Designing resident participation in social housing energy renovations: balancing justice and efficiency

Graduation Project
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Designing resident participation in social housing energy renovations: balancing justice and efficiency

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Preface

All my life, I have felt the need to help people who have fewer opportunities, and so far, my project on “coming out” for the Exploring Interactions course has been closest to my heart. After choosing the Master’s programme in Design for Interaction, I have always been pleased with my decision, but that choice was not always obvious. For example, I took a detour into architecture, did the minor “House of the Future” and considered doing more with sustainability.

When I saw this project, I was interested immediately as it seemed to combine all my interests, which it did. In addition to bringing my interests together, I found it valuable to step outside my comfort zone and experience how people live who have not had the same opportunities as I have had in life.

In this report, I take you into the world of social housing in vulnerable neighbourhoods, where living comfort is low and therefore much renovation is needed. Because this has to be done at a rapid pace, but residents are not always willing or able to cooperate, tensions arise between institutions and residents.
These tensions between efficiency and justice are complex, and finding a balance requires time and empathy, which are not always available.

Acknowledgement

First of all, I would like to thank Natalia for giving me the opportunity to participate in this project as part of the KIEM project. When I sent you the first email, I had no idea of the changes I would go through during the entire process, changes that I would never have experienced otherwise. I am amazed by your knowledge and enthusiasm for learning and trying new things during every meeting.

Gijs, even though it may have been complicated at times because you were not involved in KIEM, I greatly appreciated your feedback. Critical, but always with a positive note. I always felt that you understood me, and if that was not the case, I could easily ask. Thank you for that.

At Tsavo and housing corporation, I would not have been able to learn nearly as much without Linde. Linde and Céline took me to many meetings, clean-up days and cooking workshops every Thursday, which allowed me to gain the knowledge I used for this report. I could not have imagined a better mentor, because you were always interested in what I was doing, not just around this project. With you, it was chaotic, but always fun, and you are always willing to do your best for the residents.
In addition, many other colleagues were curious about my project and open to valuable conversations. I always enjoyed my time with the entire Warm thuis team and especially enjoyed the lunch walks to the Albert Heijn.

In addition to the people who actively contributed to this project, I would first like to express my appreciation to my girlfriend, Dianne. She supported me at all times, helped me through the stressful, tearful moments, and ensured that I could combine this with other fun things by bringing structure to my daily life at home and in my head.

Without the people at StudioLab and my fellow graduates who wanted to come to Zebra and the University Library, my graduation life would have been much more boring. The pleasant coffee breaks at 10:30 and 14:30 and the lunch break at 12:30, which I worked towards, kept me cheerful throughout the days.

Finally, my family has always been there for me. They have not seen much of me recently, but after seven years of active student life, they are used to that. As a surprise, my parents and sisters came to visit me on my birthday, just after my greenlight meeting. I look forward to seeing them again during my presentation and ceremony and celebrating the end of the student years together.

Declaration of AI use

Throughout this graduation project, I used various AI methods, such as ChatGPT, to support the structuring and reflecting processes. AI helped me to understand literature, for example, by creating a podcast on a paper with NotebookLM.

It also formulated and refined ideas and visuals, for example, for the framework cards of the codesign sessions (Appendix E), persona (Figure 24) and comic on the renovation process (Figure 60).

I approached AI as a sparring partner, asking questions and receiving suggestions on what to adapt, rewrite or discard. Some example prompts can be seen below.

The content of this report is still based on my own fieldwork, design work, decisions, and reflections. I wrote all the design choices, interpretations and conclusions myself.
During writing, the AI's role was to support me by organising my thinking more clearly and suggesting changes to the text structure.

DeepL AI write assistant and Grammarly were used to assess my English and translate texts between Dutch and English.

These are some example prompts used throughout the project:

- "What would be the best title? "Designing resident participation in social housing energy renovations: balancing justice and efficiency" or "Designing resident participation in social housing energy renovations: Exploring tensions between justice and efficiency"

- "We gaan een evement organiseren voor bewoners van sociale huurwoningen. Er zal op woensdagmiddag een ijskraam komen en bewoners hebben verschillende mogelijkheden om hun mening en ervaringen over hun woning te delen. Voor communicatie/promotie van het evenement hebben we de volgende mogelijkheden: - mail/brief - poster - sms-bom Op welke dagen is het het meest efficient om welke communicatie middelen in te zetten?"

- "Ik ben eigenlijk op zoek naar een andere metafoor, omdat we te maken hebben met sociale huurwoningen, kwetsbare mensen, die waarschijnlijk niet heel veel met skiën te maken hebben. Kun je een metafoor bedenken die beter past bij de doelgroep? Sociale huurwoningen in Den Haag (zuidwest)"

- Ik wil bewoners van sociale huurwoningen in Den Haag uitnodigen om mee te denken over de renovatie van hun woning. Ze hebben vooral last van gehorigheid, kou, vocht, schimmel en tocht in huis. Daarnaast hebben ze het vaak financiëel nodig om energie te besparen. Hoe kan ik deze mensen motiveren om te komen? Het zijn veel ouderen die er al lang wonen (20 jaar of langer), maar ook gezinnen of alleenstaanden. Veel spreken geen Nederlands.

- "Im organising a brainstorm session for ideas for participation based on the capability program framework. Examples of questions are: How can a variety of participation opportunities be offered? In what ways can residents participate? How can vulnerable residents be encouraged to participate? What do you recommend to do in the brainstorm session with designers?"

- "Am I able to write from my own perspective in the discussion? Or is it a formality to write as .. it is instead of I?"

Executive summary

The Warm thuis project is a collaboration between housing corporation and Tsavo to renovate social housing in The Hague Southwest, often in vulnerable neighbourhoods where residents already face various problems.
Because of national regulations, all homes with energy labels E, F or G must be improved before 2029, meaning about 1,000 homes must be renovated yearly.
This graduation project explores how the renovation process can be made more just for social housing residents.

Findings in literature and ethnographic studies show that residents deal with energy poverty, uncomfortable living conditions, health issues, and often, language or literacy barriers. Many carry the weight of past experiences with housing corporations, which means trust is not always there when an institution comes knocking and especially needs to come behind their front doors. The resistance grows, especially during the execution phase.

At the same time, the social team is doing everything to keep the process going, often in reactive mode. More and more time is spent putting out fires, instead of preventing them. Therefore, this project proposes a shift: time and energy should move earlier in the process, to the participation phase, to build trust and avoid resistance in the execution phase.

The CLEAR model is used to assess current participation methods and explore how residents can be supported to:
Can participate,
Like to participate,
Enabled to participate,
Asked to participate,
Responded to after participation.

Based on this, three design frameworks were developed and tested in practice:

Capability programs
Participation should match the abilities of residents. That means understandable communication, visuals instead of complex text, and choices in how and when people want to participate.

Reciprocity
A relationship of giving and taking. Trust starts with giving something first. That can be a warm welcome, food truck, time, and genuine attention. These small gestures matter more than you would think.

Feedback loops
If residents take time to give input, they should see it reflected. Ideally, in a way that's easy to understand and clearly shows: we heard you.

These frameworks come together in a practical guideline, with four steps to help navigate the tension between justice and efficiency:
1. Understand residents
2. Make it easy to participate
3. Encourage involvement
4. Act on input

While the technical goals remain, this project shows how working with empathy and care can lead to fewer conflicts and better outcomes, for both residents and the renovation team. Justice and efficiency do not cancel each other out, but need to be balanced, with people at the centre of the process.

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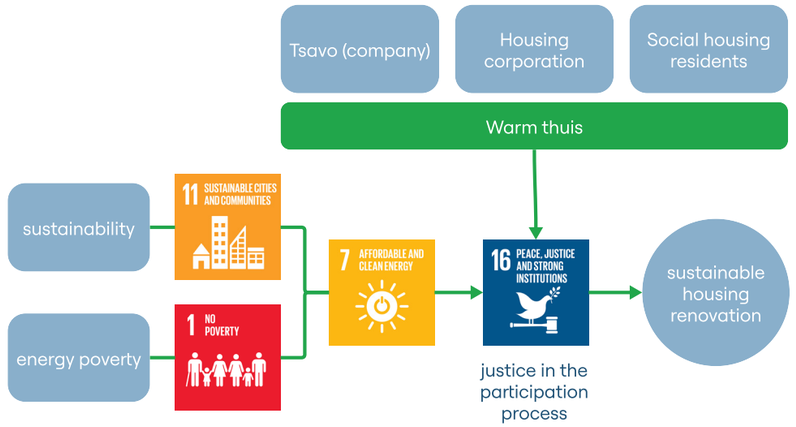
1. Introduction

1.1 Scope
1.2 Problem definition
1.3 Research question
1.4 Project approach
1.5 Report structure
1.6 Terminology

This introduction starts with the scope, which introduces the project's relevance, followed by the problem definition and research question. Sub-research questions are made based on the CLEAR model (Lowndes et al., 2006). The project approach outlines the methodologies used to explore the questions. The chapter concludes with an overview of the report's structure and a list of words used often and translated from Dutch to English.

1.1 Scope



Figuur 1: Overview of the Warm thuis project – connecting housing corporation, Tsavo, and residents through sustainable renovation and SDG principles.

This graduation project is situated within the Warm thuis project, a collaborative initiative between housing corporation (a housing corporation) and Tsavo (an implementation company). Together, they aim to renovate approximately 1,000 dwellings per year until 2029 (housing corporation Warm thuis, n.d.) . The focus is on improving homes with energy labels E, F, or G, upgrading them to at least energy label C. Many of the buildings in the Warm thuis project are in neighbourhoods in The Hague Southwest, which can be considered vulnerable parts of the city.

The large-scale effort of Warm thuis contributes significantly to the national energy transition and responds to the growing issue of energy poverty (TNO, 2024).
An overview of the Warm thuis project is provided in Figure 1. This includes the key actors: housing corporation, Tsavo, and social housing residents, the project's focus on sustainability, and its link to broader societal challenges, such as energy poverty. The diagram also connects the project to relevant Sustainable Development Goals. (THE 17 GOALS | Sustainable Development, n.d.).
This research aligns with several SDGs. First, SDG 11: Sustainable Cities and Communities promotes the development of inclusive, safe, resilient, and sustainable living environments (Goal 11 | Department of Economic and Social Affairs, n.d.).
Second, SDG 1: No Poverty and SDG 7: Affordable and Clean Energy highlight the importance of addressing energy poverty. Defined by Day et al. (2016), energy poverty means the inability to access affordable, reliable, safe energy services needed for basic living.
SDG 16: Peace, Justice and Strong Institutions is equally relevant, emphasising that the energy transition also must be socially just, to ensure inclusive participation in renovation processes is not only a matter of efficiency, but of fairness. Housing corporations, especially those in social housing, are responsible for making decision-making transparent and including residents in shaping their home environment.

The Warm thuis project can be divided into different phases: the participation phase, the support phase, the execution and finally, living sustainably by residents (Figure 2). The aim is to finish the project within a year, depending on the number of dwellings in one project. This graduation report focuses on the participation and support phase, in which residents can participate by filling in a survey, taking part in a sounding board, or visiting a model home, in which the plans have already been executed. When the realisation plan is finished, residents receive an information booklet with the plans, on which they need to vote. Only if 70% of the residents agree can the renovation be executed.

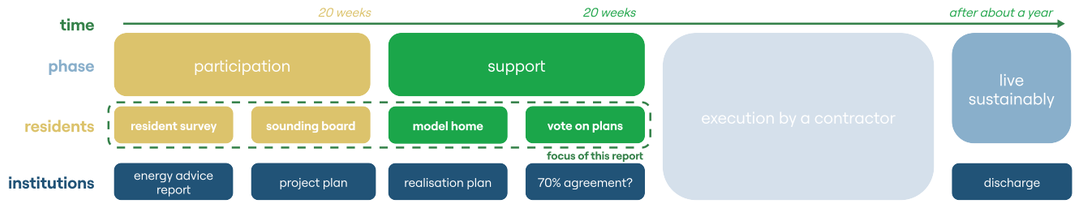


Figure 2. Warm thuis process for residents and Tsavo & housing corporation

1.2 Problem definition

In the Warm thuis project the task is to make social housing more energy efficient before 2029, by targeting homes with energy labels E, F, and G. While the primary goal of housing corporation and Tsavo is to complete these renovations on time and within budget, the reality exposes tension across the three stakeholder groups: housing corporation, Tsavo, and the social housing residents.
Tsavo is in charge of the project, meaning they must navigate between these tensions and through complex social situations, particularly in vulnerable neighbourhoods like The Hague Southwest.

Many of the residents here live in poorly insulated homes, often face energy poverty, language barriers and financial and/or health struggles. They have seen promises broken before, especially during the time of former housing corporation former housing corporation, which has led to distrust of the institution. Warm thuis can be an intensive renovation project for residents, taking five days in which contractors walk in and out. Especially if residents can barely understand what will happen, it is not surprising that resistance grows during the process, particularly in the execution phase when contractors need to come behind their front doors.

Residents are offered opportunities to participate in a survey and a sounding board. However, the participation rates are low, and Tsavo's social team spends more and more time in the support and execution phases simply 'putting out fires' and trying to get the customer satisfaction rate as high as possible.
When residents finally feel heard, often during a personal conversation, tensions have already built up. This can frustrate the team and is inefficient for the whole project.

What this reveals is a deeper tension: between efficiency and justice. On paper, the renovations must be delivered quickly, at scale and within a budget. However, in practice, each building and each resident comes with a different story, which does not always fit into the tightly planned process.

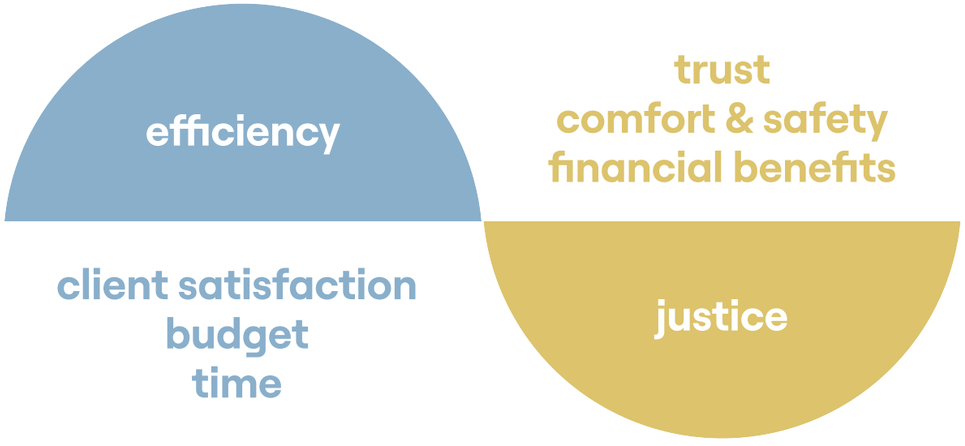


Figure 3. Navigating the tension between efficiency and justice

1.3 Research question

The Warm thuis project involves the large-scale renovation of social housing to meet the government's deadline to improve all EFG-labelled dwellings before 2029. However, in addition to its technical and environmental ambitions, the project faces challenges in engaging residents, particularly those affected by energy poverty, language barriers and a lack of comfort, safety and trust. Consequently, participation rates are low, and there is a risk of delays or challenges to renovation plans. Focusing on the social side of the process, these risks include not getting the 70% support from residents for the plans or residents being unsatisfied during the renovation process, causing resistance in the process, especially when the execution of the energy renovation happens. While delays in the process occur due to more than expected energy that needs to go to social conflicts, the focus is mainly on the technical side of the process.

To address this issue, the following central research question has been formulated:

How can the renovation process within the Warm thuis project be made more just for social housing residents?

This question reflects the need to explore how residents, especially those who are hard to reach or feel excluded, can be more effectively involved in planning and executing sustainable home renovations. In this context, 'justice' refers to participation in decision-making, transparent and accessible communication, respect for residents' concerns, building trust between institutions and residents, and safety within the residents' environment.
Justice within participation methods means that the voices heard within the process should aim to be inclusive, diverse and representative of the residents in the building.

To explore this, the research will use the CLEAR model, which provides a structured approach for assessing the fairness of participation. Developed by Lowndes et al. (2006), it helps to evaluate the structural conditions and relational qualities that support or hinder citizen engagement. Since then, it has been adapted for use in participatory housing practices and public sector innovation (Aan de slag met participatie, 2023).

Based on this model, the sub-research questions in Table 1 will guide the investigation throughout this report.

By addressing the central research question and the CLEAR sub-questions, the research aims to contribute to a participation renovation strategy that is environmentally sustainable and efficient in terms of time and budget, but also socially just, with the support of the residents it affects.

Table 1. CLEAR sub-research questions, based on the CLEAR model (Lowndes et al., 2006)

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?
E	enabled to	How can structural and social support be provided to enable participation?
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?

1.4 Project approach

In order to answer the research question and gain insight into how the Warm thuis renovation process could be made more just, a mixed-methods approach was adopted. This included literature research, ethnographic fieldwork, introduced frameworks, co-design practices, practice-based exploratory interventions, and a design goal to create design knowledge for just participation in an efficient renovation process. An overview of these methods can be seen in Figure 4.

The research began with a **literature review** to explore existing knowledge on energy poverty, energy justice, inclusive design processes, resident participation, and social housing renovation. Academic publications, professional reports, and policy documents were reviewed to establish a theoretical foundation and identify best practices. The CLEAR model (Lowndes et al., 2006) is introduced in the literature review and used throughout this report to question ways of participation.

In parallel, **ethnographic research** (Campbell, 2015; Emerson et al., 2011; O'Reilly, 2009) was conducted within housing corporation and Tsavo. This included observations, informal conversations, and document analysis to understand organisational dynamics, challenges in the field, and how resident engagement is currently approached. Ethnographic methods enabled a deeper insight into both institutional perspectives and everyday practice.

Three frameworks were introduced to support the design process: **reciprocity**, to explore the mutual exchange between institutions and residents; **capability programmes**, to assess residents' ability to participate meaningfully; and **feedback loops**, to understand how communication and trust evolve. These frameworks helped generate new concepts and develop actionable recommendations.

To analyse the complexity of the situation and the multiple perspectives involved, the **Social Impact Design** (Tromp & Hekkert, 2014) methodology was used. This design research method began with identifying context factors, which map the key social, organisational, emotional, and practical dynamics affecting the renovation process. These **context factors** were then clustered by meaning, allowing patterns to emerge. Finally, relationships between clusters were identified, providing an integrated view of the underlying challenges and tensions across different stakeholders.

Based on this understanding, a **co-design session** was held with housing corporation and Tsavo staff and a **brainstorming session** with TU Delft people. These sessions aimed to validate insights from earlier research phases, discuss identified problems and explore potential solutions for more inclusive renovation strategies.

Through several **interventions**, knowledge was built on the practical implementation of participation practices.

All of these methods, used together, provided a holistic understanding of the barriers to inclusivity in the Warm thuis renovation process. This formed the basis for developing a guideline informed by theory and practical considerations.

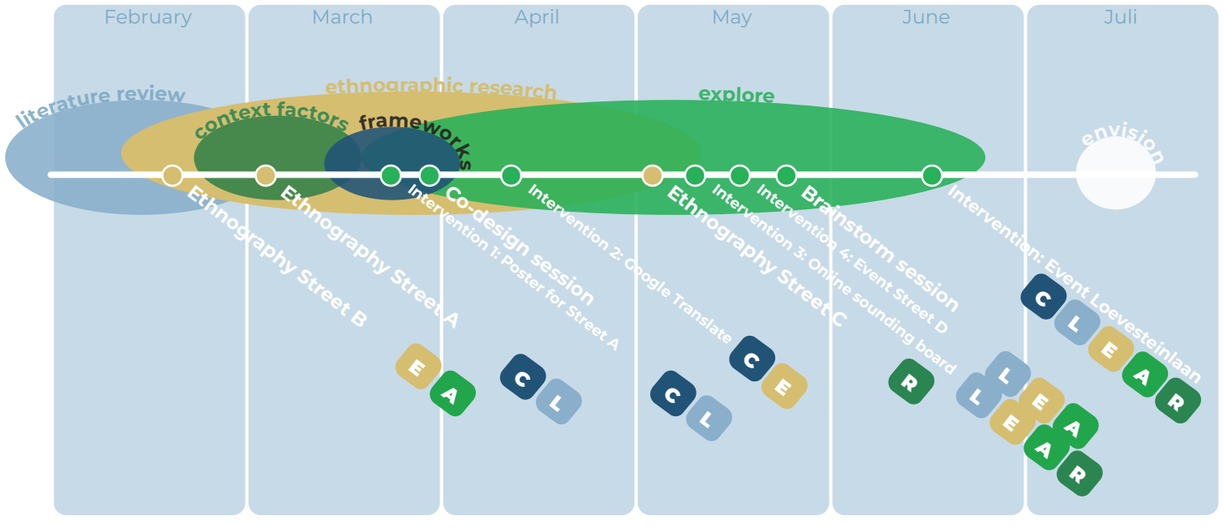
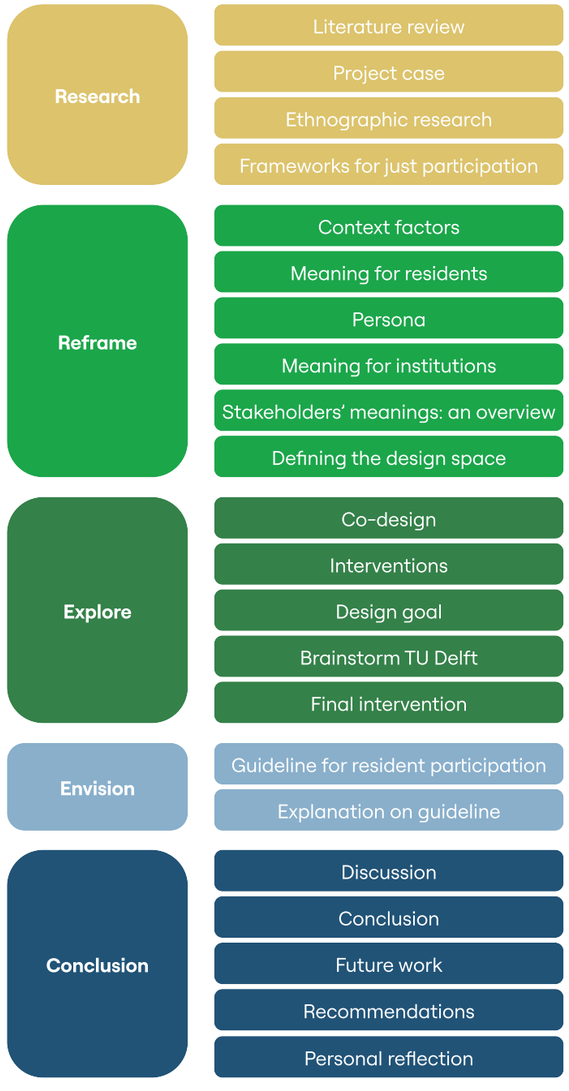


Figure 4. Project approach overview with key research activities

1.5 Report structure

The report is structured in five main chapters to structure the exploratory practices throughout the project: Research, Reframe, Explore, Envision and Conclusion.



The **literature review** on energy poverty, energy transitions in vulnerable neighbourhoods, and sustainability regulations. Then, the focus will be on energy justice and resident participation, and a **conclusion will be drawn based on CLEAR sub-research questions**, introduced in the Research questions chapter.
Information on the **project case** will be given through sections on housing corporation, Tsavo, other stakeholders, and resident contact moments, ending with a reflection on participation within the Warm thuis project.
The insights from the e**thnographic study** will be explained through three ethnographic reports and a conclusion. Three **frameworks** for just participation are introduced and matched to the CLEAR model: **capability programs, feedback loops, and reciprocity.**

To move from observation to insight, the Reframe chapter identifies and interprets the **context factors** that shape participation in sustainable social housing renovation and moves towards the **design space.** These context factors were translated to **meanings for residents and for the institutions**, coming together in an overview where the **tension between justice and efficiency** can be seen. The design space is described based on the CLEAR model and frameworks.

The aspects examined in the literature review, ethnographic research, frameworks and context factors are **applied and tested using various design methods**. Once again, the CLEAR questions are used, but now not in the form of existing ideas or applications, but by focusing primarily on **how** the balance between efficiency and justice can be improved in the future. First, a **co-design session** was held, and then the various **interventions** that were then carried out are explained, providing many insights into how things work in practice and the potential design direction for the final, larger intervention. With the help of a f**inal design goal**, a **brainstorming session** was held with students and researchers at TU Delft. The **final interventio**n is based on one of the ideas from this.

Based on the knowledge created in the previous chapters, a practical **guideline** is made to implement more exploratory interventions in the future. Note: this guideline has **not** been evaluated.

A **discussion** and **conclusion** are drawn on the whole project and **recommendations** for **future work** research and practices in the current process are given.

1.6 Terminology

Nearly all communication with stakeholders is in Dutch, and many terms are ingrained in the language but may not be common in English. For this reason, Table 1 entails a translation list of the words used frequently in conversations and this report.

Table 2. Translation of frequently-used words

Bewonersbegeleider	Resident guide
Bewonersoverleg	Residents' meeting
Capability	Vermogen / Kunnen
Decharge	Discharge
Draagvlak	Support or agreement
Draagvlak traject	Support process
Feedback loop	Terugkoppeling
Klankbordgroep	Sounding board
Kwaliteitsoverleg	Quality consultation
Klanttevredenheids-onderzoek (KTV)	Customer satisfaction survey
Modelwoning	Model home
Project- en planontwikkelaar	Project developer
Projectleider Participatie (Tsavo)	Project leader social process
Projectleider Sociaal Proces (housing corporation)	Project leader social process
Programma manager	Programme manager
Reciprocity	Wedekerigheid
Sociaal beheerder	Social manager
Sociale overdracht	Social transfer
Stuurgroep (housing corporation)	Control group
Veerkracht	Resilience
Verhuurmakelaar	Rental agent
Wijkbeheerder	District manager
Wooncorporatie	Housing corporation

2. Research

2.1 Literature review
2.2 Project case
2.3 Ethnographic research
2.4 Frameworks for just participation

This starts with the literature review on energy poverty, energy transitions in vulnerable neighbourhoods, and sustainability regulations. Then, the focus will be on energy justice and resident participation, and a conclusion will be drawn based on the CLEAR sub-research questions.
Information on the project case will be given through sections on housing corporation, Tsavo, other stakeholders, and resident contact moments, ending with a reflection on participation within the Warm thuis project.
The insights from the ethnographic study will be explained through three ethnographic reports and a conclusion. Finally, three frameworks for just participation are introduced and matched to the CLEAR model: capability programs, feedback loops, and reciprocity.

2.1 Literature review

The transition to sustainable social housing presents a technical, environmental and social challenge. To achieve climate goals while ensuring justice, careful attention must be paid to the lived experiences of residents, particularly those vulnerable to energy poverty or exclusion. This literature review explores the key conditions for a just yet efficient renovation process in social housing. It begins with an overview of energy poverty and circumstances in vulnerable neighbourhoods. Then, relevant regulations for housing corporations will be discussed, followed by a discussion of energy justice. The review then considers the role of resident participation, highlighting its benefits, barriers and conditions for success. It concludes with a structured assessment answering the sub-research questions based on the CLEAR participation model (Lowndes et al., 2006).

2.1.1 Energy poverty

The European Union aims to achieve climate neutrality by 2050. In the fight against climate change, there are a large number of people who have to put their basic needs first, for example, because of financial or health problems (Broers et al., 2022). For this relatively vulnerable group, a new problem has arisen in the Netherlands in recent years, mainly due to skyrocketing energy prices since 2021 (Mulder et al., 2023). This can limit households' access to energy, resulting in energy poverty.

In human terms, based on the definition of Day et al. (2016), energy poverty means that people cannot meet their basic needs or live a decent life because they do not have enough access to affordable, reliable and safe energy. This can mean difficulties in cooking, heating, or using essential appliances. As energy is essential to enable key capabilities such as maintaining health, working and learning, a lack of energy can limit people's ability to live fulfilling lives. It also considers whether there are other reasonable ways for them to receive these energy services, because if not, their well-being and capabilities are directly affected.

From a more technical perspective, and to make energy poverty measurable, TNO (2025) defines a household as energy poor if it has a low income combined with high energy bills and/or a home of poor energy quality. From this, they divide energy poverty into three indicators: the financial affordability of energy, the energy quality of the house and the ability to invest in the energy transformation of the house (Loos, 2024).

Depending on the chosen energy poverty indicator, the energy poverty threshold is defined as a threshold for what is considered a high energy bill or the energy bill associated with the average expected energy consumption for dwellings with an energy label C (in base year 2019). In 2023, an estimated 885 thousand households would be energy poor (without financial compensation from the municipalities), representing 10.7% of all households in the Netherlands (Loos, 2024).

The energy poverty gap can be measured by comparing the difference between the actual level of energy poverty and the energy poverty threshold, and is given as the amount of money needed to help a household out of energy poverty. It can be shown that the larger the gap, the more energy poor a household is (Frankfort, 2024). The energy poverty gap can be closed by either raising household income or improving energy efficiency to reduce costs (see Figure 5).

The energy poverty threshold differs very little when comparing the average energy poverty gap between rented and owner-occupied dwellings, but significant differences exist between dwellings of different energy performance: in dwellings of very poor energy performance, the energy poverty gap is significantly higher than in dwellings of average or good energy performance (Frankfort, 2024). The highest level of energy poverty occurs most often among households in dwellings with very low energy performance.
This is partly because energy poverty is much more spatially divided than income poverty (Mulder et al., 2023). It also suggests that helping these households is not efficiently solved by a fee, but is most effectively solved by improving the energy quality of their dwellings. However, the largest group of households that cannot improve the energy performance of their dwellings are tenants who are dependent on the ability and willingness of their landlords (Loos, 2024). At the same time, there is a growing recognition that residents play a central role in achieving energy savings, particularly in social housing, which combines environmental value with social objectives to reduce inequality and energy poverty (Santangelo & Tondelli, 2017).

