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**Generating person-place bonding in grassroots
innovations: The case study of Groene Mient, The
Hague, The Netherlands**

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List of Acronyms

GM	Groene Mient
GM-	Groene Mient resident
GI	Grassroots innovations
PO	Participant observation
SOS	Sterk op Stroom
WADI	Water drainage through filtration

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Abstract

The climate crisis is weakening humanity's ties with its meaningful places. Rapid urbanization, mobility, migration and climate change are increasingly challenging these place meanings that contribute to human social-ecological wellbeing. Thus, place has a central importance in human experience. Understanding person-place bonding can provide clues about how and why people become attached or detached to places valuable to them in the urban landscape. In the Netherlands, grassroots innovations offer some guidance into new ways of knowing, living and reviving those person-place attachments by implementing alternate urban futures. Although the reasons behind person-place bonding, called place attachment, have been explored in various urban contexts, the implications of place attachment within grassroots innovations remains unexplored. This paper aims to explain how place attachment occurs in grassroots innovations in the Netherlands. By drawing on the place attachment tripartite (person, psychological, process) organizing framework by Scannell and Gifford (2010), this paper develops a new conceptual model outlining four mutually inclusive processes that contribute to person-place bonding in grassroots innovations in the Netherlands. The paper contends that the four processes of enabling participation, spaces and strategies, creation and communication of vision and trust building generate place attachment in grassroots innovation in the Netherlands. With this conceptual lens, the research analyses the case study of Groene Mient in The Hague, a social-ecological housing project. Through a qualitative case study research, the paper contends that residents developed a collective, psychological attachment to the place that shaped their place identity as a learning community through enabling participation, spaces and strategies, creation and communication of vision and trust building. As such, the four processes are interconnected and influence each other.

Relevance to Development Studies

Grassroots innovations are increasingly being recognized as incubators for generating place-specific bottom-up solutions to solve urban sustainability challenges. However, much less is known about person-place bonding or place attachment within grassroots innovations. A place is central to human experience, but this bonding between people and their valuable places has been damaged due to climate change. Grassroots innovations hold the potential promise of consolidating fragile person-place ties. This research paper attempts to explain the processes that contribute to place attachment in grassroots innovations. It is relevant to development studies as the research could provide useful clues on the governance of grassroots innovations for broader societal transitions by strengthening people's relations with places in times of climate crisis, rapid urbanization, mobility and migration.

Keywords

Grassroots innovations, grassroots initiatives, place attachment, sustainable development, sustainability transitions, urban sustainability transitions.

Chapter 1 : Introduction

What this Study is all About

1.1 Background, justification and problem statement

Humanity's actions have destabilized several planetary boundaries that define a "safe operating space" on Earth, increasing the likelihood of irreversible environmental change (Rockström et al. 2009; Steffen et al., 2015; Stockholm Resilience Centre, 2015). Multiple, interrelated crisis of climate, migration, biodiversity, food, land-use change, energy, are evidently playing out at the global and local scales (Leach et al., 2012), much of it driven by overconsumption, rising population, urbanization, globalization (Scoones, Newell and Leach, 2015, p. 5). The threats related to the Anthropocene epoch have triggered growing calls for strengthening "earth system governance" by engaging multiple actors at global and local levels (Biermann, 2007). But where must one begin to start searching for plausible solutions to these environmental conundrums?

Cities and urban areas are implicated in these grand, global challenges and, therefore, a starting point. One fact is clear: humanity's future is unequivocally urban, as the world will stride through the process of rapid urbanization over the next few decades, from 56% in 2021 to 68% in 2050 (UN Habitat, 2022), with urban areas attracting most of the projected future population growth (UN Desa, 2018). Thus, the centrality of cities as the epicenter of socio-ecological challenges, but also the location for experimenting with innovations, is being championed (Wolfram and Frantzeskaki, 2016, as cited in Eneqvist and Karvonen, 2021, p. 183; Loorbach and Shiroiyama, 2016).

While cities are being seen as innovation sites to address sustainability challenges (Evans, Karvonen and Raven, 2016), most of the solutions are increasingly market driven socio-environmental innovations (Peck, Theodore and Brenner, 2009) that are unable to deal with the scale of environmental degradation (Leach et., 2012; Castan Broto, 2015). Such sustainability transitions, as a result, need to emanate from "alternative ontologies" and "spatial imaginaries" rooting for socio-technical change within cities (Longhurst, 2015, as cited in Wolfram, 2018, p. 12).

Grassroots innovations are a case in point. There is a growing interest in unpacking the implications of grassroots innovations for urban sustainability transitions, in which a combination of local actors and civil society participate collectively in creation of sustainability innovations, or local niches (Seyfang and Longhurst, 2013) that are spatially embedded (Bulkeley, Broto and Edwards, 2014; Baker and Mehmood, 2015, as cited in Wolfram, 2018, p. 12; Seyfang and Smith, 2007) and often challenge existing socio-technical regimes (ibid., 2007). The research situates grassroots innovation in the context of urban sustainability transitions. Sustainability transitions are long-term processes that seek to

"transform path-dependant structures, practices and cultures that result in transformations of a system in various fields such as technology, economy, actors involved, science, production patterns, consumer preferences, institutions [...]" (Paredis, 2013, as cited in Van Poeck, Ostman and Block, 2020).

Over the years, there has been an increasing focus on community-led approaches to shaping a city that are motivated by "self-led, engaged urbanism" (Van Hoose and Savini, 2017), Various terms have been used to describe such movements, like self-organization, pop-up, grassroots or do-it-yourself urbanism (ibid., 2017). Among these, grassroots is the best conceptualized. This paper aligns with the working definition given by Seyfang and

Smith (2007)¹ that acknowledges the relevance of bottom-up innovations in addressing sustainability challenges. Therefore, this paper positions grassroots innovations as a form of do-it-yourself urbanism, in which small groups of individuals, who become concerned with spatial issues in their living environment, organize themselves at the local level and demand modifications to their urban spaces (Van Hoose and Savini, 2017).

It is argued that grassroots innovations provide contextual, socially inclusive solutions to sustainability issues (Smith, Fressoli and Thomas, 2014, p. 114) that privilege local communities' beliefs and value systems over profit (Seyfang and Smith, 2007, as cited in Raj et al., 2022, p. 375). Bottom-up innovations aim to empower local communities in order to transform local circumstances (Hermans, Roep and Klerkx, 2016, p. 285), generate multiple forms of community-based knowledge (Smith and Seyfang, 2013, p. 2), "cultivate plural notions of sustainable development" (Smith et al., 2016) and seek to evaluate how such innovative activity "weaves in and out of people's lives" (ibid., p. 2). More broadly, at the core, grassroots innovations attempt to address local needs, while carrying the "potential to bring about societal change from below" (Leach et al., 2012; Smith et al., 2014). According to Brown et al. (2012, p. 1620), sustainability transitions "does not work without (local) places because those places offer the milieu, and affective attachments, through which generic sense of resilience and relatedness may be most easily imagined and held together".

Therefore, it's logical to situate them within a geographical setting as they are spatially embedded sites (Frantzskaki, Steenbergen and Stedman, 2018) that hold different forms of knowledge and experiences special to the place (Smith and Seyfang, 2013, p. 2; Smith et al., 2016). Place is, thus, central to our understanding of grassroots innovations as they are arguably "necessary for reasonable quality of community life and psychological wellbeing" (Relph, 1993, as cited in Seamon, 1993, p. 25). Scholars from varied disciplines, such as geography, sociology (Gieseeking et al., 2014) and anthropology (Tuan, 1974), have debated the essentiality of the role of "place" in human experience.

Consequently, an understanding of person-place bonding (Low and Altman, 1992), conceptualized as place attachment (Scannell and Gifford, 2010) in this paper, is very relevant to development studies. For example, Fullilove (1996) examines the emotional bonding to place in the face of distress due to relocation, whereas scholars like Billig (2006) probe into environmental perception in a war zone. Others like Stedman (2002) seek to explain environmental risk perception as well as theories behind place protective attitudes. In fact, studying place attachment assumes greater salience in the face of climate crisis, rapid urbanization, global mobility and migration, all of which challenge these notions of place and the meanings and perceptions that people hold of their environment that contribute to their social-ecological wellbeing. But climate change is driving a wedge between the already frayed person-place bonding (Scannell and Gifford, 2010). While not a panacea, grassroots innovations attempt to revive those frayed person-place ties through alternate ways of knowing, living together and potentially influencing sustainability transitions.

But the question is: How does place attachment occur in grassroots innovations?

What are the processes that contribute to place attachment in grassroots innovations? The theoretical grounding of this research paper draws from the literature on place and place attachment. By drawing from the place attachment tripartite organizing model by Scannell and Gifford (2010), the author's own contribution to this field is the creation of a conceptual framework that highlights four processes contributing to place attachment in grassroots innovations in the Netherlands. The four processes, the paper contends, of enabling participation, spaces and strategies, creation and communication of vision and trust building do generate place attachment that manifest through collective, psychological bonds among

¹ "Networks of activists and organisations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved".

residents in grassroots innovations. One salient finding is that learning-by-doing through participation supported the creation of a place identity for residents as they formed a collective, cognitive attachment with Groene Mient.

1.2 Research question

Therefore, the **main research question is this:** How does place attachment occur in grassroots innovations in The Netherlands?

Sub question 1: How does enabling participation contribute to place attachment in grassroots innovations?

Sub question 2: How are spaces and strategies implicated in the forms of place attachments that occur in grassroots innovations?

Sub question 3: Why is creation and communication of vision crucial in generating place attachment in grassroots innovations?

Sub question 4: How does trust building create conditions for place attachment in grassroots innovations?

The research paper is divided into six sections. In chapter 2, I will provide the literature review. In chapter 3, I will highlight the research design, methodology, positionality, scope and limitations. In chapter 4, I will present the case study context. Chapter 5 will present the results of the case study research. Finally, chapter 6, will be discussion and conclusion.

Chapter 2 : Literature review

2.1 What is place attachment?

Up until the late 1970s, social scientists, barring geographers, did not consider place as relevant for analysis and the studies related to communities and towns mostly carried tangential accounts of people-place bonding (Low and Altman, 1992, p. 2). Earlier work published in environmental behaviour studies also mostly highlighted the psychological aspects of human experiences, such as people's cognition, knowledge, beliefs, and understanding about the varied aspects of environment (ibid., p.2). Over time, interest in place grew among sociologists studying environmental meanings and anthropologists unpacking places that are loaded with affect, such as homes, childhood environments etc, which also boosted the salience of human experience and emotions linked with a place (ibid., p. 2). Indeed, there has been a spike in interest among scholars studying people-place relations, ranging from fields as diverse as environmental psychology, demography, human geography, sociology, gerontology, cultural anthropology, ecology, and economics, among many others (Lewicka, 2011, p. 207).

However, place occupies a prominent position in the field of Geography, but also in Sociology, Planning, Anthropology, Psychology etc. For a while now, humanistic geographers (Relph, 1993; Tuan, 1974), sociologists (Gieryn, 2000; Stedman, 1999), and urban planners (Friedman, 2010) have attempted to unpack and clarify the definition of place, place attachment, sense of place and its associated constituents. To them it was clear that place has an integral role to play in human experiences. While a wealth of knowledge has been created in the last 50 years, the overarching question remains: do we now know better about the reasons behind people forming intimate bonds and attachments with places?

Understanding what place means to various authors over the years could be an entry point. What is place then? To Friedman (2010, p. 152), the ubiquity of the term and the various ways in which it has been applied in different contexts makes it difficult to operationalize it. However, Tuan (1979, p. 3) clearly delineates place from space because place is linked with security and space means freedom for "we are attached to the one and long for the other". Space is abstract in nature but becomes a place when people assign meanings, feelings, values, memories to a particular geographic location (Cresswell, 2004; Gieryn, 2000; Low and Altman, 1999; Tuan, 1979). Both space and place are very basic elements of everyday life "we take for granted" (Tuan, 1979, p. 3) and that "attending to place means attending to one's immediate reality of daily life" (Relph, 1993, p. 26).

For Gieryn (2000, p. 464), a place is an assemblage of "people, practices, objects and representations" inside a space. Despite its fixed material form, a place can be moulded and is "flexible, malleable in the hands of different people, cultures and inevitably contested" (ibid., 465). Echoing similar views, Friedman (2010, p. 152) emphasized on the malleability aspect of place, stating that a "place is transformed by those who live in the urban". As Cresswell (2004) puts it simply and succinctly: a space is a place that people are attached to in various ways and that it's a "meaningful location".

In the same vein, sense of place is very often closely connected to emotions and affect-based bonds between a person and a place (Williams, Patterson, Roggenbuck and Watson, 1992, p. 31), which has been conceptualized as "topophilia" (Tuan, 1974, p. 4) and represents "meanings attached to a spatial setting by an individual or a group" (Stedman, 1999, p. 768). Sense of place, which reflects the meaning and attachment of people towards their own communities, can also be one of the indicators to measure community sustainability (ibid., p. 765). "Affect, emotion and feelings", as Low and Altman (1992, p.4) describe, are central

tenets of place attachment. The term attachment implies affect, while place assigns centrality to the physical settings to which people are attached to (ibid., p. 5). Because people assign meanings to a place through “memory, identity, utopia” (Gieryn, 2000, p. 465), we are attached not just to the place itself but also the multiple meanings people carry about the place (Stedman, 2002, as cited in Frantzeskaki, Steenbergen and Stedman, 2018, p. 3). Attachment to places, as Low (1992) argued, is however not limited to only emotional and cognitive experiences and also consists of the various “cultural beliefs and practices that connect people to place”.

There is also no homogenous definition of sense of place and place attachment, and the two concepts are often used interchangeably. One reason is that scholars have been divided over its definitions, name, or even methodological approach that helps to make sense of place attachment as a concept (Hidalgo and Hernandez, 2001, p. 273). Even though a wealth of knowledge has been created over the last few decades, the ambiguity around relations between place-related concepts have been flagged by some (Lewicka, 2011, p. 208).

Various attempts have been made to understand sense of place leading to multiple interpretations. Jorgensen and Stedman (2001) have situated sense of place within research on attitudes while others have subsumed place attachment, place identity, place dependence (ibid., 2001) and place meanings (Kudryavstev, Stedman and Krasny, 2012) within sense of place as sub-components.

Among all the multitude of definitions of place attachment conceptualized over the years, researchers mostly associate the bonding between people with their meaningful places as place attachment (Giuliani, 2003; Low and Altman, 1992). Humanistic geographers (Relph, 1993; Tuan, 1974, 1979) posit that sense of place is based in affect-based bonds between people and their meaningful places, while others, such as Hay (1998) speaks of “insider status” and rootedness in a place as an indicator of place attachment. Scholars like Woldoff (2002) narrow down on the social features of place attachment, while Stokols and Shumaker (1981) choose to focus on physical features, and some combine both social and physical aspects (Riger and Lavrakas, 1981).

Stokols and Shumaker (1981) have also theorized place dependence, as a feature of place attachment, as a type of attachment that satisfies fundamental human needs and goals. Another view offered by Proshansky (1978, p. 155) is place identity which refers to “those dimensions of the self that define an individual’s personal identity in connection with the physical environment [...]” In this paper, we specifically use place attachment, not sense of place, as our working concept because while negative bonds can also be related to places, “attachment is usually defined in positive terms” (Scannell and Gifford, 2010, p. 3).

The paper asserts that place matters. By strengthening people’s connection with their meaningful places, one can enhance urban resilience in the face of environmental problems. It can create and consolidate new community relations with place and through which new meanings and attachments can be generated.

Chapter 3 : Research design, methodology, positionality, scope and limitations

3.1 Research design descriptions and methods

This research paper is a qualitative, explanatory and single-case study research (Groene Mient, The Hague) that uses primary and secondary data collection methods. An explanatory methodology has been applied to investigate the single-case study, especially when the researcher seeks to ask “how” and “why” questions to explain a current circumstance that makes the research more relevant (Yin, 2014, p. 4). The primary reason for selecting case study research is to delve in-depth into the issue in question and understand an empirical, real-world case which has “contextual conditions pertinent to the case” (Yin, 2018, pp. 45-46). Ultimately, the research paper asks: how does place attachment occur in grassroots innovations.

3.2 Data collection methods

The main focus of this research are the residents of grassroots innovation Groene Mient. The data collection period was September 5th till November 26th, 2022. To extract primary data, a mix-method data collection approach was employed. An exploratory survey was first handed out to residents. On the basis of the answers, the research questions were framed. Following this, 10 in-depth semi-structured interviews of residents and experts were conducted. The researcher also conducted participant observation on the field. For secondary data collection, policy documents of Den Haag municipality and homepage of Groene Mient were used for context setting and data triangulation purposes (see appendix 9).

Before the interview guide preparation, basic yes or no questions were asked to the key informant who has been involved in project from the start. This primary objective was to explore if the activities in the case study had ingredients that aligned with the conceptual framework. Following this, an interview guide was prepared according to themes linked to the theory to give some structure to the course of the interview (Kvale, 2009, p. 130). The idea was to maintain a balance between an exhaustive and a minimalistic interview guide that would give participants enough space to share spontaneous perspectives (King, 2019, p. 64).

An exploratory online survey and semi-structured interview questions were part of the interview guide. One of the key informants offered the researcher an option of participating in garden days to see the community in action. The researcher agreed and the data was purposefully used to triangulate information given by respondents during the interviews. All the data collection was conducted in English, but in the survey, for example, every question was followed by a Dutch translation of the text.

3.2.1 Survey

The exploratory, online survey (see appendix 2a) was primarily designed to obtain basic information on demographic profile of residents, their profession, learning and participation levels in community activities and resident’s overall perception of their place attachment to Groene Mient. Through the survey, the researcher hoped to cast a wider net to capture all 33 households to improve its representativeness and harvest fact-based, countable and specific data relating to research question. However, only 12 responses could be gathered, due

to time limitations. Eventually, though, the survey information helped in framing questions for the semi-structured interviews that were better aligned with conceptual framework.

3.2.2 Sampling

As is widely proposed in qualitative studies, the researcher used the diversity criterion to harvest a multitude of experiences and viewpoints to facilitate a better understanding of varied but meaningful positions held by respondents. For interviews, snowball sampling method was employed to harvest varied knowledge and perspectives.

A total of 10 semi-structured interviews were conducted from 5th September to 26th November 2022, out of which nine were Groene Mient residents and one a CPO expert. The researcher also had a few conversations with some residents briefly during garden day participant observation. The purpose was two-fold: to attain maximum diversity of views and representation of people from within the community and experts involved with the project. Among the selected interviewees, most belong to white ethnicity and Dutch, and only two out of them had a mixed race.

Throughout the interviews, key informants facilitated and supported the research process. Key informant interviews help to cull out rich, in-depth information from selected participants knowledgeable on specific topics (Elmendorf and Luloff, 2006, p. 54). They helped the researcher with access to residents with information critical to the research and who would be otherwise less accessible. The first key informant provided the crucial contextual background to the case study as well as access to other respondents who, at times, held contrarian views (Yin, 2018, p. 162).

But to gain approval to conduct further interviews, the researcher had to build trust and legitimacy with the key informant (**see appendix 4 on credibility-approachability framework**). Therefore, a detailed overview of the research plan, objectives, methods, consent form, and commitments needed from the respondents was discussed with the key informant verbally but also in written over email (King, 2019, p. 59).

3.2.3 Participant observation

Participant observation was used to collect and triangulate data and a way to increase internal validity. It means to involve oneself in the study setting as an observer and a participant (Kawulich, 2012). According to Musante and DeWalt (2010, p. 1), participant observation is a technique in which a researcher embeds themselves into daily lives, activities, interactions of a group of people in order to “learn explicit and tacit aspects of their life and culture”. The method is used to enhance the quality of the data collected and quality of interpretation, and, thus, is a useful tool for data collection and analysis (ibid., p. 10).

On two occasions, the researcher participated in garden days at Groene Mient (October-November) to compare the spoken words of the study participants in interviews versus the reality, to observe the regular and the irregular activities (Musante and DeWalt, 2010). The garden is the biggest communal area in Groene Mient as also a community of place, where social ties are rooted. Therefore, the monthly garden days are a concrete way to observe residents in action. On the second occasion, the researcher was helped by a Dutch person to support with rich conversational details that could be captured given his familiarity with the socio-cultural milieu. However, the assistant was briefed about the dos and don'ts in relation to the research question, and, more importantly, research ethics, especially with observing and listening to people as we conducted field work inside their personal, intimate space.

