrieved from [http://www.economia.unam.mx/cedrus/pdf/wendt\(2009\).pdf](http://www.economia.unam.mx/cedrus/pdf/wendt(2009).pdf)
- Woodcraft, S. (2012). Social sustainability and new communities: Moving from concept to practice in the UK. *Procedia-Social and Behavioral Sciences*, 68, 29-42.
doi:rg/10.1016/j.sbspro.2012.12.204
- Woodcraft, S., Hackett, T., & Caistor-Arendar, L. (2011). *Design for social sustainability: A framework for creating thriving new communities* Young Foundation.
- Xue, J. (2014). Is eco-village/urban village the future of a degrowth society? an urban planner's perspective. *Ecological Economics*, 105, 130-138.
doi:rg/10.1016/j.ecolecon.2014.06.003

Appendix 1: Research instruments

1. Consent letter



Consent Letter

Title : Thesis research case study, *Groene Mient*.

1. Introduction of the Interviewer

My name is Nancy. I am a postgraduate master student at the Institute for Housing and Urban Development Studies at the Erasmus University in Rotterdam.

2. Purpose of the Interview

This interview is part of thesis research study and the purpose of our interview today is to learn more about the co-production process in *Groene Mient* village, and its impact on the social sustainability of the community.

3. Duration of the interview

The interview will take about 30 minutes, on average, but please do not feel restricted by the time frame, you may speak longer if you choose to. Along the same line, if you wish to stop at any given moment, please do not hesitate to indicate and the interview will be stopped immediately.

4. The nature of the interview

The interview will combine closed questions, open-ended questions, and other biographical information. You are the expert today, and all your answers are considered important. Thus, please take into account that there are no bad or good answers here, but if you feel as some point unable to answer certain questions, please inform me as we proceed, because eventually this interview is expected to be informative, yet enjoyable for us both.

5. Privacy and ethics

The outcome of our interview will only be used for academic purposes as clarified earlier, and it will remain confidential and anonymous. In the interview report you will remain anonymous to the reader. However for my citation, you may write down at the end of this letter your preferred reference name. The outcome material will be shared in a safe environment accessible to my-self and the housing masters track supervisors. If you wish before my final submittal -by end of July 2022- you can review the interview analysis and authorize it.

6. Informed consent to participate and record the interview.

Before we proceed further in the interview, I would like to have your signature below for an official consent to participate and to record this interview, knowing that the outcome will remain confidential and anonymous.

7. **A digital copy** of this consent letter can be sent to you by email. Therefore, you may write down your email address at the end of the letter

8. **My full contact** can be shared with you for any future queries regarding my research.

Participants preferred citation name

Signature

Participants mail address

+31 6 85234730

Researcher's Signature

contact number

Nancy.haddad@gmail.com

Researcher's mail address

Date

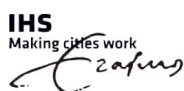
2. Exploration survey



Exploration Survey - Groene Mient Village -

- 01- Gender : M / F
- 02- Age: 25-45 45-60 60 and above
- 03- Profession :
- 04- How long have you been living in this community? months years
- 05- Would you ever consider moving out? Yes / No
- 06- If you are to describe this village, multiple answers are valid:
- a- My home
 - b- A place to live
 - c- My extended family
 - d- All of the above
 - e- Other :
- 07- Do you participate regularly in community meetings – includes activities- ? Yes / No
- 08- How often do you participate on average per month ?
- a- Once
 - b- Twice
 - c- As much as needed
 - d- When obliged
 - e- Other :
- 09- Do you take part in community activities even if it does not bring direct benefits? Yes / No
- 10- Since I joined *Groene Mient*, my behavior towards participation :
- a- Has increased and I feel more encouraged to participate in public activities
 - b- Has decreased and I tend to avoid participation in activities
 - c- Neutral, my behavior did not change
 - d- Other
- 11- Do you plan activities with your neighbors outside the community area? Yes / No
- 12- How often do you visit your neighbor at home?
- 13- Do you know you neighbors full names ? if yes, How many ?
- 14- When was the last time you had a conflict with any of the community residents?
- 15- To what extent you agree with the statement 'This village is safe and secure area' ?
- a- Totally disagree
 - b- Slightly disagree
 - c- Neutral
 - d- Slightly agree
 - e- Totally agree

3. The village founder interview template



Hello Allow me to start with thanking you for making the effort to participate in this interview taking place on June 2022.

This interview is conducted after receiving your written consent to participate and record. So I would like to start the interview now, Do you have any questions before we get started?

A. Interview questions

Warm-up question

In order to understand how the village was and still developing, I would like to address few questions regarding the process of co-production, knowing that co-production in this context means the collective involvement of the village residents to co-shape their built up environment, and enhance its quality of life; which in other technical terms is called CPO – collective private commission -

So firstly, would you please tell me more about your-self; What do you do in life ?
What is your main role in this community?

Open-ended questions

Part A –

Q1 . *Groene Mient* village was fully constructed by June 2017, as the construction date kicked off in January 2016; and *Groene Mient* association replaced the *Vormidabel Foundation* after the financial problems with *Vestia* started. Can you help me understand that a little better, and how did the initiative of *Groene Mient* village start?