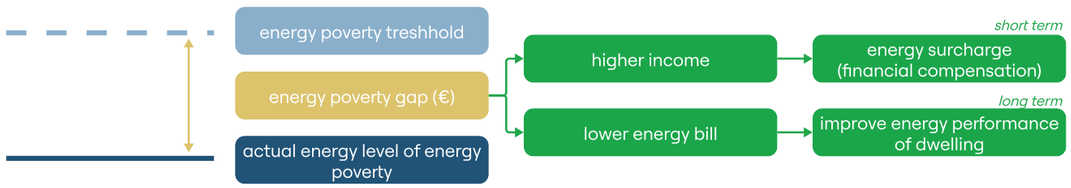


Figure 5. The energy poverty gap: comparing the actual and threshold energy costs (Frankfort, 2024)

This emphasises the need for energy renovation in social housing, where energy efficiency improvements can reduce energy bills and energy poverty and contribute to broader climate change objectives while supporting vulnerable households. The challenges that come in vulnerable neighbourhoods, in which vulnerable residents are more and more concentrated in social housing (Home | Veerkrachtige wijken, n.d.), are described in the following section.
The inequalities in energy access highlight the need for a justice-based approach, as discussed further in Section 2.1.4 on energy justice.

2.1.2 Energy transition in vulnerable neighbourhoods

Neighbourhoods in which social housing is concentrated are often characterised by socioeconomic disadvantage, ageing housing stock, and low social resilience, posing a challenge for sustainable renovation projects (Götz & van Hal, 2022). Research from 2018 showed a trend that it concentrates more vulnerable people in social housing. An effect is that neighbourhoods with much social housing are getting worse, while the rest of the city is improving, causing a socio-economic divide within a city, in which people who are not fully self-reliant live together (Home | Veerkrachtige wijken, n.d.). The development of these concentrated parts in the city stagnates even more, with increased disturbance and decreased safety in the surroundings.
This has an impact on the overall health issues in buildings. In 2021, 45% of residents in the lowest income groups in social housing said their health is 'less than good'.

To improve resilience in vulnerable neighbourhoods, the approach is to mix the neighbourhood with different income groups. It is seen that a decrease of social housing in neighbourhoods has positive effects on disturbance and safety (van Hulten et al., 2023).

The conditions in vulnerable neighbourhoods often result in low project participation rates, higher vulnerability to adverse effects and lower uptake of energy-saving practices (Götz & van Hal, 2022).
An adverse effect is that professionals working on the energy transition in social housing frequently encounter anger from residents, particularly in socially vulnerable neighbourhoods. According to Götz & van Hal (2022), this anger is often not irrational, but rooted in deeper emotional and social responses. Six types of anger can be identified (Figure 6): frustration among residents already facing difficult circumstances; fear-driven anger from those anticipating future problems; anger triggered by perceived threats to core values and beliefs; feelings of powerlessness when fundamental needs are ignored; anger in response to perceived dishonesty; and strategic or instrumental anger used to assert influence or gain concessions.

These expressions of anger are closely linked to experiences of exclusion, distrust, and lack of recognition, all of which undermine procedural and recognition justice (elaborated in Section 2.1.4 Energy justice) (Broers et al., 2022). Recognising and interpreting these emotional signals is essential for housing professionals aiming to build trust, engage residents meaningfully, and co-create renovation plans that acknowledge and respect lived experience. The challenges highlight the need for just participation strategies. The following sections show the perspective of the social housing corporation and the principles of energy justice (Broers et al., 2022).

Figure 6. Reasons for anger amongst residents, based on deeper emotional and social responses

2.1.3 Sustainability regulations for social housing corporations

The Klimaatakkoord 2019 states that by 2030, a quarter of the homes in the Netherlands should be made gas-free and well-insulated. Moreover, by 2050, this requirement applies to all 7 million homes in the Netherlands. As mentioned above, this will ensure lower energy bills and more comfortable homes (Ministerie van VZ, 2019).
For housing corporations, this means that after 2028, there will be no more housing corporation dwellings with a poor energy label (E, F or G), making around 250,000 dwellings more sustainable. If a house still has such a label after 2028, the tenant will receive a rent reduction. Over the next five years, housing corporations will invest an extra €100 million annually in improving housing (mould, lead pipes, fire safety). The aim is that in five years, there will be no poorly maintained housing (Ministerie van VRO, 2021).

With the pressure of the Klimaatakkoord, municipalities and social housing corporations are forced to invest in sustainable renovation and innovation. However, including social housing residents in the sustainable energy transition lags behind (Bal et al., 2021). The main incentive to include residents in the process is to get agreement from residents for the renovation. According to the Woningwet (Housing Act), 70% of residents must agree to the renovation plans (Ministerie van AZ, 2020). This legal requirement links resident agreement to the technical feasibility of renovations, underlining the importance of the participation processes described in section 2.1.6.
However, reaching this threshold is not always straightforward. Moreover, even when renovations proceed as expected, unintended rebound effects often arise, leading to higher-than-expected energy use (Guerra-Santin et al., 2017). Although the causes of this are still uncertain, it is thought to be due to the post-renovation behaviour of tenants and their interactions with the newly installed systems. Guerra-Santin et al (2017) highlight the importance of well-structured communication with tenants, emphasising transparency, financial reassurance and a streamlined renovation process. A carefully designed participation process before the renovation can increase tenant acceptance, as early involvement of tenants in the renovation process can provide input that makes the project more acceptable to them.

2.1.4 Energy justice

The concept of energy justice offers a valuable perspective through which to examine how the energy transition in social housing can be made fairer and more inclusive. Rather than asking whether energy efficiency has been achieved, it considers who benefits from these changes and under what conditions. Broers et al. (2022) advocate a multidimensional justice framework based on five interconnected principles: distribution, recognition, participation, capability and responsibility. This model is adapted from that of Davoudi and Brooks (2014). These principles are particularly relevant for housing corporations such as housing corporation, where technical interventions must be matched by socially responsible approaches and as interventions often affect groups that are already vulnerable to energy poverty, social exclusion, or institutional distrust (Broers et al., 2022).

Distribution

The distributional justice principle asks whether the energy transition outcomes are shared equally. In the case of social housing, for example, residents may experience increased rent or inconvenience during renovations, since many social housing tenants are vulnerable (Broers et al., 2022). Astola et al. (2022) warn that the transition could worsen social inequalities if the financial and environmental benefits are not distributed evenly. Therefore, energy renovations must ensure tenants, particularly those in energy poverty, receive tangible and measurable benefits. These benefits could include reduced energy bills and improved living conditions (Broers et al., 2022). These living conditions include increased comfort at home, such as improved temperature control or air quality with ventilation systems. Distribution also means mapping the special needs of particular residents early in the process to take this into account during the execution process.

Recognition

Recognition justice emphasises the importance of acknowledging affected residents' specific needs, identities and vulnerabilities (Astola et al., 2022). Standardised participation processes often overlook low-income tenants, migrants, elderly residents, and those with limited language or literacy skills, which makes it harder to involve them in participation processes. Less diversity in participation worsens when these tenants do not have time to participate or are not connected to their neighbourhood.
Structural inequalities may be reinforced when diversity is not recognised. Justice requires adapting communication methods to the cultures, values, and norms of residents so that they feel recognised (Broers et al., 2022).

Participation

This principle relates to the fairness and transparency of decision-making processes. In many renovation projects, resident input tends to be limited or symbolic rather than truly participatory. Following Sovacool and Dworkin (2015), Broers et al. (2022) argue that the early, structured and meaningful engagement of tenants is essential for building trust and establishing the project's legitimacy. When tenants are involved from the beginning rather than merely being informed at the end, they are more likely to cooperate, contribute valuable insights and support the renovation process, meaning the effect of less resistance later in the process. This is consistent with the findings of Guerra-Santin et al. (2017), who observed that resident behaviour and post-renovation energy use are influenced by the extent to which tenants feel involved and informed during the initial stages. A mix of participation methods is recommended for residents to choose how to get involved. There is no one way that is better than another (Broers et al., 2022).

Capability

Based on Amartya Sen's capability approach, this principle asserts that people should be able to participate in practice, not just in theory (Sen, 1987). However, tenants may lack the time, confidence, knowledge or digital access necessary for effective involvement. Therefore, housing organisations must enable participation by removing practical barriers, developing residents' skills, and facilitating learning processes (Broers et al., 2022). Without such efforts, formal participation mechanisms risk benefiting only the most articulate or confident residents, who are often already in stronger social positions (Hurenkamp & Tonkens, 2020).

Responsibility

Responsibility is the shared obligation of both institutions and individuals to achieve sustainable housing. While housing corporations and implementation partners must act transparently, ethically and inclusively, residents also have the responsibility to participate and co-operate with the contractor, in order to improve their comfort at home. However, simply asking residents to act responsibly is not enough; they must also be given the necessary knowledge, resources and trust to build a sense of ownership. If residents have a sense of ownership, this can increase participation and encourage them to promote energy efficiency by changing their behaviour and using new systems responsibly. Concluding, all responsibilities must be distributed fairly and supported by enabling conditions (Broers et al., 2022).

2.1.5 Resident participation

Resident participation is widely recognised as an essential aspect of social housing renovation. Although regulatory frameworks require formal consent from tenants, genuine participation extends further. It is based on recognising residents as active contributors to transforming their homes and communities.
Participation is most effective when it begins with the personal significance that people attach to their living environments. When these lived experiences are acknowledged, residents are more likely to connect with renovation goals and feel intrinsically motivated to support change (Guerra-Santin et al., 2017).

However, participation is hindered by emotional, cognitive and social barriers, as is evident in vulnerable neighbourhoods (see Section 2.1.2). Residents may resist change if they perceive it as being imposed on them or if the process evokes fear, mistrust or feelings of disempowerment (Walker et al., 2014). Concerns around justice, unclear communication and a lack of perceived agency can undermine motivation and trust.
Despite these challenges, effective participation offers a wide range of benefits, improving the technical quality of renovation projects and strengthening community cohesion, increasing support and promoting long-term behavioural change. The following section will explore these benefits in detail, setting the stage for a closer examination of the practical conditions and challenges involved in making participation more inclusive and meaningful.

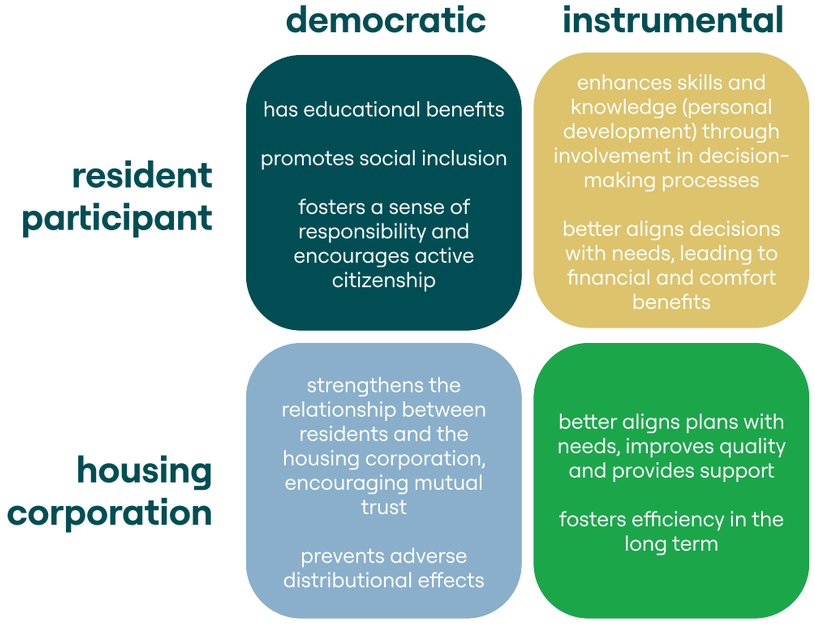


Figure 7. Summary of the benefits of participation (based on Aan de slag met participatie (2023).

The benefits

In social housing renovations, reaching the required agreement threshold of 70% depends heavily on tenant support. Participation serves as a pathway to building this collective agreement while providing educational benefits and promoting social inclusion (Kruythoff, 2008). Beyond the practical results, respecting the right of residents to participate in decisions that affect their homes addresses the fundamental need of people to be heard and prevents adverse distributional effects. If residents feel recognised, this can increase participation, and participation can increase a sense of responsibility. In this way, residents become active citizens (Broers et al., 2022).

When residents participate in the renovation process, plans become better aligned with their actual needs, it improves both quality and support for the renovation plans, and they gain greater integrity and coherence. For residents, this means it better aligns with their needs, which could lead to financial benefits or benefits in comfort at home (Aan de slag met participatie, 2023). Early engagement allows preferences to be incorporated early in the process, contributing to more efficient renovation plans while strengthening relationships between residents and housing corporations, encouraging mutual trust. For residents, being part of decision-making enhances skills and knowledge, builds self-confidence, and creates a sense of accomplishment, which means offering opportunities for personal development (Broers et al., 2022; Hurenkamp & Tonkens, 2020; Kruythoff, 2008).

Although participation needs to be balanced against project constraints such as time and money, the initial investment in engagement will usually pay off in the long run with reduced costs and more successful outcomes (Morgan et al., 2024).

While the benefits of participation are clear, achieving effective and inclusive engagement remains a challenge in practice. The following sections explore key barriers to participation and possible strategies to overcome them. Each section is linked to one or more of the CLEAR sub-research questions.

Enabling residents to participate

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?
E	enabled to	How can structural and social support be provided to enable participation?

The effectiveness of the participation process depends on the extent to which it fosters influence, and is further influenced by effective publicity and promotional strategies (Thoneick, 2021).
For an inclusive group of residents to participate and to know what the renovation process entails, accessible communication is essential (Bal et al., 2021). Among social housing tenants, literacy issues are common, making renovation-related information difficult to understand, particularly for residents with lower literacy or a migration background, who may face language barriers when information is mainly in Dutch (Hurenkamp & Tonkens, 2020). In addition, information about social housing has become more complex (Broers et al., 2022).

Clear and effective communication is a key aspect of justice in renovation projects, ensuring that residents have fair access to information and can actively participate in decision-making processes (Charles et al., 2025; Hauge et al., 2013). Timing is also a critical factor: providing information too early can have adverse effects by overwhelming tenants with uncertain information that needs to be adjusted at a later stage (Hauge et al., 2013).
Thus, effective communication supports both procedural justice and the practical conditions for participation, especially the 'Can Do' and 'Enabled To' dimensions of the CLEAR model.

A	asked to	How can residents be genuinely invited and encouraged to participate in the process?

Beyond communication, the issue of who holds influence in participation processes plays a critical role in shaping outcomes. Participation processes often reflect underlying power dynamics. For example, highly educated individuals tend to be overrepresented and more articulate, while other groups, such as young people or those with a migrant background, are often less visible or heard (Hurenkamp & Tonkens, 2020).
This disparity highlights the importance of recognition of justice. As discussed earlier, recognition justice requires us to acknowledge the diversity of residents' backgrounds, needs and experiences. Participation strategies that fail to actively recognise and adapt to this diversity risk reinforcing existing inequalities and further marginalising those already excluded. Merely providing formal opportunities for input is not sufficient; housing corporations and facilitators must ensure that all residents, particularly those who are often overlooked in standard consultation processes, feel seen, heard and taken seriously (Broers et al., 2022; Astola et al., 2022), and that everyone is genuinely 'Asked to' participate.

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?

In order to involve a bigger group of participants, topics should not focus solely on sustainability, but also address issues that resonate with residents' lived experiences. Social housing residents show a motivation to engage in sustainable behaviour, driven by both environmental concerns and self-interests such as improved living comfort and cost savings. However, while they recognise the importance of energy reduction, they do not necessarily see themselves as responsible for climate change (Bal et al., 2021).

Direct economic and social benefits for residents will also build trust in the sustainable renovation process (Scalable Cities Café, 2024), and create a foundation for whether residents would 'Like to' participate. It can be enlightening to ask residents how they currently create comfort in their homes, and design renovation systems accordingly (IDE TU Delft, 2025).

Trust via community

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?

If governments and other stakeholders do not take participation seriously, people may lose trust (TU Delft Online Learning, 2023). As Arnstein (Arnstein, 1969) wrote, "Participation without redistribution of power is an empty and frustrating process for the powerless".

Trust is widely recognised as a key factor in the success of social housing renovation projects. Residents must trust their housing corporation and the contractors involved to carry out the work competently and to listen to them, communicate transparently, and act in their best interests (Broers et al., 2022; Morgan et al., 2024). However, trust is not a one-way dynamic. While residents are often expected to trust institutions, these organisations must also take their input seriously and meaningfully involve them (Hurenkamp & Tonkens, 2020).
This means that trust becomes reciprocal and contributes to recognition, as it acknowledges the value of residents' lived experiences and cultural perspectives in shaping renovations.

One of the most effective ways to build trust is through community networks. Residents often turn to family, neighbours or local intermediaries to help them decide whether to engage with renovation projects. These trusted intermediaries can play a crucial role in bridging the gap between institutions and residents, translating institutional language into lived realities and offering reassurance based on shared values and experiences. This highlights the need for sufficient time to engage tenants before and during the process (Götz & van Hal, 2022; Morgan et al., 2024).
Fostering trust among residents and between residents and institutions makes participation more emotionally meaningful, thereby supporting the CLEAR model's 'Like to' and 'Responded to' pillars.

2.1.6 Conclusion on the literature review

This literature review has explored various aspects of sustainable renovation in social housing, emphasising the importance of resident participation. Based on the CLEAR model (Lowndes et al., 2006), it can be concluded that effective participation requires five key conditions, each of which presents challenges in current energy renovation practices.

Table 3. Conclusion on the literature review, using the CLEAR model (Lowndes et al., 2006)

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	In order to participate meaningfully, residents must have access to the correct information, skills and resources. However, many social housing tenants, particularly those in vulnerable neighbourhoods, face literacy issues, language barriers, or digital exclusion (Hurenkamp & Tonkens, 2020; Bal et al., 2021). Renovation processes often use complex technical language that may confuse or exclude residents rather than empower them (Hauge et al., 2013). Thoughtful communication is therefore essential in order to build capacity for engagement.
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?	A sense of community and an emotional connection to residents' homes can motivate residents to engage in the renovation process (Lowndes et al., 2006; Guerra-Santin et al., 2017). However, many residents are more motivated by direct benefits such as increased comfort and cost savings than abstract sustainability goals (Bal et al., 2021). Focusing on themes that resonate with residents' values and leveraging trusted community relationships can increase participation rates (Morgan et al., 2024).
E	enabled to	How can structural and social support be provided to enable participation?	Real opportunities for engagement can only be created by addressing structural and institutional barriers. These include unequal power relations, a failure to recognise lived experience, and decision-making structures that often exclude the voices of those who are less privileged (Broers et al., 2022; Astola et al., 2022). Vulnerable neighbourhoods present particular challenges, as residents may respond to exclusion with distrust or anger stemming from experiences of institutional failure (Götz & van Hal, 2022).
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?	Participation must be invited in an active and meaningful way. Residents must feel their input is genuinely valued, not just a symbolic gesture. Housing corporations must engage with vulnerable groups in culturally appropriate and inclusive ways, while avoiding overwhelming residents with uncertain or changing information (TU Delft Online Learning, 2023; Hauge et al., 2013).
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?	For participation to be sustained, residents need to see the impact of their input. Trust can erode without visible outcomes or feedback, and future engagement may decline (Arnstein, 1969). This is particularly important in communities where historical patterns of exclusion and broken promises have led to distrust (Broers et al., 2022). Fostering continued trust and engagement requires reciprocity in the form of visible results, public recognition, or even small changes in project plans based on resident input.

This literature review demonstrates that energy renovation in social housing presents significant technical and social challenges. Through a resident-centred approach, structural inequalities, lived experiences and justice concerns should be addressed. If implemented effectively, this approach can achieve lower energy bills and improved buildings, as well as strengthen communities, reduce social exclusion, and help meet climate goals in an inclusive, diverse, and representative way.

2.2 Project case

This section will provide further information on the Warm thuis project, which was introduced in Chapter 1.1 Scope. First, the roles of the housing corporation housing corporation and the company Tsavo will be discussed, along with an overview of their participation process in the Warm thuis project. This will be followed by an overview of residents' contact moments during the process, including current participation methods. After that, the resident guidance and execution of the energy renovation will be discussed.
The project case will be reflected in Section 2.2.7.

2.2.1 housing corporation

housing corporation is a housing corporation in The Hague that was initially part of former housing corporation until two years ago. former housing corporation has been divided into three new housing corporations: Hef Wonen in Rotterdam, Stedelink in Delft and Zoetermeer and housing corporation in The Hague (Ministerie van VRO, 2023). After a long period of financial difficulties within former housing corporation, the separation of housing corporation was part of the structural solution to fulfil its obligations to tenants and municipalities again. housing corporation has around 19,000 dwellings in the Haaglanden region and employs around 200 people.

To follow the Klimaatakkoord, housing corporations like housing corporation have to improve all dwellings with a poor energy label before the end of 2028; otherwise, they have to give residents a rent reduction that compensates for the E, F or G label of their dwelling (Ministerie van VZ, 2019). They have contracted Tsavo to carry out all the renovation projects. Tsavo organises the entire process, from the first contact with the residents to the final delivery of the new home. However, housing corporation is involved in the whole process and has to decide, for example, which scenario they prefer with specific renovation plans.
Every building from housing corporation is under the responsibility of a social manager, a district manager, and a rental agent; the social manager is the main contact person for residents. During the Warm thuis project, responsibilities shift between resident guides of different institutions (see Figure 9). Nevertheless, the social manager has worked with the residents continuously and probably knows the most about them.

While the resilience in neighbourhoods with a lot of housing corporation's social housing is low, they are working on a project to improve this resilience in vulnerable neighbourhoods in The Hague.

2.2.2 Tsavo

Tsavo is a company that has taken responsibility in the energy transition, working with institutions and homeowners to make homes more sustainable. In order to make dwellings future proof, they look at options for insulating the building, ventilation, sealing gaps, heating and hot water, solar panels and electricity. Safety, maintenance and residents' wishes are also important aspects involved in the process (Over Tsavo, n.d.).
Their approach ensures that they efficiently bring mainly social housing to a higher energy label at a rapid pace. This process is divided into five steps: 1. wishes and requirements, 2. a good and affordable plan, 3. arrange everything, 4. build and 5. live sustainably, which is shown in a service blueprint in Figure 11.

Every Warm thuis project or building has a team of three responsible people: a project leader, a plan developer and a project leader social process. During this graduation project, the total number of Warm thuis projects running was around 28 (Figure 8). While only two project leaders' social processes were working for housing corporation, they were both responsible for around fourteen projects.

2.2.3 Resident guidance

During the Warm thuis projects, different resident guides have contact with residents. At the start of the project, two representatives from housing corporation, who were hired from resident guide company, will guide the residents under the supervision of the Tsavo social process project manager. Separate organisations, resident guide company and resident guide company, will be hired to secure the required 70% resident support for the renovation plans. They will do all contact with residents during the support process. Once this percentage is reached, the resident information from the initial guidance phase will be transferred to the contractor's resident guidance organisation in what is known as the 'social transfer'. An Excel sheet is used for this purpose.
In order to understand what resident guide company does, an afternoon was spent with them. The information in Section 2.3.1 about this visit can be seen as an ethnographic report.

During the time spent in the office, it is said more than once that the execution of the project takes way more time than expected in the first place. Contacting residents takes far more time than expected, leaving the project leaders and resident guides with limited time for the social process. If one project requires additional attention, this inevitably means that another project suffers.
The team of co-workers working on the social part of the process has increased from one person a year ago to six people, which gives an impression of the work that needs to be done to process the individual situations with residents.

2.2.4 Stakeholder overview

Tsavo is leading the Warm thuis project at housing corporation, with the help of the stakeholders resident guide company, resident guide company and different contractors for execution. Figure 9 shows an overview of the stakeholders before, during and after the Warm thuis project, which aims to be done within a year, depending on the number of dwellings in the project and the number of executions.

The control group of housing corporation attends the kick-off of a project (also called IPT light) and decides on the preferred scenario in the energy advice report. This report entails different scenarios, each with a different budget and work and is made by the plan developer and project leader.
After a scenario is chosen, a project plan will be made, in which the project leader social process writes a chapter on strategy to achieve the 70% agreement from residents and what consequences the execution will have on residents. Section 2.2.6 contains a more detailed overview in a service blueprint (Figure 11)

As indicated in the figure, the main contact point for residents changes several times throughout the process. This means that knowledge about residents' needs must be transferred several times, so it is important to keep careful track of it.

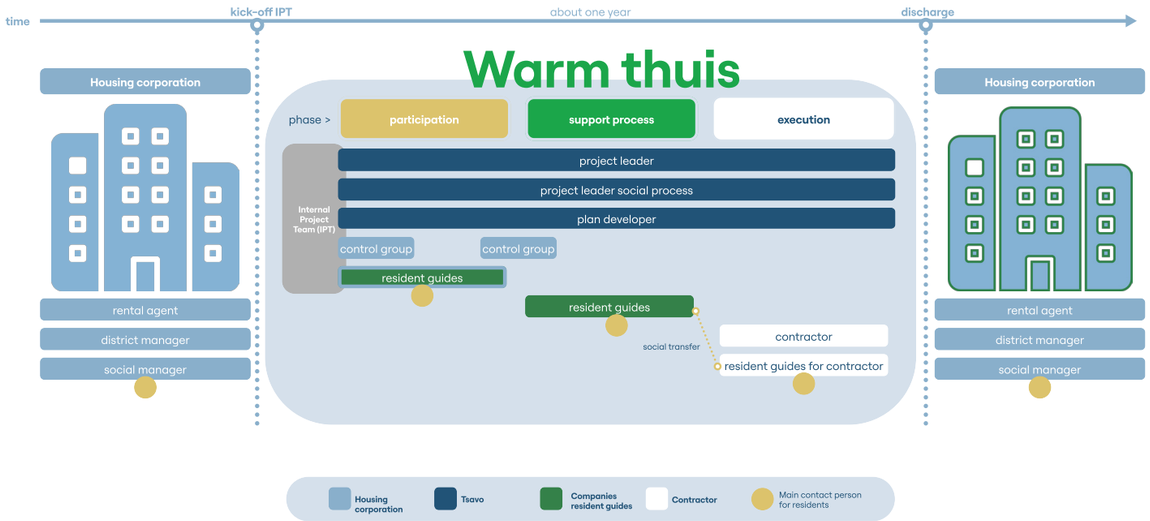


Figure 9. Stakeholder overview, before, during and after the Warm thuis project

2.2.5 Resident contact moments

During the Warm thuis project, especially till execution, there are specific contact moments with residents, which are shown in Figure 10.

At the beginning of the renovation process, a resident survey is sent to the residents, which is the main way residents can give their input. This survey asks 32 questions about their home and what they want to see renovated, and Tsavo aims for 20% of residents to complete it. Although the number of questions is relatively high, it does not seem very clear what the purpose of each question is, and it would be interesting to investigate.
The final questions of the survey are open-ended, and the social process project leader finds these the most interesting, while the specific cases are written down here. She is the only one who reads them and has to mention them in meetings with the plan developer and the project leader. During these meetings, the people responsible for resident contact must fight for what the residents want for the renovation plan.
The project manager is present during the sounding board, but most plans have already been made by then.

In the open question, residents give various answers. Some say they hope something will finally happen. Another person said that he had a financial need to reduce his energy bills. Other answers mainly concern specific situations, such as mould, draughts or technical problems.

2.2.6 Warm thuis process overview

A simple version of the Warm thuis process was introduced in the scope (Chapter 1.1). Figure 11 is an expansion to that figure and shows the whole process in the form of a Service Blueprint (Bitner et al., 2008): a practical and adaptable method for a process like Warm thuis.

It was created to help understand the whole process and make it easier for others involved in this graduation project to discuss future opportunities. The Service Blueprint is based on the Warm thuis Participatieproces document provided by Tsavo.
The five steps of the process are shown at the top, with the contact moment with residents shown below. The arrow shows who is responsible for which contact moment and on which internal plan the participation method should have an influence. It also shows the three moments when the customer satisfaction survey is sent to residents, which is executed by the Centrum voor Woononderzoek. This report focuses on the resident side and the beginning of the process, which is shown in yellow. These yellow interactions will be elaborated on and explored throughout the project and report.

Throughout the process, Tsavo's name as a company will never be visible to the residents, who will always introduce themselves as part of the housing corporation, which in this project is housing corporation.

2.2.7 Reflection on participation in the Warm thuis project

The main goal of the participation process within Tsavo and the Warm thuis project seems to be to ask residents whether they have complaints which could create resistance later in the process or whether specific plans should be considered to create enough agreements in the support phase.
Therefore, how participation is done is particularly purposeful for fostering efficiency throughout the rest of the process.

In order to create more justice in the participation process, viewed from a resident perspective, the CLEAR sub-research questions should be asked on the current ways in which residents can participate. In the following chapter, the ethnographic research, these current ways will be observed and criticised with the CLEAR method.