3.2.4 Interviews

Coming to semi-structured interviews, all of them (n=10), except one with a key informant, were conducted face-to-face. An interview consent form explaining the research purpose and intention was sent to all respondents by email. Initially, the paper explored concepts of experimentation and placemaking in living labs. As a result, the consent form details as well as the interview questions were framed keeping those themes in mind. Even though my theoretical concepts evolved, there were a lot of cross-cutting similarities between placemaking and place attachment. Aside from that, one of the suggestions participants made was that this researcher share the transcripts of their interviews with them, which was duly complied. For the Zoom/Microsoft Teams meetings, prior consent (see Appendix 1) was sought to record the interview. The primary purpose of interviews was to better understand the processes that contribute to place attachment in grassroots innovation Groene Mient.

During the interviews, the researcher made efforts to stick to the line of inquiry but the list of questions were not always asked in a chronological order and were, in that sense, “fluid than rigid” (Rubin and Rubin, 2011 as cited in *ibid.*, 2018, p. 161). Weiss (1994, pp. 207-208 as cited in Yin, 2018) describes this approach as “intensive interview” or “in-depth interview”. A mix of open-ended and close-ended questions were asked to interviewees to avoid placing constraints on their responses but also keep the interview aligned with the theory.

During the interviews, the researcher resorted to rephrasing questions for simplicity sake as English was not the interviewees’ first language. In the line of inquiry, the “why” and “what” questions preceded the “how” question with the aim to elicit spontaneous answers from interviewees (*ibid.*, p. 133).

3.2.5 Secondary data collection

For secondary data collection, policy documents of Den Haag municipality and website of Groene Mient have been used for context setting and data triangulation purposes (see appendix 9).

3.3 Data validity and reliability

Any kind of good research, including social sciences, hinges on the fulfilment of certain quality criteria, such as replicability, reliability and validity. While validity captures the accuracy, reliability aims to reduce biases and replicability requires to observe if the same research questions answered with the help of same theories, data collection techniques and analysis can result in same conclusions irrespective of who is doing the research (Yin, 2018, p. 82;

This paper has resorted to three methods to increase construct validity, such as using multiple sources of evidence converging on the same findings, establishing a chain of evidence throughout data collection and the context section of the paper was sent to key informants for their review for any factual errors (Yin, 2018, p. 80). Internal validity issues have also been addressed through the usage of data triangulation approach with the help of secondary and participant observation data. External validity, though, remains a challenge and a limitation as the case study findings cannot be readily generalized for similar grassroots innovations with a social-ecological vision. Reliability, too, is another limitation. However, to reduce the reliability biases, the researcher has provided documented evidence in the appendix section of the procedures, such as attaching a case study protocol, interview quotations, secondary data collection evidence, among others, followed in the research.

3.5 Data analysis method

The research context was The Hague, The Netherlands. All the interviews were conducted in English. The researcher is Indian and a native English speaker, while the interviewees were Dutch, but spoke fluent English. As English is not their first language, but widely spoken in the Netherlands, the researcher was aware that data quality could be affected due to cultural differences. Keeping this in mind, the interview recordings were carefully transcribed using Outlook's Word software with the free transcribe option. But the documents had many grammatical errors that needed manual editing. Editing was time-intensive but helped the researcher get a better grasp of the data. During the editing process, the researcher encountered another challenge: how can the documents be edited without changing the nature or context of the interviewees' spoken words? The researcher's journalism background supported the editing process. Therefore, utmost care was taken to edit only superfluous grammatical mistakes, such as repetitive words, leaving the sentence construction as is to avoid misinterpretation. However, this researcher acknowledges that spoken words could also have been incorrectly translated by the transcription software (Tessier, 2012, p. 450). Following the editing, the transcripts were sent to all interviewees (n=10) to check for inconsistencies in language and meanings. All interviewees gave a go-ahead.

The next step was coding. A codebook was pre-formulated as per conceptual framework before beginning the coding process on Atlas.ti software and coding done deductively. Initial codes such as participation, learning, social arenas (later changed to spaces and strategies), trust, vision, visibility were deductively coded but those relating to place attachment, such as sense of pride, sense of wellbeing, were inductively coded.

3.6. Positionality

Embedding oneself into a socio-cultural context other than our own is always fraught with challenges and dilemmas. By the virtue of belonging to a different socio-spatial location and embodying a unique lived experience, my perspectives inform my own interpretation of the world (Qin, 2016, p. 1). Reflecting on one's own positionality should be a continuous process, and, as such, positionality is deeply implicated in our framing of relationships during fieldwork (Chacko, 2004, p. 52). In a way, positionality sets the tone for the research.

We are always positioned, not only through specific discourses and by others, but also in "relation to multiple, relational social process of differences, such as gender, class, race, age, sexuality and in hierarchies of power and privilege", and therefore, researchers need to constantly remind themselves that all these attributes are intrinsically and "culturally ascribed" (Qin, 2016, p. 1). This reflexive exercise aids the process of situating ourselves in knowledge creation and carefully evaluating the impact of biases, prejudices, and experiences (Berger, 2015, p. 220). In this paper, the researcher has made a conscious attempt to foreground positionality and reflexivity in order to help address ethical concerns toward the study participants.

But even though we acknowledge all researchers are positioned, the intentional disclosure of that positionality has not always manifested in the final research process (Qin, 2016, p. 1). The following section makes an intentional disclosure of the same.

3.6.1 Background of researcher, study setting and methodological framework

From drafting the initial research questions to the rules of engagement in participant observation, I kept a mental note of my positionality as a heterosexual, cisgendered, Hindu, upper

caste male and a person of colour from India. I was born and raised in New Delhi in a middle-class Bengali, Brahmin family, with ancestral roots in Dhaka, Bangladesh (erstwhile East Pakistan). Professionally, I am a journalist and, after nine years of working in the industry, I took a study break in September 2021 to pursue Master’s in Development Studies at the International Institute of Social Studies, The Hague.

My Master’s thesis is based on a grassroots innovation Groene Mient in The Hague, The Netherlands. I chose The Hague as a research setting for three reasons: firstly, the Master’s thesis was a unique opportunity to immerse in the local culture that would contribute towards understanding the behaviours, norms, values, and perspectives of a very small subset of Dutch society. Secondly, it was a conscious attempt to challenge and negotiate my positionality, beliefs and assumptions in relation to the prevalent attitudes in Dutch socio-cultural life. Rightly so, my assumptions were challenged. In a largely private and individualistic Dutch society, Groene Mient, my case study, went against the grain, upholding communitarian values. Last, but not the least, proximity to ISS and access to the community itself was a big decisive factor.

All data collection, including interviews, survey, and participant observation, was conducted in English.

3.6.2 Credibility-Approachability methodological framework

Equally important was to build credibility and approachability with participants from the start. In this light, the thesis aligns with the credibility and approachability framework proposed by Mayorga-Gallo and Horge-Freeman (2017) and later adapted by Adu-Ampong and Adams (2019). According to Adu-Ampong and Adams (2019), credibility and approachability, as explained by Gallo and Freeman (2017), reflect the researchers’ actions (performance) during fieldwork but also study participants’ perception of the researchers’ behavior and actions. Credibility and approachability are, therefore, crucial ways to carve out a space within the study setting in which a researchers’ positionality can be critically interrogated along with “power-laden particularities of the interaction” (Mayorga-Gallo and Hodge-Freeman, 2017, p. 380 as cited in Adu-Ampong and Adams, 2019, p. 3). On the other hand, approachability refers to the extent to which the study participants perceive the researcher as non-threatening. Ultimately, how the researcher negotiated the inside-outsider positions can be seen through this framework.

Credibility: Researcher is worthwhile investment of time		Approachability: Researcher is non-threatening and safe	
Performed	Perceived	Performed	Perceived
Cultural credibility	Vouched for by key participants	Acceptable incompetence	Non-Threatening demeanor
Professional academic credibility	Hierarchical Differentiation	Selective incompetence	Intrigue factor
	Esteem from education		Eager learner

3.7 Scope and limitations

The research paper attempts to explain how place attachment occurs in grassroots innovations in the Netherlands and unpacks the processes that contribute to place attachment. The paper’s target group are Groene Mient residents selected for the interview through snowball

sampling, between 35-75 years of age, and all living in the community for at least over 5 years, and some over five years. The geographical scope is limited to Vruchtenbuurt in The Hague, The Netherlands. For this purpose, a single-case study research approach has been applied to conduct a detailed examination of a single case.

The first limitation is that the researcher mostly interviewed only key informants within the community to gather varied information about the community and its practices. The researcher was aware of the pitfalls of relying too much on key informants for information, especially due to the subtle reflexive influence they implicitly impose on the researcher (Yin, 2018, p. 162). The researcher dealt with this drawback by relying on other sources of evidence, such as through participant observation and Groene Mient website to corroborate the data provided by key informants that converge on the same findings (ibid., p. 162).

Second limitation was interviewing two persons from the same household which could potentially lead to confirmation bias, as they may hold similar viewpoints.

Thirdly, language barrier. Although respondents spoke English, a lot of the data that emerged after transcription wasn't completely coherent, which could have affected data quality and interpretation.

Fourthly, despite using snowball sampling technique, data saturation couldn't be reached even after nine interviews due to paucity of time. As the researcher relied on key informants to pass on the baton, there could have been an inherent bias of steering the researcher towards those respondents with whom the key informant has cordial relations with. As a result, the researcher couldn't get access to some members from the community, especially one newcomer who arrived two years ago, and intercultural couples, who may have revealed other perspectives of the place.

The researcher also reflected upon whether the interview participants were a representative sample. It is possible that the ones interviewed were the active residents, inadvertently marginalizing under-represented voices in the community.

3.8 Conceptual framework

This section describes the processes that contribute to place attachment in grassroots innovations in The Netherlands. Conceptually, the paper draws upon the ideas of social sustainability in local communities (Dempsey et al., 2011), grassroots innovations (Smith et al., 2016; Boyer, 2018), sustainable transitions (Frantzeskaki, Steenbergen and Stedman, 2018) and transition management literature (Schot and Geels, 2008), all of which are common themes that tie this paper together. Then, these four processes are linked with the main tripartite organizing place attachment framework of Scanell & Gifford (2010) to visualize the conceptual framework.

3.8.1 Enabling participation

To achieve social sustainability in urban contexts, participation has been foregrounded as one of the key dimensions promoting social coherence (Dempsey et al., 2011, p. 295) and "one of the domains of social capital" (Forrest and Kearns, 2001, as cited in ibid., p. 295). Participation is closely attached with an individual's sense of community and reflects the quality of social ties within the community. However, even if participation doesn't occur in organized activities, this doesn't automatically invalidate the behavior as unsustainable because people can have different interests, desires and capacities to contribute (ibid., p. 295). Over time, a consistent form of collective action fosters solidarity and creates identity (Tilly, 2008, as cited in Smith et al., 2016, p. 17). In general, participation does contribute towards sustainability of a community (ibid., p. 295).

Participation also shapes learning processes and outcomes. Learning has been described as a way to transform unsustainable regimes (Van Poeck, Ostman and Block, 2020, p. 298), and that sustainability transitions are framed as a “matter of learning by doing and doing by learning” (Loorbach, 2007, as cited in *ibid.*, p. 298). In urban sustainability transitions, learning can materialize in multitude of settings, such as grassroots innovations, transition arenas, real-life laboratories etc., and carries an element of learning-by-doing as the focus is on interventions (Van Poeck, Ostman and Block, 2020, p. 302).

3.8.2 Spaces and strategies

Participation takes place in spaces and through strategies. The paper employs spaces and strategies as framed by Smith et al., (2016, p. 178) to coalesce the multiple locations and activities that grassroots innovations engage in and leverage in order to meet their vision. The terms are used to define and understand the various arenas that facilitate implementation of innovations and the consequent actions to claim or create such spaces (*ibid.*, p. 178). These spaces are physical (neighborhood, community workshops etc.) and social (building community relations, cultural resources) in nature and practice very different norms. Moreover, these spaces harbour possibilities to mobilize resources for cultivating and experimenting with technologies and new ways of organization. Above all, these spaces prioritize social goals over market-driven economic growth (*ibid.*, p. 25).

3.8.3 Creation and dissemination of vision

Creation of a vision mobilizes and inspires action in grassroots innovations. Contextual conditions in prevalent innovation and development processes, that people in grassroots innovations find “problematic”, inspire the creation and development of alternative visions (Smith et al., 2016, p. 21). From a sustainability transitions perspective, visions are, indeed, critical to mobilize and inspire behaviors for change (Frantzeskaki, Steenbergen and Stedman, 2018). Advocates of transition management (TM) approach (Rotmans, Kemp and van Asselt, 2001; Loorbach, 2007, as cited in Schot and Geels, 2008, p. 542) prominently discuss the essentiality of creating visions before any experimentation is conducted. As per TM, niche experiences, such as grassroots innovations, attempt to influence the “cognitive frames of regime actors” (*ibid.*, p. 542). This paper seeks to cull out those vision narratives within grassroots innovation that contain transformative actions essential for place attachment. In our case study, multiple narratives of vision on sustainable development co-exist within Groene Mient and people’s idea on what is to be sustained differ (Stedman, 1999, p. 768).

3.8.4 Trust building

Trust is key in the construction of a clear vision to build a grassroots innovation. In a study on grassroots co-housing initiatives in the United States, Boyer (2018, p. 38) conducted an interview with founders of 24 projects and highlighted the importance of trust in the construction of a vision for a future community. One of his findings revealed that all the 24 initiatives invested significant time to learn skills to “conduct efficient and inclusive meetings” (*ibid.*, p. 38). Trust building and clear communication, the scholar argued, are crucial processes that are important in the early phase development phase of a community, especially given that decisions on land and construction are expensive propositions (*ibid.*, p. 38). Our case study is a form of co-housing called Collective Private Commissioning.

All the four processes are not mutually exclusive but interlinked. One, but not the only, way to analyze the four processes is this: Participation in spaces by employing strategies shapes learning outcomes that build trust and contribute towards vision(s). For example, the

presence of spaces and strategies contribute to goal setting, while participation in activities within spaces helps build trust and stimulate working towards achievement of visions. It's not a one-to-one relationship and there are overlaps. A direct causal link between these processes and place attachment can't be readily established and that's also one of the limitations of this paper.

The four processes of enabling participation, spaces and strategies, creating and communicating vision and trust building are, however, not operating in a vacuum but rather place embedded in a socio-spatial context that surrounds the grassroots innovations. These processes, the research paper argues, contribute to place attachment.

3.8.5 Place attachment dimensions

This chapter will outline the main concepts in place attachment as outlined by the tripartite framework by Scannell and Gifford (2010). The framework is a definitive way of organising the various definitions used in the literature review. According to this framework, place attachment has been framed into three-dimensions: person, psychological and place. The person dimension asks who is attached? And to what is the attachment based on individual and/or group-held meanings. The psychological dimension asks how affect, cognition and actions manifested in the place attachment. Finally, the third dimension, the place aspect, investigates the physical and social aspects of the attachment and the nature of this place? Together, the tripartite framework provides a consolidated definitions in the literature and presents an understanding of how place attachment occurs within grassroots innovations.

3.8.6 Person

Individual: Place attachment materializes at two levels: individual and collective. At the individual level, attachment refers to the connections and relationships a person has with a place. For instance, the attachment is stronger for places that arise from “accumulated biographical experiences” (Gieryn, 2000, p. 481) that conjure up personal memories and experiences which lead to a “stable perception of self” (Twigger-Ross and Uzzell, 1996, as cited in Scannell and Gifford, 2010, p. 2). Personal attachment, writes (Manzo, 2005), materializes in places that play a very crucial role in the daily lives of people and anchored in personally important events, such as “milestones, realizations, and experiences of personal growth”. It is, therefore, also a matter of “experience-in place” that is of consequence and holds meaning (ibid., 2005, p. 74).

Collective: Collective or group-level attachment can be found in the symbolic ties which are mutually shared among members of a community (Low, 1992, as cited in Scannell and Gifford, 2010, p. 2). Known as “group-framed place attachment”, this refers to places where community members strongly resonate with wherein, they not only practice but also attempt to preserve their respective cultures (Fried, 1963, as cited in ibid., 2010, p. 2). It is culture, according to Scannell and Gifford (2010), which links group members to places through mutually “shared historical experiences and values”.

3.8.7 Psychological

This dimension speaks to the psychological aspects (cognition) of connecting with a place. It refers to the manner in which a person or groups are connected to a place but also highlights the kind of psychological interactions that materialize in the places meaningful to people (ibid., 2010, p. 3). The three essential elements relating to psychological dimension of place attachment are affect, cognition and behaviors.

Affect-based: Low and Altman (1992) elucidated that “affect, emotion and feeling” are essential ingredients in people’s attachment to places. Person-place bonding gives salience to emotion as one way to connect to a place (ibid., 1992; Giuliani, 2003). Environment psychologists have provided similar accounts foregrounding the salience of affect-based bonds with places referring to attachment as a mix of “an emotional investment in place” (Hummon, 1992 as cited in Scannell and Gifford, 2010, p. 3) and “feelings of pride and general sense of wellbeing” (Brown et al., 2003, as cited in ibid., p. 3).

Cognition-based: Cognitive aspects of person-place interaction, such as beliefs, memories, meaning, knowledge, are the characteristic elements that people usually employ in order to associate with their important places (Scannell and Gifford, 2010, p. 3). Because of this, place assumes a central place in their cognition as being personally important. It can be said that cognition-based place attachment is closely related to the construction of place meaning along with specific cognitions (beliefs, memories, knowledge) that foster attachment and bonding to a place (ibid., p.3). People create place meaning through memory and attach it to the understandings of their own self. According to some authors (Hay, 1998; Twigger-Ross and Uzzell, 1996), a person is likely to develop attachment to a place where some personally memorable events have happened.

Another concept within cognition is place identity. First phrased by Proshansky (1978), the term refers to a phenomenon in which a person or group embeds memories, and values about the physical environment into their self-definitions (Scannell and Gifford, 2010, p. 3). Important or salient features of a place that stand out and are unique (design, architecture, or cultural community) are “attached to one’s self-concept” (ibid., p. 3), a process described as “**place-related distinctiveness**” (Twigger-Ross and Uzzell 1996, as cited in Scannell and Gifford, 2010).

Place attachment as behavior: When attachment is manifested through actions then it is said to have a behavioral aspect (Scannell and Gifford, 2010, p. 4). One aspect is called proximity-maintaining, which according to Hidalgo and Hernandez (2001, p. 274) is an affect-based bond with the focus primarily on “maintaining closeness to a place”. The authors feel that the proximity-maintaining behavior aspect, although evident in many conceptualizations, has been focused on less often. **Proximity-maintaining behavior**, also described as “everyday rootedness” by Hummon (1992), is closely supported by studies that link person-place bonding to length of residence in a place (Hay, 1998).

3.8.8 Place dimension:

The most important dimension, but also oft ignored, is the place itself. The central question begs to be asked is: If people do feel connected to a place, what is it about the place that they resonate with? (Scannell and Gifford, 2010, p. 4). Hidalgo and Hernandez (2001) say that physical and social attachments both influence the overall bond, and that spatial level should be weighed in when measuring attachment. Riger and Lavrakas (1981) suggested that social attachment, or “bondedness”, has elements of belongingness to the neighborhood, and familiarity with fellow residents etc., while physical attachments is described as “rootedness” and is determined by an individual or group’s length of residence. Others have also described a mix of physical-social place attachment (Mazumdar and Mazumdar, 2004).

In this framework, the author uses the term **community of place** to explain the various types of social ties that are anchored in a place. These social ties could be located in coffee shops, neighbourhoods or any others spaces which facilitate interactions. However, attachments can also just hinge on certain appreciation for physical features of a place. Stokols and

Shumaker (1981), for instance, defined this attachment that is directed towards physical characteristics of a place as **“place dependence”** because the individual or group attachment is directed towards the physical features of the place and also because it either provides resources or amenities to further one’s goals.

Place attachment for security

There are other ways in which individuals and groups feel attached to a place. Some authors (Fullilove, 1996; Giuliani, 2003) opined that individuals seeking to feel safe and secure is another function of place attachment. This security-seeking behaviour can be described as a positive bond based in affect and cognitions of reduced risk and proximity-maintaining behaviour.