Follow up questions:

What were the main motivations of developing *Groene Mient* village?

In your own words, can you tell me how do you define *Groene Mient* the association, and how do you define *Groene Mient* the village ?

Q2. What are the main values/principles that were considered at the first beginning of the development? what are the things that have been decided later on during the development process? *For example, social(homogenous community), environmental (energy efficiency schemes), ecological (nature based solutions), economic (self-reliance).* Please describe.

So I those values do align with the concept of urban eco-village, do you agree with me on that ?

Q3. How about the residents of *Groene Mient* village, are they the same as the association members? Can you please help me understand this more.

How were the current residents selected (or self-selected) to be part of this community?

Follow up question:

What attracted those residents to become part of this village?

Which determining factors did help them decide for living or choosing not to live in Groene Mient?

What could be improved to attract more people?

SQ4. How is the ownership process of a residential unit in the eco-village ?

Follow up question :

How do you sell your place if you want to move out?

Was there any similar cases since the start of the project?

Part B

In this part of the interview, I would like to discuss with you the co-production approach within *Groene Mient* village. We will discuss Who participates, and why ? How they participate, and where ?

Q5. I understand this village is spatially composed of 33 private sustainable homes, a communal building, and a communal ecological garden. Or is there more elements? can you tell me about it. In terms of stakeholders, who participated in the main project layout? and how was the selection of the experts made? Can you briefly describe. (*Municipality, community residents vs experts – architects, planners, contractors-*)

Follow up questions:

a. In terms of regular decision-making how is it divided between the community members? Who assigns those roles? Can you explain briefly how does it go? (*for instance is there hierarchy, or roles divided*)

a. Are there any regular meeting for decision making ? How often ?

b. And as a founder what are the adequate methods to make decisions and making sure this place doesn't fall into private closed groups ?

Q6. I Am interested in understanding the residents role, their scale/range of participation, and motivation behind it. Who does and who does not participate, if there is anything as such ? How many participants are involved on average in co-production activities?

Follow up questions

a. Can you identify any difference in the motivation to participate between male/females, age range?

Q8. On a scale between fully committed co-production to minimalist co-production, how do you rate the residents roles

a. The design of the housing units? (*passive receivers vs agent of change*)

- b. and in the community center construction? and what motivated namely residents to participate in the construction understanding their different capabilities of such process?
- c. what about the garden and its maintenance ?

Q9. From your perspective, was there any particular changes, from a behavioral aspect, after the community center was built by the community members?

Follow up questions

How do you see the participation behavior in collective activities is affecting the quality of life within the village?

Q10. In your opinion as a founder of this community (*and a resident*), what are the main gains that you witnessed behind this collective co-production approach, beyond the physical development of the village ? (for example equal participation, trust, building networks ...)

Q11. From your experience and active membership in this village, what are the main concerns/limitations/challenges of the co-production process that have been faced or could come up in the future? it could be in terms of time, financial, coordination, enjoyment, conflict of interest or any other reason.

Q12. Do you consider the village as a safe living environment ? can you please describe how you perceive safety.

Follow up questions:

What would like to see improved in your community?

And that brings me down to my last question,

Q13. If you are to describe *Groene Mient*, what would it be?

- a- Home
- b- A place to live
- c- My extended family
- d- All of the above
- e- Other : ...

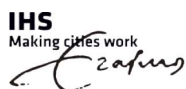
And why ?

B. Concluding remark/ question

And by now I think I asked all my questions. Did I miss any important matter that you would consider crucial for understanding how the process is taking place that you would like to share?

Thank you for your time, and now I will stop the recording.

4. The village residents interview template



Hello Allow me to start with thanking you for making the effort to participate in this interview taking place on June 2022.

This interview is conducted after receiving your written consent to participate and record. So I would like to start the interview now, Do you have any questions before we get started?

A. Interview questions

Warm-up question

In order to understand how the village was and still developing, I would like to address few questions regarding the process of co-production, knowing that co-production in this context means the involvement of you, as a village resident to co-shape your own built up environment, and to enhance its quality of life.

Firstly, would you please tell me more about your-self; What do you do in life ?
Are you from this city ? if not, where do you come from originally?

For how long have you been living in *Groene Mient*?

Follow up questions:

What attracted you to choose living here ?

And how did you decide eventually to be part of this village?

And How do you evaluate your choice today?

Have you ever considered moving out ? And why ?

Open-ended questions

Q1. I understand this village is spatially composed of 33 private sustainable homes, a communal building, and a communal ecological garden. In terms of stakeholders, can you describe who participated in the process ? (*Municipality, community residents vs experts – architects, planners, contractors-*)

Follow up questions:

- How was the selection of the experts/planners made? Can you briefly describe.

- As for the village main layout, can you please explain who were the main decision makers? - -

- Can you explain briefly how was the decision making taking place. *Was everyone involved, was everyone's opinion asked for!*

- Was there any regular meeting for decision making processes ? How often ?

Q2. Today, you are a resident and member of the *Groene Mient*, beyond that, do you play any specific role in the community ? how it was assigned to you?