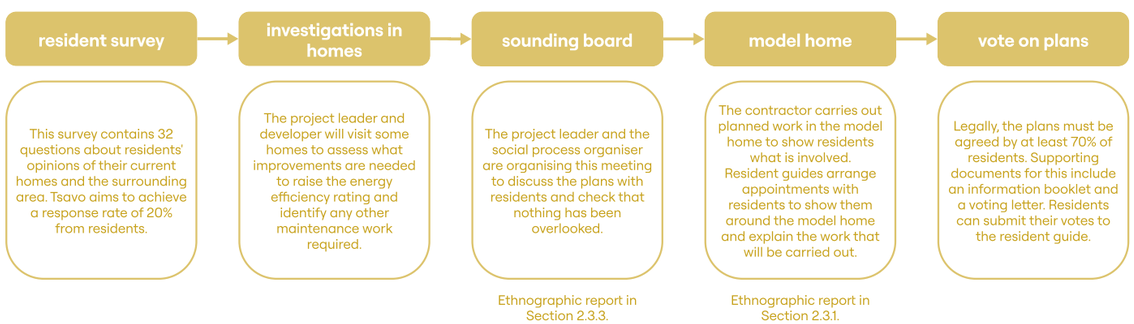


Figure 10. Moments of contact with residents during the Warm thuis project

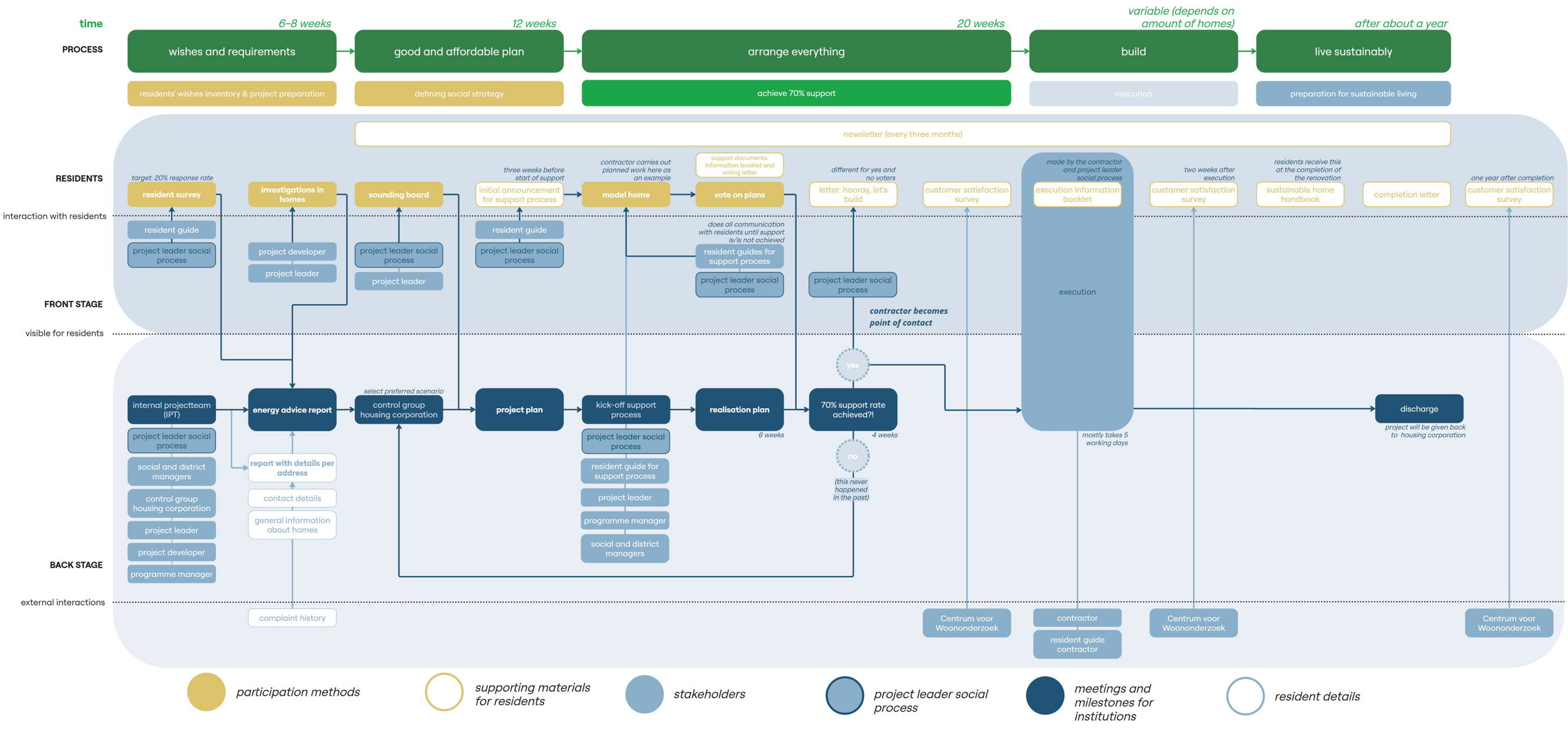


Figure 11. Warm thuis service blueprint

2.3 Ethnographic research

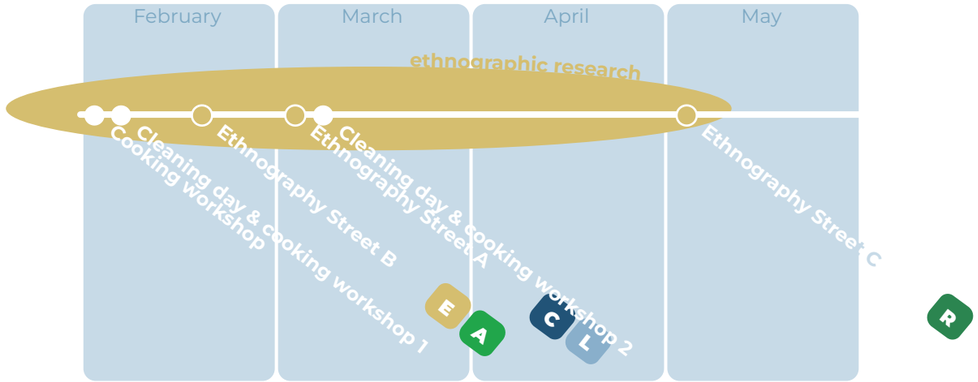


Figure 12. Overview of ethnography moments, with indications for the CLEAR method

In this ethnographic research, the aspects of the project case will be further elaborated. In about five months, I observed many different meetings and other things with residents, which allowed me to see how residents currently participate in the renovation process and what the challenges or barriers are from both the residents' and Tsavo and housing corporation's perspectives.

An ethnographic report was written on a few of those moments during the ethnographic study. I chose my afternoon at resident guide company (Section 2.3.1), who were doing the agreement from residents, the meeting about the residents on Street A (Section 2.3.2) and the sounding board at the Kazernestaat (Section 2.3.3) to use in my ethnographic study because they gave the best insight into the residents' side, this was the closest I had been to the residents (overview in Figure 12). All moments gave a good perspective on what kind of residents live in social housing in The Hague, and thus were very insightful.

In addition to the moments in the ethnographic reports, I went to a cleaning-up day and a cooking workshop. Photos of these moments can be seen in Figures 12-17 to see what kind of buildings are in the Warm thuis project and to get a feeling for the residents, their surroundings and what is already happening to foster the project. Further meetings and conversations in the ethnographic are described in Appendix C.

Figure 12-17. Photos of cleaning-up days and a cooking workshops

2.3.1 Ethnographic report Street B: Support process by resident guide company

E	enabled to	How can structural and social support be provided to enable participation?
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?

This afternoon, I travel to The Hague to visit a model home in the building where resident guide company is currently working on gaining support. A model home is an empty unit where all the work outlined in the project plan for the building has already been carried out. In this model home, the resident guides from resident guide company explain to residents the plans for renovating their homes.

As I approach, I see a sign outside that says "Warm thuis", and I know I am in the right place. Upon entering, two resident guides and a table with two laptops are in an otherwise empty space, clearly recently renovated. They explain that today is the last day for residents to hand in their support form, so they are making one final round of the apartment numbers for which they have not yet received a form.

Contact

The resident guide explains that contractually, they make five attempts to contact residents to obtain support. Sometimes they try more, especially if the support percentage has not been met. For example, early that morning, they made a detour to pick up a support form for someone who had moved out but was still listed on the rental agreement.
He shares that some residents are hard to reach:
"We first try calling them. If we cannot reach them by phone, we leave a voicemail. Then we send a callback request via WhatsApp. If they do not respond to that either, we go in person and ring the doorbell to try and approach them that way. If that still does not work, we will contact the district manager. Then we leave it to them to check whether the resident is home."
Later, in the interview, he adds: "With this support process and others too, you often see that phone numbers are not in use anymore, unreachable, or outdated. They are not up to date with the housing corporation, which costs us a significant amount of time to track down again. So an efficiency improvement could be made there, where the initiative lies with the housing corporation to stay better connected with residents by simply asking: What are your contact details?"

Tour in the model home

One resident guide heads to the units, missing support forms for one final round. The other offers me the same tour he usually gives residents. On the walls and windows are signs explaining the work that's been done, like insulated walls, HR++ windows, upgraded ventilation, and an induction cooktop. In another room, there is an overview of the entire process.

As the tour is almost over, someone rings the bell; a woman accompanied by a guide. She later shares that she is under guardianship. She seems tense and unsure of what to expect. She recalls a previous renovation in another complex where the contractors constantly left the door open, and her dog ran away several times. She now has two cats and does not want that happening again, especially with the windows being replaced. The plan is to carry out the work over five days in October, and she cannot imagine how the windows could be removed in that time. The resident guide reassures her that replacing the windows is quick, so there will not be long cold periods or risk of pets escaping. There will also be an introductory meeting with the contractor to discuss these concerns.

Figure 18. Warm thuis sign at the model home

Figure 19. Model house, signs on window

Figure 20. Overview of renovation project in model house

She says she would appreciate that, as she also has a child who needs to get to school, and she does not see how she can manage everything. The resident guide offers to walk her through all the work so she can understand what will happen in her home. When we reach the balcony, she feels the draft and says it is always windy in her home. She also notices it is much quieter here. At her place, there is far more noise from outside. In the kitchen, she is pleased to hear she can pick out an induction cooktop.

During the tour, she said she had tried several times to contact the housing corporation about maintenance issues, such as a damaged window sill. She has also complained about draughts and mould in her home for years. The resident guide advises her to make a list of the things that need to be done, so that the contractor can take care of them while they are at it.

Towards the end of the conversation, I can see the fear she came in with start to fade. She is told she will receive €250 compensation for the inconvenience caused by the renovation. “That is a ticket to Spain!” she says, asking if she can sign the support form there.

Afterwards, three more residents drop by and hear roughly the same explanation. Initially, not too positive, they also end up signing the support form. That means the 70% support threshold is reached right then and there!

More than sustainability

In the interview with the resident guide, I asked how people feel about sustainability, since I have previously learned it is not always welcomed. He says some people respond with:
“Yeah, I do not feel like going through all this hassle and getting a rent hike and service fees to contribute to a better climate. I am not interested.”
He usually responds: “Look, it is not always directly about a better climate. That is a nice bonus, but the point is that your home will last longer. Moreover, more sustainable materials are used, which makes your home better and more durable, better insulated, with a higher energy label, so you will not need to heat as much to keep a constant temperature, which means it is also more comfortable.”
I mention that people probably have enough other concerns. He replies:
“Yes, sometimes they feel like ‘my personal problem is bigger than this entire renovation plan.’ Moreover, I

Figure 21. Model house, signs on wall

might have my own opinion about that, but I am here to explain the plan clearly, so there is no confusion. And if we can help, we will try to help. And if we cannot, we cannot. I am not here to change minds, more to give them a better understanding of the project.”

Digital improvements

At the end of the interview, I asked him what he would change if he were in charge. He mentions digitising the whole project, for example, allowing residents to schedule their meetings, sending out the information booklets, and offering voting digitally.
“But only after they have had a meeting. Because I want that personal contact, you do not want to skip that. If they do not have a realistic sense of what will happen, then ideally, you have invited them to the model home or spoken to them. You see, when they fill out the form in person, they also return it in person. That is what we often see now. If you only offer it digitally, they will only submit it from their own home, and that is what you want to avoid.”
Residents can send their form via WhatsApp to the resident guides from resident guide company, but experience shows that if you hand out the form in person, they will hand it back in person, too.

Currently, all resident information is tracked in Excel. That is relatively secure, but he says it could be even more efficient through an app. Such apps already exist, but they are still in the early stages. When I asked if this could be secured under GDPR, he said that it can be secured appropriately:
“You would have a resident side, a contractor side, and a manager side, for example. The resident can only access the resident dashboard. That includes only what the resident is allowed to see. The contractor sees only what they are allowed to see, and the manager, for example, sees everything. That way, you try to separate those roles within the app.”

Furnishing the model home

Another improvement, he says, would be tailoring the model home to the target audience. He once had a support process where the model home was styled for the target group:
“Right down to the decorations on the wall. It was a senior housing unit, and when I walked in, it felt like my grandmother could have lived there, really special. You could welcome people into that space, and they immediately felt at home. Like, ‘Oh, this looks like my own place.’ They would settle into the living room, and you would offer them something to drink and start the conversation. Furthermore, you notice that people calm down more because they are not walking into a concrete floor. That can be scary because they think, ‘Oh no, my whole house is going to be torn apart.’ So you can see that it improves the quality of those conversations.”

2.3.2 Ethnographic report Street A: Meeting with social manager

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?

Street A is a building where the Warm thuis process has just started. Having heard that the target group might be challenging, the social process project manager arranged a meeting with the social manager and the district manager, which I was invited to attend.

During this meeting, I began to understand why many of the staff from Tsavo found the work in The Hague challenging. The social manager explained that there is much illegal subletting, and drug use and dealing are a problem. There are a couple of households that cause significant problems.
She mentioned that other residents are afraid to let people into their homes because of all that has happened recently. Long-term residents say the building has deteriorated and feel abandoned by former housing corporation and housing corporation.
At the sounding board for the Warm thuis project, which took place a few days before, four elderly residents echoed these concerns and expressed their lack of confidence in reaching the 70% support threshold for the renovation plans.
In order to rebuild some trust among the residents, the social manager holds public consultation hours every Monday. She tends to see the same people who attended the sounding board meeting.

2.3.3 Ethnographic report Street C: Sounding board in De Heldenhoek

R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?

This evening, I cycled to De Heldenhoek community centre, where the Warm thuis project sounding board at Street C is taking place. I arrived early, but two residents were already there! Moreover, the social manager was invited to the sounding board for the first time. When I saw her, I thought it was a good idea for her to be there to hear about the problems that residents are dealing with outside of the Warm thuis project.
I had heard that only one or two people usually come to a sounding board, but five people from four different households were present at this meeting. They all seemed very different, but they were all concerned about their living environment, which was nice. I heard that they have a Facebook group for all residents, and they had asked what problems should be mentioned during the meeting. This meant that the needs of those present and those who had contributed via Facebook were represented. These five residents also represented other residents.

In this sounding board, the project leader expressed a few times that he tries to involve their concerns in the plans and wants to fight for their wishes at housing corporation. He genuinely felt concerned with the residents, which created a safe space for them to express their needs calmly, feeling they were listened to.

One resident has lived there for over 40 years and carries out tasks for housing corporation, such as collecting paper and cardboard and emptying the bins in the building and garden. He seemed very committed to his building and encouraged other residents to come here. He tries to keep everything clean, but it has become harder recently. People throw cardboard and other rubbish everywhere, which he does not understand.
On top of that, many packages intended for residents get stolen by other residents. Even his bike was stolen last week, which must have been done by or with the help of another resident, as it was in the residents-only bike storage area.

The young woman at the sounding board meeting complained many times to former housing corporation and housing corporation, but most of the time, she was either ignored or told that nothing was wrong, for example, regarding the mould issues in her kitchen. All the other residents have complained about moisture problems as well. When it rains heavily, the entire hallway becomes wet. The social manager will address many other ongoing problems, such as issues with the cleaning staff, the Japanese knotweed in the garden, mice in and around the building, windows that can barely be opened, and noise from central heating and the draughts in the homes.

It is hard to believe that so many people live in these conditions, yet they remain positive because they love the location and style of the building, and finally, there is hope that something will be done.

2.3.4 Conclusion on ethnography

Ethnographic observations across Street B, Street A and Street C reveal that residents' participation in renovation projects is shaped not only by information and communication, but also by deeper emotional, social and organisational factors. The conclusions are written by answering the CLEAR sub-research questions, shown in Table 4.

Table 4. Conclusions on ethnography research, based on the CLEAR model

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	Residents are given information on the renovation through the model home in a personal appointment, as seen in the Street B report. This provides residents with a tangible understanding of the work they will do in their homes. However, the digital tools mentioned in the resident guide could be developed further to make them more accessible. Personal engagement must remain a critical aspect of the process, especially for those with concerns or confusion, but digital tools could be improved to make them more accessible.
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?	Building trust and a sense of belonging is essential for fostering participation. The resident guide at Street B mentioned how creating a relatable environment by styling the model home could help residents to feel more comfortable with the renovation plans in their own home. At Street A, the social managers' effort to build trust through consultation hours every week helps address feelings of abandonment by the corporation. It creates an environment where residents feel their concerns are heard and understood, which helps to foster a sense of belonging and responsibility.
E	enabled to	How can structural and social support be provided to enable participation?	Structural and social support is provided through various means, including a sounding board, individual resident guidance, and weekly consultation hours. However, there are challenges such as outdated contact information and residents' hesitation to participate due to past experiences. Support can be improved through better communication, digitally and in-person, for example, as suggested in the Street B report, with improvements in digital infrastructure.
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?	Encouraging residents to vote requires multiple contact moments to reach residents, as described in the Street B report. The residents' guide's effort shows the importance of trying multiple digital and physical contact attempts for hard-to-reach residents. In the Street A report, the social managers' efforts to address residents' fears and concerns in a public consultation format also create opportunities for involvement.
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?	Acknowledging residents' input is essential to building trust and showing their concerns are taken seriously. The Street C report shows how feedback from residents was also listened to by the social manager, which ensured that residents ' needs were not only integrated in the renovation, but also in the process of general maintenance. In addition, residents were genuinely supported by the project leader, showing that social people care for their wishes and that they felt trusted that their needs would be translated into the technical plans.

Besides the answers on the CLEAR questions, two other phenomena were noticed during the ethnographic research:

Participation is a social phenomenon

Residents are influenced by their neighbours regarding their agreement about the plans. For example, a resident of Street B would only vote 'yes' if others did.
However, individualism and high turnover rates can limit community cohesion. Conversely, when residents act as informal ambassadors, motivated by a desire to care for their environment or long-standing ties, they become key participation enablers, as seen at the Street C sounding board. Supporting and investing these residents could lead to lasting engagement and stronger support networks.

Personal relevance and safety matter more than sustainability

Fear, stress and a lack of basic comforts, such as noise, draughts or moisture, often overshadow the goal of sustainability. Many residents view sustainability as an external agenda.
When resident guides connect the renovation plans to everyday comfort or safety in a personal conversation, for example, by discussing how the building will be warmer during winter, with less noise and draughts, residents' scepticism softens. Their opinions of the plans become more positive.

2.4 Frameworks for just participation

Based on the literature review and fieldwork findings, three conceptual frameworks were selected to guide the development of just and effective participation strategies in sustainable renovation: capability programmes, feedback loops and reciprocity. These frameworks were chosen because they closely align with the participation conditions outlined in the CLEAR model (Lowndes et al., 2006). Table 5 matches the chosen frameworks with CLEAR model dimensions.

2.4.1 Capability programs

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?
E	enabled to	How can structural and social support be provided to enable participation?

The capability approach provides a powerful perspective to understand what residents need to participate in meaningfully. Rather than merely providing information or access, it considers whether individuals can effectively utilise these resources to make informed choices and take action (Sen, 1987; Kimhur, 2020).

In the Warm thuis project, residents encounter various barriers to participation, ranging from unclear communication and fear to more financial and health concerns, and a lack of understanding of the possibilities to participate.

Ethnographic observations revealed that basic capabilities such as having the time and energy to engage, the literacy skills to understand the entire information booklet and trust in the plans were frequently lacking because of the past. Additionally, housing corporation has a policy that all communication should be in Dutch, which makes it hard to make residents, many with a multicultural background, understand the renovation plans.

A capability-oriented approach would mean investing in social infrastructure, such as offering communication in various languages or personal meetings to help people understand the booklet. Supporting ambassadors could help to navigate neighbours through the process.

Such programmes empower people to take control of their lives. They enable participation beyond renovation decisions to encompass personal development, well-being, and self-efficacy (Morgan et al., 2024). This directly supports CLEAR's 'Can do' and 'Enabled to' aspects by recognising that participation begins with the freedom to act.

2.4.2 Feedback loops

R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?

Feedback loops can acknowledge and reflect residents' input by creating a structured listening, responding and adapting cycle. They can make the participation process visible and accountable, supporting justice by showing residents that their input has real influence (Jackson et al., 2018). For example, highlighting changes to renovation plans or communication strategies based on resident feedback can build trust over time.

This process also strengthens organisational learning. Institutions can gain an understanding of what matters most to tenants, which often differs from assumptions made at a higher level. In the case of resident guide company, for example, focusing on practical comfort, such as better insulation, reduced draughts and manageable renovation timelines, was more motivating than sustainability arguments.

Feedback loops, therefore, help to meet the 'Responded to' condition of the CLEAR model, closing the gap between intention and perception. In doing so, they enhance the legitimacy and quality of decision-making, particularly when time and planning constraints restrict personal contact.

'Participation without redistribution of power is an empty and frustrating process for the powerless' (Arnstein, 1969).

This often applies when feedback loops are missing or merely symbolic. As Hurenkamp and Tonkens (2020) describe, many participation processes fall into the trap of laissez-faire participation ('We will take your input into account' without demonstrating how), where there is no real structure to ensure citizen input is meaningful.

2.4.3 Reciprocity

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?

Reciprocity, as a framework, emphasises the importance of balance in the relationship between residents and the housing corporation. In the Warm thuis project, renovations offer long-term benefits such as greater comfort, lower bills and more future-proof homes, but they also cause short-term disruption that residents must endure. Many people see this as a burden.

Reciprocity helps to frame participation as an exchange of value, not just a requirement. Ethnographic insights showed that gestures such as the €250 inconvenience fee or providing individual explanations in a furnished model home were greatly appreciated. While seemingly minor, these acts are vital in creating mutual respect and restoring trust in an often-strained relationship.

This applies to short-term exchanges, such as compensation, listening and attention, and long-term investments, such as a better living environment and safer, more supportive communities. Residents are more willing to participate when they feel seen, respected and acknowledged as individuals with complex lives, not just as tenants. From a design perspective, reciprocity helps to identify low-effort, high-impact interventions that can shift resident perceptions and motivate engagement.
De Verbindingskamer does an excellent example of this (Tongerloo, 2024). They go door-by-door in vulnerable neighbourhoods with flowers and try to create connections. They ring the bell and ask residents: How are you?. This simple gesture of contact, giving a flower and listening, means a lot to residents. "Everyone is happy with sincere interest. There is much need for contact in these neighbourhoods, people just need a push."
In this example, the founder of De Verbindingskamer, Marianne, says: "If you do not change anything, people will not trust you." This refers to building trust through responding and feedback loops.

Reciprocity aligns closely with the 'Like to' and 'Asked to' elements of CLEAR: it reminds institutions that participation is not just a request; it is a relationship that requires continual care and reinforcement (Kolm, 2006; Charles et al., 2025).

Table 5. Frameworks linked to the CLEAR questions

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	Capability programmes
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?	Reciprocity
E	enabled to	How can structural and social support be provided to enable participation?	Capability programmes
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?	Reciprocity
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?	Feedback loops

3. Reframe

3.1 Context factors
3.2 Meaning for residents
3.3 Persona
3.4 Meaning for Tsavo and housing corporation
3.5 Stakeholders' meanings: an overview
3.6 Defining the design space

To move from observation to insight, this chapter identifies and interprets the context factors that shape participation in sustainable social housing renovation and moves towards the design space. For this, the Social Impact Design (Tromp & Hekkert, 2014) methodology was used. An overview of all the context factors can be found in Appendix D. A persona is created based on the context factors and meaning for residents. Then the meaning of housing corporation is explored. All stakeholders come together in an overview in chapter 3.5, after which the design space is described based on the CLEAR model and frameworks.

3.1 Context factors

The context factors were derived from the literature review and ethnographic fieldwork, then qualitatively clustered based on thematic similarity. This revealed cross-cutting patterns in stakeholder experiences, challenges, and motivations.

A cross-diagram was created to visualise how these factors interact (Figure 22). Internal and external influences are organised vertically. The context factors on the internal side are happening within Tsavo and housing corporation or can be influenced by them relatively easily. External factors have already happened and can barely be changed by these institutions; nevertheless, they are not unreachable.

Resident motivations and institutional barriers are mapped horizontally. In the top-left corner are organisational issues that Tsavo and housing corporation are already addressing. The diagram's centre illustrates characteristics of poor and good participation processes. The top-right displays key barriers to resident engagement, such as emotional resistance due to uncertainties or disruptions during the renovation. The middle-right section highlights residents' motivations for renovation, which are often related to everyday comfort or personal security. Social dynamics within The Hague's housing context, such as isolation, individualism or long-term neglect, are grouped in the bottom right. Finally, the bottom left contains external influences, such as past institutional failures and news items, that shape residents' expectations.

The analysis of context factors reveals a set of recurring themes that shape the renovation process, both from the perspective of residents and the organisations involved. These factors can be grouped into a few essential meanings that help to understand what matters most to residents: **trust, comfort and safety**, and **financial stability,** as well as the institutional realities faced by housing corporation and Tsavo: **time, budget** and **customer satisfaction**.

Figure 22. Cross-diagram of internal vs. external factors, barriers institutions vs. motivation of residents

3.2 Meaning for residents

Figure 23. Trust, safety & comfort and financial context factors

The context factors for the three essential meanings of trust, comfort and safety, and financial stability can be seen in Figure 23. These will be elaborated on in the following sections.

3.2.1 Trust

Trust emerged as one of the renovation's most fundamental yet fragile aspects. Many residents experience a lack of institutional trust, primarily due to historical issues with the former housing corporation, former housing corporation. Ethnographic observations at Street A and Street C revealed the influence of these issues on perceptions of housing corporation. Information is trusted mainly when transferred via trusted sources, the most effective way of which is through community networks such as family and neighbours. In the sounding board at the Kazenestraat, supporting neighbours with the willingness and energy to improve the environment and connect with neighbours efficiently motivates others to participate.

However, trust can be slowly rebuilt through face-to-face contact, transparency and responsiveness. These elements are reflected in participation literature as key aspects of participation and recognition justice (Broers et al., 2022). The role of resident guides and social managers in explaining plans and addressing concerns is therefore not just operational, but also relational.

'The former housing corporation has let us down. They have not done anything for over 20 years.'

3.2.2 Comfort & Safety

Residents primarily evaluate renovation efforts based on their impact on day-to-day living. Motivation is driven by comfort and safety rather than sustainability. During the model home visit and sounding board session, residents voiced concerns about draughts, mould and burglary risks. Meanwhile, social decline in some buildings (e.g. drug use, parcel theft and poor maintenance) undermines feelings of safety. These insights are consistent with existing literature, which suggests that people are more likely to support changes when they believe they will improve their immediate living conditions (Bal et al., 2021; Götz & van Hal, 2022). If framed and experienced to restore control over one's environment, the Warm thuis sustainability programme may strengthen comfort and resident engagement.

'There is moisture and/or mould in my house.'

'My house is so cold and it is windy.'

'There are three pending lawsuits from residents regarding nuisance in the building. For example, due to drug use.'

'My packages keep getting stolen.'

3.2.3 Energy saving

The energy transition will be meaningful for many residents if it eases financial strain. With over 10% of Dutch households affected by energy poverty (Loos, 2024), the prospect of lower energy bills is a powerful motivator, provided it is clearly and effectively communicated. Ethnographic reports showed that residents were more receptive when renovations were explained in terms of insulation, upgrades to the energy label, and monthly savings rather than abstract sustainability goals. Similarly, the €250 inconvenience fee mentioned during the model home visit was immediately understood and appreciated. In this sense, financial recognition helps to foster reciprocity (Charles et al., 2025; Kolm, 2006).

'I can't afford to pay the energy bill anymore.'

'More than one neighbour said they had to pay an extra €2,000 on their energy bill.'

3.3 Persona

A persona can be created considering the outcomes in the reframe phase from the resident side (Figure 24).

Imagine being a resident living in energy poverty in a neighbourhood that has been marked as vulnerable. Your house is poorly maintained, and you have mentioned the maintenance problems many times, but they have not been addressed. You have not seen anyone in the last twenty years, and you hear that many problems were happening in your former housing corporation. Meanwhile, your home is uncomfortable and energy prices are rising, making matters worse. On top of this, you are not working anymore due to health issues and are sitting at home most of the time.
You finally hear something will happen with your home. However, it mostly has to do with sustainability, something you are not worrying about, while getting food on the table, staying healthy and caring for your kids is already hard enough. You react out of anger, while this renovation is also taking five working days. For five days, your home will be a mess, other people will walk in and out, and you need to prepare for it by cleaning up the right spaces in time. It is already such a mess! You do not have much time to think about it, because they need to know whether you agree within two weeks. Next to that, you do not know what exactly they will do. You received a beautifully designed information booklet, but you could never read it well, and the time to sit for it or ask someone else to explain is not there...

Figure 24. Persona resident

3.4 Meaning for Tsavo and housing corporation

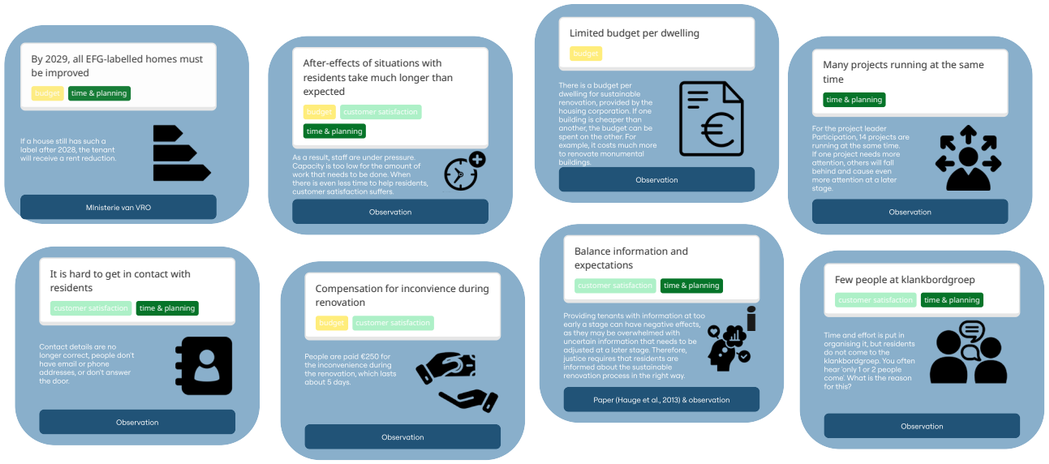


Figure 25: Budget, time & planning and customer satisfaction context factors

savo and housing corporation do not have endless time and money to invest in the renovation process. Of course, Tsavo wants housing corporation and its residents to be satisfied with their new dwellings. After the support process, two weeks after the handover and one year after the renovation, customer satisfaction surveys are carried out by the Centrum voor Woononderzoek (Centrum voor Woononderzoek, n.d.).
Time, money, and customer satisfaction factors can limit the participation process and must therefore be considered. The context factors related to these factors are described below.