Overall, the conceptual framework is the combination of the four processes of enabling participation, spaces and strategies, creation and communication of vision and trust building with the tripartite person, psychological and place framework. Together, the paper contends that the four processes contribute to generation of place attachment manifested through affect, cognition and psychological processes. Fact that place attachment doesn’t have a unified definition and that various authors describe it differently, there will be overlaps between different forms of place attachment and that some form of place attachments will be more salient than others.

Chapter 4 : Case study context

4.1 Introduction

This section will discuss the physical and positional context of the Groene Mient region.

Appendix 8 has additional quotations from respondents. An asterisk (*) and the corresponding number indicates a quote.

4.2 The Hague

The Hague accommodates around 553,306 inhabitants as of 2022. By 2030, the population is expected to rise to nearly 600,000 inhabitants, and the city is likely to add roughly 5,000 residents each year till 2030 (Den Haag municipality, 2022). Population growth punctuates the urban landscape with socio-economic challenges. Urban densification will exacerbate the prevalent housing crisis (Den Haag municipality, 2022). Lack of social cohesion in the city adds to the mix: The Hague is also the most segregated city in The Netherlands (Kloosterman and Priemus, 2001), with some areas in the city's Southwest more spatially segregated (culturally and livability wise) than others. In addition, more Dutch people are living alone in the city than before as the number of single-person households is expected to increase by more than 15% by 2030 (Den Haag municipality, 2022.).

Multiple shocks and stressors, including climate change, extreme weather events, pandemic, poverty and debt, further amplify urban sustainability challenges. The combination of these factors puts the urban resilience of the city to test (Resilient City Den Haag, 2019). To deal with these problems, the city designed its own resilience strategy (The Hague Resilience Strategy, 2019). The resilience strategy foregrounds “new ways of thinking”, envisioning “alternate pathways” and “daring to experiment” in order to mitigate and adapt to these challenges (Resilient City Den Haag, 2019, p. 6). Accordingly, priority areas were identified, such as investments in the built environment without compromising on green areas, building social cohesion in neighborhoods (“*Meet your next-door neighbor, people from the next block*”), and self-reliance of communities, among others (ibid., p. 6).

“It all starts with resilient people who live comfortably and safely in liveable neighborhoods. Together these neighborhoods form a strong and just city” (Resilient City Den Haag, 2019, p. 8)

The subtext is clear: building resilience means building interpersonal relations and person-place bonding at the neighborhood level. Also, the strategy calls for the identification of initiatives in the city that showcase this resilience (ibid., p. 8). Our case study, Groene Mient, is one of the initiatives (Resilient City The Hague, 2019).

4.2 Vruchtenbuurt, The Hague

Groene Mient is situated in the Vruchtenbuurt, one of the least segregated out of the 44 neighborhoods in the city. At least 76.6% of the residents here are of Dutch origin as compared to an average of 61.5% in the city. The perceived socio-cultural diversity is lower in relation with other parts of The Hague. The average income levels are higher than that of Segbroek district, and has typically very low unemployment rates (Den Haag Municipality, 2016). In the neighborhood roadmap for the Segbroek district (2016-2019), the municipality described Vruchtenbuurt as an area where residents “generally feel safe” and “very committed to social issues” (Den Haag municipality, 2016). The roadmap speaks of the municipality’s ambitions to transform the district into a carbon-neutral area by encouraging residents to save energy and generate sustainable energy. Groene Mient was again showcased as an example in their carbon-neutral future, but at this time, the project was in the building process.

“A group of private individuals, united in De Groene Mient, has sustainable homes built [...] the residents have made their own design for each home, paying a lot of attention to sustainability and ecology [...]” (Den Haag municipality, 2016).

4.3 Enter grassroots innovation Groene Mient: history and context

“When you’re working here, you see it, you feel it, that this is another way of knowing” – (GM-9)

Completed in 2017, the Groene Mient social-ecological housing project is situated on the Mient in Vruchtenbuurt. Some visionary citizens picked up the gauntlet of developing 33 energy-neutral homes on a 7,600 square meter piece of land to live together with neighbors in a communal setting with common socio-ecological values. Four guiding principles underpinned the social-ecological community: social diversity, collective living with solidarity, ecologically responsible living, and accessible and affordable (Groene Mient, no date). All the households are designed without a natural gas connection and use hybrid renewable energy installations and heat recovery systems, such as solar panels, solar collectors, heat pumps and extra insulation, to power the buildings and ensure lesser energy consumption per house (Klimaatkrachtig Delfland, no date). The project was developed collectively by residents themselves through a Collective Private Commissioning (CPO) model on a shared plot of land surrounding a 3.500 square meters communal garden.

A CPO can be defined as a “type of commissioning in which a group of like-minded private parties jointly acquire a piece of land and collectively decide how and with which parties, the homes, private spaces and even public spaces are to be designed and constructed” (Boelens and Visser, 2011). In a CPO, individuals usually retain significant autonomy and control to decide the whole project, including design and layout, according to their own specifications. The municipality primarily acts as a facilitator and permit provider for land allotment. CPO projects presumably better reflect a “plural, self-organized, bottom-up society” (ibid., p.106).

4.4 History, background of Groene Mient

As per the initial plan, Vormidabel foundation (2002) had the ambition to realize a collective housing society inspired by the Waterspin (1998) in The Hague. The project, consisting of

social, rental and private houses, was to be established with the help of the Den Haag Municipality on the Mient. But in 2012, social housing corporation Vestia which was responsible for building the housing complex, faced a financial crisis and the initial plan was unsuccessful. Eventually, a fresh attempt was made under the name of Groene Mient Association, replacing Vormidabel Foundation. However, now the collective housing initiative would be defined as a Collective Private Commissioning (CPO), with all privately-owned houses.

Groene Mient residents come from diverse backgrounds, such as teachers, marketing professionals, service engineers etc., most of them, previously living in The Hague.

Most residents are of white ethnicity and Dutch nationals, with the majority already living in The Hague prior to moving to Groene Mient. Many of the residents also come from Vruchtenbuurt. Rest of the residents come from various parts of the Netherlands, such as Arnhem, Groningen, Tilburg, and Zeeland among others. The age bracket falls between the range of 35-75 years with most having higher education and, in some cases, double income. The youngest resident is newly born and the eldest is 72. Few residents also have a mixed cultural heritage, such as from Suriname, Japan, Taiwan, Indonesia and Senegal.

4.5 Why is Groene Mient a grassroots innovation?

Although Groene Mient made use of the existing municipal CPO policy, it nevertheless qualifies as a grassroots innovation because local residents exercised agency over all aspects of the project and embedded their own knowledge, expertise and prior experience of some within the group to piece together the social-ecological housing project. Of course, they received technical support and guidance from experts in realizing the project but all ideas were initiated by residents themselves. Furthermore, the social-ecological aspects of Groene Mient were innovative and experimental^{*2}. For example, the social innovation relates to the application and governance of Sociocratic decision-making system based on consent to ensure social sustainability in the CPO project. Although this system isn't unique to Groene Mient, the process is iterative and reflexive. Decisions are deliberated upon collectively and implemented with the consent of all residents, reflecting a participatory approach. The decision-making system has three-layers: First, information is provided before discussion; second, residents' opinions are sought in support or against a proposal, and finally, consent with yes or no. Time is taken to listen, discuss, learn and exchange ideas with each other and mutually arrive at a solution.

The ecological innovation was the process to develop the land. Prior to building, the land had to be developed ecologically by preventing the mixing of fertile soil and lean sand during ground/demolition work while preserving the existing green elements (the central tree) (Groene Mient, no date) Secondly, the garden has been designed according to permaculture principles which can support fruit-bearing trees and vegetables (Groene Mient website, no date). It also serves a social purpose of meeting and working together. In addition, compost mills turn organic waste (specifically vegetables) into garden compost to minimize waste. Thirdly, a defining feature of the garden is the embedding of the climate adaptive measure to cope with flooding, such as the Water Drainage Through Infiltration (WADI) system. The WADI is a green ditch that retains the excess rainwater trickling down from the roofs and pavements into the soil, slowly distributing it throughout the garden. This system prevents flooding by diverting the excess water into the nearby ditch at a controlled rate. Additional soil improvement measures have been implemented on the top layer of the WADI for better rainwater percolation. It is the first such climate adaptive measure employed in a CPO in The Hague.

Fourthly, the community hall, called 't Ei' (the design is in the shape of an egg), gives life to their vision of living together as a community, connecting to the neighbourhood and

spreading knowledge with other similar sustainability initiatives in the area. It's envisioned as a networking place for a variety of purposes and made with sustainable materials, such as hempcrete. Residents also reused materials left over after the demolition of an old school present at the site to build the roof.

Lastly, Groene Mient is a "living lab", an experimental setting in which energy transition experiments are being trialled to help Vructhenbuurt shift from gas to locally generated, renewable energy systems via a smart grid. Living labs are arenas (spatially bound spaces), where multiple stakeholders, such as citizens, NGOs, research institutions, public sector, private sector come together to experiment with creative solutions to urban sustainability challenges in real, complex contexts (Steen and van Bueren, 2017).

All the 33 households have 'smart meters' that track the energy use every 10 seconds in real time to calculate energy produced by solar panels, energy consumed by heating systems, and the overall energy use of the housing unit. Subsequently, the energy data profile of 33 homes is used to compare with that of around 70 fossil-fueled homes in Vructhenbuurt neighborhood. It is also used to create awareness about energy consumption behaviour by household and by energy concept.

In 2016, Groene Mient residents discovered that some of their energy-efficient households were producing excess energy, instigating a dilemma and, subsequently, an experimental idea. The dilemma was about what to do with the excess energy? And crucially, where and how will this excess energy be stored and how can Vructhenbuurt benefit from locally generated and sustainable electricity?

As a result, some Groene Mient residents had an experimental idea to form a separate cooperative called Sterk op Stroom that could supply its members locally generated sustainable electricity as a "large consumer" (Groene Mient, no date). With this vision, SoS and living lab stakeholders, such as research institutions, Province of Zuid-Holland, Den Haag Municipality, energy suppliers like Stedin and ICT company Spectral, have been engaged in energy experiments in the "Living Lab Groene Mient" to explore the viability of a smart grid system in the Vructhenbuurt.

SoS operates at the neighborhood level, and doesn't serve the 33 GM households because it's not necessary to put smart grid into energy-efficient houses. SoS collaborates with another local energy co-operative called Warm in de Wijk. Together, they are developing a sustainable heat network for transitioning to a gas-free Vructhenbuurt. The aim is to shift 300 houses by 2025 and 3,000 houses by 2030 from gas to locally generated electricity to meet the EU carbon-neutral cities ambition by 2030.

Chapter 5 : Results, analysis and discussion

5.1 Introduction

This section discusses the main results on the basis of the conceptual framework of place attachment. The paper argues that processes, such as enabling participation, spaces and strategies, creation and communication of vision and trust building contribute to place attachment in Groene Mient. Place attachment has three dimensions: person, psychological and place. The person dimension refers to individually or collectively determined meanings. The process dimension includes affect, cognition, and behavioral aspects. Lastly, the place dimension refers to physical and social elements of a place.

The main research question will be answered with the help of four sub-questions:

- **Sub question 1:** How does enabling participation contribute to place attachment in grassroots innovations?
- **Sub question 2:** How are spaces and strategies implicated in the forms of place attachments that occur in grassroots innovations?
- **Sub question 3:** Why is creation and communication of vision crucial in generating place attachment in grassroots innovations?
- **Sub question 4:** How does building trust contribute to place attachment in grassroots innovations?

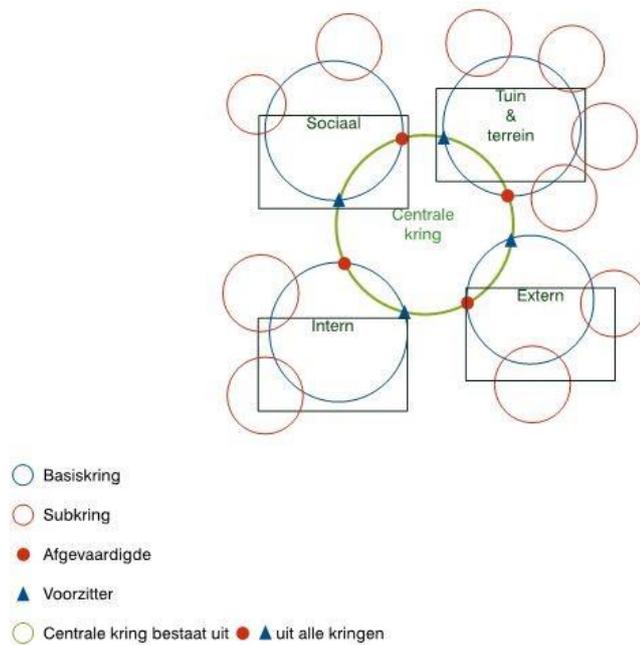
The qualitative data collected through semi-structured interviews, survey and participant observation have been coded deductively and inductively. In addition, secondary data and participant observation data were used to triangulate the findings.

5.2 Place attachment in Groene Mient

Groene Mient encourages participation and involvement of residents in community activities. Primary data (interviews, survey, participant observation) and secondary data reveal that residents participated in various community building activities, such as the construction of the CPO (individual houses and common areas), selection of project developer, architects, experts, and collectively shaping the living environment through decision-making (Socratic system, communal activities). Place attachment manifested through these activities. Below is the list of activities:

1. Construction of CPO Groene Mient
2. Ecological garden design, development and on-going monthly maintenance (garden days)
3. Community hall ('t Ei) design, construction, maintenance and conducting activities inside for GM members and wider neighborhood
4. Founding of 'Living Lab Groene Mient' and creation of Sterk op Stroom and its activities for neighborhood

There is a formal structure that guides participation and it takes place within four overlapping circles: Internal, External, Social, Garden and other common outside spaces.



All the different tasks are clustered under these four circles and implemented by various thematic working groups. There are total of nine working groups:

1. Communications
2. Social activities
3. Mediation
4. Samen “Living Together”
5. Garden
6. Children
7. Community Hall
8. Living Lab
9. Housing society

The four circles will select a chairperson and a representative in the fifth overarching circle whose responsibility is to oversee all the concerns and issues that affect the whole community are dealt with in a sociocratic way. GM-1 describes the functioning of this system as a “chaotic organization”^{*3} in which roles, structures, processes and goals change over time and building on results that are achieved. This aligns with the literature on learning-by-doing in urban sustainability transitions, in a way that learning is a consequence of providing people the chance to “engage with concrete, ‘real-world’ sustainability issues and a space to explore them, try-out solutions, tinker with assumptions, fail, try anew” (Poeck, Ostman and Block, 2018, p. 302).

The results section discusses the four processes of participation, spaces and strategies, creation and communication of vision and trust building that contribute to place attachment among residents, from individual and collective bonds to place-based bonds highlighting certain physical and social aspects of a place, which manifest through a psychological process

(affect, cognition and behaviour). The four specific processes illuminate that some forms of place attachment are more salient than others, while also highlighting the interlinkages between the processes. The four processes are not mutually exclusive.

5.3 Sub-question 1: Participation

This section will discuss the first sub-question: How and what forms of participation generate place attachment in grassroots innovations?

5.3.1 Role of participation: seeds of placement attachment sown in development phase

From selecting ecologically responsible floors in individual houses (Groene Mient, no date), to testing the WADI system in the garden (Groene Mient, n.d.), the development phase witnessed participation and an exhausting process of learning through experience.

5.3.1.1 Person

Because the CPO model gives residents the freedom to build as per their needs, they collectively participated and took risks to develop the project. As a result, residents (GM-4*¹, GM-9) forged new relations with people and paved the way for group-framed attachments to the place based in affect. Relations with people were built on reciprocity and they grew up as a community contributing to place bonds.

“Once every fortnight we had a meeting [...] and because people are talking about realizing their dream [...] the only way they can achieve this is to do it together [...] this is a mutual relationship. You got to know those people quite well and people ask me before we started living here ‘do you dare to live with these 33 families because you don't know them’ and I said I know them better than the neighbors I lived next to for 30 years” - GM-9

5.3.1.2 Psychological

Key human resources (people with skills) in the community propelled the vision. For example, the housing project coalesced the expertise of residents, some of whom are urban planners, process managers, service engineers and architects, to further the building process. Residents trusted (GM-1 Expert*⁴, GM-2, GM-5*²) each other's expertise to realize the vision. Thus, participation in the housing project created conditions for building trust, and instilled a sense of pride among residents. Pushed into a high-pressure situation to achieve a common vision, residents were motivated to participate towards the goal. This highlights the interlinkages between participation, vision and trust building. Naturally, new relations between future residents and the place materialized because they were proud of their collective achievement.

"[...] We didn't have any real estate developer or anything. We had to hire all kinds of advisors for energy, an architect for construction for materials. It was a challenge because we were not experts on this, we had to study ourselves, but as a group there were so many different qualities and it was really good how could we pull all these together and make it work" - GM-2

Experts (Exp-1), guiding the process, also gave this person-place bonding process a boost, with respondents (GM-1 Expert*⁵, GM-2*²) expressing gratitude (affect-based attachment) for her contribution as a “good lobbyist and a communication advisor”. Evidently,

the building phase cemented a sense of community and formed the basis of group-framed place attachment expressed in affective terms (sense of pride, gratitude).

Cognitively, the location was a memorable setting where residents realized their dream home, binding the community together through the construction of collective place meanings (Scannell & Gifford, 2010, p. 3). In hindsight, some residents ((GM-3*¹), GM-5*³, GM-7*¹) reminisce the struggles and the eventual triumph, indicating a sense of pride and collective emotional investments in the place (Hummon, 1992), an affect-based attachment.

The development phase had many lessons for the community. But one was salient: the bottom-up process of participation in building the CPO together facilitated learning through experience that supported the creation of place identity among residents (Proshansky, 1978). Because they took risks together, they grew up as a community. Under these circumstances, residents (GM-1 Expert, GM-2*³, GM-5*⁴) collectively perceived themselves as part of a learning and experimental community that takes risks, fails and adapts, a cognition-based place attachment process that Twigger-Ross & Uzzell (1996) describe as “place-related distinctiveness”.

“We like the principle of lifelong learning. You could find out that it wasn’t worth doing the experiment but then you also learned. That’s one way of looking at it” – GM-1 Expert

Put differently, place-related distinctiveness materializes especially when an individual or a group incorporates the cognitive aspects (memories, values) related to the physical place into their own self-conceptions (Scannell & Gifford, 2010, p. 3).

5.3.2 Participation in post-development phase

Once the vision of a collective housing project was realized, the community dynamic took an unexpected turn. The strong community spirit reminiscent of the development phase now lacked the shine. The next crucial step was to actually live together as a community and more “soft decisions” had to be made on, for example, how to use the communal spaces as every individual was 1/33rd owner of the garden. Social challenges, as highlighted by resident (GM-1 Expert*⁶, GM-9), created some dissonance within the community.

“You can’t expect 33 households, 50 adults and 25 kids to have this intense relationship going on and on. I think the group is too big for this” – GM-9

Some (GM-4*², GM-7*²) believe certain residents are becoming individualistic, instead of representing community interests (GM-9*¹). However, GM-7, in the quote below, brings to focus GM’s values of participation as per individual capacity to emphasise respecting people’s choice, a point also mentioned by GM-1 Expert*⁷. Others contend that a full sense of belonging isn’t necessary to feel place attached. The following two quotations highlight the existence of different viewpoints on participation within the community. Not everybody agrees, and not everyone has the same vision about what is to be sustained in the community. But that is also a form of learning from the group process.

“A lot of people are more committed to the collective than others. Sometimes people think others don’t do as much as they should. But that’s why we have the all those meetings. It’s a choice, and if it’s a choice not to be involved then you should respect that. So, we learn a lot from each other, also from the group process [...]” – GM-7

“We don’t have to have a full sense of belonging. We also can live our own lives and be ourselves [...] it’s not necessary to have more contact than necessary. And I think Netherlands is a very individualistic society, feeling is very much important here, as well as privacy” – GM-8

The question now was: how to manage community expectations and govern people-people relations better? Since the beginning, Groene Mient has been using the sociocratic decision making system as a tool to guide their social sustainability vision. But there was a sense of unease among residents about the way decisions were being made.

5.3.3 Participation through Sociocratic decision-making

Community members expressed apprehensions with the consent approach. Respondents said earlier decisions were taken in big working groups, inadvertently marginalizing other voices. In the last few years, some residents were very vocal in these working groups while some others hardly participated due to perceived cultural barriers.