Q3. Let's discuss participation :

- Do you participate in the community activities and meetings? Yes/No
- How often do you participate on an average per month ?
 - a- Once
 - b- Twice
 - c- As much as needed
 - d- When obliged
 - e- Other :
- What motivates you to participate?
- During participation how do you measure your impact on the decision making ?

Q4 On a scale between fully committed participation to minimalist involvement, how do you measure and describe your involvement in :

- a- Design of your own house. (*Full minimum none*)
- b- The community center construction. (*Full minimum none*)
- c- The communal garden and its maintenance. (*Full minimum none*)

Follow up questions:

- How did/does it make you feel?
- What were/are the biggest challenges?
- What were/are the biggest gains?
 - a. Recognition - my voice matters regardless of who I am -
 - b. Empowerment – learned something new -
 - c. Needs were met - made an impact on my surrounding -
 - d. Built social relationships - new friendships -
 - e. All of the above
 - f. Other :

Q5. Between community center construction and garden development, which one have left a stronger impact on you ? in which ? and why ?

Q6. Since you joined *Groene Mient*, your attitude towards participation in collective activities:

- a- Has increased and you feel more encouraged to participate in public activities
- b- Has decreased and you tend to avoid participation in activities
- c- Neutral, your behavior did not change
- d- Other

Q7. Let us change the subject towards more interactive approach. I know from the previous survey, you answered these questions :

- Do you plan activities with your neighbors outside the community area? Yes / No

- How often do you visit your neighbor at home?
- Do you know your neighbors full names? if yes, How many?

Now I need you, on this map, to draw lines between the houses you visit the most on a weekly basis. (*interactive tool*)

Q8. When out of town, would you ask your neighbors to take care of your indoor plants/pets? Were you ever been asked before to do such a favor? *if yes, how often? Can you describe how does it make you feel?*

Q9. Do you consider the village as a safe living environment?

- To what extent you agree with the statement '*This village is safe and secure area*'?
 - a- Totally disagree
 - b- Slightly disagree
 - c- Neutral
 - d- Slightly agree
 - e- Totally agree
- Can you please describe how you perceive safety.
- What would like to see improved in your community?

Q10. Am curious to learn about the pandemic period, how did you experience it in *Groene Mient*?

And that brings me to the last question.

Q11. If you are to describe *Groene Mient*, what would it be?

- a- Home
 - b- A place to live
 - c- My extended family
 - d- All of the above
 - e- Other : ...
- And why?

B. Concluding remark/ question

And by now I think I asked all my questions. Did I miss any important matter that you would consider crucial for understanding how the process is taking place that you would like to share?

Thank you for your time, and now I will stop the recording.

Appendix 2: Data samples

1. Code tree from *Atlas.ti*

- ▷ Documents (14)
- ▷ Codes (31)
 - ▷ C: co-production process {0-6}
 - ▷ D: co-prod Characteristics {0-4} <is a>
 - ▷ I: How {55-10} <is a>
 - ▷ I: Where {47-3} <is a>
 - ▷ I: Who {42-3} <is a>
 - ▷ D: Social outcomes {0-8} <is a>
 - ▷ I: Acceptability {54-9} <is a>
 - ▷ I: Empowerment {21-6} ~ <is a>
 - ▷ I: Partnership: Active {47-5} <is a>
 - ▷ I: Partnership: Passive {15-4} <is a>
 - ▷ I: Social interactions: Negative {16-4} <is a>
 - ▷ I: Social interactions: Positive {67-5} ~ <is a>
 - ▷ D: Challenges {0-4} ~ <is a>
 - ▷ I: Challenges: Financial {9-3} ~ <is a>
 - ▷ I: Challenges: Social {27-4} ~ <is a>
 - ▷ I: Challenges: Time {4-2} ~ <is a>
 - ▷ C: Social sustainability {0-2}
 - ▷ D: Social_equity {0-3} <is a>
 - ▷ I: Access to resources {4-2} <is a>
 - ▷ I: Recognition {34-4} <is a>
 - ▷ D: sustainability of community {0-7} <is a>
 - ▷ I: Community stability {26-2} <is a>
 - ▷ I: Participation in collective groups {22-3} <is a>
 - ▷ I: Place attachment {26-8} <is a>
 - ▷ I: Safety: Social/covid {46-5} ~ <is a>
 - ▷ I: Safety: Violence {8-1} <is a>
 - ▷ I: Social networks {25-4} <is a>

2. The new codes list and explanations

| Old code / Indicator | New code / Indicator | Brief explanation |
|--|--------------------------------|---|
| Co-production: Social outcomes - Partnership | Partnership : Active | People are actors of change |
| | Partnership : Passive | People willingly choose not to engage |
| Co-production: Social outcomes- Social interactions | Social Interactions : Negative | Avoiding the other or having a conflict with |
| | Social Interactions : Positive | on-going communicative relationship |
| Social sustainability: Sustainability of community - Safety and security | Safety and security : Social | Feeling at ease socializing even during pandemic period |
| | Safety and security : Violence | Fear of violent acts and crime. |

| New code / Dimension | New code / Indicator | Brief explanation |
|---------------------------|-----------------------|---|
| Co-production: Challenges | Challenges: Social | The diverse opinions that may lead to discontent about the tangible outcomes and fear of expression |
| | Challenges: Financial | The cost of development |
| | Challenges: Time | The duration of the process |