3.4.1 Budget, time & planning

From an organisational perspective, housing corporation and Tsavo operate within significant time and budget constraints. Each renovation project has a fixed budget per dwelling, so delays to one project can affect others. With multiple projects running simultaneously, the capacity for intensive, tailored engagement with residents is inherently limited.

While research has shown that early and structured participation often leads to better results (Guerra-Santin et al., 2017), the project case study highlights how these resource limitations require difficult compromises. Any extra attention invested in one location or resident group reduces the time and attention available elsewhere.

This pressure for efficiency is also reflected in the renovation plans' inflexibility. The need to deliver results within tight schedules and predefined budgets leaves little room for individual tailoring or significant co-creation with residents.

3.4.2 Customer satisfaction

Ultimately, customer satisfaction is measured at three points: after the support process, shortly after handover and again one year later. This serves as a performance indicator and a feedback loop (Centrum voor Woononderzoek, n.d.). For housing corporation and Tsavo, these surveys reflect their work's long-term impact on residents' experience. As both the literature and ethnography show, satisfaction is influenced not only by the quality of the renovation itself, but also by how residents were involved respectfully and listened to throughout the process. This means that participation is not just an extra feature, but a crucial factor in determining success.

3.5 Stakeholders' meanings: an overview

Figure 26 provides an overview of the perspectives of both the residents and Tsavo and housing corporation, with participation at the centre. The tension between meaningful participation and efficient project delivery creates a fragile balance; short-term efficiency can easily come at the cost of long-term trust and satisfaction.

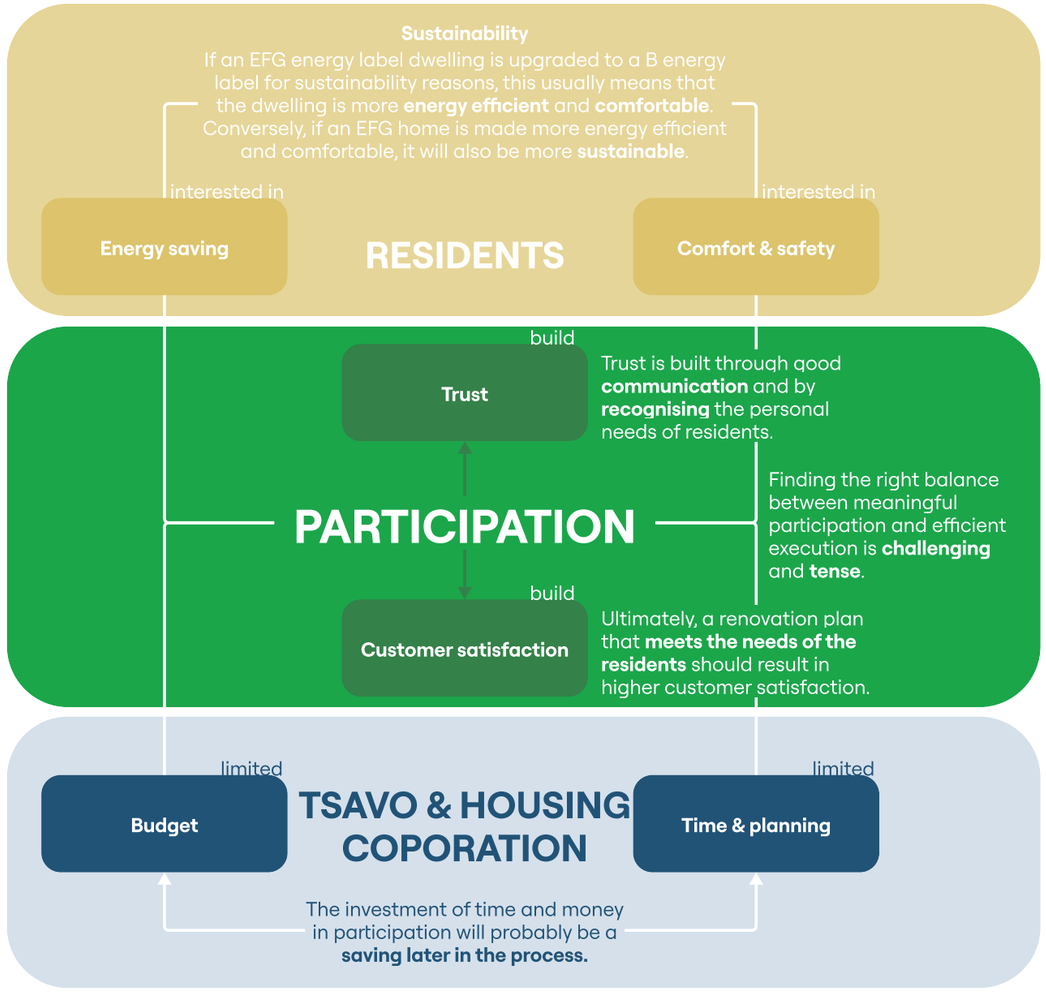


Figure 26: Overview of the stakeholders' meanings

3.6 Defining the design space

The previous sections explored the complexities of participating in renovating sustainable social housing. Based on the CLEAR sub-research questions, three guiding frameworks were presented to create a part of the answers on how to achieve the CLEAR can do, like to, enable to, ask to and respond to participate: capability programmes, reciprocity, and feedback loops.

Through context mapping, the meanings for the stakeholders were summarised. From the residents' perspective, participation is meaningful when it has clear benefits, such as increased safety and comfort and financial relief from lower energy bills. Trust in the housing corporation is an important factor for the whole process. However, many residents currently lack the ability or motivation to engage actively. Tsavo and housing corporation, meanwhile, work under tight time, budget and project planning constraints, and are evaluated by post-renovation satisfaction surveys.

The tensions between the stakeholders reveal the complexity of finding a balance between meaningful participation and constraints in time and budget (Figure 27).

3.6.1 Balance efficiency and justice

The overview in Figure 26 revealed the tension between efficient execution on the one hand and a process that is just for residents on the other hand. To balance these two, the process focus must be shifted from trying to obtain agreement to enabling just participation that builds trust, improves comfort and safety, and reduces financial stress. While most time and energy go to the last part of the process, the execution phase, in 'putting out fires' (Figure 28), the design space is in the phases that are before the execution. The goal should be to make a renovation plan supported by as many residents as possible, more than the required 70%.

3.6.2 Shift the peak

In order to avoid resistance in the execution phase, more attention should be paid to participation. The peak of time and energy put in solving problems with residents in the execution phase should be shifted to the beginning of the process. This creates a reverse graph (Figure 29), with the expected outcome that the process will be experienced more positively by both residents and co-workers.

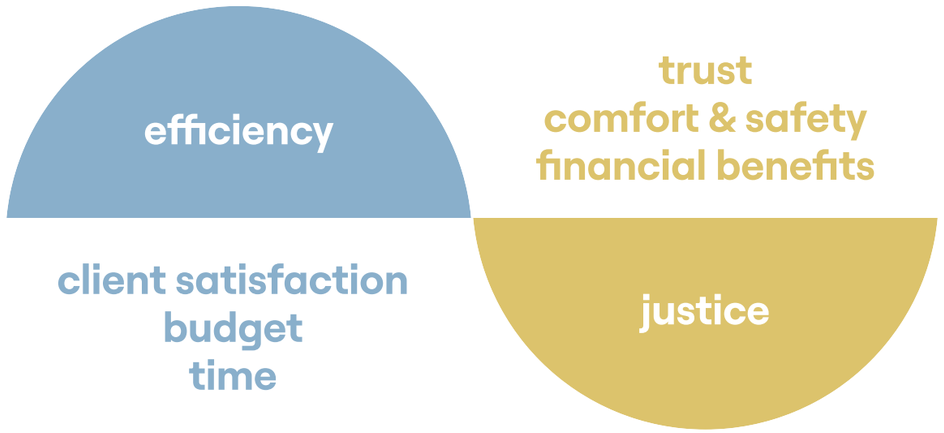


Figure 27. Balance between efficiency and justice

It was already mentioned in the literature review (Section 2.1.5 Resident participation) that early engagement allows for preferences to be incorporated early in the process, contributing to more efficient renovation plans while strengthening relationships between residents and housing corporations, encouraging mutual trust (Broers et al., 2022; Hurenkamp & Tonkens, 2020; Kruythoff, 2008).

A carefully designed participation process before the renovation can increase resident acceptance, as early involvement of tenants in the renovation process can provide input that makes the project more acceptable to them.
To navigate the tension between efficiency and justice, the design process should focus on participation and communication methods that give answers to the CLEAR questions. How?

Figure 28. Time and energy put in the process increase over time, mainly through solving problems in the execution phase

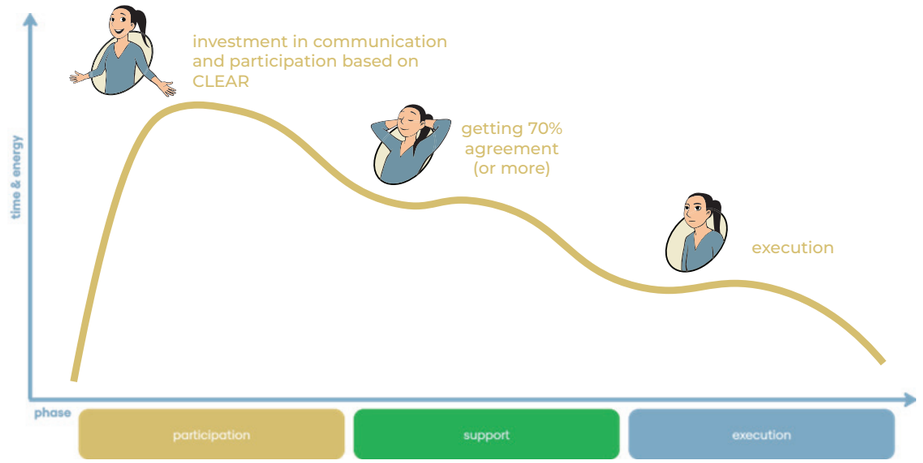


Figure 29. Starting with most time and energy put in participation, it decreases over time

3.6.3 The use of frameworks in design space

Table 6 describes the design space to navigate the tension based on the frameworks (Chapter 2.4 Frameworks for just participation).

Table 6. Design space within CLEAR questions and with the use of frameworks

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	Capability programmes
E	enabled to	How can structural and social support be provided to enable participation?	Capability programmes
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?	Reciprocity
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?	Reciprocity
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?	Feedback loops

The need for project efficiency and standardisation means that the degree of customisation possible for individual residents is limited. However, this does not exclude meaningful participation entirely.
The design space lies in developing flexible participation formats that can be adapted according to the target group and project phase. For example:
Capability programmes can be introduced early to support resident empowerment and understanding of the process.
Existing tools like surveys and sounding boards can be redesigned to be more inclusive, accessible, and action-oriented.
Varying levels of engagement can be offered, from low-threshold information exchange to targeted co-creation, depending on residents' availability, interest and needs.

Reciprocity can be used to design more balanced interactions between residents and institutions. Although large-scale co-creation may not be feasible, small gestures of recognition can improve relationships and foster trust. This creates design opportunities:

Recognising resident ambassadors or informal leaders who contribute to community cohesion and trust-building.
Offering direct benefits, such as personalised support, flexibility during construction or symbolic gestures of appreciation, in return for early involvement or feedback.
Integrating 'giving' moments throughout the process to acknowledge and validate resident contributions.

Feedback loops can help connect the technical aspects of renovation to residents' lived experience by reframing the benefits of renovation in terms of what matters most to them: comfort, safety, and financial savings.
The design space includes:
Developing communications that translate technical upgrades into tangible outcomes (e.g. 'less noise', 'lower bills', 'no more mould'). This allows residents to see the impact of their input.
Using improved model homes with personal walkthroughs to convey information in ways that reduce uncertainty and build trust.
Creating visual, multilingual and interactive materials that lower the barrier to understanding for residents with varying literacy levels.

4. Explore

4.1 Co-design
4.2 Interventions
4.3 Design goal
4.4 Brainstorm TU Delft
4.5 Final intervention

In this chapter, the aspects examined in the literature review, ethnographic research, frameworks and context factors are applied and tested in practice using various design methods. Once again, the CLEAR questions are used, but now not in the form of existing ideas or applications, but by focusing primarily on HOW the balance between efficiency and justice can be improved in the future. First, a co-design session was held with Tsavo and housing corporation employees, in which memories of past projects were first recalled, and then looked at how the problems found could be addressed using the frameworks (Stappers & Sanders, 2020).

Various interventions were then carried out, providing many insights into how things work in practice and the potential design direction for the final, larger intervention. With the help of a final design goal, a brainstorming session was held with students and researchers at TU Delft. The final intervention is based on one of the ideas from this.
This intervention is explained and evaluated in Chapter 4.5 Final intervention.

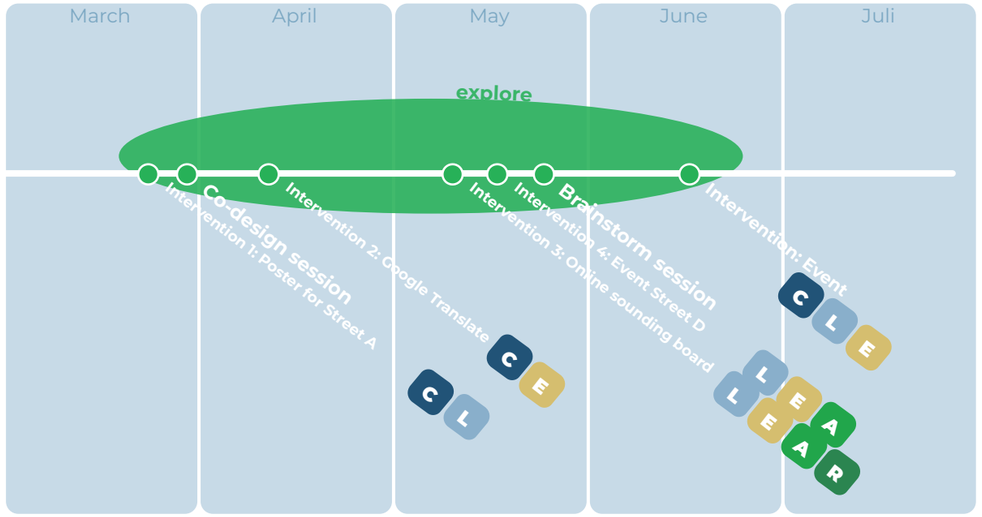


Figure 30. Timeline of activities in the explore phase

4.1 Co-design

To understand the problems in the current participation process on a deeper level and to see what possible solutions the people in Tsavo and housing corporation could develop in collaboration with TU Delft, a co-design session was organised, and led by Natalia (Associate Professor at TU Delft), Razieh (Data Specialist at TU Delft) and me as part of the KIEM project.

4.1.1 Participants

To ensure as many co-workers as possible could be there, the session was held in a room at housing corporation.
Two social process project leaders from Tsavo and one from housing corporation attended the co-design session. A researcher focusing on internal participation and a sustainability advisor with experience in the participation process were also present.

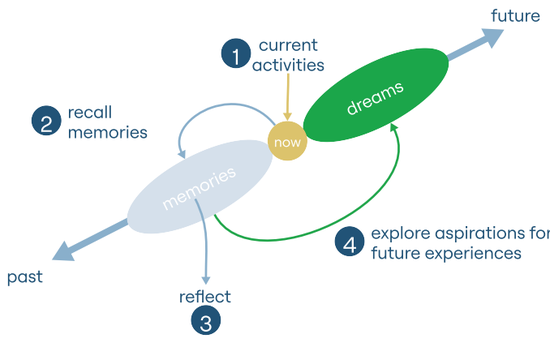


Figure 31. Path of expression (Stappers & Sanders, 2020)

4.1.2 Protocol

The structure of the session followed the Path of Expression methodology from the Convivial Toolbox (Stappers & Sanders, 2020), which supports co-design by connecting reflection on past and current experiences with envisioning future possibilities (Figure 31). The process included four steps, elaborated in the table below. In total, the scheduled time for the co-design session was 1,5 hours.

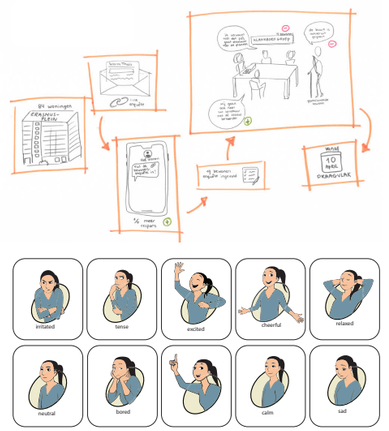
Table 7. Phase, purpose and duration of each element of the Path of Expression (Stappers & Sanders, 2020)

	Phase (Figure 31) in the Path of Expression	Purpose Z	Scheduled time
1.	Current activities	Understanding the existing participation process and identifying relevant contextual factors.	15 min
2.	Recalling memories	Using the Street A project case study (Figure 34).	15 min
3.	Reflecting	Exploring what ideal experiences might look like.	15 min
	Break		15 min
4.	Explore aspirations for future experiences	Using design frameworks to generate concrete ideas for action.	30 min

4.1.3 Materials

Different materials were used for the co-design session. First, presentation slides were made to visualise the whole process for all the participants. At the beginning, participants were asked if they were okay with taking a recording via a Teams meeting that could transcribe the things that were said, and with taking photos during the session. These will be used for research analysis, internal rapportage for the KIEM project, this Master's Graduation report and presentation, and research publication.
Furthermore, every step in the path of expression needed a different set of physical materials for the co-design session to go smoothly, as seen in below.

Table 8. Materials used during the co-design session

	Phase (Figure 31)	Materials	
1.	Current activities	• Overview of the whole process • Cards of context factors • Pencils	
2.	Recalling memories	• Storyboard of the Street A project case (Figure 34) • Pick-A-Mood visuals (Desmet et al., 2016)	
3.	Reflecting		
4.	Explore aspirations for future experiences. Imagine: *"It is three weeks from now, and you have reached 90% support. How did you get there?"*	• Framework cards (Appendix E)	

4.1.4 Results

(1) Current activities

When participants entered the room and saw the visual overview of the current renovation process on the table (see Figure 32 and Appendix B), they immediately began interacting with it. One participant commented: “It invites you to look at it!”. They immediately recognised elements and took the opportunity to correct any inaccuracies by writing directly on the visual. This was valuable input for me in improving the visual design.

We then introduced the contextual factors and asked participants to place them along the process where they felt they were most relevant. This sparked immediate discussion, some about challenges, others about emerging solutions. Blank cards were also used to add missing insights, including:

- “Do the plans meet the needs of the residents?”
- “Residents are sometimes not involved enough in the plan.”
- “Residents need to think about meals and getting children to school.”
- “Inform residents about inspections inside the home and make clear agreements.”

This exercise surfaced tensions and revealed how ready the team was to reflect on their current approach critically.

(2) Project Case: Street A

Next, I presented a storyboard of the Street A case (Section 2.3.1) to provide a concrete example on which to reflect. This case generated strong engagement, particularly about the issue of representation. It was noted that sounding boards tend to attract older residents who are more concerned with their homes and thus more likely to participate. This limits the diversity of voices heard.

One insight was that younger residents participated more during the pandemic due to the online sessions. A participant noted: ‘After the pandemic, we lost contact with these people.’ This prompted the idea of experimenting with online par-ticipation formats, particularly in buildings that house younger residents.

However, data limitations were also discussed. For example, only the birth year of the primary tenant is known, making targeted engagement difficult. Suggestions to overcome this included conducting brief surveys or consulting with the social manager to understand resident demographics better.

Participation activities were suggested to be combined with children’s events, such as ice cream giveaways or story read-ings, to engage parents. Another practical suggestion was creating an FAQ section on the Warm thuis website to provide more transparent explanations of solar panels and energy savings costs.

One participant said that housing corporation agreed that the current tenants would not face rent increases after the renovation process. In the case of solar panels, only the service costs may increase, but residents will benefit more from them. The idea is that the renovation will always be financially better for residents if their energy usage stays the same.

Overall, this phase revealed that participation should be tailored to the type of residents living in the building.

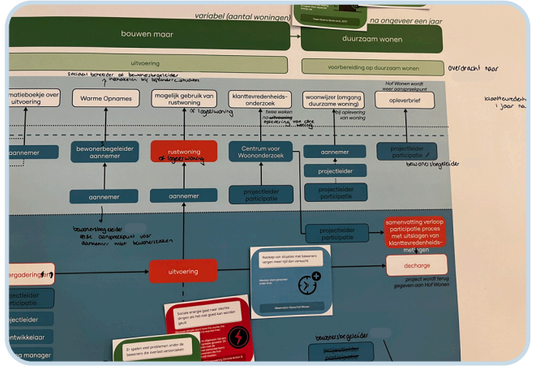


Figure 33. Notes on the poster of overview process

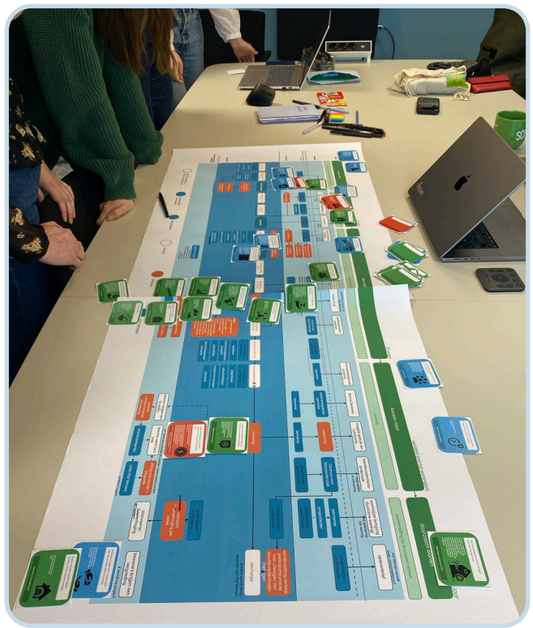


Figure 32. Looking at current activities in the process

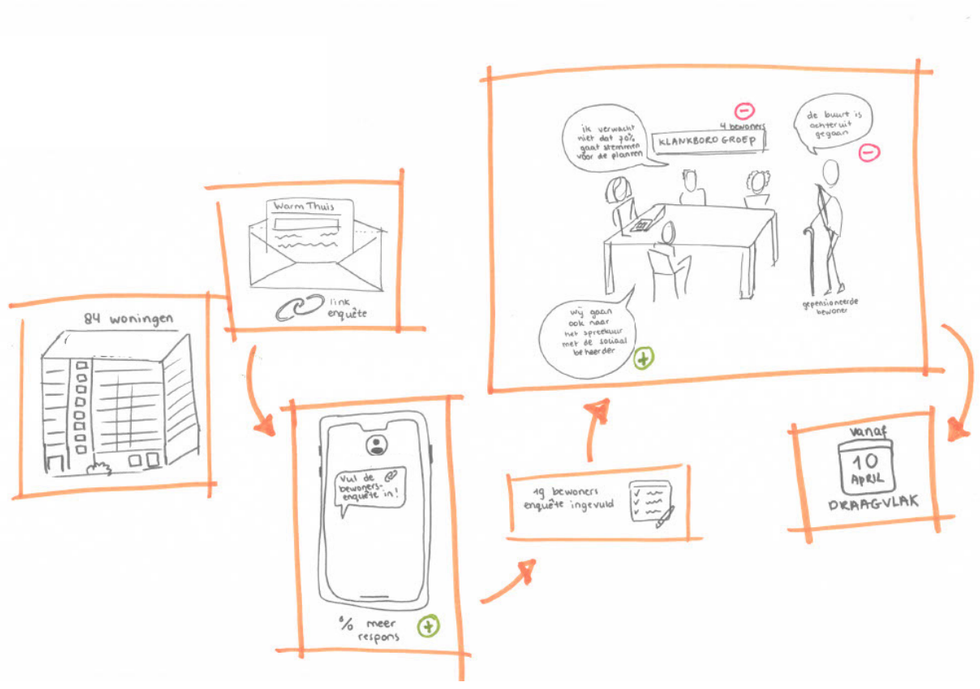


Figure 34. Storyboard project case Street A

(4) Frameworks

As we spent considerable time reflecting on the first two parts, we decided to skip the third step and continue with the three frameworks after the project case and a break.
Each framework was introduced with a card containing a short definition and two narrative examples: one from the resident’s perspective and one from the perspective of housing corporation or Tsavo (see Appendix E).

Participants were asked to imagine: “It is three weeks from now, and you have reached 90% support. How did you get there?”.

Reciprocity
We began with reciprocity. Discussions quickly turned to the current €250 post-renovation compensation. One housing corporation representative said: “It does not matter if you give €250 or €450. It is always too little. It is not a sustainable approach. It creates a very short-lived wow effect, that bit of motivation, I think, is quite external. What you want to explore is: how can they be intrinsically motivated?”
Instead, ideas emerged for more relational gestures, such as reading to children in households where Dutch is not widely spoken. These gestures could strengthen trust while acknowledging resident realities.

Capability programs
Using ambassadors has been introduced as part of the framework of capability programmes. The first intervention in the next chapter is based on this. There was also talk about the green space around the buildings, how this could contribute to sustainability and the well-being of the residents, and how an investment project for the gardens could be linked to the Warm thuis project.

Feedback loops
Finally, regarding the feedback loops, it was suggested that we should be more transparent with residents and create an FAQ section on the website.
A clearer link between the survey and the information booklet could also be established. For example, this could be done more informally by sharing stories about residents expressing their needs and opinions.

4.1.5 Conclusion

The co-design session gave insight into current practices and improvements that could be made in the process.

To answer the research question: 'How can the renovation process within the Warm thuis project be made more just for social housing residents?' The ideas created during this session were:

- Participation should be tailored to the type of residents living in the building.
- Participation activities can be combined with children's events, such as ice cream giveaways or story readings, to engage parents.
- Create a FAQ section on the Warm thuis website to provide more transparent explanations of solar panels and energy savings costs.
- Create a (visual) link between the survey and the information booklet, for example, by sharing stories about residents expressing their needs and opinions.

4.1.6 Reflection

Reflecting on the co-design session, the method and goal of the session could have been explained more clearly to the participants, especially since no one had experience with designing as we have at the IDE faculty. That way, clear handles could have emerged from the session to try interventions improving the participation process. From this session only, it was hard to say the next steps.
Nevertheless, it was a successful session in which everyone was willing to critically think about the current process and look at future opportunities.

4.2 Interventions

The following small communication interventions were developed to explore ways of improving participation in sustainable renovation projects for social housing residents. Each intervention is linked to one or more CLEAR participation conditions. The interventions also highlight the practical tensions between participation ideals and organisational constraints.

4.2.1 Intervention 1: Poster for Street A

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?
L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?

Table 9. Poster Street A intervention

Cause & goal	Based on the ethnographic report of Street A (Section 2.3.2), it became evident that mistrust, fear, and safety concerns were high. The social manager needed more accessible and tangible communication materials (e.g., flyers, posters) to reach residents and build initial engagement.
Implementation	The initial idea was to create a flyer with a QR code that would link to the 'Warm thuis' video explaining the scheme and a link to the survey (Figure 36). This would be accompanied by contact options and suggestions for how residents could respond, using feedback loops. The aim was to: • Reduce language barriers by including translations. • Emphasise comfort and support; • Encourage two-way communication and feedback. The flyer also aimed to activate a group of informal resident ambassadors by encouraging them to distribute it in their building. In the end, it was only possible to put the QR code on a poster with the contact details of the Warm thuis project (Figure 37).
Challenges	• All visual communication had to go through housing corporation's communications department and the external agency • Many initial elements, such as translations, the invitation to respond and the focus on comfort, were removed or altered, mainly due to the rule that communication should be Dutch only. • The final version of the poster presented the renovation as compulsory and included the requirement for 70% support, which could undermine residents' perception of their influence.
Takeaways	• Even simple visual interventions require long lead times and negotiation. • Small, motivated resident groups can potentially support outreach activities, but must be recognised to stay engaged. • Visual materials should facilitate invitations and feedback, not just convey information. They offer residents a great opportunity to react and connect different communication channels.

Figure 35. Final poster in hallway in Street A building

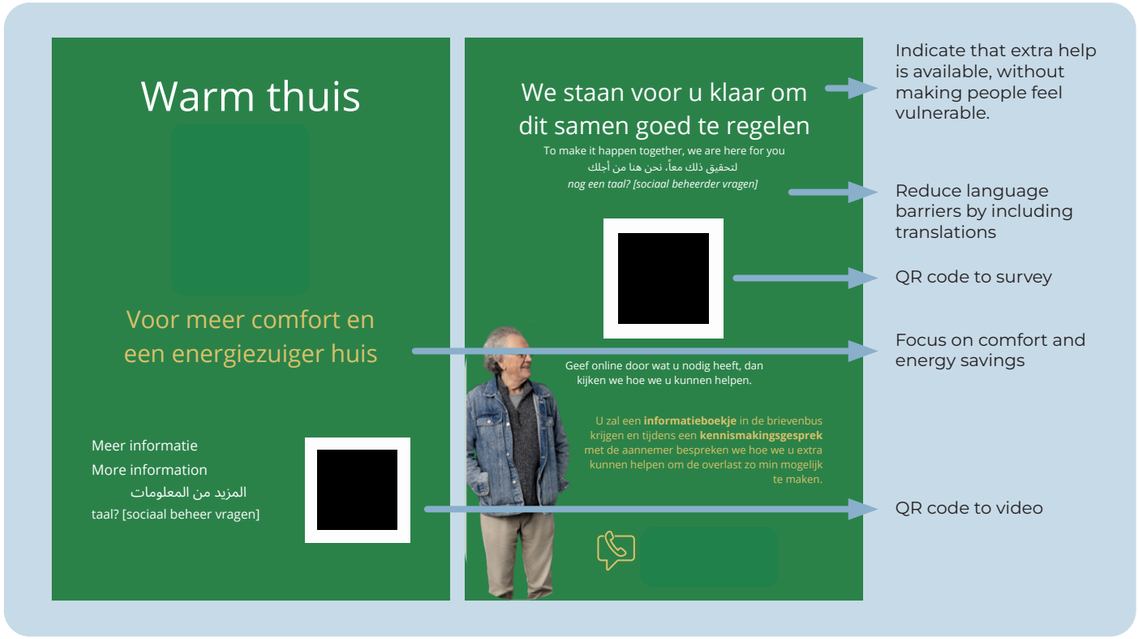


Figure 36. Initial idea for flyer

Figure 37. Final poster

Figure 38. Final poster at elevator in Street A building

4.2.2 Intervention 2: Google Translate

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	**E**	enabled to	How can structural and social support be provided to enable participation?