“The decision-making process is very crucial but I have hardly been there practically and when he's (husband) home, he tells me there were disagreements on this and that [...] The actual decision making process I have hardly participated. But this is what I mean I don’t feel entirely included, because of my condition” – GM-8

Residents in semi-structured interviews (GM-3*², GM-5*⁵) rallied for a reconceptualization of the consent system because the community’s needs and challenges evolved since the development phase. In the survey and garden day participant observation, some respondents rued that disagreements are protracted and some residents push their opinions at the cost of others. When disagreements happen, finding ways to communicate is challenging. GM-9*² said certain people were using the consent method to block new proposals impeding the decision-making process. Two major contentious points with the use of the communal garden were highlighted: creating a common pond (GM-7*³) and space for children to play (GM-3*³). But then there are also others GM-6*¹) who are also inspired by the consent approach and applied the method in their workspace, resulting in personal growth (individual place attachment). Different people perceive the decision-making system differently, but overall most residents wanted a change.

In light of these shifting dynamics, the working group ‘Samen’ (Living Together) started organizing workshops on decision making to achieve a better participative structure. GM-2 said they have shifted to making decisions in smaller working groups to encourage participation and infuse a sense of safety among residents. The decision-making structure is an example of learning by doing iteratively and adjusting to changing realities.

5.3.4 Covid-19 delayed social cohesion

Then, Covid-19 struck, interrupting the community building process. Most respondents said the pandemic delayed social cohesion. Physical activities were on hold and meetings went online. Two residents got into a fight (GM-3*⁴, GM-2*⁴), which others never expected. At this point, some felt the social sustainability aspect needed more grounding.

Psychological

Negotiating through the social fabric during Covid-19 threw up challenges. However, there were also advantages of living collectively. For GM-3, the presence of the common garden was beneficial for her children, underlining a sense of wellbeing (affect-based) connected to Groene Mient.

“[...] But children really benefited as they could go outside and play. There were advantages of being here, but it was also challenging as I remember there were some very nasty conflicts, because people were stressed [...] so to adapt to Corona as a group was quite hard. It was learning as well, but the hard way” – GM-3

Importantly, the abovementioned quote illuminates another crucial function of place attachment: survival advantages. In this case, the presence of a common garden (physical resources) facilitated closeness to the place because it offered survival advantages to the resident’s children. Similarly, another resident (PO-1*) perceived the community as a “safe” space during Covid, highlighting the same.

According to the data from survey and interviews, most residents indicated they participate in activities whenever required but according to their own capacities, which is indicative of fairly consistent participation levels in the community. Seven out of the 12 survey respondents indicated their participation levels remained the same since the beginning, four said it increased and one said their participation never stopped. At least 33% of respondents highlighted the garden as the main space for learning and interaction among neighbors, 25% each for Sterk op Stroom and community hall and the 16.7% for the chocolate shop.

In Groene Mient, residents have varied interests and share different degrees of enthusiasm in relation to ongoing activities inside the community, which aligns with our conceptual framework. Not participating enough doesn’t disqualify the community social sustainability as unsustainable. For some, gardening, guided tours, maintenance of the complex, making food, lawn mowing and disruptive innovation are a part of their ritual, while for others exchanging energy use experiences via the living lab/Sterk op Stroom forms the basis of place attachment. Not all engage in common activities, but add value to the community in other ways, either by spreading knowledge about Groene Mient either through the chocolate shop (GM-7*), by sharing something as basic as an onion (GM-8*) or making food/soup (PO-1*) for all.

Overall, collective participation in the development phase sowed the seeds of future relations between people and the place. Participation in the building process was a matter of learning-by-doing due to the self-build process. Building activities contributed to group-framed attachments that manifested through a sense of pride (affect) for having achieved their goal. Key human resources in the community and experts helped infuse trust in the process. It also established a place identity, a shared cognitive belief among residents who perceive themselves as a learning and sharing community (place-related distinctiveness). As a result, the community grew closer via a memorable historical experience. It can be inferred that the participation process led to learning-by-doing among residents and thus, place attachment.

5.4 Sub-question 2: Spaces and strategies

This section will discuss subsection 2: How are spaces and strategies implicated in the forms of place attachments that occur in grassroots innovations?

5.4.1 Spaces and strategies

Interviews and survey data show that residents are attached to specific places within the compound wherein they practice their culture and contribute to various community activities. Residents learn about each other through strategies (activities) in these spaces and then attach cognitions (memories, values, perceptions) to the place. In the survey, at least 33% respondents highlighted the garden as the main space for learning and interaction among

neighbours, 25% each for Sterk op Stroom and community hall and the 16.7% for the chocolate shop. Same goes for semi-structured interviews.

5.4.2 Communal Garden

The permaculture-based edible garden is the biggest communal project that mobilized and inspired action from residents.

Person: The WADI system is the defining feature of the garden. Implementing the climate-adaptive measure was a social-technical challenge as residents had to be convinced about its rationale. GM-5, who took this initiative with the help of experts, tactfully negotiated his way with other neighbors. It was a personal milestone, which fostered individual place attachment as an indication that the resident was proud of his achievement.

“[...] The WADIs really form your garden and it’s very visible. We had to convince everybody that this would be the right way to go. I really enjoyed because we had many meetings with all the people because I was convinced that this was the right way. People had to be convinced about what we had thought of and they followed” - GM-5

Collective: Most respondents (survey, interviews, participant observation) said the garden was the most important space for interaction and learning from neighbours that formed the basis of group-framed attachment (survey in Appendix), wherein a group forms attachment to places where they practice and preserve their cultures.

Place: Over time, the garden became a symbolic space that anchors social ties (GM-2,^{*5} GM-4 Expert^{*3}, GM-6^{*2}, PO-4^{*1}, and provides access to physical amenities (GM-3^{*5}) in the space, such as compost mills, edible fruits and vegetables, community hall and a pathway to individual sheds. For example, to reach the individual sheds, residents (GM-6^{*3}) use the garden as a pathway and invariably meet each other, thereby playing a role in facilitating interaction opportunities. At the same time, the presence of physical amenities, such as fruits and vegetables to prepare, share meals with the community (GM-2, GM-3^{*6}) or compost mills, leads to new relations with people and the place. Thus, the garden’s centrality as a community of place (place dimension) takes center stage.

“We started making our own compost and most people who came here did not know how to do that [...] and still you have to re-educate them [...] Yes they are learning, but they get stuck in the process. And this also leads to new relations between people. When I am putting my compost in the mill and I know that one of my neighbors is always cleaning them twice a year, I feel grateful [...] so I have a different relationship towards him now” - GM-1 Expert

And how does Groene Mient maintain this connection with the community of place?

Strategies, such as monthly garden days, inviting permaculture experts, hosting music activities (within and from the neighborhood), rekindle these place-based bonds. The garden working group organizes garden days for the maintenance of the common space. Garden days are not obligatory, but it’s a time for social engagement. To foster a learning environment and maintain the vision of a thriving green space in a highly urban city, permaculture experts are frequently invited (GM-2^{*6}, GM-4^{*4}) for workshops on best practices. Thus, the garden’s salience as a community of place is important because it mobilizes participation (through activities) and contributes to the maintenance of the social-ecological vision by reaffirming residents’ collective cognitive bonds as a learning community (place-distinctiveness). The garden’s physical resources (food, meeting spot, compost etc.) supports residents’ goal attainment, an attachment referred to as place-dependence.

On a regular garden day, the Garden Working Group facilitator assigns tasks to residents, such as removing weeds, mixing and applying compost in the garden, watering the

plants etc. During the activity, residents (GM-3, PO-3*¹) concur that the interactions lead to new discoveries about neighbors, confirming the prominence of the garden as a community of place. The interactions are insightful, and presumably lead to residents' (GM-2*⁷, PO-3*²) personal growth (group-framed attachment) and sense of wellbeing.

“The advantage of the garden days is that you can work in a team [...] I try to actively look for people that I don't really know and to work with them [...] It can be also nice to be a bit surprised with people” - GM-3

Participant observation was used to corroborate the findings from the interviews. The researcher took part in two garden day events (October 9 and November 9, 2022) and noted an increase in participation levels. However, residents said that participation dwindles, sometimes more, sometimes less, according to respective capacities. First day, nine residents were present and on the second day, 14 showed up. However, two residents (PO-5*¹, PO-2*¹) rued the lack of participation. Most conversations took place during lunchtime served in the garden itself that confirmed the survey results, adding to the internal validity. On one occasion, residents expressed disappointment with certain members who don't engage as actively as they used to before. This aligns with data which showed that some people are indeed becoming more individualistic (post-development phase) and contribute less to the community although it is not indicative of social unsustainability. Interactions were generally amiable, in line with GM's claim that they live respectfully and care for each other. They shared disagreements in a cordial manner too. For instance, when GM-2 assigned work tasks, a participant politely said, “there aren't enough people today.”

Psychological: The garden evokes positive emotions, such as sense of pride and wellbeing (affect-based bonds) indicating strong affective bonds with place. For instance, while resident PO-5 wanted her children to grow up to feel nature, resident (GM-1 Expert*⁸) is proud that the garden is flourishing because of the reciprocal relationship between residents and nature. GM-6*⁴, however, directed her appreciation towards the unique physical feature of the garden, the climate-adaptive WADI system. Others GM-6*⁵, PO-6*¹) used adjectives, such as “quietness, peacefulness” and “quality of life” respectively to describe their feelings about the garden.

The usage of the garden among members, though, is often contested. For instance, areas of disagreements revolve around creating a big pond due to their ecological vision, space for children to play (GM-3*⁷), and whether the garden gates should be open or closed (GM-8*³).

“We wanted to have a pond because of this ecological vision [...] then you need all the members of this community to vote for it via sociocratic engagement. Then there are some people who are afraid of children drowning in the water and then you won't get far with it” - GM-6

In short, the garden is a prominent **community of place** that facilitates social interactions (shared meals from garden) and supports individual and collective social-ecological goals (inviting permaculture experts for workshops) through physical amenities (resources). Because the garden provides resources to support ones vision (place-dependence), residents learn to appreciate its physical aspects (WADI, fruits and vegetables) of the garden. In that sense, the garden is symbolic, even when it's a contested space.

5.4.3 Community Hall

Just like the garden, the hall is a prominent community of place that gives meaning to the social-ecological vision of Groene Mient.

Person: During the building phase, residents, along with guidance from architects and builders, poured in hours every week. For resident (GM-1 Expert^{*9}), the self-build process, especially putting together the hempcrete walls, was a learning-by-doing experience that facilitated building new bonds with people, contributing to her personal growth. (Individual attachment, expressed in affective terms).

Psychological: After each working day, resident shared a special meal with all involved, enjoying the process (Groene Mient, no date). Evidently, relations were formed among people and the place. Expert-1 corroborated the same, that before constructing the hall, residents bonded (GM-10^{*10}) during site visits to the old school building present at the spot and reused the materials, such as wooden beams, to construct the hall. The building process solidified relations among people and embedded meanings (to involve neighborhood, meeting place for residents, sustainability initiatives) into the place. While resident (GM-9^{*3} attaches cognitive beliefs to the place (“important to invite people, not exclude them”), GM-5^{*6}) describes in more affective terms (“was a moment of connecting, being together”). (Group-framed attachment, affective and cognitive)

Place: The community hall is also a **strategy** unto itself. It has important functions: connects GM residents through social events, hosts GM working group meetings, connects GM with the neighborhood through social activities (Vruchtenbuurt music festival) (Groene Mient, n.d.), communicates GM and Sterk op Stroom’s vision with others and acts as a networking hub that brings together the municipality, other local energy co-operatives (DEEL, Warm in de Wijk) for sharing knowledge on energy transitions (Groene Mient, no date).

As previously stated, the community hall is a community of place where social ties and physical amenities are rooted (resources, i.e., meeting space for residents, initiatives). The two quotes by residents (GM-4, GM-6) below explain the importance (social ties) of the hall supporting their personal growth (sense of pride) and helping with communication of vision (place-dependence).

“[...] the meetings with other communities are concentrated here and that's where the collaboration is happening and the co-creation as well. For me, it's like air for people and water for fish [...]” - GM-4

“[...] It's a simple vision, being a social and ecological project isn't that complicated. Inviting initiatives that are sustainable in this pavilion to have their meetings gives meaning to this vision. That's part of what I'm proud of as well, because we build it with our own money [...] other people can make use of it and in a non profit way of course [...]” - GM-6

Residents value the community hall for supporting activities that contribute to goal setting by bringing together like-minded sustainable initiatives under one roof. This form of attachment is called place-dependence and residents feel proud of it. In short, the community hall mobilizes participation, creates visibility by communicating visions and helps to build trust in the neighborhood and with other relevant parties.

5.4.4 Chocolate Shop

Although the chocolate shop wasn’t mentioned as prominently in the interviews and survey, the place does hold symbolic value for residents (GM-2^{*8}, GM-6^{*6}, GM-7^{*5}, GM-9). This is a space where residents and locals meet over coffee. As such, the shop serves a crucial social function.

Person: For GM-7, the chocolate shop was established as a separate entity (not related to Groene Mient but part of the same building project facing the street) due to his passion for chocolates. At that time, he wasn’t aware that it would come to serve a social function

connecting people in Groene Mient but also from the neighbourhood. The chocolate shop and Groene Mient, thus, developed side by side. In due course, GM-7*⁶ said, the chocolate shop came to be seen as part of Groene Mient and “resonated with people”, which is described in affective terms. Aside from being a personal milestone (individual attachment), the space also offers physical amenities (coffee, chocolates) to support individual goal setting. Therefore, the chocolate shop is also a community of place.

Place: The chocolate shop did not explicitly have a **strategy** (activities) but implicitly it helped to connect residents through physical resources in the place (coffee, a place to meet). That was the case for GM-6*⁷, who would meet one of her friends every Wednesday on her way to buy coffee, possibly explaining how affective bonds are established through the physical amenities the shop provides.

Strategy: But there was a strategic element. Visions are indeed communicated via the shop, intentionally. While passing through the neighbourhood on a usual day, not for research purposes, the researcher stopped by for a coffee at the shop that led to a curious discovery, and an epiphany: the shop is more than just a meeting spot. Sterk op Stroom pamphlets (SoS*¹) were neatly stacked on a low stool outside, next to coffee table magazines, requesting neighbourhood participation in setting up 166 solar panels on the roof of Aikido school, a stone’s throw away from GM, to supply locally generated electricity to 22 households every year. Even though SoS is not serving Groene Mient houses, the shop contributes to the communication of vision in the neighbourhood.

5.5 Sub-question 3: Creation and communication of vision

In this section we will discuss sub-question 3: Why is creating and communication of vision crucial in contributing to place attachment in grassroots innovations?

5.5.1 Creation of vision

It is one thing to create a vision, quite another to put that into practice.

Psychological

The first big challenge, as GM-2*⁹ pointed out, was to attract like-minded people to support that social-ecological vision and move in the same direction.

“Otherwise the municipality would not believe that we would be able to realize this project” – GM-2

Initially, people with various motivations joined the housing project. In the process, few quit because the social-ecological vision did not resonate with them. Few among those who stayed didn’t necessarily have affinity with environment or even complained about lack of privacy. But, as GM-2*¹⁰, said “we had good debates which is why they changed their long-held views”. Her quote suggests that significant emotional investment went into threading people together with the vision.

Other issues with the municipality, especially ones related to the usage of ecological materials in the project (GM-5*⁷), time and financial constraints (GM-1 Expert*¹¹), were also highlighted. There was a common understanding among residents that the municipality wanted them to build the project but also pushing them to complete the project under a tight deadline. Ultimately though, the housing project was completed on time, and the residents’ social-ecological vision were incorporated, leading to a sense of achievement.

5.5.2 Communication of vision

Next was how communicate the vision. Since the beginning, residents knew the importance of communicating their vision by building trust in the neighborhood. Neighbors in Vruc-thenbuurt thought they were “hippies”* (GM-2) and were apprehensive that GM would change the living environment. Some Data shows an interlinkage between vision and trust is clearly visible as evidence that processes described in the paper are mutually inclusive.

To allay these concerns, GM organized various engagement events like open visit days to familiarize local inhabitants with the project layout (Groene Mient, no date) conduct guided tours (still ongoing) to share knowledge of CPO building with others, entertain visits by researchers, journalists interested to write/study about the community. In the past, they had organized a “cooking together, eating together” event in the community hall with GM residents and local inhabitants to acquaint them with induction cooking to help the neighborhood switch off natural gas (Groene Mient, no date). In addition, Groene Mient made themselves visible (and continues to) at various sustainable living forums, such as the energy exchange in The Hague (2016) (Groene Mient, no date).

Psychological

Residents participated in neighborhood activities not with the sole agenda of transmitting their vision, but support other sustainability initiatives in the area. Spaces, such as the community hall, Sterk op Stroom and strategies, such as DEEL (car sharing initiative) and participation in protest against tree cutting in neighborhood, helped channelize communication of vision.

Car sharing (DEEL): When the car sharing project (DEEL) was introduced in the neighborhood, some GM residents signed up and gave the process a push. Residents (GM-8*⁴, GM-9) expressed a sense of pride for being one of the first initiators to catalyze the process.

“There were immediately five or six, and now there are nine households from Groene Mient who said we want to do this so that gives a lift because otherwise you start with just a few people. And now you have catalysed this process. That's the impact we have in the neighborhood” - GM-9

Mient tree cutting protest: GM residents also mobilized themselves for the protest against cutting 156 trees in the neighborhood to create a parking space. It was a way to communicate that they care about what happens in the neighborhood. Due to this participation, some residents (GM-2, GM-9*⁴) perceived themselves a part of a cultural community with shared values that could be attributed to place-related distinctiveness.

“With the protest against the cutting down of the trees on the Mient, lots of people in the neighborhood are very happy that we if we started this protest they could join slowly” – GM-2

Sterk op Stroom: 300 houses by 2026 and 3,000 houses by 2030. That's the primary objective of SoS to help the neighborhood switch from natural gas to locally generated sustainable electricity to meet their daily energy needs. Nearly all survey respondents resonated with Sterk op Stroom's energy transition vision for the neighborhood. All the survey respondents (n=12) said they are proud of living in Groene Mient because of SoS's vision and relates to affect-based bonds. Moreover, seven out of the 12 respondents agreed with the statement that Sterk Op Stroom's activities in the neighborhood increased their sense of belonging to the community, while only two disagreed.

In the backdrop of the multiple humanitarian crises of climate, migration and now, energy in the EU due to the war in Ukraine, some residents (GM-1 Expert*¹²) acknowledge their unique privilege of living in an energy efficient community without bothering about rising energy bills. SoS's vision gives them (GM-6*⁸) a deeper altruistic meaning that they can help the lesser privileged in the neighborhood who want to develop their own electricity production.

GM-4 is singularly motivated due to SoS's vision. While upscaling challenges, such as funding, smart-grid related issues, partnership tensions with research institutes among others (GM-4*⁵, GM-9*⁵), remain, his association with the local energy co-operative generates a strong individual bonding (personal milestone) to GM. The quote below is an expression of his affective attachment to place but also indicative of place-dependence.

“The reason why I am not only empowered by people around here [...] is an example that I'm not dreaming, this is real. When policymakers come here, I can tell them I will do it in the strategy for local energy communities by implementing the energy system and together with Energy Samen will invite policymakers, who are now developing the new regulations in Holland, to show how it works in Groene Mient [...]. So that is the reason why I'm waking up every morning” – Resident Willie

Overall, SoS's vision created conditions for place-dependence (GM-4, GM-9*⁶) and for other residents it was a source of pride that deepened group-framed attachment with GM.

In the survey and interviews, respondents also indicated other individual and collective visions. Local food sharing is linked with place-dependence (GM-6*⁹, GM-2*¹²), while car sharing through cooperation with DEEL is tied to affect-based attachment (GM-9*⁷ GM-8*⁵). Some also indicated they are content, and others hoped residents don't obstruct other community members' way of living. Here are a few other vision narratives:

- Develop more activities in community hall with neighbors
- Collective ambition for the energy transition in Vruchtenbuurt
- Leave space for other ways of living

5.6 Sub question 4: Role of trust

In this section we will discuss sub-question 4: How does trust building create conditions for place attachment in grassroots innovations?

5.6.1 Trust building

Trust building emerged as a crucial process that created conditions for place attachment. Trust had to be built through reliability and contingent on the residents' personal appraisal of the community building process.