3. Motivation of living in *Groene Mient*



4. Scale of participation in co-production activities

Question 3. How often do you participate on an average per month?

| | | | | | |
|------|------|-------|-------------------|--------------|--|
| GR09 | | | | | |
| GR08 | | | | | |
| GR07 | | | | | " not significantly[...]I'm not a great gardener. And I enjoy the view but that's about it" |
| GR06 | | | | | |
| GR05 | | | | | |
| GR04 | | | | | |
| GR03 | | | | | |
| GR02 | | | | | " if it's something that belongs to my qualities, and capabilities." |
| GF01 | | | | | |
| Code | Once | Twice | As much as needed | When obliged | Other answers |

5. Respondents' list

| Code | Role in the community | Gender | Respondent's rofile | Sample method | Interview duration | Interview location | Consent type | Date |
|-------------|--|--------|--|--------------------|--------------------|------------------------|---------------|--------------|
| GF01 | Co-founder identified as an expert/ resident | Female | Working Physiotherapist, 54 years old and a mother of three children. | Purposive sampling | 64 min | Groene Mient, Den Haag | signed letter | 6th June 22 |
| GR02 | Resident | Male | Working Audio medical field, 45 years old, mother of one adult. | stratified | 40 min | Groene Mient, Den Haag | signed letter | 12th June 22 |
| GR03 | Resident | Male | Working energy technician, between 45-60 years old, married no children. | stratified | 40 min | Groene Mient, Den Haag | signed letter | 12th June 22 |
| GR04 | Resident | Male | Volunteering working Architect, Construction technician, 57 yrs old, living with wife and adults children. | stratified | 43 min | Groene Mient, Den Haag | signed letter | 12th June 22 |
| GR05 | Resident | Female | Working teacher, mother of two very young children, 43 yrs old. | stratified | 21 min | Groene Mient, Den Haag | signed letter | 12th June 22 |
| GR06 | Resident | Female | Volunteerily university lecturer/Reseacher, above 60 yrs old, married | stratified | 28 min | Groene Mient, Den Haag | signed letter | 12th June 22 |
| GR07 | Resident | Female | Working Police officer, 60 yrs old, mother of two, single resident. | stratified | 29 min | Rotterdam via zoom | Oral consent | 13th June 22 |
| GR08 | Resident | Female | Working School teacher, mother of two, 65 yrs old, living with husband. | stratified | 31 min | Rotterdam via zoom | Oral consent | 17th June 22 |
| GR09 | Resident | Female | Working Medical doctor, 60 yrs old, single resident | stratified | 18 min | Rotterdam via zoom | Oral consent | 21st June 22 |

6. Secondary data list

| Code | Document title | Document source | Retreived date |
|--------|---|---|----------------|
| Doc.01 | Groene Mient location, history, and description | https://www.groenemient.nl/nieuws/1350/ | 4th June 2022 |
| Doc.02 | Interview with Founder Gita Van Duizen | https://haagsehanden.nl/groene-mient-in-de-race-voor-de-haagse-architectuurprijs-nieuwe-berlagevlag-ce713fdeca10 | 17th June 2022 |
| Doc.03 | Architecture magazine report | https://www.haacs.nl/inzending-nieuwe-berlagevlag-cpo-groene-mient-architektenkombinatie-bos-hofman-i-s-m-fillieverhoeven-architecten/ | 22nd June 2022 |
| Doc.04 | Groene Mient honourable award | https://www.haacs.nl/wijnhavenkwartier-wint-architectuurprijs-nieuwe-berlagevlag-den-haag/ | 22nd June 2022 |
| Doc.05 | Groene Mient garden music concert | https://www.groenemient.nl/nieuws/vruchtenbuurt-muziekfestival/ | 22nd June 2022 |
| Doc.06 | Groene Mient experimental energy grid | https://www.groenemient.nl/nieuws/intentieverklaring-voor-een-experimenteel-energienet-groene-mient/ | 22nd June 2022 |
| Doc.07 | I build Den Haag | https://www.ikbouwindenhaag.nl/aanbod/aanbod-kavels-den-haag/mient.htm | 22nd June 2022 |
| Doc.08 | Building community | https://buildingcommunity.nl/ho-zorg-je-dat-het-lukt/ho-lang-duurt-zon-proces/ | 22nd June 2022 |