Table 10. Google Translate icon in information booklet intervention

Cause	While viewing internal documents at housing corporation, a flyer with a Google Translate prompt caught attention (Figure 39). This simple line encourages residents to translate the Dutch content using their phones.
Implementation	This suggestion has been implemented in the 'Warm thuis' brochure at Street A. It now includes a short note on how to use Google Lens to translate text.
Challenges & Discussion	• Some resistance was encountered internally, with one colleague arguing that residents should learn Dutch instead of relying on translations. This revealed underlying assumptions about language, belonging and integration. • While the intervention is low-cost and scalable, it is not easy to evaluate its impact.
Takeaways	• Small gestures like this can improve accessibility, particularly for residents with limited Dutch language skills. • Even minimal changes can show that the diverse needs of residents are being considered.

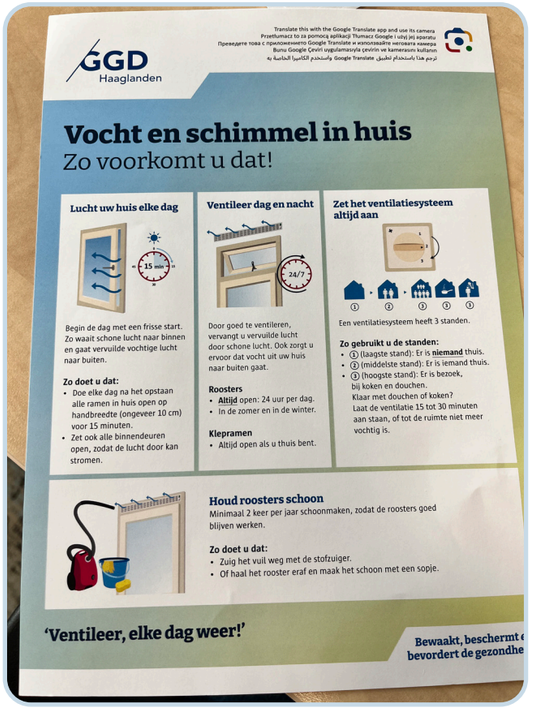


Figure 39. Information sheet on desk with Google Translate information

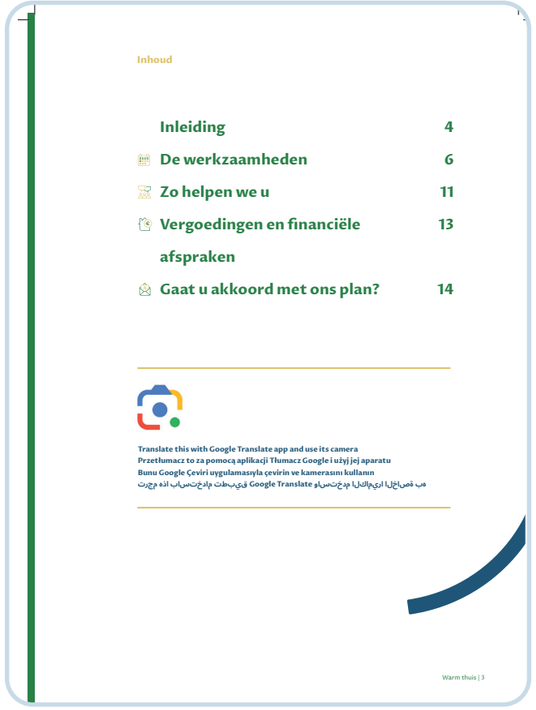


Figure 40. Implementation of Google Translate information in Warm thuis information brochure

4.2.3 Intervention 3: Online sounding board

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?
E	enabled to	How can structural and social support be provided to enable participation?
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?
R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?

Table 11. Intervention online sounding board

Cause	There was low attendance at physical meetings at Street A. Based on positive prior experiences of online engagement during the pandemic, an online sounding board meeting was held in an attempt to reach younger, more digitally literate residents.
Implementation	Although 10 people had expressed an interest in discussing the plans via the resident survey, only two people joined the meeting, with their cameras off. To understand this low turnout, all non-attendees were contacted individually. · Some had other appointments but said they would attend in person. · Others lacked the digital skills or devices, but said they would attend if it were in person. · One resident did not speak Dutch or English, and communication via phone was unsuccessful due to a language barrier.
Follow-up attempt	At the Warm thuis project at Schoolzijde, residents were asked their preference (online/offline), based on the framework of the capability program, but no one responded.
Takeaways	· Preferences vary: older and less digitally skilled residents prefer in-person meetings. · Giving people the option to choose how they participate, by asking what they prefer in an invitation email, did not elicit any reaction.

Figure 41. Online sounding board

4.2.4 Intervention 4: Event Street D

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?
E	enabled to	How can structural and social support be provided to enable participation?
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?

Table 12. Idea intervention for an event at Street D before support

Idea	To increase visibility and engagement for the support process that was about to start, the idea was to organise an outdoor event, because: · Residents would be able to learn about the renovation project and meet each other's neighbours. · In another case, it was found that an ice cream stand attracted attention and created a low-threshold social setting, which worked well. · Residents could choose the colour of the façade of their building: give residents a say in design decisions. · A quote-to-technical solution board: pair residents' concerns with the corresponding renovation solutions (see Figure 42).
Feedback (from resident guide resident guide company)	Despite the good intentions, the approach was critically received, mainly because it was planned just before the support process. · Residents who do not speak up may leave with incorrect assumptions. · Personal contact and one-on-one model home visits are more effective in achieving formal support. · Events attract only a small, often already-engaged group.
Takeaways	· Events can increase visibility and shared experiences, but may not lead to more formal support, according to the party that executes the support process for housing corporation. It was said that they try to avoid events like this when residents have to vote, while a personal conversation is way more effective in this phase to convince people about the plans. · An event should not be planned just before the support phase.

Resident quote	**Technical solution**
"My home is noisy, I hear everything from the street"	Insulation, HR++ glass
"I worry about the work itself."	€250 inconvenience compensation
"My house is cold and drafty."	Airtightness, insulation
"I need to lower my energy bill."	Solar panels, insulation, heating system
"There's mould in my home."	Mechanical ventilation, vent grills

Figure 42. Translating resident quotes to technical solutions

4.2.5 Conclusion on interventions

The four interventions offered valuable insights into the complexities of designing and implementing participation methods in practice. One key finding is the role of language and visual communication. A significant space for improvement remains in how information is conveyed, not just in content, but in tone, accessibility and visual clarity as well.

Another insight is timing. Organising an event just before the support phase can lead to confusion and missed opportunities for meaningful engagement. Even though an event seems like an effective way to interact with residents, it should not be organised when residents are about to vote on the plans, and personal conversations are more effective.

Institutional constraint also came forward. Shifting schedules and the pressure to fit in existing schedules make it challenging to introduce new approaches. While ideation shows many opportunities, in practice it appears that it is hard to transfer those ideas in a way that is understandable and convincing enough to change the way of working in an institution. Mostly, things should run as they have been going.
This highlights a broader challenge to translate design interventions into institutional change, which requires not only ideas, but also clarity, persistence and alignment with practical realities.

4.3 Design goal

Many insights were gained through the small-scale interventions described in the previous section regarding the practical implementation of ideas. These interventions provided valuable insights into effective communication strategies and practical constraints during renovation.

Organisational constraints, such as limited time and budget and strict planning, leave little room for participation in decision-making processes. However, there are more opportunities to influence how residents engage with the process, for example, how they are invited, informed, and supported.

Fostering a sense of community among residents is a promising approach. Nevertheless, this requires long-term investment and often hinges on the presence of a strong individual within the building. This makes it an unreliable primary lever for encouraging participation within the current timeframe.

Based on these insights, the design direction has been refined. Rather than trying to strengthen community ties or restructure decision-making processes, this graduation project will focus on how individual residents can shape their experience of the participation process.

The final design goal reflects a shift in thinking about participation, moving from a fixed process to a flexible pathway. This enables residents to engage in a way that works for them, within their capabilities and limitations. It emphasises empowerment through clear communication, accessible resources, and support structures that respond to needs. These are mainly rooted in the capability programme framework but could also involve reciprocity and feedback loops.

The final design goal is to ...

Empower social housing residents in The Hague Southwest to engage with the Warm thuis **energy renovation** project Warm thuis in a way that aligns with their **needs**, **preferences** and **capabilities**.

4.4 Brainstorm TU Delft

When the design goal was defined, a brainstorming session was organised with students and researchers from TU Delft. The following sections describe the goal, how the session was conducted, and the results. The conclusion is an introduction to the final intervention in Chapter 4.2.

4.4.1 Goal

The design goal that was introduced for this brainstorm was:

To create ideas for allowing residents to choose/ co-create their own path through the participation process towards the renovation.

(While this design goal was solution-driven and could therefore narrow down possible solutions, it was changed later in the process, leaving the design goal seen in the previous section.)

4.4.2 Participants

In total, seven participants took part in the brainstorming session, including:
- 3 Researchers at the IDE faculty
- 3 MSc Design for Interaction students (including me)
- 1 Data analyst at the IDE faculty

Almost everyone who participates has experience in participation projects, some in the energy transition in Amsterdam, one worked on participation in neighbourhoods at a design agency, and others were already involved through the KIEM project.

4.4.3 Protocol and materials

The duration of the session was two hours, in the afternoon. It took place in StudioLab at the IDE faculty, where all participants took part physically. After an introduction round, an explanation on the context was first given, after which the brainstorming could start. An elaborate plan with the purpose, materials, and duration of the elements is in Table 13.

Table 13. Protocol of TU Delft brainstorm session

Planning	Purpose	Materials	Scheduled time
Context	The Warm thuis video will be shown to explain the context. Then the meanings from the residents' side (comfort, safety, energy saving and trust) and from the side of Tsavo/housing corporation (budget, time limit, client satisfaction) will be explained. After that, the existing ways of participation will be explained, and the frameworks (Section 2.4 and Appendix E) will be introduced.	• Slides • Frameworks cards (Appendix E) • Process overview and context factors from the co-design session (Appendix B and D)	20 min
Brainstorm	The design goal will be introduced, and brainstorming will start based on that. Everyone will get paper and a pencil. They will be asked to write down and draw their ideas for a few minutes. After those few minutes, everyone moves their paper to the next person and creates new ideas, which takes place until everyone gets back their paper again.	• Paper and pencils	60 min
Break			10 min
Present and work out ideas	Enabling participants to elaborate on their ideas and discover the most promising ideas.		40 min

4.4.4 Results

All the ideas that came out of the brainstorm session can be found in Appendix F. These ideas were grouped based on four questions, and one idea that visualised the paths through the participation process. These questions, with the grouped ideas, can be seen in Figures 43 to 46.

What can be offered to the community?
- Creative workshops or clubs
- Reading club
- Build your dream home with LEGO
- Diner where everyone could bring something
- Cooking club
- Repair Café
- Refurbishing communal garden with neighbours
- Sports event (for kids)

Figure 43. Ideas for the question: What can be offered to the community?

How can residents be brought into contact with each other?
- With an event
  - Sports event
  - Ice cream truck (or other food truck)
  - Food (a barbeque or diner)
  - Via a WhatsApp group

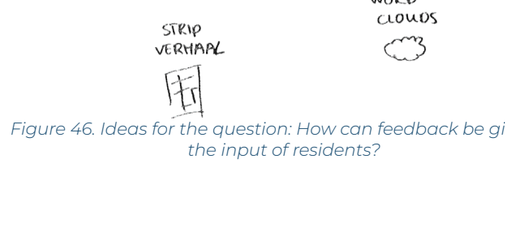


Figure 44. Ideas for the question: How can residents be brought into contact with each other?

How do residents want to be involved in the Warm thuis project?
- WhatsApp
- Participating in sounding board
- Personal call
- Filling in survey
- Sending a voice message
- Taking photos or videos of the current situation at home and sending them
- Drinking a cup of coffee or tea in the model house
- Send a handyperson (by housing corporation) for minor overdue maintenance

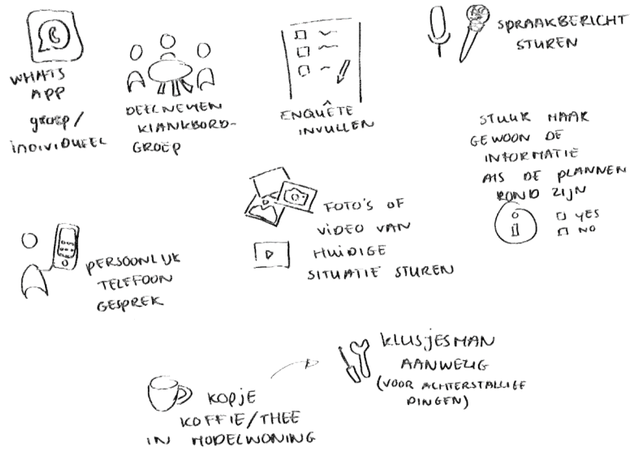


Figure 45. Ideas for the question: How do residents want to be involved in the Warm thuis project?

How can feedback be given to the input of residents?
- Use humour
- Theatre
- Comic
- Word clouds

Figure 46. Ideas for the question: How can feedback be given to the input of residents?

Besides these ideas that could answer the four questions, one other idea stood out (Figure 47), while it did not include one way to experience participation. However, it creates a visual map of the different ways residents could participate. It evokes the question: can the participation journey be visualised or made experiential?

Figure 47. The idea of a journey map for the participation process

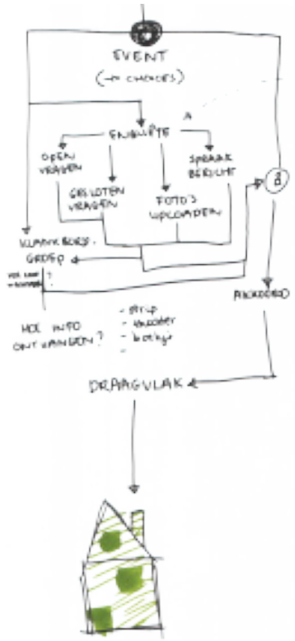


Figure 48. Idea for visualising different pathways for the participation process

4.4.5 Discussion

The time left to try another intervention is limited, and before, two tries were cancelled because of process changes or stakeholder feedback. Therefore, the question was what would be possible to try before the end of this project and what would be plan B if this intervention could not happen again? Due to this time limit, the decision to go for an idea needed to be made quickly and worked out before the meeting with housing corporation and Tsavo, which was planned to be a brainstorm to generate ideas. It needs to become a brainstorming session on implementing an intervention quickly.

The idea of building relations and creating a community throughout the process sounds promising. However, it depends on many factors, is time-consuming, and has hard-to-measure effects. For example, as is seen in Section 2.3.3 Ethnographic report Street C, the sounding board session was prepared well by residents, and various residents were there. What stood out this time was that one man was very involved with housing corporation and the organisation in the building. He lived there for over forty years, and many other neighbours knew him. If a building has one person like that, the positive effects on the neighbourhood are significant and this is probably where communities start to build [BRON?]. If a building does not have someone like him, someone who has the energy to put in the community, a lot can be tried, but probably nothing will happen.

If we were to try to build a community through institutions, getting to know the residents would take time, which is impossible in this graduation project and maybe even hard within the one-year Warm thuis project executed by Tsavo. A social manager, someone who is known by residents already, or could build a relationship with residents for years to come, shoud be involved in ideas, like those presented in Figure 43. In addition, community building interventions need to be tried in many buildings in order to see what the outcomes will be.

Therefore, the main goal was to organise a bigger intervention to attract as many residents as possible and show them how they could participate in a visual and/or experiential way.

4.4.6 Conclusion

After analysing the results from the brainstorming, mapping the journey and making it experiential seemed to be the most promising and original idea, as well as providing residents with options to choose/co-create their own path through the participation process towards the renovation.

If this does not seem possible in the meeting with housing corporation and Tsavo, a plan B intervention option would be to focus on the survey and ways in which residents could fill in the survey, for example with voice messages, photos and videos, or to focus on a way in which feedback loops can be implemented in the information booklet for residents, for example trough a comic (see Figure 60 in Chapter 6.4 Recommendations).

4.5 Final intervention

Drawing on insights from the co-design sessions and interventions, the final intervention addresses a key challenge of the Warm thuis renovation programme to provide residents with the opportunity to choose or co-create their own path through the participation process towards the renovation.

As highlighted throughout this project, many residents distrust the renovation processes imposed on them. The design challenge was shifting the focus from shaping the renovation plans to how residents engage with the process.

The final design intervention was created by shaping the paths residents could take. First, the goal of the intervention will be introduced, followed by the reasoning for the intervention. Then, the design process for the intervention, its different elements, the key values, measurability, materials, and the execution plan of the intervention are explained. The results are presented based on the quantitative and qualitative data, followed by the conclusion.

4.5.1 Goal

The goal for this intervention is based on the design goal that was defined in the previous section:

To provide residents with the opportunity to choose or co-create their own path through the participation process towards the renovation.

Based on the design goal, this intervention aims to visualise the pathways for participation that residents can take in the process at a physical event to make the options for involvement in the Warm thuis project clear and transparent for residents. Through this intervention, residents can engage physically with the options in the participation process. They can control how and if they engage, and every level of involvement is acknowledged.

4.5.2 Reasoning based on frameworks

The research background behind the intervention is explained in this section, based on the frameworks.

Capabilities in communication

In the previous interventions, it was seen that a wide variety of people live in housing corporation's social housing buildings. Some may live there for decades, and others only for a few years and plan to move again soon. Next, there is a broad variation of cultures and languages spoken in the buildings, but housing corporation restricts itself to Dutch communication only.
Visual communication is important for the more vulnerable residents to understand the participation process within these restrictions. Also, minimal changes, like the Google Translate intervention (Section 4.2.2), can show that the diverse needs of residents are being considered. The expected effect is that resident feel seen, while their limitations in knowledge and language are recognised and acted upon.
The unknown becomes more known with the positive expected outcome: residents will show less resistance both in the participation process and the execution phase. Inviting residents into an informal and low-barrier event aims to lower resistance, especially among those who feel anxious or sceptical.

Reciprocity

Still, while the 'battery' of these social housing residents living in vulnerable neighbourhoods is often full with other worries, such as financial and health issues, it is hard to motivate residents to participate in an energy renovation process like Warm thuis.
For them to share their needs and opinions, the reciprocity framework should be used. This means something should be given back to residents to appreciate their contribution and show that we are there for them, which is especially important. At the same time, they had to go through long periods of ignorance when their homes were still from former housing corporation, and frustrations had built up over a long period.

Offering something without expectations first could initiate a reciprocal relationship between residents and institutions. By offering something, residents may feel more motivated afterwards to give something back, in this case, in the shape of their thoughts and opinions.

Feedback loops

By showing the different forms of contribution and participation in one place, there is a good opportunity to implement feedback loops in the process.
One feedback loop already exists in the survey; it asks whether residents would like to take part in the sounding board. However, this could be extended. For example, answers from the survey can be built upon during the sounding board. This can not only happen with the residents there, but also examples from other projects can be used, for example, by showing: In another Warm thuis project, we saw that residents....
This can build trust, while residents see that housing corporation does other projects like this, has experience working with residents, and has some experience with their needs.

The design intervention does not seek to solve all challenges, but rather to create a space in which residents feel acknowledged and empowered, whatever choice they make during the process. It recognises choice and clarity as key factors in building trust and comfort, even in a highly structured renovation process.

4.5.3 Design process

1. In this first phase of the design process, the left drawing emerged from brainstorming with the TU Delft people. It became the basis for the intervention, in which **the journey of participation would be mapped visually**. The idea of giving first was expressed by the idea of an ice cream truck, which was also introduced in intervention 4 (Section 4.2.4). The drawing on the right was a follow-up scheme, created during another meeting. It describes residents' choices during the guide towards a Warm thuis. One option is to fill in the survey in different ways, including answering open or closed questions, sending a voice memo or uploading photos of the home. Another option would be to attend a sounding board at the event. The final option would be to receive information and agree to the plans immediately. This last option was meant for the people who do not want to participate, are happy that something will happen anyway and have the trust to sign the support right away. In a later conversation with housing corporation and Tsavo, it was concluded that this would not be possible due to the law's rules, which also include the 70% agreement.

2. In the second phase of the design process, the idea was to create a **metaphor** for the different steps residents could take. (The left figure was created by AI, the right one was drawn by me.) Based on Zuiderpark, which is in the middle of the neighbourhood, The Hague South-West, the metaphor became a park with different elements that could represent the different forms of participation. For example, the bench in the park stands for just receiving information and trusting the process, the flower garden for filling in the survey, and the vegetable garden for active involvement in the process. Although a park is where all kinds of people come, the metaphor could create confusion, as it has nothing to do with the Warm thuis project. To avoid the reverse risk of residents not understanding the metaphor and making the participation process even more unclear, it was decided to let go of it.

3. The third phase was about designing the pathways to represent the choices that could be made at every step. Within this, one way does not need to seem better or worse than another way; **every pathway should be recognised equally to recognise everyone's preferences**. This led to the visualisation in Appendix G, which was presented during a meeting with Tsavo and housing corporation. They were enthusiastic about testing the idea, and for it to happen within the schedule of the Graduation Report and their scheme, the intervention was planned two weeks after the meeting. The communication department of housing corporation was informed immediately that they would make the final design for the pathway visualisation and the poster for inviting residents to get an ice cream, based on the poster that can be seen in the third step. The feedback was that the lines were impossible to show residents, while not in housing corporation's house style. Therefore, the visualisations must be based on posters that have already been made (see white lines on the right) and made by their hired design company, [design company].

4. After giving the order to [design company] to make the posters, the fourth step shows the **final design of the invitation poster**, made by them and the pathway overview poster, made mainly by me and finalised by them (Figure 51). In the next section, the designed intervention and results will be explained thoroughly.

Figure 49. Design process of posters for intervention

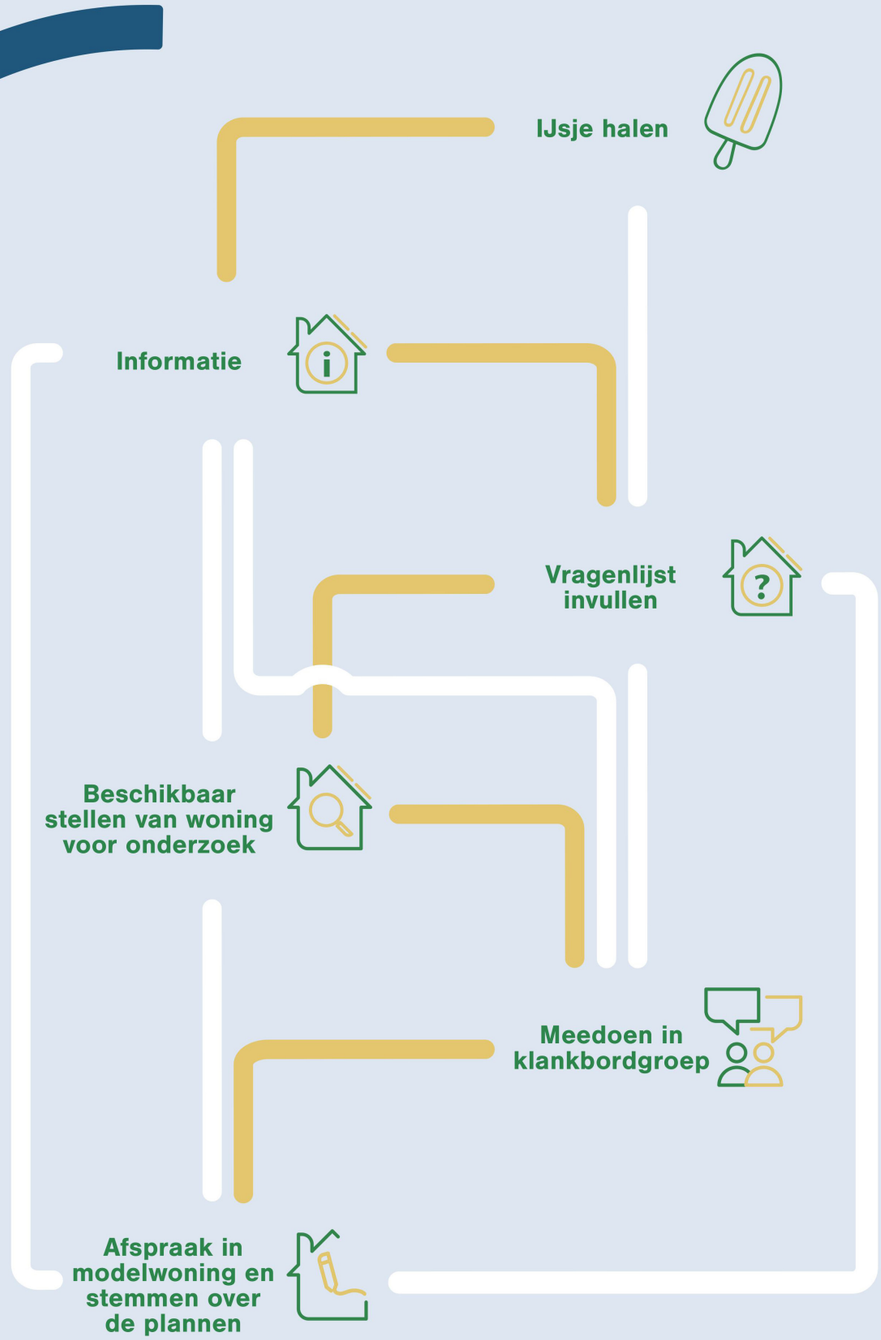


Figure 51: Final design in the house style of pathways of intervention

4.5.4 Intervention elements

The map on the poster on the previous page illustrates how residents can contribute, each presented as a valid and valuable path. Residents are invited to co-create their journey through the process by choosing from various options. Each element, except for the ice cream truck, will be presented on a standing table to represent the participation method. The options that will be presented at the event are in Table 14.

The pathways between the elements are marked on the ground to guide residents through the available participation options (e.g., chalk spray). Each stand will have a sign to make it recognisable from the overview poster; these are in Table 19 Materials.

The outcomes of the different materials that were used at the event can be seen in Section 4.5.7 Materials.

Table 14: Description of the different elements of the intervention

Element	Description
Ice cream truck	An ice cream truck with an operating person will be hired for three hours to give ice cream to the residents in the buildings where the Warm thuis project will start.
Information	The poster in Figure 51 will be printed to explain the goal of this afternoon and the different ways to participate in the process. In addition, there will be a table with a tablet and a speaker to show the Warm thuis information video to the residents.
Fill in the survey	At another table, another tablet will be used for the resident to fill in the survey for the Warm Thius project. There will also be a QR code with the link to the survey for residents to fill out on their mobile phones. At the same table, some example questions will be shown on paper to indicate what will be in the survey. These questions could also open a conversation by themselves.
Making your home available for research	On this table, residents can leave their contact details on a list if they are open to research in their homes, and this research is still needed for Tsavo.
Join the sounding board	This table shows quotes and icons, based on the answers that were filled in on the survey or discussed in sounding boards at other projects. This enables residents to talk about their situation or to feel recognised.
Appointment in the model house and sign the agreement	The final table has a tablet with three smileys (sad, neutral or happy) to indicate their opinion of the event. While the model house is not made or available in this stage of the renovation process, it will only be mentioned, and the purpose will be explained, but residents cannot visit a model house yet. In addition, the agreement on the plans will be explained.

4.5.5 Key values of intervention

In the table below, the different factors of intervention are described based on the CLEAR model and the knowledge in Section 4.5.2 Reasoning based on frameworks.

Table 15. Key values of interaction

				Intervention factor	Explanation behind the factor
C		How can residents be provided with the right resources and knowledge to participate meaningfully?	Capability programmes	• Physical event • Information: overview of ways of participation, information video • Time and place	The idea of a physical event adds another way of participation to existing ways. In this manner, hopefully, a broader audience of residents will take part in the process. The visual overview poster of the ways of participation adds to the main design goal: To provide residents with the opportunity to choose or co-create their own path through the participation process towards the renovation. Showing the Warm thuis information video during the event also adds to this, by efficiently informing residents in another, visual way about the whole renovation process. The time is chosen to attract as many children, with their parents, as possible, but people who work until 17:00 can still visit. The place is next to their home and can easily be seen from many windows.
L		How can a sense of belonging and shared purpose be fostered to encourage participation?	Reciprocity	• Being there physically for residents as a housing corporation • Encourage residents to meet each other	Showing physically that you are there for the residents adds value to the reciprocal relationship and residents' willingness to take part in the (participation) process.. At the event, residents can meet each other and get to know who lives in their neighbourhood, which could be valuable for them to feel safer.
E		How can structural and social support be provided to enable participation?	Capability programmes	• Help residents to communicate their needs	By offering various ways of communication and being there for residents, for example, by helping them fill in the survey or trying to converse via Google Translate if their literacy is low or speaking another language, their participation capability increases.
A		How can residents be genuinely invited and encouraged to participate in the process?	Reciprocity	• Giving an ice cream • Ways of communicating	By giving an ice cream first, a reciprocal relationship could be built. Also, by putting energy into trying to understand them, residents will be more willing to give back in their way of acting. The effect is that residents will be more willing to give something back, in this case, by sharing their needs and participating in the process with less or no resistance.
R		How can the input of residents be acknowledged and reflected visibly in decisions?	Feedback loops	• Follow-up communication based on the survey	The answers from the survey should be used at the sounding board for residents to see whether their contribution was acted upon. This encourages a feeling of trust. Also, learnings from other projects related to social needs can be mentioned to encourage this feeling of trust.

4.5.6 Measurability

In order to understand the effects of the event, different indicators will be evaluated. The indicators will be monitored based on quantitative and qualitative short- and long-term data. These measurability indicators are in Table 16 and are colour sorted based on the type of data that will be gathered.

