

# Sustainable & Affordable?

## *Research on Tiny Housing Projects in Drenthe, The Netherlands*

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**Colophon**

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## Table of Contents

|   |           |
|---|-----------|
| <b>Colophon</b> .....                                       | <b>2</b>  |
| <b>Abstract</b> .....                                       | <b>4</b>  |
| <b>1. Introduction</b> .....                                | <b>5</b>  |
| 1.1 <i>Academic Relevance</i> .....                         | 6         |
| 1.2 <i>Research Problem Statement</i> .....                 | 6         |
| 1.3 <i>Reading Guide</i> .....                              | 6         |
| <b>2. Theoretical framework</b> .....                       | <b>7</b>  |
| 2.1 <i>Affordability</i> .....                              | 7         |
| 2.2 <i>Sustainability</i> .....                             | 7         |
| 2.3 <i>Alternative Housing Forms</i> .....                  | 9         |
| 2.4 <i>Tiny Houses</i> .....                                | 9         |
| 2.5 <i>Conceptual Model</i> .....                           | 10        |
| <b>3. Methodology</b> .....                                 | <b>12</b> |
| 3.1 <i>Data Collection Instrument</i> .....                 | 12        |
| 3.2 <i>Data Collection Methods and Analysis</i> .....       | 12        |
| 3.3 <i>Ethical Considerations</i> .....                     | 13        |
| <b>4. Results</b> .....                                     | <b>14</b> |
| 4.1 <i>Rationale Tiny Houses</i> .....                      | 14        |
| 4.2 <i>Affordability</i> .....                              | 14        |
| 4.3 <i>Sustainability</i> .....                             | 15        |
| 4.4 <i>Barriers Implementing Tiny Houses</i> .....          | 16        |
| 4.5 <i>Combining Affordability and Sustainability</i> ..... | 17        |
| <b>5. Conclusion</b> .....                                  | <b>18</b> |
| 5.1 <i>Recommendation</i> .....                             | 18        |
| 5.2 <i>Reflection</i> .....                                 | 18        |
| 5.3 <i>Future Research</i> .....                            | 19        |
| <b>References</b> .....                                     | <b>20</b> |
| <b>Appendix 1: Interview guide (Dutch)</b> .....            | <b>24</b> |
| <b>Appendix 2: Interview guide (English)</b> .....          | <b>27</b> |
| <b>Appendix 3: Consent form interview (English)</b> .....   | <b>30</b> |
| <b>Appendix 4: Consent form (Dutch)</b> .....               | <b>33</b> |
| <b>Appendix 5: Code tree</b> .....                          | <b>37</b> |

### Abstract

The study aims to evaluate the viability of tiny houses as a solution to the need for sustainable and affordable housing using Drenthe, the Netherlands, as a case study. From the literature, it is known that sustainable measures drive up house prices. Therefore, it is of importance to evaluate whether tiny houses are able to implement sustainable measures and remain affordable. The province and municipalities were interviewed to uncover the experiences throughout the planning process of tiny house projects from a policy perspective. The results show that current regulations and the lack of policies create barriers to implement tiny houses. Moreover, tiny houses involve high costs due to the need for large plots and amenities, and only specific groups seem to be interested in tiny houses. Therefore, tiny houses are not perceived as the solution to combine sustainability and affordability. Recommendations for future research include investigating the evolution of tiny house policies, the demand for tiny houses and their specific target group and investigating spatial policies that account for the size and type of municipality.

**Keywords:** Affordable housing, Sustainable housing, Tiny houses, ESG principles.

## 1. Introduction

In response to the energy transition and the housing affordability crisis governments are looking for alternative housing forms. The housing sector is responsible for 21% of global carbon emissions and for 28% of the global energy consumption, accentuating the necessity for the building and construction industry to adapt (World Green Building Council, 2023; OECD, 2021). The Sustainable Development Goal 11 recognizes this and emphasizes the need for safe, resilient, and sustainable cities and human settlements (Habitat for Humanity, N.D.). This while in the Netherlands, a survey of the DNB demonstrates that 30% of respondents never consider making their homes more sustainable, whilst the housing crisis is interlinked with climate change. Further, the Dutch government aims for 1.5 million sustainable houses by 2030, even though one in five owners are not able to make their homes environment friendly, (De Nederlandsche Bank, 2022).