7. Secondary data summary

| Code | Document title | Document content summary |
|--------|---|---|
| Doc.01 | Groene Mient location, history, and description | Groene Mient is a socio-ecological intentional community, developed through a CPO (collective private commissioning) model by the community members. It is identified as the first CPO project of such scale developed in the Hague. The 33 energy-neutral private houses are located in a quiet mixed used middle class residential neighbourhood, the Vruchtenbuurt. The neighbourhood is highly connected to the city centre via public transport, and within 12 to 15 cycling distance estimated through google maps, and a shorter distance to the beach. The project resides on a plot of 7600 m2 among which a central area of 3500 m2 dedicated for a communal garden designed and developed by the residents based on permaculture landscape vision, guided by Puur permacultuur firm. Within these spaces there is a community building 'Ei' meaning the Egg inspired from its shape. The houses have different sizes which is related to the household personal affordability. |
| Doc.02 | Interview with Founder Gita Van Duizen | Groene Mient, a green village in the big city. Every member was able to choose where and how they want to live. The common mindset among all members is sustainability, greenery, and social cohesion. They was a freedom of choice. Because it is a CPO project it remained affordable to its members. Energy neutral houses allows the residents to save electricity bills with the use of the solar panels. The communal garden space : every house provided a peace of their land to create this outdoor oasis. Residents are there for each other when needed (in case of sickness, or needed help during a stormy weather) |
| Doc.03 | Architecture magazine report | Village layout is costumized based on the residents socio-ecological values : open central communal garden left ungated, and the houses orientation towards the south that goes against the municipality building regulations. The residents want to capture as much as possible from the sun. The village is realized in a CPO scheme. The physical outcome translated the personal wishes of the individuals in terms of volumes and shapes. The material selected were chosen by the residents in coordination with the architects. |
| Doc.04 | Groene Mient honourable award | The sustainable housing project Groene Mient by Architectenkombinatie Bos Hofman in collaboration with FilliéVerhoeven Architects receives an honourable mention, by Nieuwe Berlagevlag 2017 architecture prize in The Hague. The jury highlighted the high quality of living acheived by the pure effort of the residents, describing it as an unprecented. A strong emphasis was put on the un-gated communal garden that goes beyond the typical Dutch spatial quality. It reflected cohesion and harmony despite the differents wishes of the 33 houses. |
| Doc.05 | Groene Mient garden music concert | During the pandemic period, Groene Mient garden was an open platform welcoming the residents and local neighbors to enjoy the Piano concert music played by one of Groene Mient's residents. |
| Doc.06 | Groene Mient experimental energy grid | The Groene Mient association has the ambition to form a cooperative that supplies its members with energy as a 'large consumer'. They collaborated with Eneco Smart Energy, Stedin Netwerkbeheer, Joulz Diensten and the Municipality of The Hague – on 12 September during the official opening of the Groene Mient social ecological housing project. This letter of intent concerns the preparation of a project plan aimed at an experimental energy grid (a virtual decentralised electricity grid). Together with energy company Eneco and grid law operator Stedin, Groene Mient will investigate whether and how all energy within Groene Mient can be generated, stored and consumed. |
| Doc.07 | I build Den Haag | Building in the Vruchtenbuurt, one of the most popular districts of The Hague, is a great opportunity. Along the Mient – on the site of Maris College – about 37 lots are available. Modern living in an attractive 30s neighborhood. |

| | | |
|----------------------|---------------------------|---|
| <p>Doc.08</p> | <p>Building community</p> | <p>A CPO process roughly consists of 3 phases:</p> <p>Phase 1: Initiative and feasibility phase : dream turned into a feasible plan through living dream workshops, excursions and knowledge transfer. At the end of this phase, an architect is chosen and a project plan is on the table that forms the foundation of your community.</p> <p>Phase 2: Design and permit phase : The CPO guidance is aimed at aligning the plan development and designs as closely as possible with the wishes of the residents. Furthermore, the support in the role of client (good management on time – money – quality), the coordination with the municipality and management of various professional parties such as architect, installer and contractor (if a construction team is chosen) are an important part.</p> <p>Phase 3: Construction and delivery : The construction period is the ideal time to choose floors, kitchens and curtains! Construction usually takes 1 to 1.5 years.</p> |
|----------------------|---------------------------|---|

8. Summary of findings on co-production

| Independent Variable | Sub-variables | Indicators | Findings |
|-----------------------|----------------------------------|--|--|
| Co-production process | Characteristics of co-production | Who are the co-producers? | The main co-producers are : residents, experts, and local government. |
| | | | The residents are self-selected people and have full control on choosing the plot, the experts, and the full realization of the project following their own vision and values. They come from different part of the the Netherlands : Groningen, Tilburg, Zeeland, and Den Haag. Their age range varies between 35 up to 75. There are families with young children, single adults, retired couples. Their economic status is within middle to high income groups, which is related to the increased land prices imposed by the municipality and inaccessibility to housing loans after the Vestia financial crisis. |
| | | | The local government is The Hague Municipality, identified as facilitators and land allocator which is sold to The interested group by an auction regulated by The municipality. |
| | | | The experts identified as facilitators, mentors, trainers and advisors. Architects : Architectencombinatie Bos Hofman in collaboration with FilliéVerhoeven Architecten. Consultant : Building community - Katja van der Valk Contractor : Sprangers Bouwbedrijf and other technical supervisors. Landscape supervisor: Puur permacultuur |
| | | | How they co-produce? |
| | | Decision-making approach is by consent or sociocracy. Prepared in dialogue and discussion until they reached the best solution together as a group. Time is taken to listen to and learn from each other. In this way of decision-making there is room for creativity, individual views and everyone is equal. | |
| | | The scale of engagement in co-production activities was related to the individuals motivation, and easiness of involvement taking into consideration their own capacity and availability. It is connected with the type of activity. | |
| | | Co-production activities that took place since the initiation of the project: Village main layout, selecting the architect and contractors. Garden concept layout, its development and on-going maintenance. Community building and its construction by the community members. Their house design with the architects. Social events and coffee serving. Financial and technical advisory. | |
| | | Currently the village members have the garden days every other weeks. Social activities in the Ei that welcomes people from outside the community sometimes. Internal regular meeting. | |
| | | Partnerships | Two main types of partnerships are identified. <i>Active partnerships</i> where residents are identified as actors of change; experts performed the role of advisors and facilitators. The members were able to re-design the municipality's proposed layout so that it fits their own aspiration of living together as a community. <i>Passive partnerships</i> where residents are passive recipients, and it related to personal motivation or capacity to take actions. |