Finally, the intervention will be analysed based on the CLEAR model sub-research questions (Section 4.5.12 Conclusion).

Table 16: Measurability of event based on qualitative, quantitative, long-term, and short-term indicators

Indicator	Indicates...	Result in the short term or long term	Qualitative or quantitative
Number of residents attending the event.	...if residents are likely to take part in physical intervention.	Short term: directly	Quantitative
The percentage of attendees who filled out the questionnaire during and after the event.	...if residents are more likely to complete the survey with an event at the beginning of the process, compared to a process without an event.	Short term: after the event and a few weeks after the survey is sent to all residents	Quantitative
Informal evaluation conversation with residents at the end of the pathways.	...if it is clear what residents think of the event and their opinion of their current situation regarding their home and the surrounding area.	Short term: at the event	Qualitative
Tablet with three smileys to click on: sad, neutral, happy	...if residents are satisfied with the event.	Short term: at the event	Quantitative
An evaluation survey will be conducted for stakeholders (housing corporation, Tsavo, TU Delft) who will be present.	...the experiences during the event and whether stakeholders are content with the course of the (preparation of the) event.	Short term: a few days after the event	Qualitative and quantitative
Evaluation meeting with stakeholders, based on the evaluation survey.	...the experiences during the event and whether stakeholders are content with the course of the (preparation of the) event.	Short term: the week after the event	Qualitative
Engagement.	...the kind of interactions with the residents (e.g. photos, questions asked, quotes, length of conversations)	Short term: after the evaluation meeting of the event	Qualitative
Follow-up interest in joining the sounding boards or future activities.	...if residents are more willing to participate in the sounding board with an event at the beginning of the process, compared to a process without an event.	Short term: the number of residents who filled in to have an interest in taking part in the sounding board Long term: the number of residents who join the sounding board	Quantitative
Feedback from resident guides during the support phase.	...what the resistance from residents during the support phase is compared to other projects. This indicates if residents feel less like the renovation process is imposed on them and are more content with the plans.	Long term	Qualitative

Short term

Long term

Quantitative

Qualitative

In the following subsections, the qualitative indicators from Table 16 will be elaborated.

Informal evaluation conversation

During an informal conversation, when a resident gets to the end of the pathways and will leave the place, there might be an opportunity to ask some questions. Questions that can be asked in this conversation are:

- Does this event clarify how you can provide input?

Goal: to get an idea of whether the visualisations of the different pathways in the participation process are a positive addition to the current participation methods.

- How would you prefer to receive updates about the renovation?

Goal: to indicate how residents would like to be informed about the renovation in their homes.

- Do you socialise with your neighbours?

Goal: to see the social relations between neighbours in the neighbourhood.

- Would you be interested in joining the sounding board?

Goal: to repeat the possibility of taking part in the sounding board one more time and to see whether residents would like to participate in the sounding board.

Evaluation survey

These questions will be sent to the stakeholders from housing corporation, Tsavo, and TU Delft:

- What were the residents' main comments about their homes during the event? Did they express any specific concerns or satisfaction?
- What did residents think of their surroundings, including their neighbours, the location, safety, and other important factors?
- How would you rate the organisation and execution of the Warm thuis event? What aspects went well, and which could be improved?
- How would you assess the effectiveness of the following resources?
  - Ice cream
  - Duration (three hours with one hour preparation
  - Number of stakeholders present
  - Visual aspects
  - Location
  - Time
  - Invitations for residents
- What are your thoughts on the amount of time and effort invested in the event versus the immediate results?
  - Number of residents who visited the event
  - Fill in the survey
  - Interest in sounding board
  - Contact details for research at home
  - Residents' satisfaction with the event
  - In total

During the evaluation meeting with the stakeholders, the answers to these questions will be discussed a week after the event.

Long-term effects

The support phase will take place later than the end of this graduation project; therefore, it is for the KIEM results, Tsavo and housing corporation to indicate the intervention's long-term effects.

Analysis of indicator results

After collecting data based on these indicators, the data will be analysed by asking questions based on the CLEAR model sub-research questions, which can be seen in Table 17.

Table 17. CLEAR question to indicate results

C	can do	Were the right resources and knowledge provided to participate meaningfully?
L	like to	Did a sense of belonging and shared purpose encourage participation?
E	enabled to	Did structural and social support enable participation?
A	asked to	Were residents genuinely invited and encouraged to participate in the process?
R	responded to	Was the input of residents acknowledged and reflected visibly in decisions?

Figure 52. The grass field for the event

4.5.7 Materials

The materials to be used for the explanation and usage of the different ways of participation are described in Table 19. Each stand has a standing table with a sign to indicate the meaning of the 'island'. They were laminated and put in place with wooden blocks (Figure 53). These signs are in the first column, but can also be found in Appendix G, next to the name cards that were prepared for everyone present at the event.

Figure 53. Sign for on the tables, put in a wooden block

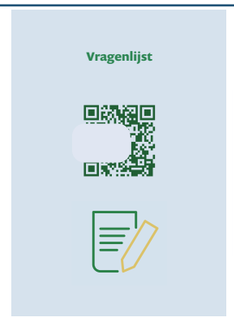
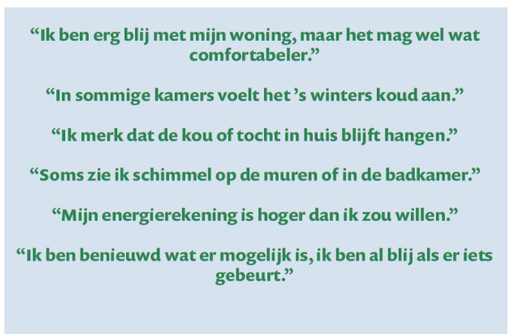
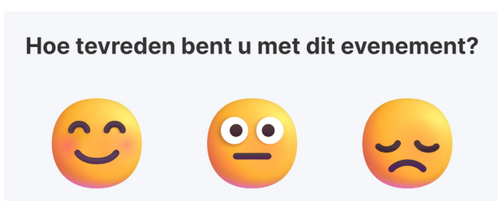
Different ways of communicating will be used to inform residents about the event. The different ways of communicating are in Table 18.

Figure 54. Sign for on the tables, put in a wooden block

Table 18. Different ways of communication with residents and when they are planned to take place

When	What	Information on communication
10 June (Tue) One week in advance	Announcement letter/email	
13 June (Fri) Five days in advance	Posters hung in the building	Figure 54
18 June (Wed) The morning of the event	SMS reminder to all residents	"Kom vanmiddag een ijsje halen, op het grasveldje tussen de Kuinrestraat en Dalfsenstraat, en praat mee over uw woning! 15-18u. Tot dan!"

Table 19. Materials used during the intervention

Element	Materials	Visual (Appendix G)
Ice cream truck	• Ice cream truck	
Information 	• Poster • Tablet with information video • QR code to the information video	
Fill in the survey 	• Tablet(s) with survey • QR code to survey • Example questions	
Making your home available for research 	• List of resident contact details	
Join the sounding board 	• Quotes with icons 	
Appointment in the model house and sign the agreement 	• Tablet with three smileys	

4.5.8 Execution plan

Space and time

This intervention takes the form of a local community event, held outdoors in the communal area of the housing corporation buildings. In Figure 54, the buildings that take part in the Warm thuis project can be seen. These are seven buildings, with 194 dwellings in total. The event takes place on the grass field between three buildings, to make sure as many residents as possible can see the event.

The event will take place on a Wednesday afternoon from 3 pm until 6 pm, to attract children free from school on a Wednesday afternoon and residents who work until 5 pm. The timeframe of three hours was expected to be long enough to ensure many residents could come by, and not too long for the co-workers (stakeholders) to be there.

Stakeholders

Staff from TU Delft, housing corporation and Tsavo facilitate the event, providing clear and friendly guidance to help residents navigate the experience. From Tsavo, two project leaders, social process and a project leader were present. From housing corporation, a social manager and a team manager of the social department were present. From TUDelft, two students of the MSc Design for Interaction helped to take pictures of the setting and count the number of residents who came. Without the help of all these people, it would not be possible to organise this event.

Implementation plan

Figure 55 shows the map of the event, in which the tasks per person and the different materials per stand can be seen. Table 20 shows a description of the plan per stand.

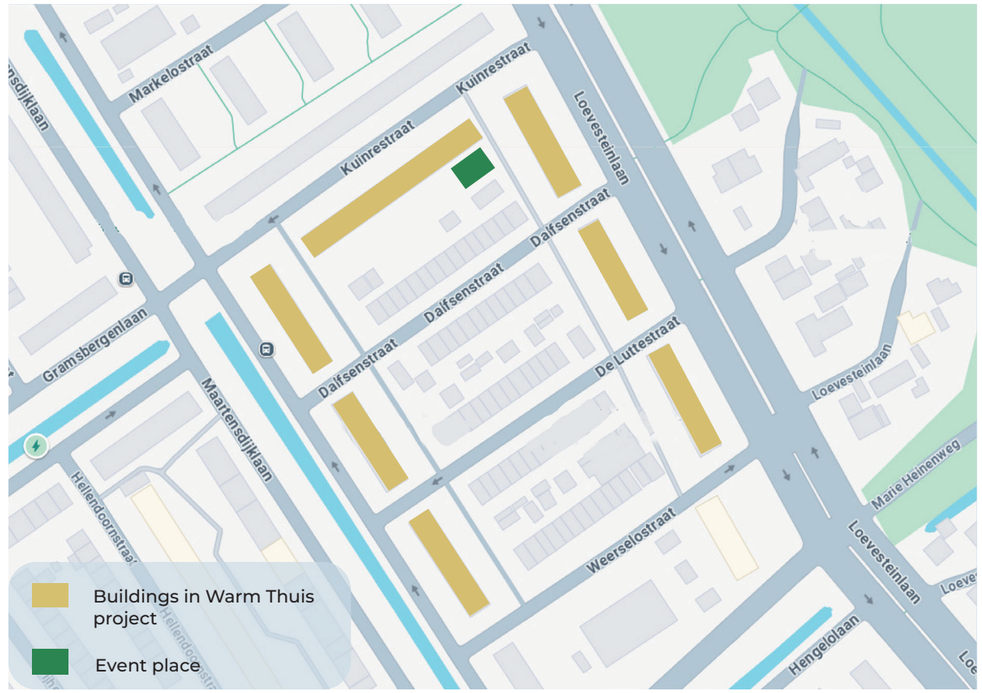


Figure 54. Map of the buildings that are part of the Warm thuis project and the place of the event

Table 20: Plan per stand during the event

1.	Ice cream	When residents arrive, they are greeted with ice cream.
2.	Introduction and visual map (Figure 51)	A short explanation of the different paths they could take towards legal support, and when they must vote on the plans.
3.	Exploring the pathways	Residents walk to different stands based on their interests. The different stands will be clearly labelled and easily accessible.
4.	Feedback and evaluation	Residents provide feedback using a three-smiley scale and/ or engage in an informal conversation to evaluate the event (4.5.6 Measurability).

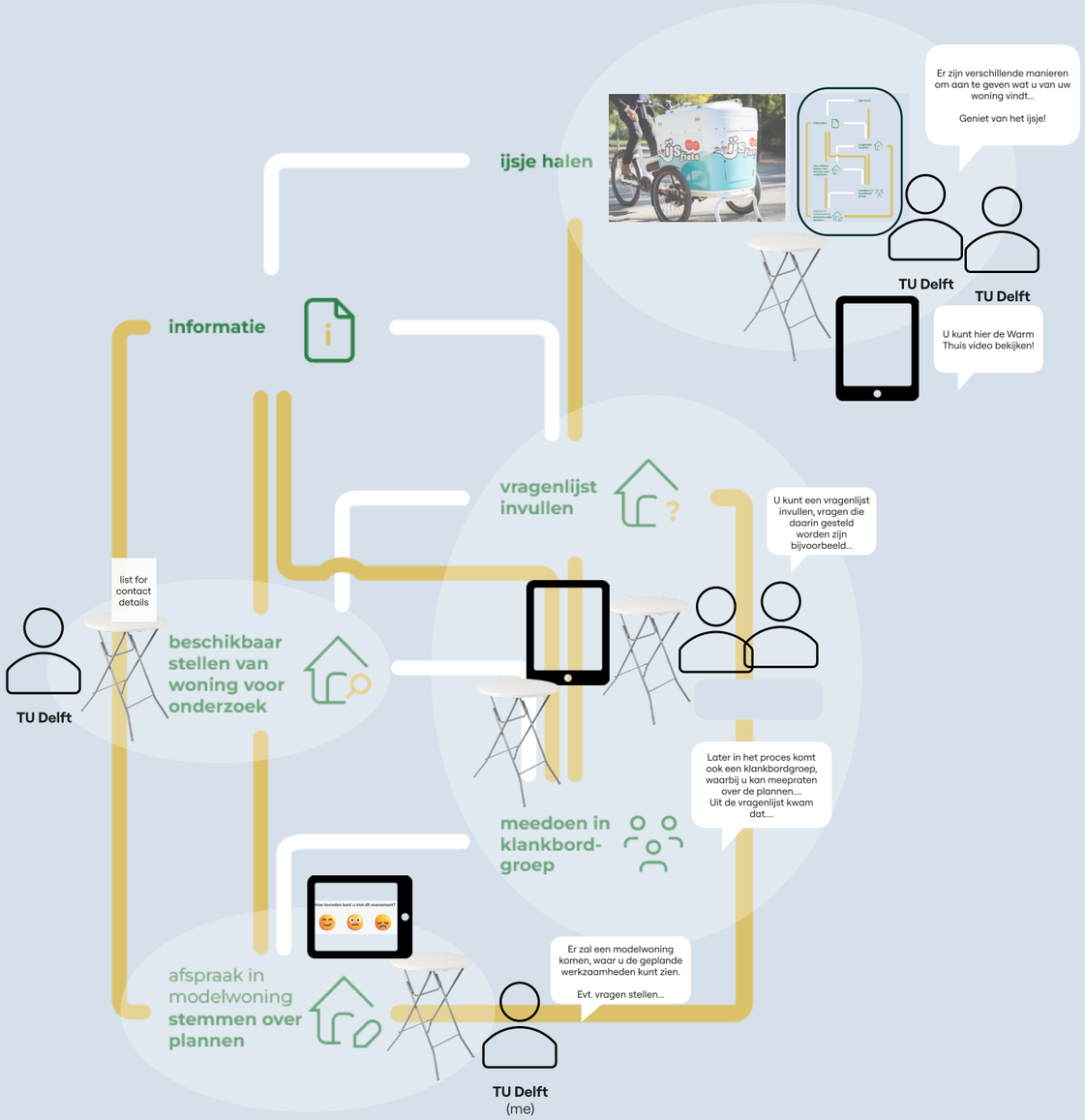


Figure 55: Event map with materials and tasks divided per person

4.5.9 Quantitative results

Table 21. Quantitative results about the residents

Indicator	Results	Analysis
Number of residents attending the event, from the total of 194 homes that take part in this Warm thuis project.	4 1 3 2 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1 2 2 1 1 1 Sum: 34 In 25 groups	The number of residents who came was expected to be higher, while at least 200 ice creams were bought.
Tablet with three smileys to click on: sad, neutral, happy	Invalid results	In the end, only a few residents clicked on a smiley button and clicked a few times, but they thought their clicks did not work. Therefore, the results were invalid.
The number of residents who filled out the questionnaire during the event.	13 (6,7% of the total number of households)	
The percentage of households that filled out the questionnaire during and after the event.	13,4% (26/194 households)\	This is lower than the 20% that Tsavo usually aims for.
Follow-up interest in joining the sounding boards.	9 out of the 14 people who filled in the survey after the event	It is a positive note that half of the residents filled in the survey at the event.
Number of stakeholders who filled in the evaluation survey	5	The results will be discussed in the next section.

Quantitative results from the evaluation form

The evaluation form was filled out by 5 of the total nine stakeholders present at the event. The form was anonymous, so the institution from which they were was not tracked, which would make it very easy to track who it was.
The quantitative results are shown in Figure 56 and 57, and explained underneath.

Although the amount of bought ice cream was way too much, the ice cream truck was reviewed as effective. The duration, time and location are various and will also be discussed in the evaluation meeting (Section 4.5.11). The way residents were invited was reviewed as quite effective, primarily through SMS and door-to-door communication at the event.

In Figure 57, it stands out that every form of participation that was presented at the event was reviewed as neutral. While some stakeholders were dissatisfied with the number of residents who visited, the overall satisfaction with the event, both in terms of what they heard from residents and what they think of the event, is reviewed as neutral to satisfied, which is positive.

These results cannot say much, as only 55% filled in the survey.

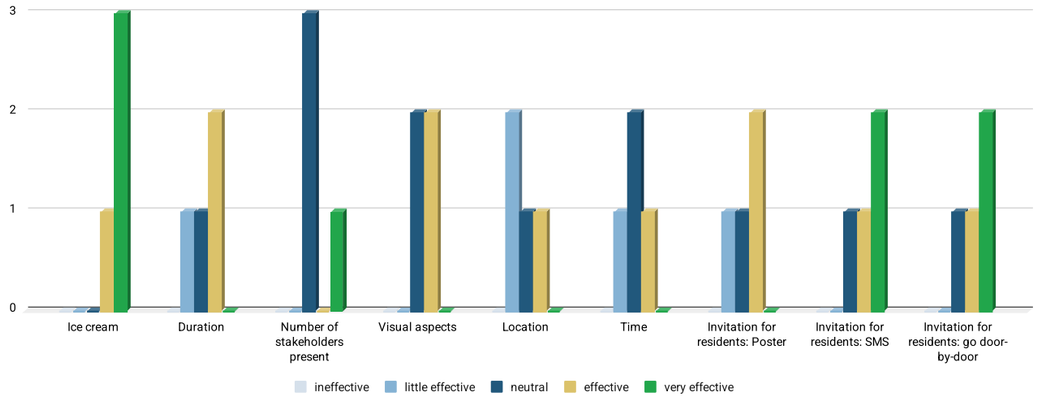


Figure 56: Four responses to the question: 'How would you assess the effectiveness of the following resources?'

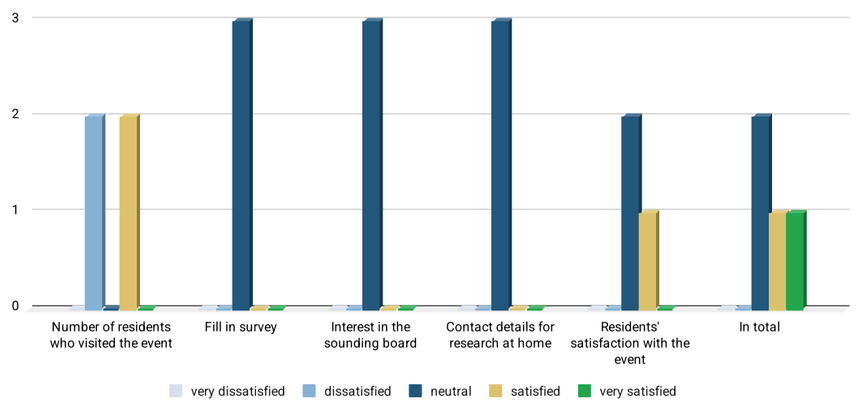


Figure 57: Four responses to the question: 'What are your thoughts on the amount of time and effort invested in the event versus the immediate results?'

4.5.10 Qualitative results

During the event, the stakeholders had diverse interactions with residents. These interactions will be discussed and evaluated with photos, quotes from residents, and the conversations held. A week after the event, an evaluation meeting was held with stakeholders from Tsavo and housing corporation who attended the event; this evaluation will be discussed at the end of this section.

Engagement with residents

In Figure 58 and 59 photos made during the event can be seen. Figure 59 shows how the tables were set up with the element visuals (first column of Table 19). It also shows that most of the people were in conversation with each other, and house animals and children were able to walk and play around. Figure 58 shows the place of the ice cream truck at the event. While it was a very warm afternoon, this was placed in the shade. The poster with the overview was meant to stay on the tree on the left side, but it appeared too small to stand out; it was an A2 format, and it fell quickly, which is why it is not visible in the picture.

An overall impression of the event was that most of the residents there were happy that this event took place and that it was possible to talk to people from housing corporation directly and see their faces. A few times, residents said their experience with housing corporation was way better than that of former housing corporation.

On the other hand, it was known beforehand that some residents were very unhappy with their home and how housing corporation acts, and at least one resident would come to express his anger. This was the case; one resident came to the area very angry about the whole situation in his home. Hearing his expressions, some of the defects in the home sounded serious, and it was not for nothing that he expressed these issues. The team leader of housing corporation and project leader of Tsavo were able to talk with him after he left without an ice cream. An hour later, he returned in a calmer way to express his situation again. He ended with a handshake with the team leader and said he was happy to see some faces behind the contact via phone and email.

A stakeholder said in the evaluation form: "'[Residents expressed] Dissatisfaction with housing corporation in general and less with Warm thuis.'

These experiences at the event highlight that the opinions on residents' homes differ. Some residents were very content, especially with housing corporation after former housing corporation, but for some, it was an opportunity to express dissatisfaction. In the end, it was suitable for both the residents who were negative and positive, who were able to see the faces that work for housing corporation and who are behind the more impersonal emails and calls.
In the next section, specific things about the residents' homes that were expressed will be discussed.

Residents' wishes and needs about their home

Regarding residents' specific wishes and needs for their homes, a few residents talked about their balcony because it does not seem solid anymore due

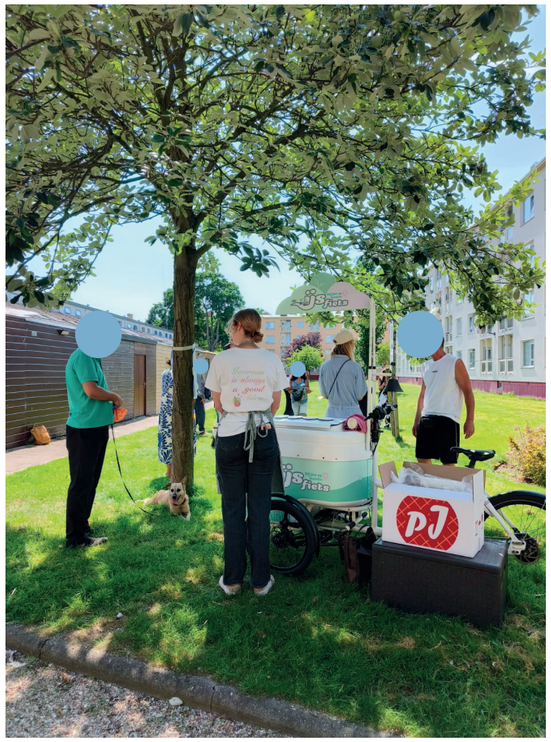


Figure 58: Photo of residents at Warm thuis event

Figure 59: Photo of ice cream truck and residents at Warm thuis event

to cracking on the outside wall of the building and moisture issues. They wish something could be done about that.
Most of the residents mentioned safety issues; stealing and drug use are issues here, and homeless people are using the building, which is why they wish for safer front doors.

Furthermore, residents had comments about the cleaning in the building, which they think is not done well by the cleaning staff housing corporation hires.

Outside of the building, a thing that was mentioned was that there is very little or no contact between neighbours in the area. Some who were at the event said that they do not like that. One man came from a more rural area and highlighted the difference. He recognised another resident at the event from the church they are going to, which seemed very important for them, especially for their social life.

The residents liked the location, near every supermarket there is, and next to the Zuiderpark. Also in the survey, the location is mentioned the most in the question of what they like about their home, next to the view they have.

Other things mentioned in the survey are heat (in summer) and cold (in winter), the wind in the house and how the building and homes are maintained.

During the event, there was a resident who was blind and one who could not read or write. Therefore, going through the survey together and filling it out for them seemed very valuable. It made them feel listened to and able to express their concerns with a clear output for the plan developers later in the process.

Informal evaluation with residents at the event

Some residents were asked whether the different ways of giving input on the plans were clear to them. Those residents said it was clear.
When asked if people thought it was good that an event like this was held, they said yes, but of course, the people who liked it were there, and the residents who did not like it were not there.

When residents were asked how they would prefer to receive updates about the renovation, they reacted a bit confused. Some asked if they should leave their contact details for this, which was unnecessary, while housing corporation already has their contact details. They did not mention a specific way of informing and expected the regular way, via email.

4.5.11 Evaluation with stakeholders

Different insights came from the online evaluation hour, which included most of the people who had helped during the event. Some of them had filled in the survey (Section 4.5.9). During this meeting, we went through the survey topics to discuss the preparation and elements of the event. The outcomes are divided, based on the topics: space and time, communication, the concept, the physical event, the preparation of the event and overall insights.

Space and time

The idea to do the event on a Wednesday afternoon from 3 pm to 6 pm was based on the idea that many children could be there and that they would take their parents with them. In the end, it appeared that not that many children were living in this area. This wrong assumption could have been avoided if the social and district managers were better informed and asked about the people living in these buildings. In this case, doing the event around dinner time may have worked better.
Next to the time, the duration of the event could have been shorter, as concluded during this meeting. The number of residents visiting would be more compact, which would be nice to make it more crowded.

In order to make the location even more visible, arrows on the floor, leading to the event, could be made. Another idea could be to move around with the ice cream truck or to stand at a corner and use beach flags to attract residents.

For the number of stakeholders present, it was said that it was quite a lot, but in a normal situation, there would not be anyone from the TU Delft, which makes the total number of people five, which is fine. Nevertheless, the distribution of roles should be clear to everyone.

Communication to residents

About how residents were invited to the event, the poster was reviewed as positive, and many people had seen it. The SMS was appointed many times and thus seemed effective. However, during the meeting, it was also mentioned that housing corporation usually never sends an SMS, which stands out for residents. At the same time, it is different from the other communication they had from their housing corporation before.

Going door-to-door during the event was effective as well. It was mentioned that many people knew of the event, but did not feel the need to come. Some residents did come after their door was knocked.

Initially, the plan was also to email all residents 1,5 weeks before the event, but this had not happened due to circumstances. This fourth form of communication could help the repeating effect even more, and more residents could be motivated to visit. This is something to implement next time easily.

Islands and pathways: the concept

When discussing the concept during the evaluation meeting, someone said she did not see the idea of islands at the event. Also, the signs on the different stands did not stand out to her.
It was also mentioned that the walkthrough with residents did not go that smoothly.

There are a few ways in which both feedback could be improved. The overview poster at the beginning should stand out more, in order to recognise the islands and pathways on both the poster and in real life. The pathways were not made at the event, partially due to safety concerns, the fear of someone falling over and also because of the chalk spray; it was not clear how long it would stay on the grass and that risk we did not want to take. In order to make the paths visible, the chalk spray would probably still be the best option.
Someone responded in the evaluation form: “Possibly if the ‘path’ is even clearer visually, it will evoke curiosity to discover the rest.”

Another insight was that going from stand to stand with a resident would be nicer than sending the residents from person to person, which means that every co-worker needs to get to know the resident over and over, while it makes more sense to start the explanation and conversation with a resident and lead this person through the whole event.

The value of a physical event

A physical event offers the opportunity to see each other’s faces. For residents, it means they have an idea of who the person behind the communication is via email, phone or SMS, which can build trust, especially when a resident is full of anger and feels left behind.
From the perspective of Tsavo and housing corporation, a physical event means they can get to know the residents living there. They immediately build a feeling of the needs of the people while they are in their environment, and literally can see what the state of the building is when residents are expressing their concerns. Again, doing the event right beside their building speaks. It is easier for residents to express their concerns, while they can later point to the problems they see. For example, an older man said he did not dare go on his balcony anymore, afraid that the fence would break due to the cracks. He could point to it and explain it, especially when he could not read or write, and thus, he could not fill in the survey by himself.

Preparation

Although resident guide company had negative experiences with an event before the support phase (Section 2.4.4), housing corporation has very positive experiences with an event with food during a renovation process like this. One person said: “The renovation process should live. It needs to come higher on the prioritisation list of residents. This needs to be done by repeating information”. An event, based on his experiences, is an effective way to make the renovation process more important for residents, which, in the end, avoids overwhelming residents with the support phase and execution in their homes.

Because of the time pressure within this graduation project and the tight schedule within Tsavo, the event was planned two weeks after the idea was presented and discussed. This was a short period of time, especially for the communication department of housing corporation and for the involvement of social and district management.

For the physical preparation of the event, two people will present one hour before the event. This seemed overly short in advance, especially since it was impossible to scan QR codes with the tablets and a login to a way of communication was needed on every laptop. This also meant that it was not completely clear to every stakeholder what would happen, and there was not enough time to explain.

One stakeholder, housing corporation, also mentioned that it would have been nice to know what was in the survey. This survey was made and discussed mostly within Tsavo, so this remarks the need to share it with the people from housing corporation.

Finally, an email sent to the whole internal project team before the event to keep them updated would have helped reduce internal confusion. Other stakeholders also like and need to know what happens within their project.

Overall

The quantitative results show that everyone was content with the ice cream truck, which seems effective. The weather was great, which also helped. In the past, some people from housing corporation mentioned that it always works to give people some food, in their experience. They said they usually hire a ‘poffertjes kraam’, which is for the colder weather, but it appeared to work great for attracting residents.
Although it was known that sharing food was a success factor, it was very unpredictable for everyone how many residents would come, which made it hard to guess the number of ice creams consumed, and in the end, it appeared to be a huge number.

During the evaluation meeting, when the dissatisfied residents were discussed, it was mentioned that this project was brought forward in the planning because of the poor conditions of the buildings. The assumption is that in other Warm thuis projects, in which the buildings are in a less poor condition, there would not be residents who were as angry as those at this event.

Although there were fewer residents at the event than we had hoped for, the team leader from housing corporation said that, directly after the event was over, we should not be dissatisfied with how it went, which was valuable to hear.

4.5.12 Conclusion

In this conclusion on the final intervention, first, the most important positive and negative outcomes will be mentioned, after which the CLEAR questions will be answered in Table 22.