Through integrating sustainable measures, homes become increasingly energy efficient, consume less resources in construction and help protecting the natural environment and its preservation (Weise, 2023). Nevertheless, increasing sustainability in houses would raise the already high costs. Additionally, the acquisition of sustainable homes is more expensive than unsustainable dwellings (Van der Lee, 2022). In the Netherlands, a variation in energy label from E to A, through implementing isolation, solar panels, and a heat pump, equals a difference in house values of 15%, equivalent to over €75.000. As increasing the sustainability of houses involves higher costs, combining housing affordability and sustainability appears difficult. However, the two concepts characterize tiny houses. The little homes diminish environmental impact and reduce expenses by decreasing their spatial footprint (Ford & Gomez-Lanier, 2017). This thesis investigates from a policy perspective whether mitigating the effects of climate change and providing affordable solutions, through sustainable tiny houses, is feasible by conducting semi-structured interviews with policymakers who share their experiences about specific tiny housing projects in Drenthe, The Netherlands.

The research is conducted in Drenthe, a province in the North-East of the Netherlands. Numerous tiny house projects are in progress in this province. Each are in different phases of the planning process, where some have implemented tiny houses and others are constructing a policy. The variation across the province formed an interesting area to conduct research. Drenthe is the province with the lowest population density of the Netherlands and is characterized by mainly agricultural land, small cities, and towns (CBS, 2024; Provincie Drenthe, N.D.). Owing to the lowest population density, the housing crisis might not be a prominent problem compared to a denser populated province like Noord-Holland. Therefore, the emphasis is placed on how small municipalities within the province handle the demand of tiny houses regarding the housing shortage, the processes involved in the emergence of tiny house villages, which barriers are experienced when implementing tiny houses, and to what extent sustainability and affordability are implemented in tiny houses. There are various formats of tiny houses. However, this study does not focus on a specific form. Interest is in all forms and the rationale for selecting a particular form.

### *1.1 Academic Relevance*

On the topics housing affordability and sustainability multiple studies are conducted. Despite being topical issues, research combining the two concepts are uncommon. As tiny houses seem to combine the two concepts, research is performed on this housing form. Most of the studies found on tiny homes are performed in the United States of America or Australia (Shearer et al., 2018; Shearer & Burton, 2023; Brokenshire, 2019). This thesis aims to fill the literature gap on both combining sustainability and affordability and studies on tiny houses in the Netherlands.

### *1.2 Research Problem Statement*

The combination of affordability and sustainability appears challenging. This research aims to find out whether tiny houses can aggregate sustainability and affordability. To achieve this, the following central research question has been constructed: *What are the experiences of policymakers regarding tiny housing projects with respect to affordability and sustainability in Drenthe, The Netherlands?*, The sub-questions are as followed:

- What are underlying theories relating to tiny houses?
- How do the policymakers perceive the importance of the sustainability and affordability aspects of tiny houses?
- What barriers are encountered by policymakers regarding tiny homes projects?

### *1.3 Reading Guide*

This thesis consists of five chapters. The introduction is presented in chapter one. The central concepts and theories of this research are described in chapter two, followed by chapter three explaining the methodology. Chapter four analyses the results of the conducted interviews. Lastly, chapter five provides a conclusion, indicates limitations of this research, and makes suggestions for future research. Hereafter the reference list and appendices can be found.

## 2. Theoretical framework

The theoretical framework anticipates to answer the sub-question: *What are underlying theories relating to tiny houses?*

### 2.1 Affordability

Multiple countries are experiencing a housing crisis (Gutierrez, 2023). As the high prices, housing mortgages and policies on housing programmes are impeding the acquisition of housing for individuals, the need for low-cost housing exacerbates (Baqutaya et al., 2016). Affordable housing can be defined as ‘housing that is affordable to specified eligible households whose income is not adequate for them to access appropriate housing in the market’ (Gan et al., 2017, p. 427).

Through policy interventions, such as land-use regulations, national governments can influence multiple aspects of the housing market, including the cost, location, quantity, and the quality of housing (Monroy et al., 2020). According to Saiz (2023), introducing policy tools enlarge the provision of affordable homes. An appointed tool is the reduction of construction costs, through lowering labor costs and decreasing material costs. Secondly, providing smaller units reduces the construction and maintenance costs, as well as electricity and utility outlays. Thirdly is the elimination of regulatory and policy barriers, as these hinder achieving affordable housing. Multiple policy tools to create affordable housing focus on lowering the construction costs. Nonetheless, once sustainability is considered, the costs tend to rise again, reinforcing the assumption that affordability and sustainability cannot be combined. Additionally, environmental performance of dwellings would lower once construction costs are minimized (Pullen et al., 2010). The focus on cost reduction result in dwellings unfitted in meeting the basic needs of residents, while livability relates to the second level of need in Maslow’s theory (Salama, 2006; Baqutayan et al., 2015).