| | | | |
|---------------------------------------|------------------------|----------------------------|---|
| Co- production process | Social outcomes | Acceptability | <p>On the socio-cultural level, the members designed their main community layout based on their own aspirations and values : socio-ecology. They left their community garden un-gated since they refused to be looked at as closed gated community. The houses designed were also altered based on each member's actual needs and financial capabilities as well.</p> <hr/> <p>On the financial level, the village by far is modeled based on the household's affordability budget. The household choose among each other on which side of the plot they wanted their houses. The three blocks on the plot were designed accordingly.</p> |
| | | Empowerment | <p>As a benefit from the engagement in co-production activities the communities members learned new skills such as gardening, construction, sustainability design norms. Also they are building a social skills learning to live together as a community.</p> |
| | | Social interactions | <p>The social interactions have built different degrees of connections. The findings identified 5 types : >Conflict / lack of contact: the respondents identified those conflict as family quarrels. >Relationships: some have grew towards a strong friendship, while others remains formal connection between neighbors or merely based on a need for assistance. >Social activities: random ones within the community such as coffee in the garden, and other activities outside the community such as daily walks, or going to the beach. >Reciprocity: the residents count on each other and do not hesitate to request assistance, whether it was about taking care of the house when out of the city, or requesting eggs for a cooking recipe. >Trust: It was clear among the respondent that there is a certain level of shared trust. Indicator of that was having access to others places during their absence to take care of the house, plants, or even their pets. Other reponses showed that there is a lack of trust on the social level. Some people choose to remain silent afraid of reaching a conflict with the other considering their voice does not matter.</p> |
| | Challenges | Social | <p>The social challenges were mostly described as family quarrels that are related to decision-making discussions. Because living together is an asset, yet a challenge at the same time. The discontent from certain final decision when people made compromises over their personal desires was identified as a social challenge. The community building (<i>Ei</i>) although designed collaboratively, some responded expressed wishing it had more windows. And that was determined with respect of the nearby houses' privacy; they do not wish to be looked at. Another aspect is related to the cost of the <i>Ei</i>. <i>G03_Resident</i> wished not spending a huge amount on such element. <i>G06_Resident</i> would have preferred having more trees in the garden instead of the <i>Ei</i>.</p> |
| | | Financial | <p><i>Groene Mient</i> project is self financed by the community members themselves. It is a challenge that have not allowed for groups of low-middle income to join the community. Knowing that this particular situation is related to external factors merely the <i>Vestia</i> financial crisis that discouraged private banks to provide loans for housing associations. Another aspect was related to the choice of the contractor with less knowledge about sustainable construction. The economy of scale is a positive point that kicked against the financial challenges. The residents were able to model their housing design based on their own personal capabilities.</p> |
| | | Time | <p>Co-production needs a long breath and patience, and time can be a challenge for decision-making processes, the <i>founder</i> explains. <i>G03_Resident</i> considered that they could have done better, as a community, if they had more time.</p> |