The most important positive outcomes were that residents were happy to see many faces from housing corporation, and Tsavo, who are also from housing corporation, for them, which supports trust from residents towards housing corporation and hopefully towards the whole Warm thuis project. Next to that, many residents knew of the event, from the feedback from going door-to-door. This can mean the Warm thuis project will also start to live more within neighbours; thus, residents will think of it, and it is on their list of things that will happen. The expected, long-term outcome is that the support phase, in which they need to vote on the renovation plans, feels less imposed on them, even as the execution phase, in which the constructors will be in their home for five working days.
From the perspective of housing corporation and Tsavo, it was nice to know who lives in the buildings that they will renovate and who they have to work

with.

Some adverse outcomes were that the event created a space to express negativity, which can be shocking for stakeholders and other residents. On the other hand, it started a reciprocal relationship of talking and listening to each other in person, which builds trust. Whether an event is the right place for this or should be resolved in a more private situation is questionable. Next, the event would probably be received more positively internally when more preparation time would be available, especially for the communication department and social and district managers, who wanted to be informed earlier.
Internal communication could also be done better, including informing the whole internal project team and stakeholders at the event more clearly on what would happen and their roles.

In Table 22, the results will be explained by answering the questions based on the CLEAR model.

Based on these answers, the event was very successful and seemed like every element was considered. While the event was the first contact moment of the Warm thuis project, the focus was on the Can do question. Residents were primarily informed about the start of the Warm thuis project, what will happen, which role they could take in giving input and how they can do that.

Nevertheless, much can still be improved regarding the event and the participation process. Chapter 6.4 will provide many recommendations on the whole process, but it is worth remembering that the participation process is never perfect. It is always important to be critical of the participation methods and ask yourself how a more diverse group of residents can be involved in a reciprocal relationship between the housing corporation, residents and neighbours. It is also important to consider how the capabilities of more residents can be utilised to obtain their input and how feedback can be provided.

Based on all insights, a practical guide for implementing participation methods will be provided in the next chapter.

Table 22: Concluding the results of the final intervention, based on the CLEAR model questions

C	can do	Were the right resources and knowledge provided to participate meaningfully?	This event was held to bring up that the Warm thuis process starts for their building. This was the first step in informing residents about it. Next, all the different ways for them to give input on the plans were presented and/or explained. If needed, the survey could already be filled in with help, and an introduction to the sounding board, which will happen later in the process, was given.	Capability programmes
L	like to	Did a sense of belonging and shared purpose encourage participation?	Residents were brought together and asked in different ways what they thought of their homes. They were both listened to in person and allowed to share their needs and concerns through a survey.	Reciprocity
E	enabled to	Did structural and social support enable participation?	When they could not speak Dutch, they could converse via Google Translate. When they were not or barely able to read and write, they were helped to fill in the survey, ensuring their answers would be on paper for the project developers and leader to read again.	Capability programmes
A	asked to	Were residents genuinely invited and encouraged to participate in the process?	Residents received three different ways of communication (poster, SMS, and going door-to-door), inviting them to the event. At the event, they could get a free ice cream next to their building to make it approachable and welcoming.	Reciprocity
R	responded to	Was the input of residents acknowledged and reflected visibly in decisions?	A mail was sent to residents, with the survey.	Feedback loops

5. Envision

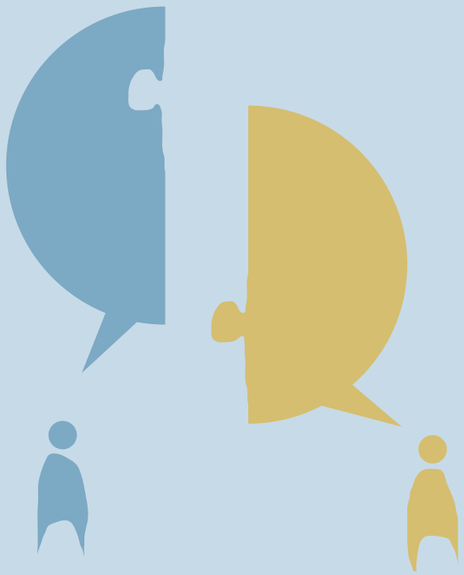
5.1 Guideline for resident participation
5.2 Explanation on guideline

This report has shown different ways interventions contribute to a more just participation process, which created much knowledge, together with the frameworks and CLEAR-based questions. Based on this knowledge, a practical guideline is made for housing corporation and Tsavo to implement more exploratory interventions in the future. The guideline can be seen on the following pages, and then an explanation of how this guideline has been established. Note: this guideline has **not** been evaluated.

5.1 Guideline for resident participation

Guideline for resident participation within Warm thuis

Balancing justice and efficiency



Renovating social housing quickly and within budget is important, but doing it fairly matters as much. Justice means: people feel heard, safe, and respected in the process. This guide helps you navigate the tension between efficiency and justice, by putting residents first, without losing sight of project goals.

Shift the energy from fixing problems during execution to preventing them early through good participation.

1.

understand residents

Before making any plans, take time to understand the people living in the building. Every community is different.

- Who lives here? Are they mostly families, older people, or newcomers?
- What languages are spoken? Are there literacy challenges?
- What kind of support do people already have? What do they miss?
- What happened in the past that might affect trust?

Ask the social manager, speak to community workers, or visit the area before developing a plan.

2.

make it easy to participate

Some people want to be involved, but how it's organised makes it hard. Participation should fit into people's lives.
Help residents take part by removing barriers.

- Use clear, simple language.
- Add visuals or videos.
- Offer choices: digital and paper, morning or evening, big group or small chats.
- Make sure timing fits their daily rhythm

If someone doesn't respond, maybe the way you asked didn't work for them. Residents probably need a little push.

3.

encourage involvement

Trust doesn't come automatically. Before asking for input, show that you're willing to listen and give something first. There is a great need for contact in these neighbourhoods, but people need a little push.

- Create a friendly start, and hand out food, drinks, or a flower.
- Show your face early, not only when decisions are already made.
- Don't just ask: "What do you think?" but ask: "What would work for you?"
- Listen. Even when someone can't speak the same language, maybe try to converse via a translator app.

Reciprocity doesn't have to cost much. A small gesture can open the door to a bigger conversation.

4.

act on input

Nothing is more frustrating than giving your opinion and feeling ignored. Make sure residents see what happened with their input.

- Show how their input changed the plan: visually, clearly and in simple language.
- Even when you can't make a change, explain why not. Be honest.

Showing results helps build long-term trust.

exploration, intervention & evaluation

This process is not a one-time checklist. Keep trying, learning, and improving.

- Explore the context before jumping into solutions.
- Intervene with small actions and see what works.
- Evaluate what helped, what didn't, and ask others for feedback.

Even within a tight timeline, small changes in communication or timing can already make a big difference.

5.2 Explanation on the guideline

The guideline is mainly based on the steps in the CLEAR model and the frameworks that were matched to the elements of the CLEAR model. Based on the outcomes of the sub-research questions throughout the report, simple tips are provided in the steps of the guidelines. Simply, this is the conclusion of the report in easy language.

For a better understanding of the reasons **why** a balance needs to be found between justice and efficiency, and **why** the energy should be shifted from fixing problems during execution, to preventing them early through good participation, the rest of this report should be read.

While the focus is mostly on time and budget, this guideline asks for empathy for the residents and therefore the first step is to understand the residents.

The second step: Make it easy to participate, is based on the Can do and Enabled to elements of the CLEAR model and focuses on capability programmes.

C	can do	How can residents be provided with the right resources and knowledge to participate meaningfully?	Capability programmes
E	enabled to	How can structural and social support be provided to enable participation?	Capability programmes

The third step: Encourage involvement, is based on the Like to and Asked to elements of the CLEAR model and focuses on reciprocity.

L	like to	How can a sense of belonging and shared purpose be fostered to encourage participation?	Reciprocity
A	asked to	How can residents be genuinely invited and encouraged to participate in the process?	Reciprocity

The fourth step: Act on input is based on the Responded to element of the CLEAR model and focuses on feedback loops

R	responded to	How can the input of residents be acknowledged and reflected visibly in decisions?	Feedback loops

This graduation project was a process of exploring, trying interventions and evaluating these. Many positive outcomes and reactions were given to this; most co-workers were very open and enthusiastic about thinking about how things could be done better. Trying new things and learning are the only ways to improve the process.

While this guideline has not been evaluated and tested, more research must be done on what works for the people who need to execute this. Is it clear to them? Or maybe too simple to understand the reasoning behind the steps?

6. Conclusions

6.1 Discussion
6.2 Conclusion
6.3 Future work
6.4 Recommendations on process
6.5 Personal reflection

This conclusion chapter entails a discussion, conclusion, and recommendations for future work and the current process. The report will end with a personal reflection.

6.1 Discussion

Contextual limitations

The project focuses on a sustainability programme in social housing, mainly concerning insulation and ventilation. While the implementations are not very visible, they are immediately noticeable regarding residents' living comfort and energy consumption. If other measures are implemented, the measures themselves, and probably the target group, will be very different, so the way of participation and communication will also have to change. Different approaches are important when it comes to participation in energy renovations.
This means that the outcomes of this project are contextual and tailored to residents in vulnerable, multicultural neighbourhoods in The Hague Southwest with poor-quality social housing (labelled EFG).

During the writing of the literature review, little information was available on participation in energy renovations in poor energy quality houses, in particular. Some papers used in the literature review, such as those by Hurenkamp and Tonkens, focus on citizen participation. At the same time, this report applies information on participation in a citizen project to residents of social housing owned by a housing corporation. This target group may have a different influence on the effectiveness of participation in projects like Warm thuis.

Role in ethnography and as a designer

Although this research is made up mainly of observations, it is important to recognise that my role as a designer also influenced the interpretation of situations. I made choices based on what I considered important or meaningful and what stakeholders were positive or negative about.
During the ethnographic research, I could recognise situations and problems from literature, which has biased me in looking at the Warm Home process neutrally, while I was trying to recognise what I had seen in literature instead of defining the problems myself.
The choices made may be interpreted differently by other stakeholders. At the same time, this subjectivity is a strength of ethnographic and exploratory research. However, it requires reflection.

During the research phase, I did not talk to residents, mainly because of ethical and safety concerns, including a rule within Tsavo that you should not go to residents' buildings by yourself. I did not want to interfere with this vulnerable group without a solid plan. Combined with time constraints, it was not possible to do qualitative research. This meant I only talked with people who work with residents, which could have influenced the way I interpreted residents in a way that is mainly focused on the overall renovation experience for residents, measured by the client satisfaction survey (Illuster, n.d.).

Nevertheless, my position within Tsavo allowed me to act as a bridge between different stakeholders, from residents and resident guides to social managers and project developers. This positioned me to notice subtle tensions and reflect on those, acting as a mediator and translator between stakeholders within the process, which was very valuable for the research.

Exploratory design in a real context

As a design student, I learned to try and learn repeatedly, but time constraints are a big issue within real projects like these. For stakeholders, the daily tasks take priority over the energy needed to improve the process. In addition, there is always a risk of failing, especially when residents are already unhappy and vulnerable; that risk is often not wanted to be taken, which makes everyone do things as they have always done. Therefore, this risk can be a barrier and is important to mention.

Measuring the consequences in practice did not prove easy when something new is tried. For example, with the QR code for the video, the measurability of the intervention became less important due to time constraints. Good measurability creates more learning and is therefore important for future evaluations, but in other situations, it might not even be possible to measure the outcomes. With trust between people or between people and institutions, for example, it is hardly measurable whether trust increases after an intervention. When it seems to improve or decrease, many other factors could influence that.

Finally, in the context, only Dutch was spoken, while it is obligatory to do everything in English for my deliverables. Constantly switching between English and Dutch had confused me sometimes, making elements not as straightforward as they could be. Ironically, this fits the topic as well.
Tension between participation and tight plans
During the project, I struggled with the tension between literature outcomes to increase participation and the ethnographic outcome that the plans are already tight, which means little space for changes based on residents' input. This tension shifted the project's focus a bit from enabling participation toward improving communication.

Another tension encountered is the opinions on the importance and main focus on the technical and financial sides of the process within project teams, especially outside the social process team, making the rest of the team sometimes gloat about the participation side of the process. While at the moment a lot of time is spent on residents in the execution phase, not only the social process team, but also internally from higher up, participation should be encouraged, for example by making plan developers look at the resident survey answers to be able to include these in the plans.

Next to that, it is mostly about increasing energy labels with a tight budget. Although the rent will not increase for current residents, their rent will definitely increase after moving. In this case, comfort is better than it was, but I'm questioning whether the energy efficiency improved enough to compensate for the rent increase. If this is not good enough, and especially if residents do not know well enough how to use their energy-efficient home, this will lead to more financial problems for residents.

Trust within a one-year project

While most projects only take one year, after that, Tsavo no longer has to do anything with the residents. This creates another tension within trust, while it misses the chance to build a community. For that to happen, housing corporation needs to take over again after discharge, which requires extra steps to transfer the knowledge that has been built over the residents, and therefore is not expected to happen in a way that is most trustworthy for residents.

Navigating justice and efficiency

Throughout the project, the tension between justice and efficiency was never resolved, but only navigated. While it can always be questioned what justice looks like, maintaining a critical lens on design choices and staying empathetic with residents is what I recommend to hold onto, especially when efficiency pressures grow stronger.

6.1 Conclusion

In the Warm thuis renovation processes, the time that is put into the social process from Tsavo's side has increased since the start of the project. Especially in the more vulnerable neighbourhoods, there are already many existing problems, which add even more time to the projects. This extra time is mainly spent on processing individual situations that happen in the support and execution phase.
The reactive mode of 'putting out fires' in the execution phase creates frustration and undermines trust across teams and with residents.

Ethnographic insights reveal that when renovations are explained in a personal and accessible way, for example, in a model home visit tailored to residents' needs, tension decreases and residents feel understood. However, this empathy must start earlier.

Based on the outcomes of the reframe phase, insights show that in vulnerable neighbourhoods, as The Hague Southwest, many residents deal with energy poverty, live in uncomfortable conditions, especially in midsummer and midwinter, and face language or literacy barriers. In addition, everyone is dealing with their struggles, mainly health and financial issues, individually.

The attention must shift to the participation phase to avoid the feeling of an imposed renovation. Doing so requires redesigning participation around three frameworks:

- Capability programs: Ensure communication and methods are based on residents' capabilities, including language, literacy, time, and digital access. Participation should be understandable and tailored to the people living in the building, with choices in format and timing.

- Reciprocity: Trust begins when residents feel something is given first. The start of a reciprocal relationship can be in the form of food, but also an act of listening and trying to communicate, time and attention.

- Feedback loops: Show residents that their input matters. React to their input with visible and accessible responses and additions to the renovation plans.

These frameworks support the CLEAR model, which asks whether residents can, like to, are enabled, are asked, and responded to in their participation.

To answer the research question: How can the renovation process within the Warm thuis project be made more just for social housing residents? The proposed guideline proposes a shift in attention to investing earlier, using the CLEAR model in an iterative participation process design while constantly criticising the balance between justice and efficiency, creating empathy for residents.

6.3 Future work

This graduation project uncovered many valuable insights, but there is a lot more that needs to be evaluated and tested, which requires further exploration. Some directions for future work are explained below.

Develop indicators for just participation

Justice is difficult to measure. But if we want just processes to be taken seriously, there needs to be some form of feedback or monitoring. Future work should focus on developing participation indicators. For example, did people feel invited? Was their input used? Did trust improve?

Evaluated the proposed frameworks

The frameworks have now been matched to the CLEAR model, but the connections and similarities need to be further explored. In addition, the words reciprocity, capability programmes and feedback loops can be hard to understand for ‘changemakers’. Therefore, to implement these, easier-to-understand synonyms should be developed.

Involve residents directly in research

This project stayed close to residents through ethnography and by working with those who engage with them daily, but future research should involve residents more directly. Especially residents who typically remain silent or are harder to reach. What makes them feel safe? What does a “just” process mean to them? This requires careful preparation, sensitivity, and time.

Test participation interventions across different contexts

The interventions were developed and tested within one neighbourhood and process. But every building, resident group, and team is different. It would be valuable to test and adapt the guidelines in other places.

Build long-term engagement

Many participation efforts stop after the renovation is done. Future work could explore how housing corporations can maintain trust and communication even after the project is completed. What is needed to build long-term communities within buildings and neighbourhoods?

Develop the guideline to make it practical

As was already mentioned, the guideline was not evaluated. Future work requires evaluating whether it is clear and convincing enough to act on it. Another question is whether the design language is well enough translated to be understood by people working at the institutions.

When this is evaluated, the guideline could be translated into digital or physical tools, for example, checklists, conversation starters, training materials, or even apps. This could help professionals quickly assess whether their process is inclusive and just, and what the effect on efficiency is.

6.4 Recommendations on process

This chapter starts with recommendations on future research, focused on the development of a guideline for people working in the field of energy renovations.

The second section presents practical recommendations from ethnographic observations, a literature review, co-design sessions and interventions. The recommendations aim to strengthen resident participation in the Warm thuis renovation programme and improve trust, communication and satisfaction. The recommendations are intended for housing corporations, project developers and participation professionals.

6.3.2 Recommendations on process

Increase residents’ influence on plans

Resident involvement must extend beyond mere symbolic participation. The primary objective should be to increase residents’ influence in a tangible way. When input is collected through surveys, sounding boards or informal conversations, it must be reflected in the decisions made. Otherwise, residents may feel unheard or misled, which will reinforce distrust.

Maintain updated contact details

A straightforward improvement would be proactively asking residents for their up-to-date contact details at the beginning or even before the Warm thuis process begins. This allows for more targeted communication and helps to avoid information loss, making the process smoother overall.

Explore app-based communication

A secure app with different user roles (e.g. resident, contractor, project manager) could streamline providing updates and feedback while respecting privacy (Introduced in Section 4.2.4.). This could reduce the administrative burden.

Tailor the model home to the target audience

This idea was proposed during the ethnographic visit to the model home (Section 2.3.1). A well-decorated model home helps residents to imagine their renovated apartment, which reduces their fear of the unknown. By styling it to reflect the target group, resident guides can create a more welcoming atmosphere and encourage open conversations. This reduces resistance and improves consent rates.

Involve social managers in sounding boards

Social managers often have direct, trusting relationships with residents. Their presence during sounding board meetings ensures that residents are heard more effectively, while issues outside the scope of the Warm thuis project can be identified and addressed.

Appreciate those who contribute to the neighbourhood

Appreciate those who contribute to the neighbourhood. As demonstrated in Section 2.3.3, these individuals can significantly impact other neighbours and, consequently, the resilience of a building. For example, a resident who had lived there for many years and performed small tasks in the building was able to persuade other residents to attend the sounding board.

Collaborate with the plan developer on the survey

Connecting the people who write resident surveys with those who develop the renovation plans ensures the right questions are asked. More importantly, the answers should be evaluated. This should not only be done by the project leader’s participation in ensuring residents’ voices come back in the renovation plans.

Link resident quotes to renovation plans

Residents often express problems in emotional and concrete terms. For example: ‘It is always cold in my home’ or ‘I can hear everything from the street.’ These quotes can be tied directly to technical solutions in brochures or presentations to create a clear feedback loop. This was also introduced in Section 4.2.4.

Discuss the survey outcomes with residents

Rather than analysing the data in private, hold sounding board meetings to discuss the outcomes. This fosters transparency and shows residents how their feedback is shaping the process.

Use existing resident networks

The social process can be improved by using networks that residents already engage with, such as WhatsApp groups or neighbourhood Facebook pages. Therefore, it would be helpful first to inform residents if these networks exist. These informal spaces can also be used to circulate surveys and event invitations.

Address outstanding maintenance issues

Sending a maintenance worker could help build trust and demonstrate responsiveness during events or support phases.

Track engagement with visual materials

QR codes on posters and brochures can track how many residents access videos or websites. This data can be used to evaluate the effectiveness of different materials in engaging residents.

Figure 60. Comic narrative on the renovation process

Visual communication

Visual communication, for example, a comic-style narrative (see Figure 60), can help to visualise the participation process and renovation journey. It can show how residents' feedback can lead to fundamental changes and prepare them for the impact of the work (e.g. switching to induction cooking). Including diverse characters fosters recognition and accessibility, particularly for readers with limited literacy skills or Dutch proficiency. The next page shows an example of this.

Evaluate the purpose of resident questionnaires

What information do you want to gather, and how will it be used? Before sending out a survey, consider which data is essential and how it will inform decision-making or resident feedback. This will make the survey more meaningful, and a shorter survey will lower the barrier to completing it.

Work together

Many of these recommendations were just suggested by people. By evaluating the process with all stakeholders, improvements can be created together. For example, organise biannual reflection sessions with all partners: housing corporation, Tsavo, social and district managers, and resident guidance. Beforehand, each party can complete a short survey on what did and did not work in the previous project. These insights can then be shared and discussed to inform concrete improvements.

6.3.3 Discussion

These recommendations are based on observations and conversations made during fieldwork. While they reflect recurring patterns, not all may be feasible in practice. Institutional realities such as tight planning, limited budgets or risk management protocols may restrict implementation. Nevertheless, small changes, particularly in communication and responsiveness, can impact residents' trust and cooperation.

6.5 Personal reflection

Throughout this project, I encountered so many valuable insights from so many different angles that it was often difficult to focus on a direction. Especially in the beginning, I struggled to find structure and to make clear decisions, partly because I lacked experience in interpreting what I was observing. I felt unsure about what I could and couldn't say, which made it harder to confidently write down my conclusions.

Luckily, the feedback I received during the midterm and greenlight moments really pushed me forward. My supervisors challenged me to step out of my comfort zone, to make choices and stand behind them. That wasn't easy, but in the end it helped bring clarity to the outcomes. Even now, I still question what is okay to conclude, and what might be overstepping.

Understanding the theoretical frameworks also took longer than expected. Even in the final weeks, I was still coming across new concepts that made me reconsider whether I should dive deeper or shift focus. For example, I only fully understood the term indicators near the end. Realising I had misunderstood it for half a year was frustrating, not only for myself, but probably for my supervisor too.

Working in a Dutch context while having to deliver everything in English also created confusion at times. Switching back and forth between the two languages made it hard to stay consistent in tone and clarity. Ironically, this mirrored the very challenges of communication and accessibility that the project tried to address.

One thing I want to highlight is how grateful I am for the KIEM project. Without it, I wouldn't have been able to test so many interventions or work so closely with professionals in the field. This practical experience made the project come alive and showed me how valuable it is to design with, and not just for, people.

Most of all, this graduation project taught me how complex and interesting human housing really is. It made me realise that I want to continue working in this area, especially on the social side of housing institutions, where participation, trust and empathy are just as important as technical plans.

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Appendices

Appendix A: Project brief
Appendix B: Blueprint renovation process
Appendix C: Ethnographic study
Appendix D: Context factors
Appendix E: Framework cards
Appendix F: Outcomes brainstorm session
Appendix G: Materials for final intervention

Appendix A: Project brief

Personal Project Brief – IDE Master Graduation Project

Name student Marith Huisman **Student number** 4,881,044

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT
Complete all fields, keep information clear, specific and concise

Project title Designing an inclusive resident participation process for the efficient and sustainable renovation of social housing.

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The most effective way to reduce energy poverty among social housing households in the Netherlands is to improve the energy performance of the dwellings, the literature suggests (Mulder et al., 2023). However, the biggest incentive for housing corporations to renovate their dwellings is the Klimaatakkoord (2019), and the sustainable renovation process is mainly focused on technical and economic aspects, not on the residents' perspective.

During the graduation project, I will be focusing on the Warm Thuis project, in which the social housing compar \ is making its housing more sustainable in cooperation with which organises the whole process from consulting, plan development, support to implementation. My project will be part of the KIEM-MV project *Justice in Housing Renovation Programs* and the *Participatory City Making Lab*.
From oint of view, there is a need to improve the participation process in the renovation of social housing in order to involve more tenants, to give more weight to their needs, and ultimately to make the renovation convenient for everyone involved.

The question is, what is the value that the participation process can give to the residents in order for them to express their needs, and what is necessary for them to see this value?

However, the efficiency of the process must not be at risk; at best, the efficiency of the process should be a beneficiary of the changes in the participation process. Another limitation for n is that at least 70% of the residents have to agree for the renovation to start, according to the Woningwet. For residents, the agreement is an opportunity to say yes or no to the project.

Mulder, P., Dalla Longa, F., & Straver, K. (2023). Energy poverty in the Netherlands at the national and local level: A multi-dimensional spatial analysis. *Energy Research & Social Science*, *96*, 102892. https://doi.org/10.1016/j.erss.2022.102892

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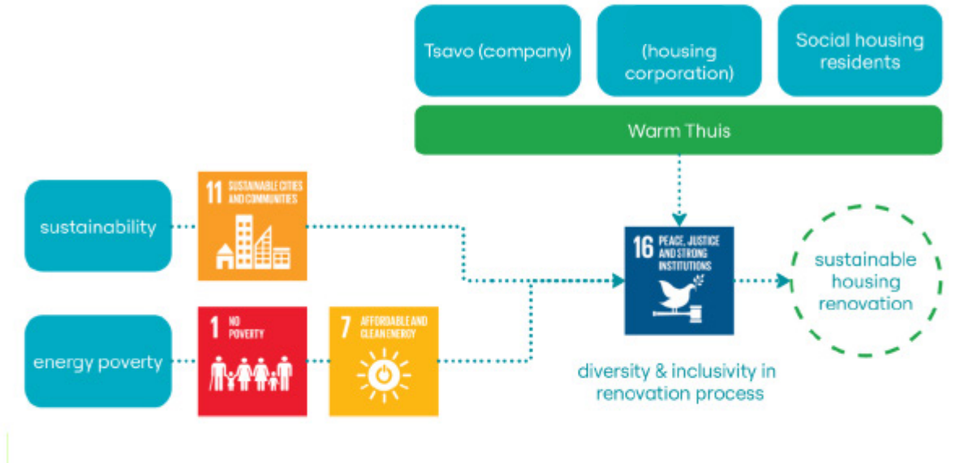


image / figure 1 Domain, stakeholders and Sustainable Development Goals.

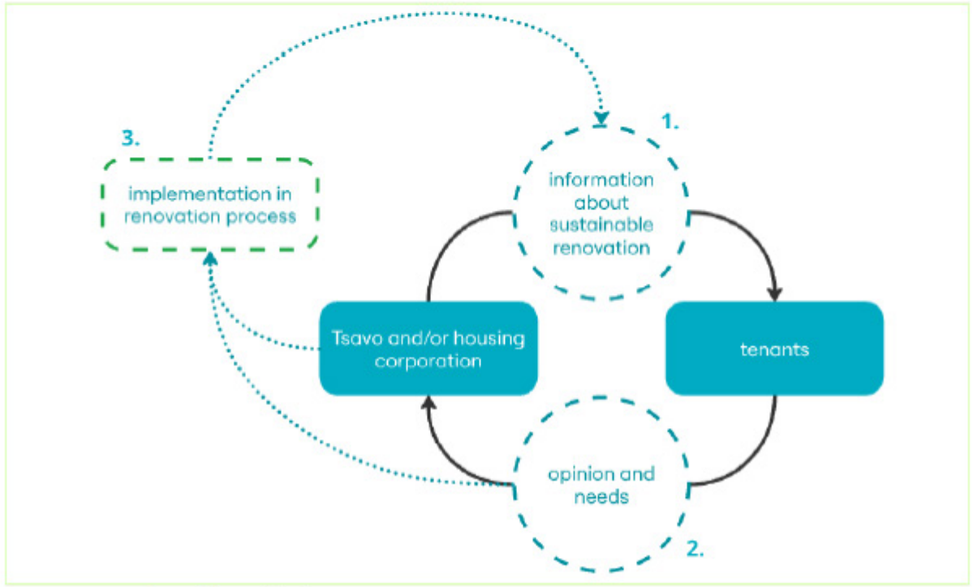


image / figure 2 Parts of the participation process.

DESIGN FOR our future

TUDelft

Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

nds out surveys and organises a sounding board to create space for residents to share their thoughts. However, the response rate is often low. This means that the needs of many residents are not identified, which can lead to dissatisfaction later in the renovation process. For example, they may not have felt sufficiently involved, they may not have understood the situation because of its complexity or low literacy, or they may be afraid of rising costs. There may also be a lack of trust due to 'old wounds' from the previous housing corporation.

As the Figure 2 shows, there are certain parts of the participation process that can be focused on: 1. how the information is presented to the tenants, 2. how the tenants are able to express their opinions and needs, and finally 3. how everything is and could be implemented in the Tsavo process. I would prioritise steps two and three, but I think step one is related: if people don't understand the situation, I don't think they will be able to express their needs.
And if they express their needs, bu ; unable or unwilling to meet them in the process, then the convenience of residents along the process will not improve either.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design a participation tool to make the sustainable renovation process in Tsavo more inclusive* for residents in social housing.

**Inclusive = being able to include input from different residents in the renovation process (making them feel heard and trusted)*

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

During my project I plan to use **literature research** to understand the field of energy renovation in social housing and to explore different design solutions. Design solutions will also be explored through a **co-design** session with ´ ıff.

I will evaluate the different design solutions through **exploratory design research** (with residents).

Through an **ethnographic approach**, I want to learn about the renovation process and the ways of communicating with the residents (fortunately, this is strongly encouraged by the company). I will focus on the weaknesses in implementation of the participatory process in order to find areas for improvement and new design implementations.

Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a kick-off meeting, mid-term evaluation meeting, green light meeting and graduation ceremony. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	11 feb 2025
Mid-term evaluation	8 apr 2025
Green light meeting	17 juni 2025
Graduation ceremony	15 juli 2025

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

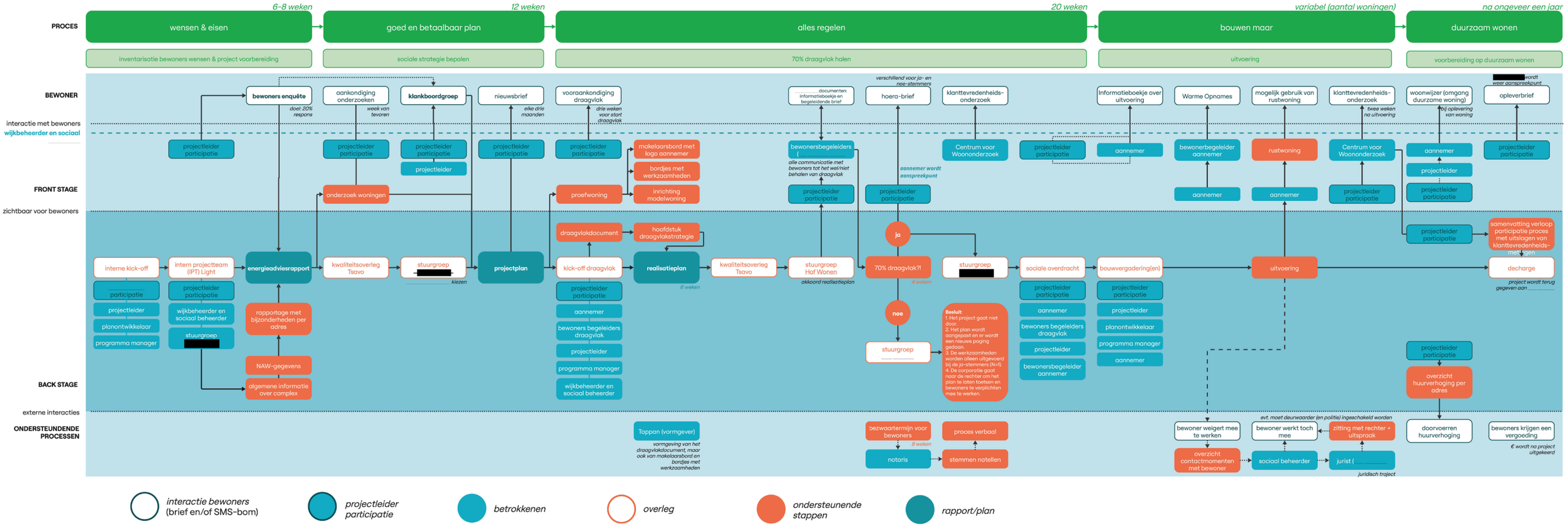
Through this project, I want to learn more about company structures and how to position myself as a designer within them. I have also felt the need to design for disadvantaged people throughout my studies and I want to give a voice to vulnerable residents in this graduation project.

In the coming time I would like to prove that I can take responsibility for the organisation of the project and dare to ask for help if needed.

I listen well to people, but sometimes forget to formulate a view myself. I would prefer to listen to others than to speak and write myself, because I am not sure about the way I do things. Through this project I hope that this insecurity will not get in my way, but that I will gain a lot of experience. I also want to learn that I don't need to seek confirmation for the things I do, and that sometimes I can just trust my own abilities and the things I've learnt during my time at university.

Finally, of course, I want to learn a lot more about participatory design and develop an area of expertise in the renovation of social housing.

Appendix B: Blueprint renovation process

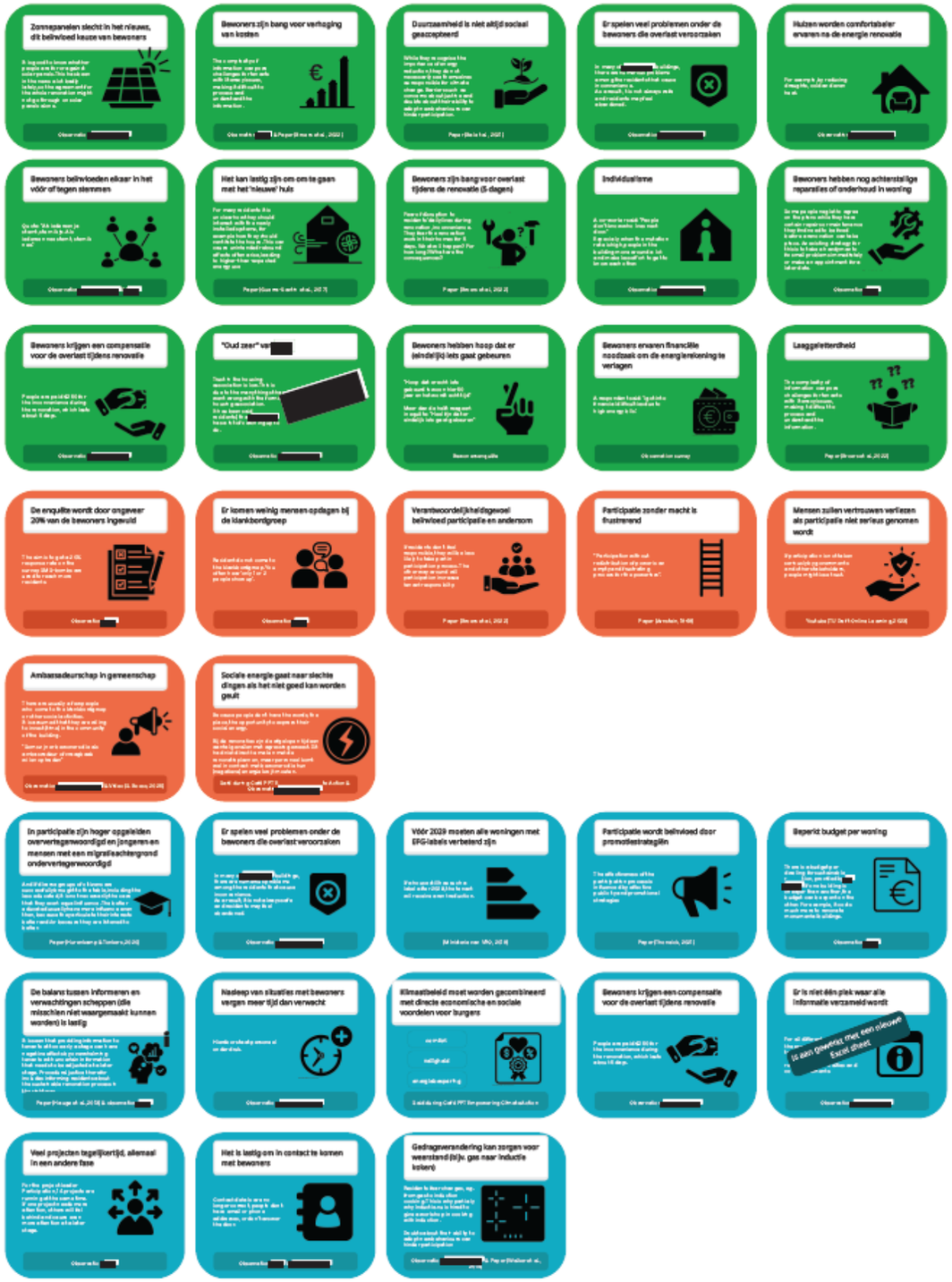


Appendix C: Ethnographic study

Date	What?	Where?	Observations
09/01/2025	Residents' meeting	[redacted]	A man who has been in bed for more than 10 years. A woman who found sustainability so important that she completely shut off her access to energy. Residents are able to be in a 'rustwoning' during renovations in their dwelling. The project leader's social process uses an SMS-bomb, which is a message to all residents to get more people to fill in the survey.
16/01/2025	Quality consultation Tsavo	[redacted]	There is a budget of [redacted] per dwelling to renovate the building (at [redacted] Many housing corporations are selling their monumental buildings, because of high costs.
16/01/2025	Social transfer with constructor	[redacted]	There is a file with details per address, e.g., tenants that do not want changes in their dwelling or do not want rising costs, or people who have rent arrears. The contractor does 'Warme opnames' first with the people known to need more attention. There is a 'social file' with social things in it to start a conversation, e.g., a holiday. A cooking workshop will take place to show people how to handle an induction stove (Inductie.nu)
16/01/2025	Meeting about social media	[redacted]	Content strategy of showing the human side of the renovations. Extra subsidy for energy poverty.
27/01/2025	Sounding board [redacted] & [redacted]	[redacted]	Out of 144 homes, one person has shown up. Neighbour has already contacted the housing corporation several times about mould, but nothing is being done about it. Sir has no email address, so he cannot complete the survey. He knew about the sounding board group through the text message bomb.
06/02/2025	Cleanup day	[redacted]	To insulate the basements, they need to be cleaned up. On this day, the opportunity will be given for people to dispose of anything; containers will be available. Residents are helping each other and talking to each other. It seems like quite a social situation.
06/02/2025	Cooking workshop	[redacted]	Two tenants had doubts about induction. They were now convinced. They were also interested in whether the support had been achieved yet. [redacted] did not address this. In a conversation with the resident guides, it came up: that some residents do not open the door, that many immigrant people need to be stressed that it is important to share/know their opinion, especially when [redacted] is primarily dependent on the arrival of residents when they have to come to a trial house, if people do not come then they still go by the door. Some people give as their reason that they do not want an increase in costs, while the calculation is that they come out better. Probably there is 'old-sore'/distrust from former housing corporation (owner bought a yacht while nothing happened for residents). The project leader with whom I drove expressed that he prefers to park his car a street away, so residents do not have to make (pre-)judgements on that. Energy labels can vary (enormously) within a building, as this is mainly due to the exterior surface area.
13/02/2025	Internal Project Team (IPT) light Beestenmarkt	[redacted]	The mutation rate indicates how often people move within the building, and it is thought that if the mutation rate is high, social cohesion within the building will be low, and residents will be less able to invest energy in getting to know each other. Translated from Dutch: "Getting support might be easier if it hits the wallet." The plan is to send a serviceman along to respond to the irritation from residents that other things need to be fixed first.
13/02/2025	KIEM meeting	[redacted]	What is the balance between informing residents and raising expectations that may not be met? A new participation process may have added value for residents and the housing corporation after the renovation. [redacted] says that the open questions in the survey are the most interesting, because they reveal the specific needs of the residents. The project leaders social process are the only one looking at the survey; they have to 'fight' for everything the residents raise.
13/02/2025	Coffee conversation	[redacted]	[redacted] talks about individualism, how tenants do not know who lives next door.
14/02/2025	Support process [redacted] with [redacted]	[redacted]	The first contact is an attempt to make a phone call, for which they have a script. [redacted] contact with tenants is mainly via WhatsApp. The model house (a house where the planned renovations have already been carried out to show the residents) is almost empty, but there is a desk where the two people from [redacted] are working. They call the residents to see if they still want to come or to remind them to bring the agreement form. There are little posters on the walls and in the windows with information about the different renovation plans for all the dwellings in the building (see photo). [redacted] contract with [redacted] states that they will make five attempts to contact the residents, and this will be tracked through an Excel form in which all moments of contact with the residents are recorded (phone calls, emails, whatsapp, door-to-door). People are paid €250 for the inconvenience during the renovation, which lasts about 5 days. [redacted] says they have gone to another place in The Hague to get an agreement form from a man who no longer lives in the building, but is still on the tenancy contract. This indicates what [redacted] might be able to do to get the 70% agreement. If he could change anything, he would furnish the show flat to represent the average flat of the residents in their building, he said. This would help people feel more at home and take away the fear of having to leave their whole flat empty during the refurbishment. This is not necessary. He would also like to see an app instead of an Excel sheet for all contact with residents. He said it would also be nice to know beforehand (to react accordingly) if people are under guardianship, asylum seekers or if they are against solar panels (this could make or break the contract, while it has been bad in the news lately).
26/02/2025	Café PPT Empowering Climate Action	online	For building trust in climate policies, there must be direct economic and social benefits for citizens. "Participation is seen as a token". Make people understand the logic of policies, WHY (e.g., Why can I not use plastic?). Institutional commitment to participatory approaches (do not participate if you don't know how), having the tools to do that properly. Get to know the time & needs of people for participation and review our own assumptions about communication (with residents). Social energy of (vulnerable) people goes to bad places if they cannot express themselves, they don't have words, a place, or opportunities.
27/02/2025	Meeting Toolbox Warm Thuis	[redacted]	A video is made to inform residents about the whole process. They plan to put this video as QR codes on the letters or make a separate postcard with a QR code to put in residents' letterboxes.
27/02/2025	Lunch walk	[redacted]	In one week, there have been three accidents involving aggression. She said it was not because the residents were against the refurbishment plans, but that most of the residents had other (mental) problems and this was now being expressed to the person there. Tsavo decides that no one can go to a building in the project alone anymore.
27/02/2025	Residents' meeting	[redacted]	Tsavo is working on an Excel sheet to gather all information in one place, especially all contact moments, and a facade view to see if the yes/no voters live next to each other. They talked about a woman who said, "If everyone agrees, I will agree; if everyone votes no, then I will vote no."
27/02/2025	Talk with project leader social process	[redacted]	A technical intake (investigation) will be used in homes to see what is needed for renovation. Residents are informed with a letter that surveys will take place.
06/03/2025	Meeting about [redacted]	[redacted]	The sounding board took place a week ago. The people who were at the sounding board don't have faith in getting to the 70% agreement. It is a building with a lot of sh*t happening. Many young people probably have a dwelling via illegal subletting. Three addresses in a court case, for causing disturbance. Many drug users. Residents are afraid

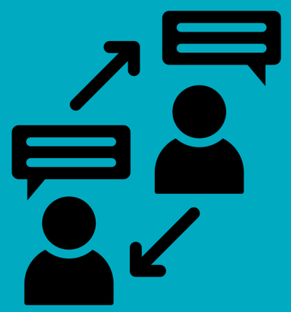
			to let people in, while they've been through a lot in the past years. They feel like [redacted] have let them drop/abandoned.
06/03/2025	KIEM meeting	online	[redacted]: We can keep sending things, but we want to get things back. What are their details and how can we reach them? How can we make it clear to the rest (of Tsavo) that participation is important? Idea to make a poster to increase visibility. [redacted]: Close the feedback loop. Where can people reach out to poster/video? Get information through the active people in the community, for example, by letting them spread a flyer and letting them write down the first reaction of other residents.
06/03/2025	Meeting social media	[redacted]	There should be more visibility around Warm thuis, in collaboration with constructors. They hand out key hangers at the end of a project. A UTM-tag could be used to track how many times people use the QR code on a poster.
06/03/2025	Meeting Escalation ladder	[redacted]	What are the steps that need to be taken when a resident doesn't want to take part in the renovation process?
13/03/2025	Meeting participation process	[redacted]	Renovations need to be taken over by [redacted] in the end. 5000 dwellings, 29 projects at the moment and 64 in total.
13/03/2025	Residents' meeting	[redacted]	Nieuweveen, not in Hague, many people at the sounding board group. People are attached to their homes. Single-family houses, no budget for induction.
20/03/2025	Residents' meeting	[redacted]	Everyone is too busy. Information needs to be gathered (in the right way) so that the support conversations can be more focused. "If I am instructed to call 10 people, that is not going to take an hour. Only work will come out of that. People will say, “While I'm talking to you, ...”. It's the first time in years that they get someone on the line. These projects release so much work during implementation.

Appendix D: Context factors



Appendix E: Framework cards

(Positieve) Feedbackloops



Positieve feedback loops zorgen ervoor dat goed gedrag wordt beloond en versterkt. In dit geval betekent het dat bewoners zien dat hun ideeën en zorgen echt iets veranderen. Een eerlijk proces en eerlijke uitkomsten staan centraal. Door een systeem te bouwen dat luistert, leert en zich zichtbaar aanpast, groeit vertrouwen en betrokkenheid vanzelf.

Verhaal bewoner
"Ze pasten dingen echt aan op basis van wat we zeiden. Toen ik klaagde over tocht in mijn woonkamer, zag ik het twee dagen later terug in een openbare update. Niet verstopt in een rapport, maar direct zichtbaar voor mij. En ze lieten zien hoe die input de renovatieplannen veranderde. Daarna heb ik mijn neef aangeraden om de overeenkomst te tekenen. Voor het eerst had ik het gevoel dat we het proces konden beïnvloeden, in plaats van er alleen onderdeel van te zijn."

Verhaal intern
"We testten al vroeg kleine feedbackloops. Na elke bijeenkomst verwerkten we de belangrijkste inzichten binnen 48 uur en publiceerden we een 'Wat We Hoorden / Wat We Doen' - overzicht. De planontwikkelaars pasten renovatieopties aan op basis van directe input. Die snelle respons wekte vertrouwen, zelfs bij sceptische bewoners. Na de tweede week zagen we een omslagpunt."

(Tijdelijke) Wederkerigheid

Wederkerigheid, of reciprociteit, betekent dat mensen geneigd zijn vriendelijkheid, hulp of gunsten terug te geven. Dit bevordert sociale relaties en samenwerking.
Tijdelijke wederkerigheid (transient reciprocity) verwijst naar kortstondige uitwisselingen, zoals medereizigers die elkaar helpen of een verkoper die iets gratis weggeeft om goodwill te creëren.

Verhaal bewoner
"Ik blijf hier niet voor altijd wonen en ik ben eerder genegeerd, maar deze keer zeiden ze: als je meedenkt over dit plan, stijgt je huur twee jaar niet en krijg je voorrang op een toekomstige woning. Dat maakte het de moeite waard. Ze hielden rekening met mijn korte termijn behoeften, en ik zag mijn inbreng terug in het uiteindelijke ontwerp. Ze maakten het voor nu de moeite waard."

Verhaal intern
"Wij benaderden participatie als een tijdelijke samenwerking. We vroegen ons af: wat kunnen we bewoners nu bieden in ruil voor hun input? We boden duidelijke, tastbare voordelen, sommige symbolisch (erkenning in het openbaar, bedankdiners), andere praktisch (huurbehoud, renovaties op maat). Wederkerigheid veranderde de toon, het was een eerlijke uitwisseling. Dat sloeg aan, vooral in een context van diepgeworteld wantrouwen."

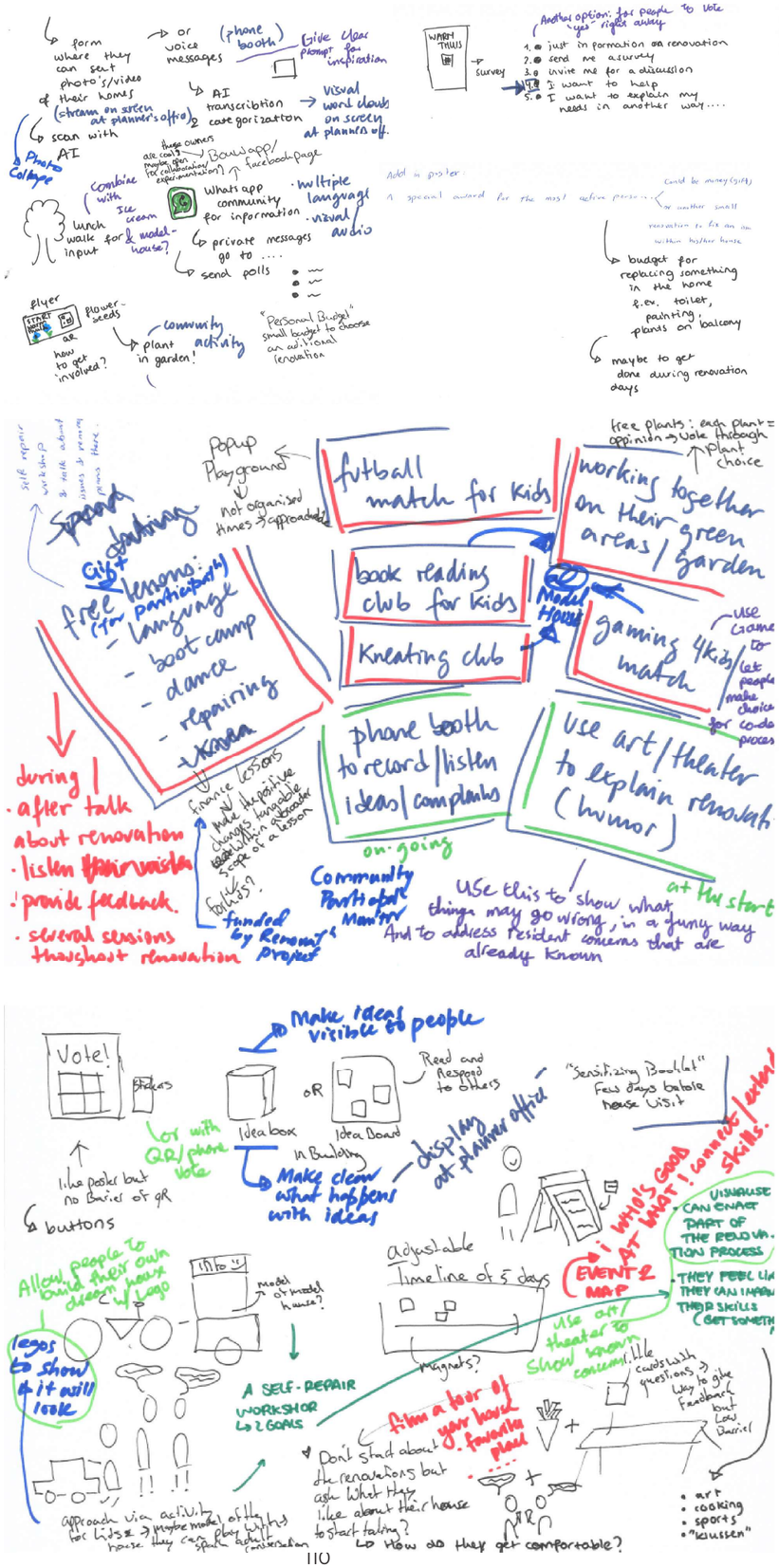
Capaciteits programma

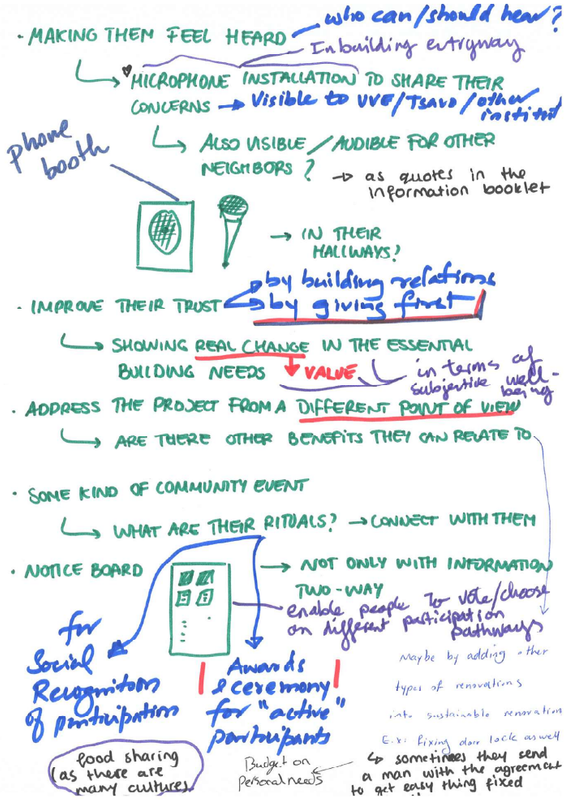
Capaciteitsprogramma's richten zich op het versterken van de mogelijkheden van mensen om effectief deel te nemen. Het draait om erkenning en procedurele rechtvaardigheid, waarbij bewoners de juiste middelen en ondersteuning krijgen om actief bij te dragen op een manier die bij hen past. Het doel is barrières te verminderen zodat iedereen op een betekenisvolle manier kan participeren.

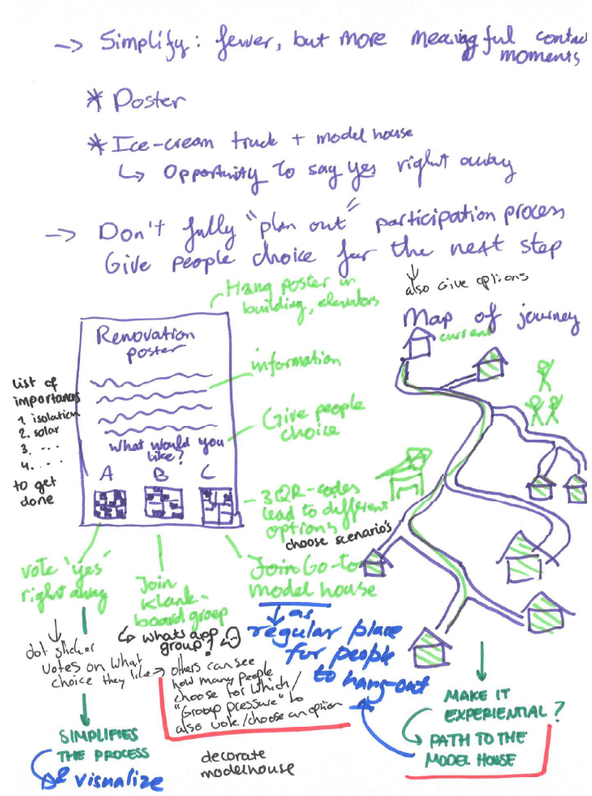
Verhaal bewoner
"Deze renovatie voelde anders. Ik kreeg niet alleen een lange vragenlijst, ik ontving een korte spraakboodschap in mijn taal met uitleg, en ik kon zelf ook inspreken. Toen ik twijfels had, kwam een buurvrouw die ik vertrouw om meer uit te leggen. Voor het eerst had ik het gevoel dat mijn situatie ertoe deed. Ze vroegen zelfs of ik tijd en energie had om deel te nemen aan de bijeenkomst, in plaats van te verwachten dat ik er gewoon kon zijn. Ik kon zelf kiezen hoe ik wilde meedoen. Dat deed veel voor mij."

Verhaal intern
"In plaats van participatieactiviteiten strak te plannen en uit te voeren, brachten we eerst in kaart welke ondersteuning bewoners nodig hadden om echt mee te kunnen doen. Wie had wat nodig om gehoord en betrokken te worden? Vervolgens ontwikkelden we samen ondersteunende middelen: een WhatsApp-hulplijn, vertaalde video-uitleg, en flexibele deelname-opties. We trainden ons team om te vragen, niet te veronderstellen, wat bewoners nodig hadden om mee te doen. Het kostte niet méér inspanning, maar een andere inspanning. Daardoor kwam er al vroeg in het proces beweging."

Appendix F: Outcomes brainstorm session

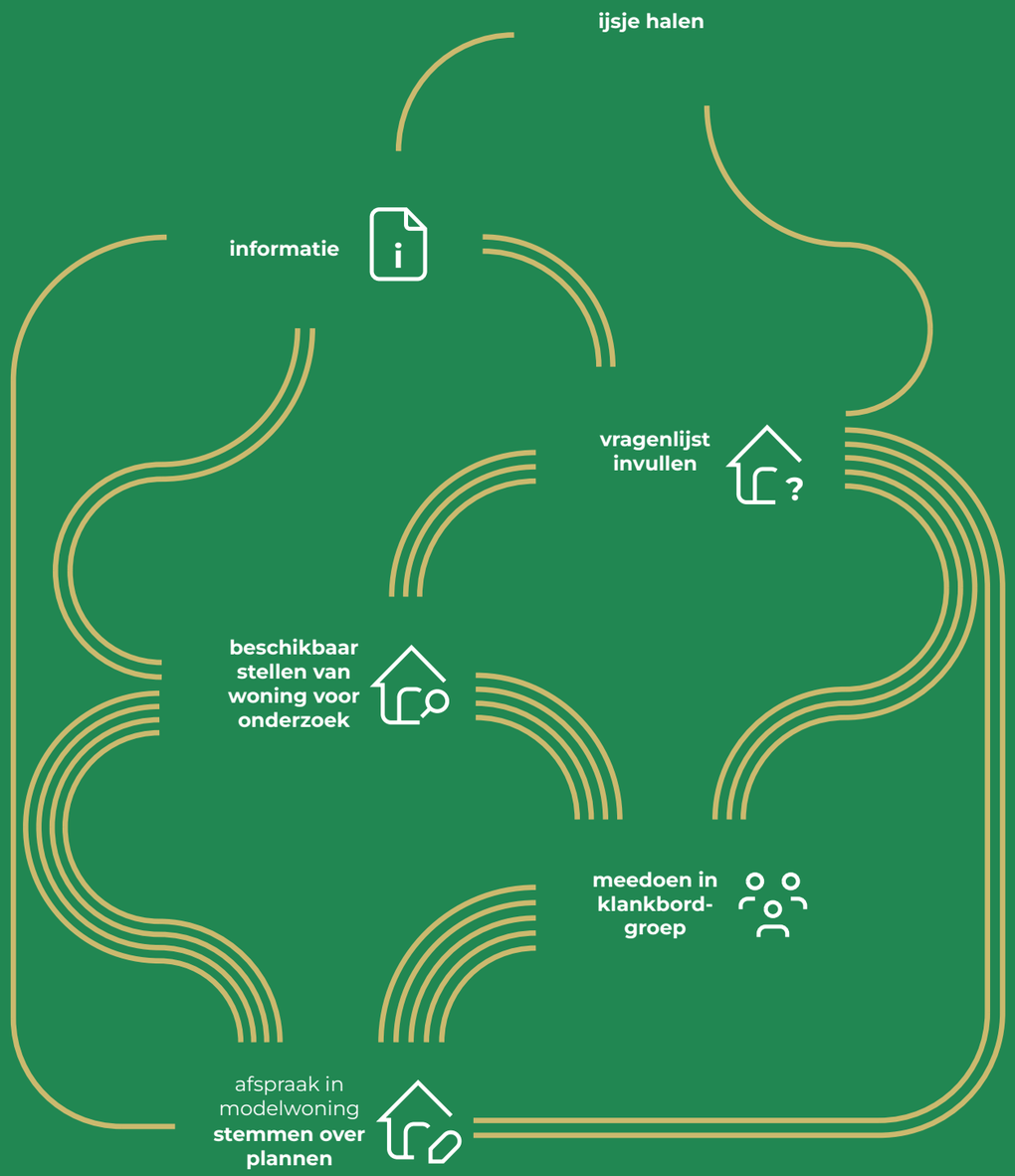






Appendix G: Materials for final intervention

Original visual for event poster



Signs on tables

Example questions survey and visuals

“Ik ben erg blij met mijn woning, maar het mag wel wat comfortabeler.”

“In sommige kamers voelt het ’s winters koud aan.”

“Ik merk dat de kou of tocht in huis blijft hangen.”

“Soms zie ik schimmel op de muren of in de badkamer.”

“Mijn energierekening is hoger dan ik zou willen.”

“Ik ben benieuwd wat er mogelijk is, ik ben al blij als er iets gebeurt.”

Example questions survey

Wat vindt u fijn en wat vindt u niet fijn aan uw woning?

Als , uw woning energiezuiniger wilt maken, wat vindt u dan het belangrijkste dat er moet gebeuren?

QR codes

Vragenlijst

Reparatie plannen