Complications arise addressing affordable housing through regulating inter/intra-state and city movement, reducing building regulations and decreasing design, construction, utility, regulatory fees and developer profits (Anacker, 2019). Moreover, Saiz (2023) stresses that governments partake in preventing construction of affordable housing because of the imposed regulations. In the Netherlands, the construction of low-cost housing is hindered by spatial, regulatory, planning, environmental and supply chain constraints (Geis, 2023). Since the affordable housing sector is a resource-draining sector, local governments oppose development (Huang, 2012). Furthermore, policy goals can be contradictory, complicating the realization of low-cost housing (Saiz, 2023). Solutions lie in bottom-up innovation, the redistribution of resources to balance purchasing power through institutions and in combining economic growth, local entrepreneurship, and improved family agency (Saiz, 2023).

### 2.2 Sustainability

According to Priemus (2005, p.6), sustainable housing refers to housing that ‘meets the needs of current residents without compromising the ability of future generations of residents to meet their own’. Therefore, sustainable housing should combine protecting the environment, using natural resources sensibly, economic growth, and social progress (Armstrong, 2002).

Incorporating these aspects into the location, construction and design, use, and regeneration ensures the achievement of sustainable housing (Winston, 2008). Besides environmental benefits are sustainable housing economically and socially beneficial (Pane et al., 2023).

The implementation of the ESG principles can ensure sustainability. ESG aims to build a sustainable and comprehensive development framework of human society (Li et al., 2021). The framework includes Environmental (E), Social (S), and Governance (G), representing the aspects of responsible investments that need to be considered in the process of investment analysis decision making. Incorporating the aspects ensures long-term value growth and is a concrete governance method (Robinson & McIntosh, 2022). Implementing ESG principles into Public Works and Housing is beneficial for governments (Haryani & Anjani, 2023). By integrating all principles into projects, they have greater chances of succeeding. Therefore, the principles improve sustainability of the projects and enlarge the value for the project lifecycle. Moreover, the implementation improves access to funding as investors consider the achievement of sustainability goals of increasing importance. This is accompanied by an increased demand for transparent procedures from the local government towards the communities because of their expectations (Sepetis et al., 2024). Due to the advantages, the principles are of increasing importance in real estate and can be incorporated into tiny houses (Robinson & McIntosh, 2022). Regarding the environmental concept, tiny houses are concerned with where they locate and their impact on its surroundings. Moreover, tiny houses are often built in villages causing residents to interact and collaborate, which ensures the creation of a community (Willoughby et al., 2020). The association with the social principle is made through the community and affordability aspect. Concerning governance there are rules, regulations and laws tiny houses and its plot must adhere to before construction is allowed. Therefore, governance is a crucial instrument in creating sustainable places (Teixeira Dias et al., 2023).

Policy instruments can be implemented to promote sustainable housing. According to Rauf and Weber (2022, p. 1), these relate to ‘financial, monetary and regulatory measures to manage consumption and public services and to regulate market activities to meet socio-economic and environmental objectives’. Various countries implemented policies to increase sustainability in houses. Nonetheless, conflicting objectives as energy consumption, environmental standard of houses and affordability present an obstacle to achieving this (Rauf & Weber, 2022). Further, the carbon transition could put additional pressure on house prices shown by policy simulations (OECD, 2021). According to Choguill (2007), five policy areas must be realized to achieve sustainable housing which can be related to the ESG principles. Firstly, the accessibility to good quality building materials relates to the environment as building materials can destroy the environment. Secondly is community involvement, which relates to the social aspect. Land is akin to governance, as the government is engaged in the transactions linked to the land and should guarantee its availability. Associated with both the social and governance notion are the building standards and housing finance (Choguill, 2007). The standards and financing can affect costs which influences the residents. Nevertheless, these regulations are implemented by the government. This demonstrates that the principles of ESG and sustainability are closely intertwined.



Monroy et al. (2020) combine both affordable and sustainable housing. To achieve affordability and sustainability, policy instruments are required that discourage low-density housing and inefficient land-use (Monroy et al., 2020). However, low-density characterizes tiny houses. Further, affordable housing can be achieved through sprawl, as the outskirts offer cheaper land prices according to Alonso's bid rent theory (Alonso, 1960). Nevertheless, sprawl tends to indicate higher travel distances, which generates more emissions at the expense of the environment (Monroy et al., 2020). Overall, achieving housing that is both affordable and sustainable has shown to be a challenge, while its combination is of utmost necessity in the affordable housing sector due to its energy inefficiency (Winston and Eastaway, 2007).