9. Summary of findings on social sustainability

| Dependent Variable | Sub-variables | Indicators | Findings |
|-----------------------|---------------------------------|--|--|
| Social sustainability | Social equity | Recognition | All the respondents confirmed having access to the decision-making processes. They have impacts on the full aspect of the village from the layout itself, location of building blocks, the community building, and even the garden design and selection of plants. |
| | | Access to resources | The village is located in the middle of an existing residential neighbourhood, connected to the city via public transport. The village is within 12 to 15 cycling distance estimated through google maps, and a shorter distance to the Hague beach. All resident have access to the garden and the Ei, identified as communal spaces. The roofs, which were originally identified as private property, they became used as common recourses to provide an adequate localization of solar panels thus more energy efficiency for the benefit of the entire community specially those whose houses are in the shade. |
| | Sustainability of the community | Social networks within the community | The web of connections created within the community have led to a certain social networks. Each respondent showed their network of communication within the village on a weekly basis. The information were extracted from an interactive map tool where respondents drew how they move around. Certain moves were for socializing within the community, others were related to a certain assistance needed mostly for technical help in the house. <i>G05_Resident</i> linked her social connections to her kids who regularly stop by the other families to play with their children. Some networks showed close relationships were residents plan activities together even outside the village, and even to have family visits to their summer house in a different region of the Netherlands. While others kept their network within somewhat just neighbouring kind of connections. |
| | | Participation in collective activities | Some of the members participate together in social (celebration, christmas) and sports activity (walking, going to the beach) beyond their community duties for gardening, and regular meetings. Families with young children have somewhat regular meetings to have the youngsters playing together, even during the pandemic period because they did not have the fear of the other, they knew each other. They organize tours and activities in the communal building that welcomes individuals from outside the community to explain the atmosphere and process of their project. Few members are part of a car pooling initiative -Deal-Auto- where they share cars with other families, and this activity goes beyond the community vicinity, the sharing is with other individuals from the nearby neighbourhood. While other members expressed only engaging in activities that are related to the community such as gardening activities or other maintenance requirements. |
| | | Place attachment | Based on the answer to question of ' <i>considering moving out of the community</i> ' all of the respondent noded with a No. Reasons given were somewhat common among all respondents " <i>i like it here, it's my home, I am happy to be here</i> " |
| | | Community stability | Most of the resident have joined the community since the initiative took place, in 2013. Only one new comer was identified replacing an old owner who left for family reunion purposes. They evaluated their choice of living in <i>Groene Mient</i> as a positive choice with no regrets. Their evaluation showed high contentment with terms such as 'good, better, happy, fantastic' among others. |
| | | Safety and security | Three themes were identified : Social safety during the pandemic perdio, and safety from violence in general. The stolen bikes incident was referred to the city and not the neighborhood. No violence or fear of violence was expressed during the interviews. The respondent mentioned leaving their backdoor open Respondent explained the level of safety they felt during the pandemic unlike the rest of the world. They knew each other, and it felt safe to communicate. As a community they felt safe doing their garden day in a distance and outdoor gymnastic classes. Groene Mient resident feel safe sharing their dreams, concerns and worries. They do aspect the others' opinion even if it does not fit fully their personal desires. wall to wall neighbours removed speration between them. G02 and her neighbor created a water bed where they share together in front of their adjacent terraces. Other neighbors only added small plants as limit seperation between their adjacent first floor balconies. |

10. Summaries of observation visits

Observation visit 6th June 2022

Whit Monday, official holiday, and a rainy day.

First site visit for exploration and developing first contact with the community.

The village is very well connected to its surrounding.

The project stands out with its modern look from its urban entourage.

A calm residential neighborhood close to a large green area (a cemetery)

The project is composed of 33 residential units, a community building, and a large communal garden.

The heights are up to 3 floors maximum, some are connected directly via metallic staircase directly from the garden. This particular design on the west side of the project is a personal intervention on the design between the neighbors of both residences.

The connected balconies do not have any visual obstructions between them.

The communal garden is fully accessible to all the houses.

The garden is almost fully planted on both side with fruity trees and other aromatic plants.

The garden has two water collection points called 'wadi'; idea suggestion came from one of the community members.

The community center is located on the south west corner of the village, and it has an egg shape. In front of it there is an open green space in with wooden tables and benches.

Everyone seems to salute the founder while touring in the garden and waving from their windows.

One of the neighbors stopped the founder and thanked her for the potato heads she gave them two days ago, so they can plant it in the garden.

Observation visit 12th June 2022, Garden day

The visit day was on a weekend, a Sunday and the garden day for the village

The garden day is a monthly occasion to maintain the garden plants and grass, collectively, and an opportunity for the community to meet together. The garden day started at 9.30 am and it was a sunny day, clear skies

The program of the day is pre-planned by the garden group which is constituted of four women from the community

No specific roles per individual mentioned in the sheet shared with me during the day visit. Just list of tasks to do.

Lot of people from the community including young kids who were mostly boys.

Some people were already out of town and did not join.

The coffee meetings were regularly taking place every 45 minutes one person would ring a bell as an indicator to take a break and join, if they wanted. Not all people joined all together, some preferred to stay working non-stop.

It was noticeable that some families stayed on their side of the garden and never engaged with the community through the whole, although they did a part of the gardening activities close to their residence units.

The lunch food was also shared among all present people. There were several types of plates and sweets served prepared by certain members of the community. People sat in small circles, and communication among the groups varied from very communicative towards no communication at all.

The architect and the 2nd co-founder of the village, with whom I had a small talk during the morning period, although he prepared sweets from the day, he did not stay from the lunch.

It was noticeable that the children were most of the day playing outdoors all together. And communicative with the adults who seemed to know their names, and asking them about their finals at the school.

Community members were surprised to discuss the social aspect of their community, and they expressed that most of the previous researches interrogated the ecological and environmental aspect of the village without any focus on the social approach.