Psychological: In the 90s, GM-1 Expert's long-term association as a chairman of Waterspin supported the process of building trust among resident of Groene Mient. It was hinged on the hope that the future residents could rely on the Expert's prior experience and repose faith in the housing project. Trust was gained by doing, and by relying on trustworthy institutions in the country.

“You have to know each other, and there has to be some trust. The trust comes by doing, this is how it goes with my neighbors. So, it's a living lab for trust. But trust also with the money because people gave thousands of Euros to the Groene Mient Board and we did not go sit on a mountain in the Himalayas with it. We spend it on their houses. So people trusted us [...] – GM-1 Expert

While building the housing project, GM-1 Expert*¹³ indicated that trust was built by relying on trustworthy institutions in The Netherlands, such as the municipality, banks, lawyers, experts. GM-1 Expert admitted that the negotiations with the municipality on land price was challenging, but once it was settled, no extra money was charged. The whole chain of events leading up to the completion of the housing project contributed to trust building. Key human resources within the community and experts were instrumental in taking the vision forward and played a role in trust building (refer to development phase). Respondents (GM-6, PO-1*³) said they had faith in the people and the process of community building, indicative of collective cognitive beliefs. Perhaps, trust is linked, if not directly, with participation as well.

“The common ground of all people who lived here is that they always trusted the process, trusted people in this community that everyone would make a wise decision, and that together we will make wise decisions instead of protecting your own little island or your own needs”- GM-6

Residents invested time and effort to build the community they wanted to live in. Some residents (PO-1*⁴, PO-2*²) said they trust people in general but when there’s a problem, they turn to the ones they know best. For one of the survey participants*, a neighbor is always close by when their daughter is home alone. And for resident PO-6, because people in this community know each other, and not anonymous, possibly indicates a general level of trust. These collective beliefs of residents about the community contribute to place attachment.

“At least we know each other and that’s not obvious in the city, there are also tensions and people disagree [...] But when you have a community solving these problems together it is easier. I grew up with neighbours where there was lot of conflict. Trust also has to do with the level of knowing someone” – PO-6

Ultimately, this quote encapsulates the importance of trust in the community.

“Without trust you can’t build this” – PO-1

5.7 Reflection: Why do we develop psychological bonds with place?

The paper discusses the question of “how” attachments form in grassroots innovations. Upon reflection, one underlying question emerged: why do people develop enduring psychological bonds in grassroots innovations? The answer appears to be linked to feeling of security and rootedness. Security-seeking motives were highlighted frequently by residents in the data. In the survey and semi-structured interviews, most respondents described GM as “home” (PO-9), “sharing community”, “a safe space for them and their children” and a “community with common social and ecological values”. All these values reflect safety, security and maintaining proximity to their meaningful place and manifests through behavior/action.

“This is going to be the house where I want to die. This is going to be my last house and I am very happy with this project” – GM-8

“Home, and a safe environment for my daughter to grow up. When she is home alone there is always a neighbour close 'just in case'. For me it is the safety, I feel having good neighbours (some who truly became friends) close by” – Resident in Survey

Most residents indicated in the survey that they have been living in the community for over five years. Some, including GM-1 Expert, have been associated with Groene Mient

since the initiative was called Vormidabel. Length of residence is also indicative of place attachment as it possibly indicates greater social ties and local sentiments attached to the place. In addition, no resident indicated moving out of Groene Mient, which shows a strong proximity-maintaining behavior (see appendix 2b).

Chapter 6 : Discussion, conclusion

This section will expand on some particularly noteworthy elements of the results, and proceed to the conclusion.

6.1 Does enabling participation contribute to place attachment in grassroots innovations?

The paper examined the role of participation in generating place attachment in grassroots innovations. Through this research, I have established that the participation process contributes to new relations between people and the place. The self-build CPO process was a tough learning curve for residents as they muddled through the challenges by doing, failing, learning, and adapting. In the process, residents grew closer as a community due to the emotional and physical investment in place. Experts aided the process with their technical support and guidance but the residents exercised their collective agency over all aspects of the CPO project. At each step, residents relied on the knowledge and expertise within the group to negotiate with architects, the building company and the municipality. Key resource persons, with their unique knowledge base, played a key role in propelling the vision forward that helped infuse trust in the process. Importantly, **learning-by-doing** supported the formation of place identity, a group-framed psychological (cognition) bond. Residents were proud of the final outcome (affect) and perceived themselves as a learning and experimental community supported by a shared historical experience. Interestingly, the data shows that participation, learning, trust and vision are interconnected and influence each other. Social tensions surfaced after the development phase due to disagreements over sociocratic decision making and use of common spaces and with some perceiving others as less committed to the collective. But less participation in collective activities, as argued in the conceptual framework, does not necessarily imply social unsustainability. Survey data showed that most residents participate in activities whenever required as per individual capacity which aligns with the findings of semi-structured interviews. Overall, enabling participation created conditions for learning and contributed to group-framed place attachment wherein the community perceived themselves as distinct, leading to formation of place identity.

6.2 Does the presence of spaces and strategies contribute place attachment in grassroots innovations?

Spaces and strategies are crucial to trigger participation, foster learning and contribute to place attachment in grassroots innovations. The findings highlight the salience of the garden as the most prominent space of encounter in Groene Mient that mobilized a significant chunk of residents to participate in strategies, such as monthly garden days. Majority of the respondents highlighted the salience of the garden as a space for learning and interaction with neighbours. Evidently, the garden's function as a **community of place** took spotlight. As a space, the garden supported social ties and through strategies contributed to the attainment of the community's social-ecological vision by reaffirming resident's perception as a learning community. This highlights the importance of cognition-based bonds to Groene Mient. Shared appreciation of the social and physical elements of the garden helped in building group-framed attachment to the place. For residents, the garden, even though a space of contestations, symbolised a place where residents practice their collective sustainable culture. Other strategies, such as inviting permaculture experts for workshops and sharing meals collectively harvested from the garden also contributed to learning and relationship building

with people in the community, reiterating the prominence of the garden as a community of place that anchors social ties and provides physical resources to further collective visions. This form of attachment is called **place-dependence**. Just like the garden, residents are also dependent on the community hall as it is essential for the community's as well as Sterk op Stroom's goal setting through the activities it supports. The research establishes that spaces and strategies can foster learning outcomes and helps disseminate the vision of grassroots innovations outside of the community for broader societal transitions. More importantly, there are visible interconnections between spaces and strategies, participation, creation and communication of vision and trust building.

6.3 How does the process of creation and communication of vision in grassroots innovations contribute to place attachment?

Visions are pivotal to mobilize and inspire action in grassroots innovations as they create conditions for place attachment. The communication of that vision is equally essential to transfer local, contextual knowledge of grassroots innovations to inspire broader societal transitions. The presence of a vision triggered participation in communicating that vision outside of the community. One way to communicate was through spaces and strategies to build trust in the neighborhood. This shows interconnection between communication of vision, spaces and strategies, participation and trust building. At all times, all four processes are mutually interacting and influencing each other.

To communicate the vision, residents relied on spaces and strategies, such as the community hall, Sterk op Stroom etc. The dissemination of vision through these channels strengthened place-related distinctiveness as well as affect-based bonds (psychological), especially for Sterk op Stroom, as most residents indicated a sense of pride relating to the co-operatives efforts with the neighborhood energy transitions. With the Ukraine crisis in the backdrop and rising energy prices in the European Union, energy poverty is a clear and present danger. Energy-efficient grassroots innovations, therefore, are more relevant than ever to provide a bottom-up push to shift neighborhood reliance on natural gas to locally generated sustainable energy.

6.4 How does trust contribute to place attachment in grassroots innovations?

As a resident PO-1 indicated, that without trust you can't build a community like Groene Mient. Trust is the common thread connecting all the other three processes that contribute to place attachment. But trust alone isn't sufficient enough to explain place attachment. In this case, it was contingent on other factors and processes, such as participation in spaces through strategies and the creation and communication of vision. In the community, one of the factors that built trust was GM-1 Expert's prior experience as chairman at CPO Water-spin in The Hague and reliance on trustworthy institutions in The Netherlands, such as banks, lawyers, the municipality etc. Then, as reiterated earlier, key resource persons within the community came in with their unique experience to help push the vision further. CPO experts, who had prior experience of building similar collective housing projects, made a big difference. Ultimately, with the help of these processes, but not limited to them, some residents entrusted faith in the people "that everyone would make a wise decision" which created conditions for collective belief in the community spirit, which is cognition-based place attachment. In short, residents perceived the people in the community and building process as worthy of their trust, forming cognitive bonds with Groene Mient.

Overall, the four processes are mutually inclusive. The process of participation fostered learning and created grounds for trust and having a vision links with participation. Presence of spaces gives meaning to the vision and strategies help in the communication of that vision. The four processes influence each other and collectively contribute to place attachment in grassroots innovations.

6.5 Conclusions

As cities become highly urbanized, different ways to build back people's relationship with their meaningful environments are required. In the context of The Hague, loneliness and social disunity is on the rise further chipping away at people's bonding with places. How can we give a boost to people's attachment with places in the face of wicked urban sustainability challenges?

The research established that enabling participation, spaces and strategies, creating and communicating vision and trust building are processes that contribute and influence place attachment in grassroots innovations in the Netherlands. One salient finding was that participation created conditions for learning-by-doing which supported the formation of place identity, a group-framed cognitive place attachment with Groene Mient. Residents were proud of the final outcome and perceived themselves as a learning community with a shared historical experience. They continue to reaffirm their place identity through spaces and strategies. The research engaged with the literature on place attachment to understand the varied conceptualizations of place by scholars. While there is no homogeneity in the definitions, much less an understanding of a common methodology, the research paper adapted the place attachment organizing model proposed by Scannell and Gifford (2010) and contributed a fresh perspective through which to analyze place attachment in grassroots innovations. This paper is potentially the first attempt to operationalize a place attachment framework in that context. Using a single-case study approach, the paper qualitatively analyzed how place attachment occurs in grassroots innovations by explaining the processes involved that contribute to person-place bonding.

The main research question "how does place attachment occur in grassroots innovations in the Netherlands?" was addressed with the help of four sub-questions. The first discussed the role of enabling participation in creating conditions for place attachment, the second investigated the ways in which spaces and strategies foster place attachment, the third analyzed how creation and communication of vision contributed to place attachment, and the fourth probed the role of trust in manifesting place attachment. The analysis highlighted that all four processes contributed to place attachment in Groene Mient and are interconnected and influence each other. Moreover, the analysis found that the manifestation of place attachment in Groene Mient was mostly cognition-based, foregrounding the prominence of psychological dimension of place attachment. Upon reflection, one research gap needs further exploration: the lived experiences of newcomers and people from mixed racial backgrounds and its implications on place attachment in grassroots innovations. While this paper attempted to analyze varied experiences of people within the community, paucity of time prevented capturing details of all intercultural couples (only two interviewed in this paper) and newcomers who whose responses could have illuminated other possible lived realities in grassroots innovations.

Although not a panacea to our global socio-ecological conundrums, grassroots innovations, with their contextual values, knowledge and experiences, can reflect a better understanding of local needs and potentially hold the promise of repairing the frayed bonds between people and their places in the fast-changing urban landscape.

Appendix 1: Consent form for interviewees

Introduction: interview consent form:

Interviewees were asked to provide their formal consent for participating in this research. The form was made available online via a Google form, and participants were requested to complete the form before the interview took place. Seven out of the ten formal interviews completed the form online. Three provided verbal confirmation or confirmation via text/email after having read the form. The following table outlines the questions or statements participants agreed to.

POs (Participant Observants) were not asked for their formal consent via this form (given the ethnographic nature of the exercise). However they were informed beforehand that their responses may be used in this research, and elected to speak to the researcher with this understanding.

Question/Statement	Answer options
Information sheet Name of Principal Investigator: Abhimanyu Chakravorty University: International Institute of Social Studies (ISS), The Hague - Erasmus University Rotterdam Course: Master's in Development Studies, Major in Governance and Development Policy Project Title: Experimentation and placemaking guiding urban sustainability transitions in Urban Living Labs: Case study of Groene Mient, The Hague Provide interviewee email ID	Email ID* required
Purpose of the research: To understand the extent to which experimental governance in Urban Living Labs (ULLs) lead to a sense of place (placemaking) at Groene Mien in guiding urban sustainability transformations, specifically low-carbon energy transitions. The research paper's main hypothesis is that Urban Living Labs (ULLs) can connect a sense of place by co-creating new narratives of place, by co-producing knowledge on new practices, and new relations between people and place, and by allowing the co-design or (re)-establishment of places with symbolic meaning.	
The interview will take approximately between 30 minutes to 1 hour 30 minutes (maximum).	Short answer (agree/disagree/any additional conditions)
Name of interviewee	Short answer
In what capacity are you linked with the Living Lab Groene Mient in The Hague?	Long answer

I agree to participate in the research study. I understand the purpose and nature of this study and I am participating voluntarily. I understand that I can withdraw from the study at any time, without any penalty or consequences	Multiple choice (select one): Yes No
I grant permission for the data generated from this interview to be used in the researcher's publications on this topic (my dissertation supervisor will view the recording as well)	Multiple choice (select one): 1. Yes 2. No
Indicate your permission for audio or video clips or stills from the interview session to be used in presentations or documentation of this study. Select your preferences	Multiple choice (select one): 1. I agree to allow audio and visual clips, including images, video or still, in reports or presentations about this study 2. I agree to allow audio clips only in reports or presentations about this study 3. I do not allow the researcher to use audio, video or images from the interview
Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Choose one of the following options	Multiple choice (select one): 1. I agree that a brief synopsis can be included in the documentation of the research, including my name, school/organization/business name and brief bio. I understand that I will be asked to provide a brief bio and that I will be asked to approve this synopsis. I understand that no other personal information will be communicated 2. I prefer to remain anonymous and to have no professional information or organization or business name included in the researcher's publications based on this study
Choose one of the following options:	Multiple choice (select one): 1. I grant permission for the researcher to use direct, attributed quotations from my interview 2. I grant permission for the researcher to use my responses in aggregate or anonymous statements, but I prefer to maintain confidentiality and request that any comments are presented without attribution to me
The nature and purpose of the interview has been sufficiently explained. Please type your name in the box below to indicate agreement to participate in this study	Short answer (full name)
Anything else you like to indicate or suggest that the interviewer keep in mind	Long answer

Appendix 2a: Groente Mient resident's survey

Introduction

This survey was conducted via a Google form and done at the participants' discretion. The following table outlines the questions participants were asked.

Question	Answer options
What is your name? (Your identity is protected and will not be revealed in the research)	Short answer
What is your gender? (Wat is je geslacht?)	Multiple choice option (select one): <ol style="list-style-type: none"> 1. Male 2. Female 3. Non-binary 4. Intersex 5. Transgender 6. I prefer not to say
Age (leeftijd)	Multiple choice option (select one): <ol style="list-style-type: none"> 1. 25-45 2. 45-60 3. 60+
What is your profession? (Wat is uw beroep?)	Short answer
For how long have you been living in Groene Mient? (Hoe lang woon je al in de Groene Mient?)	Short answer
Are you originally from The Hague? (Kom je oorspronkelijk uit Den Haag?)	Short answer (if not from Den Haag, name location)
What does Groene Mient mean to you? For example, does it mean it a safe and secure space for you? or is it home? Or a place to connect with nature? (Wat betekent Groene Mient voor jou?)	Long answer
Do you participate in Groene Mient community meetings and social gatherings? (Neemt u deel aan Groene Mient-gemeenschapsbijeenkomsten en sociale bijeenkomsten?)	Multiple choice: <ol style="list-style-type: none"> 1. Yes 2. No
How often do you participate in activities? (Hoe vaak neemt u deel aan activiteiten?)	Multiple choice (select one): <ol style="list-style-type: none"> 1. Weekly 2. Monthly 3. Yearly 4. Whenever required
What are those places inside Groene Mient where you interact and learn from your neighbors the most?	Multiple choice (select multiple): <ol style="list-style-type: none"> 1. Community centre 'Ei' 2. Garden 3. Pizza oven 4. The chocolate shop 5. Car parking space 6. Sterk op stroom
When was the last time you had a conflict/disagreement with a neighbor over an issue? Could you say what was it about? (Wanneer was de laatste keer dat u een conflict/onenigheid had met een buurman over een kwestie? Kun je zeggen waar het over ging?)	Long answer
Do you speak with your neighbors in Groene Mient?	Multiple choice (select one): <ol style="list-style-type: none"> 1. Often 2. Sometimes 3. Rarely 4. Never

How would you rate the quality of life in Groene Mient? (Hoe zou u de kwaliteit van leven in Groene Mient beoordelen?)	Multiple choice (select one): 1. Great 2. Good 3. Bad 4. Can't say
What are the best and the worst aspects of your quality of life in Groene Mient? (Wat zijn de beste en de slechtste aspecten van uw kwaliteit van leven in Groene Mient?)	Long answer
Do you know about energy co-operative Sterk Op Stroom?	Multiple choice (select one): 1. Yes 2. No
Sterk Op Stroom, which started as a co-operative from inside Groene Mient, is helping the Vruchtenbuurt to transition from natural gas to locally generated electricity to reduce carbon emissions. To what extent do you agree with the statement "Sterk Op Stroom and its activities to help the neighborhood in energy transitions is increasing my sense of belonging (gevoel van verbondenheid) to Groene Mient?"	Multiple choice (select one): 1. Totally disagree 2. Slightly disagree 3. Neutral 4. Slightly agree 5. Totally agree
As part of its social and ecological vision, Groene Mient wants to share its knowledge of building sustainable local communities with the Vruchtenbuurt neighborhood and the larger community. Do you feel proud of living in Groene Mient? (Als onderdeel van haar sociale en ecologische visie wil Groene Mient haar kennis over het bouwen van duurzame lokale gemeenschappen delen met de Vruchtenbuurt en de grotere gemeenschap. Ben je trots op het wonen in Groene Mient?)	Multiple choice (select one): 1. Yes 2. No 3. Neutral
To what extent do you agree with the statement "Groene Mient is a learning community and takes decisions collectively and collaboratively with all residents?" (In hoeverre ben je het eens met de stelling "Groene Mient is een lerende gemeenschap en neemt besluiten gezamenlijk en samen met alle bewoners?")	Multiple choice (select one): 1. Totally agree 2. Slightly agree 3. Neutral 4. Slightly disagree 5. Totally disagree
Would you ever consider moving out of Groene Mient? (Zou je ooit overwegen om uit Groene Mient te verhuizen?)	Multiple choice (select one): 1. Yes 2. No 3. Maybe
Ever since I joined Groene Mient, my behaviour towards participation (Sinds ik bij Groene Mient ben, is mijn gedrag ten aanzien van participatie)	Multiple choice (select one): 1. Has increased and I feel more encouraged to participate in public activities 2. Has decreased and I tend to avoid participating 3. Neutral, my behaviour has not changed
What is that one main activity that you enjoy doing the most at Groene Mient and helps you build a bond with your neighbors? (Wat is die ene hoofdactiviteit die je het liefste doet bij Groene Mient en die je helpt een band op te bouwen met je burens?)	Long answer
Do you have any personal desires or ambitions that you wish to see in Groene Mient which is currently not there at the moment? (Heeft u persoonlijke wensen of ambities die u in Groene Mient wilt zien die er op dit moment niet zijn?)	Long answer

Appendix 2b: results of Groene Mient residents' survey

Introduction to survey results

The following table provides the responses of residents to each of the survey questions found in Appendix 2a.