### *2.3 Alternative Housing Forms*

Guerra-Santin et al. (2009) indicated that building features, including size, greatly influence the energy use of a dwelling. This result demonstrates the need for smaller houses to increase sustainability through decreasing energy use and greenhouse gas emissions (Crawford & Stephan, 2020). Housing alternatives are constructed to increase sustainability, such as earthships, prefabricated houses, shipping container homes and tiny homes (Freney, 2009; Luther, 2009; Bowley & Mukhopadhyaya, 2017). Tiny houses differentiate from the other housing forms as the sustainability concept is implemented beyond its material use. For example, tiny homes are small dwellings that enable the production of food and minimization of possessions (Shearer et al., 2018; Willoughby et al., 2020).

### *2.4 Tiny Houses*

Several studies define tiny houses as dwellings which do not exceed 37 m<sup>2</sup>. The measurement is based on the maximum size allowed on a trailer base (Shearer & Burton, 2019; Brokenshire, 2019; Crawford & Stephan, 2020). However, Shearer and Burton (2019) indicate various formats of tiny houses, challenging the use of a single definition. Firstly, a distinction is made whether tiny houses are permanent or mobile, as it determines the size of the little homes. Provisional tiny houses must be movable, causing the size of these houses to remain below 40 m<sup>2</sup> (Shearer & Burton, 2019). The transportable tiny homes can be called tiny houses on wheels and do not require the purchasing of land (Shearer et al., 2019). Therefore, the costs are an attribute on which tiny houses differ. Regarding the ownership, tiny houses and the land can be rented or privately owned. Moreover, variations exist in the degree of self-sufficiency. Tiny houses can be off-grid, semi-off-grid or fully connected to utilities, relating to the extent to which the environmental focus is implemented in the little homes. However, the environmental focus is dependent on the length which tiny houses are allowed to locate on a site (Shearer & Burton, 2019). Overall, tiny houses differ in location, mobility, tenure, size, construction type, legal status, and format (Shearer & Burton, 2019).

#### *2.4.1 Benefits Tiny Houses*

Tiny houses emerged to reduce environmental impacts. Nevertheless, economic factors are one of the dominant motivators for living in tiny homes (Ford & Gomez-Lanier, 2017; Kilman, 2016). According to Shearer et al. (2018), tiny houses are more affordable than standard houses, as the purchasing of land is not required. Concerning sustainability, tiny houses necessitate

minimizing possessions against consumerism (Shearer et al., 2018). Furthermore, the little homes can be self-sufficient, resulting in decreased power and water usage opposed to standard dwellings. These relate to both durability and lower variable costs (Shearer et al., 2018). Additionally, the social aspect is of importance. According to Boeckermann et al. (2018), the sense of community is an important factor to reside in tiny houses for about a quarter of tiny house residents. Occupants desire to be part of more cohesive and collaborative communities (Willoughby et al., 2020). This implies inhabitants wanting community spaces or community activities, relating to the social aspect of the ESG principles. However, lower costs, simpler lifestyle and increased freedom and mobility remain the most important motivations (Boeckermann et al., 2018).

#### 2.4.2 Complications Tiny Houses

According to Smith and Wiek (2012), achieving sustainable places is conditional upon governance. Firstly, there are the legislations little houses must adhere to. In the Netherlands legislations, including zoning plans, environmental permits, building decrees and General Local Regulations, need to be considered (Jonker, 2017). The implementation of tiny dwellings can also be obstructed by legislations. In the USA land use policies enact to exclude small homes and in Australia tiny homes are not supported by planning schemes as the form of housing has not been contemplated (Evans, 2019; Shearer et al., 2018). Besides, tiny house owners cannot permanently live in their homes due to planning, building or caravan regulations (Brokenshire, 2019). The lack of familiarity, harmful organizational structures and inertness are common impediments. These legislative barriers delay the processes (Smith and Wiek, 2012).

The affordability aspect of tiny houses can also be considered as a disadvantage. According to Schively (2007), the integration of affordable housing encounters ‘not-in-my-backyard’ or ‘locally-unwanted-land-use’ phenomena fed by negative preconceptions. Furthermore, the advent of tiny houses concerns local inhabitants fearing reduction in property values and aesthetics (Evans, 2019). Besides, the expenses of purchasing or renting land in urban areas and areas zoned for multiple dwellings increases difficulty to implement tiny houses (Shearer et al., 2018). Additionally, due to the lack of regulations financial institutions are against providing potential dwellers with loans. Such an absence increases difficulty in financing tiny houses (Brokenshire, 2019). Additionally, the costs of building tiny homes are more expensive per m<sup>2</sup>.