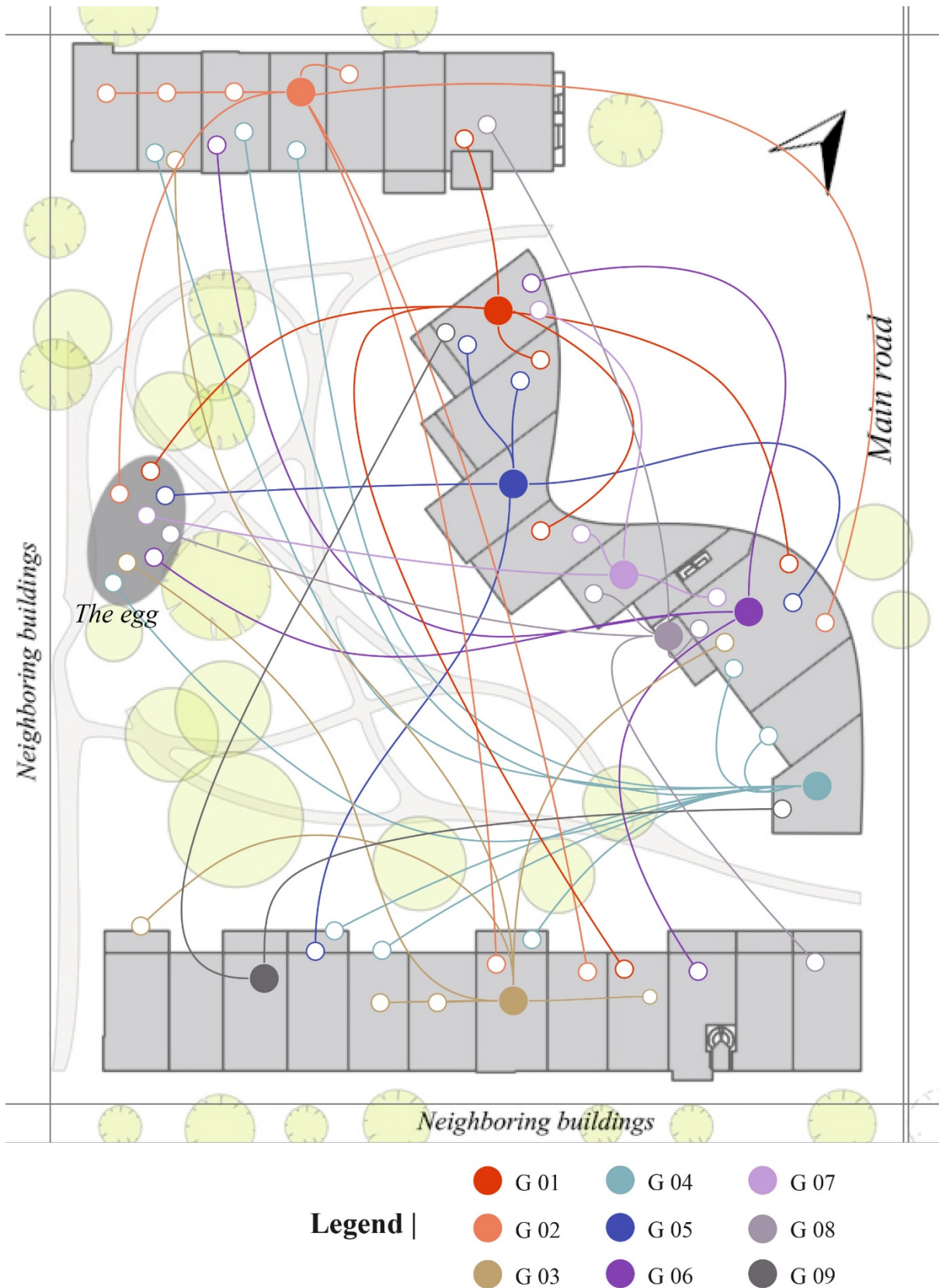
11. Place attachment results

Question 11. If you are to describe Groene Mient what would it be?

| Code | a- Home | b- Place to live | c- Extended Family | Quotations from interviews |
|------|---------|------------------|--------------------|--|
| GF01 | 1 | 1 | | <i>"It's not just home or not just a place to live. It's certainly not my extended family. I think it is. It is a totally worthwhile living lab"</i> |
| GR02 | 1 | 1 | | <i>"more than that , it is a quality of life"</i> |
| GR03 | 1 | 1 | | <i>"I don't like the area in general, but I like it here"</i> |
| GR04 | 1 | 1 | | <i>"a good place to live it's very natural, there is a community you can see and connect with them on a daily basis."</i> |
| GR05 | 1 | 1 | 1 | <i>"Because you can rely on one another; you can speak about things bothering you, and we share a lot. We built all this together"</i> |
| GR06 | 1 | 1 | | <i>"you know each other quite well. Of course, not everybody who has to be your friend. Yeah. But you know, from every adult person or for kids, how they will react to something, you know each other."</i> |
| GR07 | 1 | 1 | | <i>"I call it home yeah, and I find myself in such a spoiled position. Gosh, I'm so lucky to be living here."</i> |
| GR08 | 1 | 1 | 1 | <i>"its like in bad and good times, we are with each then we form somehow a family"</i> |
| GR09 | 1 | 1 | | <i>"Peacefull"</i> |

Source: Author (July-2022)

12. Interactive map, social networks.



Source: Author (July-2022)

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