Survey question												
What is your gender?	Male	Male	Female	Female	Female	Male	Male	Female	Male	I prefer not to say	Male	Male
Age	60-above	45-60	25-45	45-60	60-above	25-45	60-above	45-60	45-60	60-above	45-60	60-above
What is your profession?	Teacher I am retired since the summer	Head of Product Development	Laboratory technician	Academic researcher/ working for an international NGO	Physician	Teacher	Policy advisor [Beleidsadviseur]	physiotherapist / teacher / practice owner	service engineer	trainer/adviser	Marketing, Shop Owner	Pensionado
For how long have you been living in Groene Mient?	5,5 years from the beginning	5 years	5 years	5 years	5 years	Since feb 2017	5 years	Since 11-05-2017	From the start in Feb 2017	5 years	From the beginning	from the start (5,5 year)
Are you originally from The Hague?	Yes for a long time although I was born in Delft	Yes	No, but live here for 20 years now	No.	no	Yes	Yes	Yes	No	No	Yes	Yes
What does Groene Mient mean to you? For example, does it mean it a safe and secure space for you? or is it home? Or	A safe and nice place to live connected with other people with green and social thoughts	Home, community, haven in a turbulent city/world	Home, and a safe environment for my daughter to grow up. When she is home alone there is always a neighbor	Of course safe and secure place. My own house. A community where people help each other.	a sustainable house with special neighbor contact and some shared values	It's my home, my community.	A home in a socio-ecological community [Een thuis in een sociaal ecologische gemeenschap]	The place where I live, where I make a welcoming house for my children, family and friends, and try to	A very good attempt to find alternative social and ecological paths	Home, living and building together for a better life and a better world	A safe space to call home living in a green village residing in a larger city.	A community that has ecological standards and that has respect for the planet, nature and neighbors.

a place to connect with nature?			close 'just in case'. For me it is the safety I feel having good neighbors (some who truly became friends) close by.					be part of the development between humans to put our micro-steps in developing peace and brotherhood.	[Een zeer goede poging om op sociaal en ecologisch gebied alternatieve wegen in te slaan.]			Looking after others and the neighborhood
Do you participate in Groene Mient community meetings and social gatherings?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
How often do you participate in activities?	Whenever required	Monthly	Monthly	Whenever required	Whenever required	Whenever required	Weekly	Monthly	Monthly	Whenever required	Whenever required	Whenever required
What are those places inside Groene Mient where you interact and learn from your neighbours the most?	Garden	Garden	The Chocolate Shop	Garden	Community centre 'Ei'	Community centre 'Ei'	Sterk Op Stroom	Sterk Op Stroom	Sterk Op Stroom	Garden	The Chocolate Shop	Community centre 'Ei'

<p>When was the last time you had a conflict/disagreement with a neighbor over an issue? Could you say what was it about?</p>	<p>Never</p>	<p>Nothing serious</p>	<p>A year ago, I felt ignored during maintenance work</p>	<p>I have never had any conflicts.</p>	<p>I don't know</p>	<p>Trampoline/ participation</p>	<p>14 days ago, the rate of the car landrail</p> <p>[14 dagen geleden. Het tarief van de auto landrail]</p>	<p>Last afternoon, we had an interesting conversation about the perspective of ownership of houses. What do you do with the over-value of your house, suppose one would have to sell on this moment. Is it 'fair' that you cash may 125% over-value on your ecological house, whereas the community Groene Mient does not receive payments for the additional value that Groene Mient contributed to. Why don't we pay Groene</p>	<p>Six months ago. The garden working group and what has been achieved and how.</p> <p>[Zes maanden geleden. De tuinwerkgroep en wat is bereikt en de manier waarop.]</p>	<p>Sometimes I disagree with another neighbor during meetings</p>	<p>Can't remember, wasn't important enough to remember.</p>	<p>two years ago. It had to do with the way one of the GM houses was sold without consultation the GM neighbors</p>
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								Mient an amount (XXX%) for the over-value once we move? (By the way it was not a conflict, but a crossing of opinions). From 2019 I have had a serious conflict with my neighbors regarding their disrespecting the rules we made as a community, specifically the rules between direct neighbors and the garden we share, and the way we keep each other informed and in communication.				
Do you speak with your neighbors in Groene Mient?	Often	Often	Often	Sometimes	Often	Often	Often	Often	Often	Often	Often	Often
How would you rate the quality	Great	Great	Great	Great	Good	Good	Great	Good	Good	Great	Great	Great

of life in Groene Mient?												
<p>What are the best and the worst aspects of your quality of life in Groene Mient?</p>	<p>I like it on GM, of course there are sometimes things to speak about but this question is not easy to answer.</p>	<p>You know everyone and everyone knows you. That is both good and bad</p>	<p>Sometimes lack of privacy, best part is shared responsibility, always someone around to help (mentally and physically)</p>	<p>The best is its sustainability, collectiveness. The worst I cannot think of.</p>	<p>sharing values and have actions for a sustainable world. How to communicate is sometimes difficult if people disagree.</p>	<p>Best: people are ready to help and are there for you. Worst: Finding a way to find common ground with people who you disagree with.</p>	<p>Building a community gives energy. Living in a community takes energy. [Het bouwen van een gemeenschap geeft energie. Het leven in een gemeenschap kost energie]</p>	<p>Best: quality of the house, ecological aspects of both house and neighborhood in Groene Mient. Worst: unfulfilled expectations regarding the vision we have as a group on nature, mankind and our commitment to stay in communication and contact.</p>	<p>Best aspects: starting up new projects such as the garden house, strong on electricity, car sharing, refugee reception. Worst aspects: small disagreements drag on for too long [Beste aspecten: Nieuwe projecten opstarten zoals het tuinhuis, sterk op stroom, deel auto, vluchtelingen opvang. Slechtste aspecten: Kleine onenigheid en blijven te lang doorzeuren .</p>	<p>Best: mutuality and sharing, garden, comfortable houses, (broader) community building. Worst: when disagreements (in meetings) become unreasonable or when people too much push their opinion at the cost of others (fortunately we work on improving the internal communication process).</p>	<p>Living in/with a community</p>	<p>best: the community spirit worst: not everyone participates in de community</p>

Do you know about energy co-operative Sterk Op Stroom?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
To what extent do you agree with the statement "Sterk Op Stroom and its activities to help the neighborhood in energy transitions is increasing my sense of belonging to Groene Mient?"	Totally agree	Totally agree	Neutral	Totally agree	Slightly agree	Slightly agree	Totally agree	Slightly disagree	Totally agree	Totally agree	Totally disagree	Totally agree
As part of its social and ecological vision, Groene Mient wants to share its knowledge of building sustainable local communities with the Vructhenbuurt neighborhood and the larger community. Do you feel proud of living in Groene Mient?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
To what extent do you agree	Totally Agree	Totally Agree	Slightly agree	Totally Agree	Slightly agree	Totally Agree	Slightly agree	Slightly disagree	Totally Agree	Totally Agree	Totally Agree	Slightly agree

with the statement "Groene Mient is a learning community and takes decisions collectively and collaboratively with all residents?"												
Would you ever consider moving out of Groene Mient?]	No	Maybe	No	No	Maybe	Maybe	No	Maybe	Maybe	No	No	No
Ever since I joined Groene Mient, my behavior towards participation	Has increased and I feel more encouraged to participate in public activities	Neural, my behavior has not changed	Neural, my behavior has not changed	Neural, my behavior has not changed	Neural, my behavior has not changed	Has increased and I feel more encouraged to participate in public activities	Neural, my behavior has not changed	I have always been participating... never stopped to do so, the ways in which I participate vary. et	Neural, my behavior has not changed	Neural, my behavior has not changed	Has increased and I feel more encouraged to participate in public activities	Has increased and I feel more encouraged to participate in public activities
What is that one main activity that you enjoy doing the most at Groene Mient and helps you build a bond with your neighbors?	The garden	Organizing the maintenance of the complex	Building projects and partying	Garden parties	Changing our decision strategy	Building 't Ei' was a very nice project to make a connection with my neighbors.	Mowing; disruptive innovation [grasmaaien; disruptief innoveren]	Making food for everybody.	Exchange experience regarding energy use. [Ervaringen uitwisselen betreffende energie gebruik.]	Garden work	Having a chat with neighbors and helping each other when needed.	Sterk op Stroom and guided tours [Sterk op Stroom en rondleidingen (giditours)]
Do you have any personal desires or ambitions that you wish to see in Groene Mient which is currently not there at the moment?	More activities in het EI with the neighbors	No. I am quite content	I would like for groene Mient to have a lower strive to perfection. To try more	not really.	not yet	Not at the moment	Collective ambition for the energy transition in the Vruchtenbuurt	Yes. That people leave space for other ways of living, and don't hurt other people's	None [Geen]	Develop (more) activities with the broader neighborhood and society	Don't know. Time will tell. So happy for now.	Yes, too many to share with you in English [Ja, teveel om in het Engels te

			<p>things basically and if it works improve it and if it doesn't just get rid of it again. Things are very thought out beforehand instead of just going with the flow</p>				<p>[Collectieve ambitie voor de energietransitie in de Vruchtenbuurt]</p>	<p>belongings or intentionally obstruct other people's way of living.</p>				<p>kunnen delen met je.]</p>
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Appendix 3: respondents' list

Introduction to respondents' list and legend for each code

This table breaks down each of the 17 respondents, including their role in the community and the date of the interview. The aim of this table is to provide background for the anecdotal responses in the results and discussion section.

Legend for coding:

1. GM= Groene Mient resident. The numbers attached to each 'GM' interview corresponds to the number and order of the interviewee spoken to through semi-structured interviews.
2. PO= Participant Observant. These interviewees were conducted ethnographically during the two participant observation days. The number attached to each 'PO' interview corresponds to the number and order of the interviewee spoken to through casual conversation during the day.
3. Expert= expert in the field (either in the Groene Mient region or Den Haag Gemeente itself). GM-1 is a resident of Groene Mient as well being an expert.

Code	Role in the community	Sample method	Interview duration	Interview location	Consent type	Date
GM-1 (Expert)	Founder	Snowball	1 hour	Groene Mient		10 th September
GM-2	Resident	Snowball	1 hour	Zoom	Online form	5 th September
GM-3	Resident	Snowball	1 hour	Groene Mient	Verbal	23 rd September
GM-4	Resident	Snowball	2 hours	Groene Mient	Verbal	30 th September
GM-5	Resident	Snowball	45 minutes	Groene Mient	Verbal	16 th September
GM-6	Resident	Snowball	1 hour	Groene Mient	Online form	16 th September
GM-7	Resident	Snowball	1 hour	Groene Mient	Online form	19 th October
GM-8	Resident	Snowball	1 hour	Groene Mient	Verbal	20 th October
GM-9	Resident	Snowball	1 hour	Groene Mient	Online form	7 th September
Expert-1	CPO expert	Snowball	45 minutes	Teams	Verbal consent	24 th November
PO-1	Resident	Random	N /A	Groene Mient	Verbal consent	7 th October
PO-2	Resident	Random	N /A	Groene Mient	Verbal consent	7 th October
PO-3	Resident	Random	N /A	Groene Mient	Verbal consent	9 th November
PO-4	Resident	Random	N /A	Groene Mient	Verbal consent	9 th November
PO-5	Resident	Random	N /A	Groene Mient	Verbal consent	9 th November
PO-6	Resident	Random	N /A	Groene Mient	Verbal consent	9 th November

PO-7	Resident	Random	N /A	Groene Mient	Verbal consent	7 th October
PO-8	Resident	Random	N /A	Groene Mient	Verbal consent	9 th Novem- ber
PO-9	Resident	Random	N /A	Groene Mient	Verbal Consent	9 th Novem- ber

Appendix 4: Expanding on Credibility-Approachability methodological framework

Introduction: providing additional information following up from methodology chapter

As discussed during the Methodology chapter, the basis of this research required being approachable and establishing credibility with participants from the start itself. The following appendicized information regarding the Credibility-Approachability framework aims to provide additional context to the framework within this research, particularly in light of this researcher's positionality as a visitor to this community. Finally, a reminder that not all the roles mentioned in the Adu-Among and Adams (2019) framework apply in this paper. Those that are relevant have been discussed in the methodology and are further elaborated on here.

Credibility

For example, building a relationship with the first key informant was a stepping stone for more interviews within the community. Resident Cornelie, who provided access to the community members, revealed a nugget of information that pleasantly surprised this researcher. It led to a foundational level of professional academic credibility as also an entry point into perceiving the researcher as somewhat of an insider given the mutual affiliation with the same research institute.

GM-2: "Groene Mient would be pleased to receive you and inform you about our wonderful project. [...] I am also an alumni of ISS"

Researcher: "I am delighted to know that you are also an ISS alumni."

As per the case study protocol, the researcher routinely sent participants their interview transcripts for review, which can also be seen as performing professional credibility. Due to paucity of time, one resident couldn't review the transcript but gave me a go ahead. This showed a positive perception of the researcher's professional credibility by the researched.

Researcher: "As promised, here is the interview transcript for you to see [...] I will only use the edited version of the transcript so that there is no misunderstanding, or miscommunication of your spoken words"

GM-3: "Maybe just go ahead with this and if you could please let me see the end result, I would appreciate that! I trust it will be a balanced and politic version of what I shared."

In the initial phase of proving my professional credibility, I exchanged several emails between August-November with the first key informant, with regular updates on the research progress. One of the emails was an update on the initial idea of my research paper, on placemaking and experimentation. This was part of a process to project the researcher as professionally capable and worthy of time investment given that most study participants are busy professionals. Therefore, it was important to establish trust and build rapport with the key informant for her to perceive the academic as worthy of time (Adu-Among and Adams, 2019, p. 3).

Researcher: "I am exploring the option of doing research on "placemaking" and "experimentation" at Groene Mient, while looking at urban sustainability transitions"

Resident GM-2: “[...] It would be interesting to learn more about the conceptual framework and the research methodology you will apply [...] Personally I feel your research will be a good asset to us and I am willing to help you as much as I can within my capacities [...] also with selecting key resource persons in our community and around”

Alongside my affiliation to ISS, my professional background as a climate journalist gave a boost to my credibility, a disclosure that I made early on with the key informant. While sharing this researcher’s exploratory survey with other residents over email, the key informant focused on his professional background while urging them to take some time out to fill the form, thereby perceiving the research as a worthy investment of time and effort. Participation on garden day also helped. As a result, I was perceived more of an insider, and less of an outsider.

Resident GM-2: “On the last day of garden work, some of you met Abhimanyu from India. In India he is a journalist with a national newspaper and is currently doing his Masters at the Institute of Social Studies (Erasmus Uni). His graduation subject is sustainable urban transition (also an important issue in India). He uses Groene Mient as an example. He now has a request for you to complete this survey [...] On behalf of Abhi, thank you in advance for your cooperation.”

Approachability

But, the insider-outsider debate is never settled. It is crucial to foreground the researcher’s affiliation with varied categories, such as insider-outsider, while operating within this praxis (Chacko, 2004, p. 53). In this process, my position as an insider-outside was in flux as I constantly changed and negotiated my positionality depending on the context (Adu-Ampong and Adams, 2019, p. 2).

As a person of colour from India, the researcher is an outsider in The Netherlands, with very little knowledge of the language and socio-cultural sensibilities. But this outsider status was partially moderated with the help of several actions and reactions between the researcher and the researched. These events can be viewed from the lens of performance of approachability, a method that a researcher should employ “that get the study participants to open up more in any given situation” (Adu-Ampong and Adams, 2019, p. 7). According to Mayorga-Gallo and Hordge-Freeman (2017), to be readily approachable means to appear non-threatening and safe. Approachability also has to do with, as Lofland et al., (2022, p. 41) says, the “connections, knowledge and courtesy”.

For example, a few weeks before the second garden day invitation, the researcher asked the key informant, the main source of connection in Groene Mient, if bringing a classmate from ISS along was permissible. In response, the key informant asked for background information about the classmate. Here, to appear more approachable, the researcher added that the student is a Dutch national, and interested in the vision of Groene Mient. In addition, the researcher, out of his goodwill and genuine gratitude for the community, offered to cook and bring vegan Indian food for the garden day to build rapport and bridge the divide between two different cultures. Here is what followed:

Researcher: “I would like to thank you for personally reaching out to all the key persons for interview [...] I can’t thank you enough! (Maybe one way to do that is to cook Indian food and bring on garden day)”

Resident GM-2: “Yes, you can bring your friend with you for our garden works day [...] Bringing some Indian food for lunch is well appreciated”

While the classmate was truly motivated to be part of the garden day, there were two primary reasons for his involvement: Firstly, because he is Dutch, he could understand and interpret the garden day conversations, as per the participant observation ethics protocol (attached in Appendix) and the research question. Secondly, his involvement was a conscious attempt to build on the insider status through a performance of approachability.

On garden day, the researcher spent a lot of time removing weeds with the key informant. In one such conversation, the key informant mentioned that Groene Mient receives a lot of requests from students for research. One statement by the key informant builds on the approachability factor and lent cultural credibility to students from non-European background, adding to the participants' intrigue factor.

Resident GM-2: "Good to have someone from outside, from a different cultural background to see us"

There is evidence to prove this too: the last two Master's thesis on Groene Mient and Sterk op Stroom were written by students from the Global South, from Lebanon and Myanmar.

The researcher added another layer of approachability factor by wilfully meaning and consistently using courtesy with all participants before the interview as a thanking gesture for their valuable time:

Researcher: "Thank you for agreeing to the interview, it really means a lot because it helps me to be comfortable with this context and this process is also helping me to understand how the Dutch society operates"

Appendix 5: Question bank for semi-structured interviews

The following tables are the questions used as the basis for the semi-structured interviews. Not all questions were used, and some were rephrased based on the flow or context of the conversation. Some interviews had follow-up questions that are not listed here (as they were based on the responses in the moment), and some interviews did not utilize all questions below.

Question bank 1: For all formal interviews (GM residents)

Theme	Question
History and background	<ol style="list-style-type: none"> 1. Could you tell me a bit about your background and your association with Groene Mient? 2. What is the main reason behind calling Groene Mient a "living lab" and why? 3. What is Groene Mient's main vision and some of its main principles? Why did you choose Vruchtenbuurt in The Hague as your intervention area? 4. How would you describe Groene Mient as a community? More importantly, what does it mean to you as a place and for your emotions, wellbeing and identity? 5. What were the challenges faced while setting up Groene Mient as a CPO?
On participation, learning and place attachment	<ol style="list-style-type: none"> 6. What are some of the primary activities at Groene Mient? 7. On your website, you mention "that the essence of Groene Mient is to find the connection between people and nature again through the social ecological housing project". How do you create this connection with and for community members?
On Groene Mient as a "living lab" for experimentation	<ol style="list-style-type: none"> 8. Groene Mient is explicitly labelled as a "living lab", specifically for the low-carbon energy transition at the neighborhood level. What were some of the decisions leading up to the establishment of the experimental living lab? Whose idea was it to label it as a living lab and why? 9. Who are the stakeholders in Groene Mient Living Lab and do they always share the same vision? What do you do to bring them on board when there is a difference of opinion? 10. How do you initiate the process of learning, and experimentation at Groene Mient? What are some of the challenges? And how do you manage to implement the outcomes from discussions?
On connection between participation, learning and building relations with people and the place	<ol style="list-style-type: none"> 11. In what ways do these experiments help in learning within the community and build new relations between people and the place? Does it always lead to desired outcomes? 12. What are some of the main features or characteristics of experimentation that you conduct at Groene Mient? 13. What are some of the strategies used to translate this knowledge gained from experiments in Groene Mient into real-life applications and applying it to the neighborhood or the city? 14. Are there specific spaces within Groene Mient where people physically meet to interact, share knowledge, learn, experiment, discuss and debate? 15. Since Groene Mient operates within the larger Vruchtenbuurt area, how did Groene Mient build legitimacy, trust and visibility among neighbors? What did you do to build trust?
Creation, communication of vision and knowledge transfer	<ol style="list-style-type: none"> 16. What are some of the impacts that the Groene Mient has had on the wider neighborhood and the city? 17. In your experience, has there been any kind of knowledge transfer from Groene Mient to the municipality influencing their urban development policy making?

Question bank 2: Additional questions for GM-4 (Expert), founder of Sterk op Stroom

Theme	Question
History and background	1. Tell me a bit about yourself and how you came to establish Sterk op Stroom. Why, how and when was Sterk Op stroom established? What was the purpose?
Decision-making in Groene Mient	2. How do you make decisions in Groene Mient and what do you do to implement those decisions?
On living lab/Sterk op Stroom	3. You call yourself a living lab. What is your definition of a living lab? Is the entire Groene Mient as a dwelling called a living lab or only the Sterk op stroom Co-operative? And what is the reason behind calling that? 4. Who is the target audience of these energy experiments? How many houses are part of the Sterk Op Stroom living lab experiment?
On living lab + Participation + Vision	5. What kind of energy-related experiments are you conducting at Sterk Op Stroom? What are its features? How are you involving residents in this experiment? 6. What are some of the challenges you face in testing new ideas, innovations while operating Sterk Op stroom within Groene Mient and in the neighborhood? 7. Do you have a vision for Sterk op stroom?
On experimentation and learning in Groene Mient	8. What are some of the other activities or experiments (Social, technical and environmental) that you conduct inside Groene Mient to foster learning and collaboration among residents? And what do residents of Groene Mient love to be involved in the most? 9. Does everyone understand what you are trying to do with Sterk Op Stroom? 10. Are there any particular places inside Groene Mient where the majority of decisions are made and where these physical experiments are happening? 11. In your opinion, have you seen Groene Mient as a community change and evolve over time as a result of these experiments that you conduct within the community? What are those changes? 12. How do you manage difference of opinion?
On learning + participation + new relations	13. What does the community of Groene Mient mean to you as an individual? 14. To what extent do these experiments help learning within the community and build new relations between people and the place but also with the neighborhood? Is it creating new bonds with people? Is it empowering people to take actions at their own levels? 15. Are residents of Groene Mient seeing this community differently now than they did before? Do you think that Sterk Op Stroom is able to create new connections between people through collaboration and participation?
On creating and communication of vision	16. How do you building trust, legitimacy and visibility for Groene Mient and the Living Lab with the neighborhood? 17. As part of Groene Mient, how are you involving the neighborhood in this energy transition experiment? 18. You have partners, such as TU Delft, Haagse Hogeschool, Municipality, Province and Stedin, working with you for Sterk op Stroom. Is this a formal partnership or informal? Do you see a lot of collaboration and communication take place between partners? What kind of support do you get from the Municipality, Stedin and research institutions?
On aspirations and values for Groene Mient	19. What are some of your values and aspirations that you want to see reflected in living lab Groene Mient in the future that is currently absent? How do you perceive Groene Mient now and what do you want it to be in the future?

Question bank 3: Additional questions for interview with Expert-1

What were your primary motivations to help build CPO Groene Mient in The Hague?
What were your main responsibilities in CPO Groene Mient project?
What challenges did you encounter while conducting these activities? Like for example, any specific problems you faced with the municipality or with any other stakeholders?
How did you overcome these challenges?
Did you face any challenges or problems with the residents themselves during the building process?

What are your specific learnings from this intensive process of helping build this CPO with the residents of Groene Mient?
Did you learn anything from the residents themselves during this process? And were the residents of Groene Mient flexible enough to hear, discuss and respect your knowledge and expertise on CPOs?
How much of the residents' own knowledge did you incorporate while building the CPO?
Considering that you were the expert consultant on CPOs, how did you build trust with the residents of Groene Mient? Was the process easy? And how did you resolve conflicts of opinion?
Finally, what are some of your personal views/reflections and overall experience about the whole process of building CPO Groene Mient with the residents?

Appendix 6: Participant observation (day 1, 9 October 2022, garden day)

Field notes/on-the-spot interviews/reflections

People having conversations with each other, laughing, while briefing is on. Resident GM-2 begins to instruct and ask people to pick their roles, not everyone is here today for the garden day, choose what you want. There are roles for everyone: architects in charge of specific things, resident GM-2 in-charge of organising.

There are existing relationships between people here, they talk about some garden gear missing, someone probably took it.

In this context, PO stands for “Participant Observant”. I was observing but also interacting with the participant observants during these visits.

In this context GM stands for Groene Mient.

PO-8: Communication in charge for Groene Mient. From Arnhem, moved to the Hague, stayed in Laakwartier from 2000-2005.

PO-7: Born and raised in the Hague before developing houses.

“Already neighbors even before developing houses, everyone knows one another. You might know speak with everyone or friends with everyone but you get to know what is happening. You can’t build fences here so lot of us collaborate with each other. Some people come for garden days, usually around 20 people but today it’s less as people have stuff to do.”

“Ei is a place to meet for DEEL, Warm in de wijk, Sterk Op Stroom, Warm in the Wijk”

Conversations between us is friendly, one was explaining his week to the other saying it was Gezellig. Everybody knows their role on garden days, they were comfortable to share agreements and disagreements – positively disagreeing. For example, when Resident GM-2 was saying do this and that, with people responding with “there aren’t enough people”.

Very constructive but personal interactions - they know why they are living here, they said the only household that moved away found another “love”. Interactions are natural and centered around social life and it’s not a friend’s group but a community. Spaces are communal even within the garden groups there are closer groups. A lot of shared responsibilities.

Resident GM-2 to researcher:

“Good to have someone from outside, from a different cultural background to see us. There is a yearly budget for maintenance and energy bill for public spaces” - 25 Euro per year for parties and social events.

PO-5:

“Wanted my children to grow up in the ground and feel nature”

Bell rings to invite people for tea/coffee break – there is a structure to the garden day based on time. No kids in the garden at first, but they arrive later and help in small tasks such as shearing dry leaves

Resident GM-2 on why some people left Groene Mient: Lunchtime conversations on people dropping off from their community, saying those who had to leave left before the construction began because they wanted to be connected to natural gas supply. What were some reasons for them leaving, I ask. Many were attracted because it was a rare opportunity to build your own house plus it's near the sea + small shops around + friendly neighborhood. They didn't join because of our vision, and those who did like the idea because they also grew with Groene Mient in the process, people also complained because of lack of privacy due to communal way of living. But some people who did not have affinity with environment also completely changed after discussions. We had good debates which is why people changed their views.

Resident GM-2 on education and challenges:

Not all here have same education, some have practical experience while some have university experience. 30 per cent have university experience and 70 per cent have hands-on experience. Municipality was pushing us to complete but also wanted to give us a shot to realize this project. A resident from Japan planted a Yuzu tree this year, helps her feel rooted and reminds her of home and I see the importance of it.

Children walk in around the garden at 12:30, some start helping cutting overgrowth. Resident GM-2 instructs people on next steps, so garden days have a formal structure and way of working. Children are comfortable talking to people others than their families.

Resident GM-2 on Socratic decision-making – Generative Experiment:

“Now, the group is going back to smaller groups for decision-making where people feel safe and can speak up. Lesser discussions on bigger groups and more discussions on smaller groups. Now, everything is discussed in smaller working groups and in general body meeting we only meet to say if it is accepted Yes or No. Smaller groups were there before but discussions of plans used to happen in General Body meeting. However, now people express more on smaller working groups.”

PO-2 on children:

“They love playing here but sometimes we have to set boundaries, you can't play with hard ball and they have to learn but now they know they have to get used to it.”

PO-2 on vision in neighborhood:

“Residents GM-9 and GM-4 put efforts with neighborhood then it's not strange anymore like the beginning phase. Lots of people living here all their lives and don't know we live here and get surprised”

Resident GM-2:

“We share plants with communities, have seed libraries, we haven't yet realized initiative where we put a cupboard outside with food for people who don't have time to take from there”

Resident GM-2 on garden-disruption to climate adaptation plan:

“There is a part of the garden which was encroached upon and it affected the overall climate adaptation plan with WADIs. Now she is repairing it, lot of personal drama but people support each other to overcome, no real leaders but people initiate things on their own”

Resident GM-2 on demography:

“Youngest just born, eldest is 72, majority white ethnicity but not all have dutch roots, some born in Germany too + Belgium + Suriname + Japan + Taiwanese + Indonesia + Senegal; more people from other parts of Netherlands”

PO-4 on Garden day: symbolic understanding of place:

“Garden is the real space to connect with people, it brings people together. Not everybody helps, days there are more people and days there are less. If you don’t like gardening then you participate in some way. Parties/anniversaries are a way to connect but also during summer when you relax in the garden. Nice to know all your neighbors but of course you live with many so not all the same. All people have office jobs so nice to use muscles in the body in a different way.”

PO-3 on garden day:

“When it’s once a month you do this, you look at your own space and say how I have taken care of my own space but the garden. Feeling of working here also gives a good feeling – do it for yourself but for others. Garden day shouldn’t be something that you have to do every month, then we will have problems. But then it’s also a place where you want to live, so it’s a difficult balance”

PO-3 on differences:

“There are differences, but when you work together, there is bonding, you don’t have to talk about difficult subjects, don’t have to discuss everything, I do it to relax, lot of talking is not relaxing, I like to work with my hands; sometimes you have conversations that open up new discoveries about others that you didn’t know before”

Appendix 7: participation observation (day 2, 9 November 2022, garden day)

Field notes/on-the-spot interviews/reflections

Observations: At least 14 residents present today, up from nine last month. Participation increased. Mostly garden maintenance, removing the weeds from the path, from the garden. Another resident conducting a guided tour with two others, he takes them to the municipality hall. Residents here practice what they preach on their website. People here in garden day play other roles too. For example, PO-5 tries to help in other ways aside from gardening by organizing music activities to support others, like if someone wants to help with organising anything. Aligns with conceptual framework that everyone participates according to their capabilities and capacities. People with open garden are not as concerned with privacy. People in Groene Mient from Zeeland, Groningen, Enschede.

In this context, PO stands for “Participant Observant”. I was observing but also interacting with the participant observants during these visits.

In this context GM stands for Groene Mient.

Resident PO-5 on Garden Day:

“Last time I was disappointed with participation. Why? Because after corona after people want to go out”

Resident PO-2 on trust:

“One thing is important to talk to each other, when trust disappears, when you use email and chat and everything you are not connected and can be more miscommunications. There’s a risk of mistrust that you don’t understand each other and misuse of communication platform. When you’re talking face to face, if there are some differences then you can sort it out. We have 9 people are here and rest are not coming so this meeting in garden was important. Sometimes it’s difficult to trust but in general I do trust. There are exceptions. Trust is the basis of everything. If you don’t invest in people then you can’t build a community. Talk to each other face to face. You don’t always realize it, reflect on it every day but lots of people we build a community, and try not to judge quickly.”

Resident PO-2 on relation with neighbors:

“People invest a lot of time and energy to have a cohesive community”. When probed further, he didn’t want to open up as we were present in front of other community members.

Resident PO-2:

“Here people with similar background so it’s easy to live together”

Resident GM-2:

“Adjusting things in the system so it works for us (socioratic system). We are part of permaculture network- exchange knowledge and visit each other- trainer from there come here and teach us and also give advice. Also urban farming network- stadslandbouw- garden group is active with that”

Observation: Everyone comes to Resident GM-2 to ask things - conversations are very gentle and kind. Someone who had Covid asked for food and there was a lot of understanding and no stigma, sitting a bit separately but no issue at all.

Resident PO-1 (from Rotterdam):

“Wanted to live in a house that is less isolated and alive in a community and do more things together and someone is sick the other one helps. Like the garden, very much camping life here, feels like holidays. Garden days doesn't feel like working, sharing meal to talk to each other and meet other. When someone is moving in now they didn't join the process before it is harder to know how it is functioning. I had confidence in the process and in the people. Not everybody is my best friend, you know what you can expect from everybody and same expectations from everyone.”

Resident PO-1 on sharing in GM:

“Lots of people don't work in the garden but people still want to deliver something like make soup for all. I came in at the moment they were searching for a new group or members - 2 or 3 years before the staying in the building”

Resident PO-1 place attached due to relation with Sterk op Stroom:

“Specially the community and the energy zero concept - want to give earth to the younger generation and be careful with what we do here. I try to use as sunny times my washing machine is working - part of sterk op stroom. Part of the Sterk op stroom working group. I have my energy contract with sterk op stroom not eneco”

Resident PO-1:

“Good things: very nice garden and nice neighbors and doing things together- we have vision that is good for the world. If more people could live like we do the world would be a better place, I don't know everything about my neighbor but when I'm sick they would help. Electricity consumption has gone down and especially with the crisis we try to do short showers”

Resident PO-1 on trust:

“To feel like a part a group of people, to feel accepted. Trust my immediate neighbor, trust most people but when I have a problem I have few people to whom I will go first to. Groene mient felt safe during covid and when you went outside not knowing where the danger is - first two months. Without trust you can't build this”

Resident PO-9:

“I feel safe and gig always have something to do and never locked up in your house. Get dirty playing? Falling, sometimes just sit on a bench and think about life but more like what if I could fly? I have 5 friends and 2 I never see and 2 that are a bit older than me and inside their houses a lot. Don't have a lot of contact with them. I already had my real friends from school and then I came here and it was new. When I walk by I do have conversations and then speak with one I know best and conversations with one I really know. Not like hey you want to start a conversations.

“It means home and lot of cats and few naughty cats and fun and Interesting and always something new. It's always the same but always new mushrooms and pretty flowers and grass is freshly cut. I like the smell”

“I have nice neighbours, they are definitely a 10, one is 10 other one is a 9 because I don't see them that often but friendly.”

Resident PO-6:

“Quality of life also has to do with it, but it is less of a concern, for example, my quality of life has grown because the place where I use to live in Schilderwijk was noisy. I can see a bit of nature from my house, also we agreed on leaving trees and bushes because it attracts birds and I can see that from my place. Huge difference between where I lived before and right now. You have to allow the place to grow because of what the people add or take away. In the beginning, we were strangers that did something here but a part of the neighborhood feels proud of this part of the neighborhood. At least we know each other and that’s not obvious in the city - there also tensions and people disagree when it gets to a point of more than annoying. At least when you have community solving some of these problems together it is easier, I grew up with neighbors where there was lot of conflict. Trust also has to do with the level of knowing someone”

Appendix 8: Further quotes from results section

Context	Interviewee	Quote	Page
Social diversity vision	GM-1 Expert	1. "The lack of social diversity can be counted. Approximately 50% or more of The Hague inhabitants have at least one parent with a non-western cultural background, the representation of Groene Mient is far below that figure. I counted five people in 33 households, with more than 100 inhabitants"	25
Groene Mient principles		2. "The three main Goals of both waterspin and Groene Mient are the social aspect, so you have to have some social sustainability and it has to be a mix of young and old, rich and poor people. And the second is the ecological we want to be innovative, we want to be as long a chain of use as possible, the clean loop, and preferably only biological materials. And the third one is the Participation of each and everybody according to possibilities, and the theorem that I always like to phrase is that everybody peaks at his or her own moments"	25
Sociocratic decision making		3. "Important part of functioning of this community is that we have a 'chaotic organisation', we change the roles, the structure, the processes, and the goals over time. New findings indeed, and building on results that are achieved"	
Development phase-challenges + Key resources in community		4. "We had somebody on the board who was a master planner at the cruise ship company well, if you manage to get the every screw right on its place on a cruise ship, then you can be the planner of this project as well. And then we had ODA for the process and the very one of the very important things that ODA brought up was 'first, you want to decide on how you make this decision and then you make the decision on the content'. This was very, very good for our group as well because everybody could feel safe and it was not like, no, we're going with this architect because he's a friend of your father. No, we already said we want somebody within Den Haag, So This is why you're friend has not been chosen, Then it stays clean."	30
On help from CPO experts to build GM		5. "And another thing was that of the people we paid from building community. They are now in Holland doing all the CPOs. Katja helped the board in the process and she very good at this [...] you have To have experts in the fields and she was experts both in the architecture process in the ecological field and also she was in between the parties. So she was not a member of the Group so she could Speak on behalf of us, but she was also not of The municipality, like a liasion, she was a secret weapon"	30
On communal garden as a contested space		6. "There are 33 houses and each and every one of us is 1/33rd owner of the garden. My garden goes just past my deck door, so the garden we just walk through, it is for everybody. Then you have to decide what is going to happen with this garden. As a human kind, we are not very good at sharing, not very good at giving space to somebody else, so the joy of one person, like children playing or reading silently a book, is quite opposite. So, how are you going to manifest yourself and keep peace within this place as well? There's money in it, so this makes it different than a community garden when I go to the park or to the beach that I have to abide by the rules that the municipality has made-up. But here it's my own garden and I have some wishes but my neighbor as well."	31
On participation		7. "You have to keep respect even if you're thinking I'm putting in all this time and effort and so on. But then it's your own responsibility what you're doing, so you cannot get sour over somebody else's inactivity. You know it's your responsibility"	31
On appreciation for the garden		8. "If you see the earth as a biological and living entity so why is this garden within five years, so flourishing and why do we have so much success? Because we do not only take from the earth, we give back a lot. And this is on a on a physical level, like we don't throw away the old leaves, we leave them on the ground. So it's like a blanket for the cold and dry days so the moist keeps within the soil and other people find it quite Necessary to meditate on this piece of ground and to feel the love for the important tree that we have and other people just goes like, well, we have to take care of it, and when it goes down, we have To plant new tree."	35
On learning (community hall)		9. "Sometimes it just happened in between like Learning by doing. I learned about the hemp create when we were building this Community House [...] Basis again, then is finding interaction, finding activities that you like to do together. You saw the gardening day, but also constructing our community spots together there, which is called the Ei where you can have a party or we can have our meetings where the	36

		SOS project has its meetings. And so we build it together and there comes the discussion, what material are we going to use, what methods are we going to have? And then you learn to know each other”	
On challenges in building GM/municipality		10. “With municipality and with the money we face a lot of difficulties because they could not grasp that a group would make it.”	38
On acknowledging privilege		11. “As inhabitants of Groene Mient, I make money, I am one of the five Duurzaame Zone houses, we have three energy concepts area. So we have the people with the heat pump, with solar power panels and convector and PV cells and then there is the in between model. So with three energy concepts for 33 totally different houses, not one house is the same, not one household is the same. And then you have these three concepts. So there are five houses from the type that I'm living in, And I make much more energy with my house Than I use. So I am making money, and this feels awkward. I mean, now we have these huge amounts of refugees who are fleeing from war, from all over the world or from the humanistic Circumstances, you know, people from Uganda, from Russia, if you happen to fall in love with someone from your own sex then you might end up in jail or even worse in those countries. Those people come here. But I foresee that it could happen that there is so little energy in some countries where it's really cold in winter that we get climate refugees. They all want to come in my house. You understand how it feels? I feel, OK, so I'm quite privileged. But it also feels as a big responsibility, How can we make it possible for more people in less fortunate circumstances, To live as a I don't have headaches about my energy bill”	39
On building trust		12. “In Holland there are institutions that you can rely on. If I go to the municipality and it was hard to have the negotiations about price, but once it was set, I did not get a bill afterwards. I did not have to pay Bakshish afterwards, so I'm cooperating with Foundations with institutions that everybody relies on. For example, A good bank, A bank that everybody trusts, a young bank, Lawyers that people can trust, the municipality said, You can go to so and so lawyer and you will handle your affairs. We talked to that lawyer and we found out that he did Not have his heart in this project. He did not understand that we want to share our garden with 33 houses. He wanted to measure it and if necessary you have to put fences, so, we're not going to do that. We trust that it's not going to happen in future. And he was really astonished. We said we're not going to go on with this lawyer to the municipality. And then they said if you're not going on with them you have to pay €3000 because we already made an appointment This is learning money. If you have to divide it, everybody pays €100. Yeah, we could defend it also for the group. We said yeah, it costs us €3000, but now we can go on with trust So you have to, you have to build on institutions that people do trust and that have proven themselves and that we do not have to question the question marks with it. And yeah, you have to walk your talk.”	40
On Different people having varied motivations to join GM		1. “Many were attracted because it was a rare opportunity to build your own house plus it's near the sea + small shops around + friendly neighborhood.”	24
On importance of experts in development phase		2. “We were lucky that we had a very good communication advisor who was also good lobbyist.”	30
On being a learning community	GM-2	3. “We learn a lot from each other because of different views, different knowledge. And we learn also by doing. We do things together and if sometimes things fail, then we discuss how, why did it fail and then we discuss how to do it better or we get some outsider to give his advice So we are really a learning community.”	31
On conflicts that two neighbours had		4. “A few times it happens that that there's two neighbors who had conflicts about something more mostly personal thing, like something with the garden. I myself have never had been in this situation, but it happened”	32
Garden as a space to connect socially		5. “The garden is presently the most important uh yeah. Things to connect people in this perspective, yes”	34

On garden working group organizing activities that promote learning		6. "I speak from the garden group, where we organize a proposal where we invite a permaculture expert and that person is giving a participating class so we walk, in the garden and that person explains principles of permaculture, or how to, what type of plans will fit there or How to solve a solve this kind of problem. that's also a way of organizing workshops."	34
On garden working group organizing activities that promote learning		7. "Our monthly garden days are very important for everybody to work with nature, to observe and to learn from the garden, but at the same time we enjoy the harvest together from garden. We make a dishes for lunch. And we enjoy this together"	35
On chocolate shop's role as a connector		8. "And there's also this small chocolate shop at the corner, and people meet there a lot."	37
On challenges of attracting people who align with GM vision		9. "To have shared values is a, it's a yeah, it's less normal than in a village, for example. So it was very important to find people who to start to build this project who had the kind of same vision and same direction. And it was not easy. We had to work hard for this"	37
On Differing motivations of people and how this is linked to sense of pride		10. "Many were attracted because it was a rare opportunity to build your own house plus it's near the sea + small shops around + friendly neighborhood. They didn't join because of our vision, and those who did like the idea because they also grew with Groene Mient in the process, people also complained because of lack of privacy due to communal way of living. But some people who did not have affinity with environment also completely changed after discussions. We had good debates which is why people changed their views."	38
On being a learning community		11. "Of course we are learning community being growing still at work for timeline there. Certain projects have timelines. I mean the construction of the houses had a timeline. And the let's say the some of the programs of the Energy Cooperative have a timeline. Uh, yeah, the garden we had also, we have different projects which have a timeline, but uh, a long term timeline is maybe a bit too ambitious because we are also learning."	38
On varied visions of people in GM		12. "We want to promote local food. Not only from far away, but also support local food producers in the area."	39
"Hippies" comment		If there were some issue with the neighbor because some of the neighbors were very afraid, because they were used to see a certain environment, and suddenly this environment was changing. And some People were also Afraid that we were all kind some type of hippies or changing the whole neighborhood. And also people who are very afraid that because this neighborhood is our houses from the 1930s. And the architecture of our houses is very modern compared to the other houses. So people were so afraid that the whole Look of the neighborhood would change so a lot of fears mostly, but also people who were just enthusiastic and see all young people met lots of young people coming and they were very interested in the project. 13.	30
On sociocratic decision making	GM-3	1. "There was a time when we would meet every week. There was a time pressure, like a pressure cooker. And that worked for our benefit. Even reflecting on it, some people were looking back in a more negative way, but I think we managed quite well to make decisions. There were a lot of hard decisions to make"	31
On sociocratic decision making challenges		2. "But in general during the last few years we really saw that some people hardly ever say something and some people are very, very present. So how do you involve everyone? Because there's a risk that some people are You know back out, withdraw somehow, because they might feel intimidated."	32
On garden as a contested space		3. "So now a huge topic is how do we use our communal garden? How much room is there for children? Especially how much room is there for playing? So, it's more like social boundaries and it's harder and some people, when you don't know each other, and they have their own mindset, you can already predict how someone will react, what they will say. It's almost like in a family that you, "Oh yeah, of course,	32

		there he goes again with his" and then it's really tricky. Then you can feel the people are not completely open because you have this game and people have their parts, and they can't play another part, it is interesting but also tricky. "	
On sociocratic decision making and re-evaluation of that		4. "So, in Corona time, we all felt or a few, quite some people felt that this, that the, the social aspect needed more rooting and firmer foundation because somehow the level of daily irritation it grew, two neighbors got into a fight. I will be really like straightforward and honest with you but maybe not everything is for you know...So people really got into a fight, for example, which you, never expected to happen"	32
On appreciating garden as a community of place		5. "What is really nice is this vision and concept of creating a garden that also has crops and you can see that. Indeed after a few years we have this, if not an abundance, but we can really benefit. So my son and his friend, they were plucking pears last week and also for them its nice to see that their garden produces fruits and vegetables they can eat and enjoy. It's in no self-sufficient but you know in a big city for children, it's actually quite rare that they can eat fruits and vegetables from their own land"	34
On garden days as a space to connect		6. We have this monthly Garden days. the rhythm of this monthly garden day is a concrete example of the social aspect because it's not obligatory but we eat together, you know, People that are, you know, bakers and like to cook, so there's always like a nice lunch. So it's really a time of social engagement. It's predictable because everybody knows it's the second weekend Of each month. And it's a very low level expectation, you can be there for an hour or for the whole day, it's OK. And the children can be involved as well."	34
On garden as a contested space		7. "How much room is there for children? Especially, how much room is there for playing? [...] Some people, when you don't know each other, and they have their own mindset, you can already predict how someone will react, what they will say [...]"	35
		8. "What we notice, if you have been living in the netherlands your whole life, you really see this change. I mean, we used to have rain quite a lot, but sometimes, like also last week, it's almost Like tropical rain. This kind of rain, in 5 minutes you are just so soaking wet, it's really different than 10 or 20 years ago, we didn't have it. There's no way that our water system can adapt to that. You really see That in an hour those wadis fill up and What goes there doesn't doesn't go through the system. I mean, all the other houses, all the other gardens, they're all aimed directly at the system. You see them flooding everywhere. If the pipes go to and into the gutter, I mean we don't have it."	
On growing up as a community	GM-4	1. "So we took a lot of risk and we took a lot of our own time to develop it in three four major phases, We grew up as a community so that we knew our next neighbors better than our old neighbors. That is a famous saying that we all say here that we know our new neighbors better than the neighbors we lived for 30 years ago because we did a very intensive process by building these houses."	30
On people becoming individualistic		2. "What I see is we started as a serious group in realtime and now we are floating to the individual side. That's my and that that's my opinion.	31
On importance of garden		3. "The garden is one aspect that has mobilized more than half of the people.	34
On garden as a space for learning		4. "Maybe some new visions about gardening. We're trying out on the system we used in the garden called permaculture, and some people who also deal with the climate adaptive system they are following a scholarship within the permaculture system and I think that's leading The learning. The garden working group is doing it in a more professional way so that's a serious development."	34
On Sterk op Stroom challenges		5. "And in the social way, we have a little bit of a handicap that the Groene Mient doesn't need a smart grid nowadays and Vructenbuurt is not ready for a smart grid because they don't have solar panels to play with energy. So I think in a bottom-up strategy we're a little bit in a valley of death"	39
On various motivations to join GM		GM-5	1. There was nothing concrete yet but there was a vision, SOCIAL ECOLOGICAL HOUSING WITH A JOINT GARDEN that you share and without fences. So the social and ecological was something that we were really interested in but we were looking really for something in The Hague, already existing projects with that garden because we think that's really key to live in the city ina way that we would like. To have a green view and have your interactions with neighbours. So that's how we came in contact with Groene Mient and then we started developing the houses with everybody"

On how key persons took the project forward		2. “Suzanne and I, because we had architectural background, we were involved with the garden, you know it's a CPO, so we had to do it ourselves. So we used our knowledge to help getting the plan ahead”	30
On feeling sense of pride for having completed GM		3. “[...] Being naive is a crucial quality, but only being naïve doesn't work, just not thinking of any consequences [...] If you're not capable of being naive, you will never start building your own house because it's hell. Being naive with every big project is very important. I don't think if it's a right word”	31
On being a learning and experimental community		4. “[...] we like to change things. Willing to take a risk to fail”	31
On changing sociocratic decision making structure/challenges		5. “[...] Now, that we have realised our housing project, we have to make other decisions for which we must reconsider how we make those decisions [...] you need smaller working groups, we are working on it, and we know it doesn't work out the old way and it needs to change”	32
On feeling proud of the community hall		6. “It was very important to invite people to come and not to exclude them. For example, at the pavilion, we have a vision that Warm in de Wijk, DEEL (car sharing), Sterk Op Stroom and other organizations if they want to use it, they can. That is literally getting people from neighborhood into our community”	36
On challenges with municipality		7. “After the houses were built with the parking lots and the garden, we wanted to do it ourselves, because we wanted to do it in an ecological way that transformed into climate adaptive measures. We needed the Municipality's approval to do it ourselves, we needed them to trust us, because they wanted to do in a standard way without climate adaptive measures. They wanted to pave everything with ordinary tiles, so we have grass tiles, and the wadis we have, they were not interested and that was our own choice and that's something we needed to do ourselves. Those were the main ingredients that we wanted to do ourselves: the parking and the WADIs. We wanted to choose what kind of lighting we would use, so lighting with a day and night. We had quite a few things we wanted to do and the municipality; way didn't fit with our vision”	38
On feeling proud of vision		8. “The main thing is we have realized housing in a neighborhood and we want to expand with the smart grid and with other initiative and getting people to come along and see by being the inspiration”	
On challenges with sociocratic decision making system		9. “[...] Now, that we have realised our housing project, we have to make other decisions for which we must reconsider how we make those decisions [...] you need smaller working groups, we are working on it, and we know it doesn't work out the old way and it needs to change”	
On using sociocratic system at workplace/affect	GM-6	1. “And the good thing is that I introduced this at my workplace as well as a decision-making process. And I think a lot of people who encouraged this type of decision making are sort of, they really enjoy the way of decision making because it's a very thorough way of making decisions instead of the, 50% + 1 way of decision making and, Sorry, if you don't know like it, take it or leave it”	32
On value of garden days and social connections		2. “Having these garden days, you know, I didn't tell them yet, but because it's more of the obvious way of meeting each other, These are very valuable for meeting. And I think half of the time we're talking, and not gardening.”	34
Garden as a community of place		3. “[...] All the people who visit the garden use it to go to their sheds or as a pathway toward compost mills or go to the pavillion, or go to the neighbours, so it becomes a place where you can meet each other, we created functions in the garden without knowing [...] For example because my neighbor on the other side needs to walk to her shed and when I'm in the garden as well then I'll meet her because she's going for groceries”	34

On perception of garden/cognitive bond		4. “[...] you have enough green around you it’s there to be used [...] instead of a viewing green. [...] when you’re in the garden, you don’t have the idea that you’re in the city. That gives the idea of quietness, or peacefulness”	35
On Chocolate shop having a social function		5. “Chocolate shop is important. Because people can sit there and meet some of the neighbors, but that also, not everybody, of course.”	37
Chocolate shop as a community of place		6. “But what I think also helped is that we have this chocolate shop and coffee shop at the front because a lot of us of this community go there to buy their coffee, and one of my friends lives on the other side, EVA lives next to the coffee shop, and we meet every Wednesday in the morning and sit there, but there’s also people from the neighborhood coming around, and we have these, It’s always the same people in which with whom you connect then”	37
On Sterk op stroom and helping neighbourhood/senses of pride		7. “Sterk op Stroom, this one really reaches out towards the neighborhood, wanting to take care of the people who want to develop their own electricity production when they find it difficult and try to keep the energy as local as possible”	39
On varied visions in GM		8. “What I would like to have here is engage in local food, not much of production, but make it sort of local food markets so that people from the neighborhood can come because we have the space and and that farmers from nearby can bring their food in and sell it here in a market, something like that And buy food together Directly from the farmer instead of via supermarkets. So make it more local”	39
Feeling proud of achievement to build project	GM-7	1. “Looking back on the process itself, the only thing we had was you could build something for yourself with a group. That was the only idea. So that was pretty tough to imagine because usually in the Netherlands when they build houses, you get a plan and this is your house and then you can put in the rooms and your furniture. And that’s pretty much it. But in this case, yeah, you could draw it yourself. So that’s both liberating but also very challenging”	31
On social challenges in GM		2. “There’s a cycle, the seven-year itch for groups. At first, we had a common goal and then we realized it. So, everybody is looking in from their own group again, and now they’re more individual [...] It’s like we’ve done the project and now we can focus on our own house, so that’s the default”	31
On garden as a contested space/area of disagreement		3. “But, for example, we wanted to have a pond like because of this vision, ecological vision. We wanted to have a pond which is bigger than our very tiny pond that we have in our garden. And yeah, then you need all the Members of this community to vote for it and then again via sociocratic engagement. And then there are some people who are afraid of children drowning in in the water and then you won’t get far with it. So that’s kind of a frustrating thing in our way of decision making. So it’s not that simple as it was during developing this project.”	32
On participating differently		4. “I don’t have any green fingers and so that’s a deliberate choice [...]But what we do at the chocolate shop, it also has a function, so there’s a lot that we already do in our ways for Groene Mient”	33
On how people build relationships with each other via the chocolate shop		5. Yeah, we’ve seen it, and there there’s a funny relationship. It’s not a fixed case. But it’s like how you make friends. You make friends because you went to school together, but of it, and there’s one moment in time, then you become friends because of interest. So you sit outside, have a cup of coffee or hot chocolate, and then you can talk to your neighbor who you actually didn’t have a talk before, and then you have something similar interests. And then well oh, you look like fun. And then it evolves and that makes it very interesting because they have met each other but in different situations also in Groene Mient but still not in that way and so, so that’s very interesting to see a lot of well people who are more than neighbors becoming friends and also doing something, which are, like dance classes or going out or having a beer and stuff like that.”	37
On how chocolate shop developed along with Groene		6. “So actually, so there’s the development of the Groene Mient as a whole, and also our enterprise also evolved parallel to each other. And what you then saw was such that the passion we had for our chocolates and having that within Groene Mient came together and Which resonated with people. And that makes it very nice to see. And because of those Other functions, so to speak social functions, came into	

Mient / sense of pride		place and people were like “ah and this is something which I've I didn't know I was searching for and now I found it over here”. So actually, the concept of the chocolate shop was seen as a part of Groene Mient in five years”	
On evolving vision and learning community		7. “If you see vision as the result then yes we are ready, but its more like we have achieved this but want to share this achievement and give out the learnings, in the beginning the guided tours were like we had so many demands for interviews and answer a lot of questions so we concentrated into guided tours, but two, we wanted to approach it more structurally, the website m the guided tour and share the knowledge and experience with others. Permaculture, the municipality, legislation, builders etc so in that sense a lot of students and researchers come by and they have their own approach to it. It's not a vision in the sense that we are going to be there but we are living the life, practice what you teach kinda vision, we had a lot of difficulties in drawing up the definition of the vision, and it's never going to cover the definition entirely and its ongoing. “	
On different motivations for joining GM	GM-8	1. “We were looking for a bigger house in which my mother could also live with us. In this house there is freedom in constructing the way we want, we wanted to keep more privacy [...] For me, the family part came first than the green living”	24
On sharing in Groene Mient, sharing community		2. “People need help like they ask if you have an onion left, for example, because you know, for one onion we don't go to the supermarket, right? Supporting each other is very much the spirit here. In this way, I find a way to contribute rather than staying indifferent. Just do what I can do.”	33
On garden being a contested space		3. “I have kids and didn't want to have an open garden. It should be locked. Children shouldn't be able to go to the street but I understand there was a discussion and as I understand they reached a compromise, where the door is now not locked but closed from outside”	35
On helping neighbours in Groene Mient and sense of pride		4. “Groene Mient is also taking initiative with help of DEEL. I think there is a contact person and in this area the car sharing project is going on and here in Groene Mient parking area electric cars could be parked there and being charged and there's a Charging point and website and If people in the neighborhood need it they can reserve the car and use the parking space, three car parking spaces are there, and it's for the community. So Groene Mient is trying to contribute to the community by offering parking space for electric automobiles and through Sterk Op Stroom. But also through music activities in the neighborhood and this garden is quite appropriate and suitable for such kind of activity.”	40
On people becoming individualistic	GM-9	1. “Different people are looking from their own place for my view instead of bird's eye view. Before it was more of a bird's eye view, and people were not so focused on what was in it for themselves”	31
On challenges with Sociocratic decision making		2. “Consent is becoming more fatal, so if one person doesn't want it, then we don't do it. That's why we're now trying to find other ways of decision making”	32
On importance of community hall and how it built relations between people		3. "After a year in the summer, we built the community hall and that was a moment of connecting and being together" "	36
On participating in tree protest		4. “So maybe resident GM-2 told about the renovation of the mient that all the trees should be cut down and that Action Group that was formed. Groene Mient opposed the cutting of trees and most people say that as well. So then you directly have an enormous impact on what's happening in the neighborhood.”	39
On challenges with Sterk op Stroom		5. “There was a timeline, but we already, for Sterk Op Stroom we wanted to be further. But yeah, because of lack of money, because we didn't find any fundings because you always have to Co finance things and you can't call finance voluntary work in big subsidies. So that's why it doesn't go as quick as it as we want to go as we want it”	39
On Sterk op Stroom and feelings of pride		6. “I think there are not many projects like this where, he is, Willie is Retired he but he's working 40 to 550 or hours a week on this living lab. There are not many projects who have somebody with this knowledge about handling with these partners and once it makes so many hours to go ahead, all other projects would all be dead long time ago. So that's also special about this little lab”	39

On sense of pride over starting to join DEEL as a community		7. "One of the things we do is the cooperation for sharing cars. When it started here in the neighborhood, there were immediately five or six households and now there are nine households from Groene Mient who said we want to do this so that gives a lift because otherwise you start with just a few people. And now you have catalyzed this process. So that's the impact I think we have in the neighborhood"	39
On Visions for GM	Survey Resident	"A community that has ecological standards and that has respect for de planet, nature and the neighbor. Looking after others and the neighborhood"	
	SoS	1. "Coöperatie Sterk Op Stroom gaat 166 zonnepanelen plaatsen op het dak van de Aikidoschool. De installatie voorziet jaarlijks 22 huishoudens van elektriciteit. Het totale investeringskapitaal bedraagt € 80.000. De Coöperatie wil dit collectieve zonnedak realiseren met inbreng van zoveel mogelijk eigenaren uit de Vruchtenbuurt" [Cooperative Sterk Op Stroom will install 166 solar panels on the roof of the Aikido school. The installation supplies electricity to 22 households every year. The total investment capital amounts to Euro 80,000. The Cooperative wants to realize this collective solar roof with input from as many owners as possible from the Vruchtenbuurt]"	
On Safety during covid in GM	PO-1	1. "Groene mient felt safe during covid and when you went outside not knowing where the danger is - first two months."	33
On GM being a sharing community		2. "Lots of people don't work in the garden but people still want to deliver something like make soup for all"	33
ON having trust in people		3. "I had confidence in the process and in the people"	40
On trust		4. "Trust my immediate neighbor, trust most people but when I have a problem I have few people to whom I will go first to."	40
Feeling disappointed with participation in garden day	PO-2	1. "We have 9 people are here and rest are not coming so this meeting in garden was important"	35
On trust in GM		2. "Sometimes it's difficult to trust but in general I do trust. There are exceptions. Trust is the basis of everything. If you don't invest in people then you can't build a community. Talk to each other face to face"	40
On feeling of affect in garden during gardening day	PO-3	1. "Feeling of working here also gives a good feeling – do it for yourself but for others. Garden day shouldn't be something that you have to do every month, then we will have problems. But then it's also a place where you want to live, so it's a difficult balance."	35
On how gardening day and garden helps in bonding		2. "There are differences, but when you work together, there is bonding, you don't have to talk about difficult subjects [...]sometimes you have conversations that open up new discoveries about others that you didn't know before."	35
On importance of garden as a social space	PO-4	1. "Garden is the real space to connect with people, it brings people together"	34
On participation	PO-5	1. "Last time I was disappointed with participation. Why? Because after corona after people want to go out"	35
On feeling good in GM due to garden	PO-6	1. "Quality of life also has to do with a Less of concern, for example, my quality of life has grown because the place where I use to live in schilderwijk was noisy. I can see a bit of nature from my house, also we agreed on leaving trees and bushes because it attracts birds and I can see that from my place. Huge difference between where I lived before and right now."	35

Appendix 9: Secondary data

Document title	Document source	Access date
Groene Mient: Making house ecological ready	https://www.groenemient.nl/project/ecologisch-woonrijp-maken/	7 August 2022
Groene Mient: Permaculture garden	https://www.groenemient.nl/project/permacultuur-tuin/	2 January 2023
Groene Mient: Common room	https://www.groenemient.nl/project/ge-meenschappelijke-ruimte/	2 January 2023
Groene Mient: Experimental Grid	https://www.groenemient.nl/experimenteel-energienet/	2 January 2023
Groene Mient: Vision	https://www.groenemient.nl/visie/uitgangspunten/	2 January 2023
Groene Mient: Workshop on ecological floors	https://www.groenemient.nl/nieuws/workshop-vloeren-en-muren/	2 January 2023
Groene Mient: Test WADIs	https://www.groenemient.nl/media/test-wadis/	2 January 2023
Groene Mient: Visit to Delft Garden	https://www.groenemient.nl/groenemient/excursie-delftse-proeftuin/	2 January 2023
Groene Mient: Information meeting with residents	https://www.groenemient.nl/groenemient/informatiebijeenkomst-voor-omwonenden/	2 January 2023
Groene Mient: Hague Energy Exchange	https://www.groenemient.nl/groenemient/groene-mient-op-haagse-energiebeurs/	2 January 2023
Groene Mient: Vruchtenbuurt music festival	https://www.groenemient.nl/nieuws/vruchtenbuurt-muziekfestival/	10 January 2023
Groene Mient: Sustainable Citizens Initiative	https://www.groenemient.nl/nieuws/ontmoetingsplaats-duurzame-burgerinitiatieven/	10 January 2023

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