Shearer et al. (2018), state that mostly women over 40 are willing to live in tiny homes and that the dwellings are favorable for singles, couples, small families, starters, older women. This illustrates that tiny houses are unsuitable for a broad interest group.

#### 2.5 Conceptual Model

Figure 1 shows the conceptual model visualizing the benefits and complications that policymakers experience based on the theory read. In this research, the expectations are that tiny houses are a solution to achieve both sustainability and housing affordability. The sustainable, affordable, and social aspects can function as reasons to implement tiny houses. However, tiny houses will only be appealing for a certain group, especially starters as they have

less need for space and less money to spend. Additionally, there are regulatory and financial barriers experienced which increases the length of the projects and decreases the attractiveness of tiny house projects.

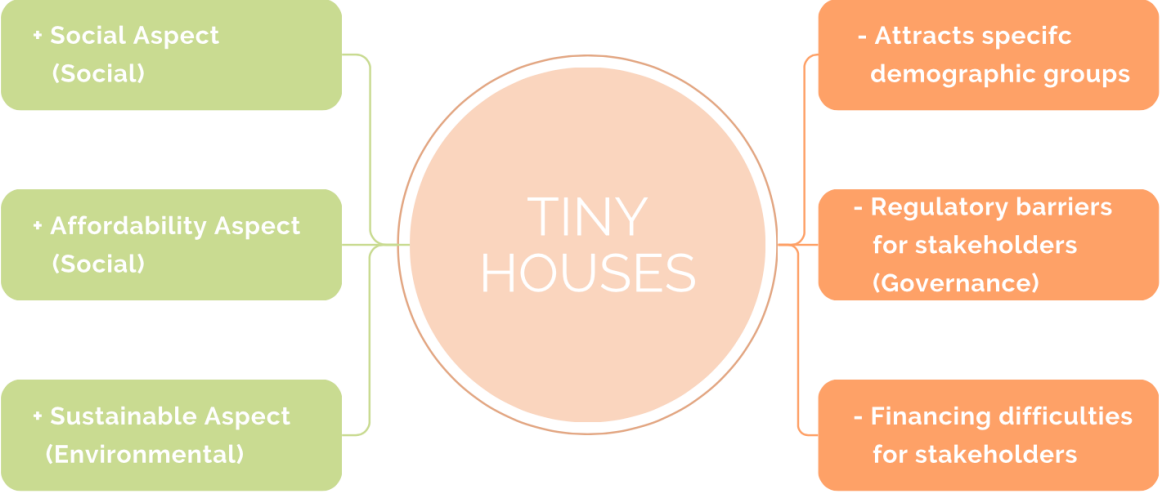


Figure 1: Conceptual model (Author, 2024).

### 3. Methodology

#### 3.1 *Data Collection Instrument*

For this research primary data is collected using qualitative methods. In-depth, semi-structured interviews were held with six stakeholders of the policy side of three different municipalities and one province. These stakeholders were engaged in tiny house projects in Drenthe. The format of the interviews with the corresponding questions are displayed in appendix 1 and 2. The aim of this research is to uncover the viability of tiny house projects with respect to sustainability and affordability from a policy perspective. During interviews the possibility arose to go into detail about the topic, allowing for a greater understanding of the topic. The reasoning and the in-depth explanation of experiences is of importance to uncover the viability of tiny houses, causing interviews to be the appropriate method. The qualitative method used is a case-study. According to Baxter (2021), a case study investigates a small number of cases of a phenomenon to study the in-depth distinctions of the phenomenon, their influences, and explanations. A case study contributes to understanding the larger class of similar units. Therefore, this research also might uncover reasons why tiny house villages have not been implemented on a large scale in the Netherlands.

#### 3.2 *Data Collection Methods and Analysis*

Personal judgement determined the possible interviewees, causing the usage of judgmental or purposeful sampling for the recruitment of participants. Furthermore, snowball sampling was applied as a participant referred to another participant. This candidate was contacted and interviewed. A study indicated the municipalities with developing tiny house projects and determined the relevant ones for this research. Emails were sent to the municipalities and the appropriate people were identified by the municipalities. An overview of the interviewees can be obtained in table 1.

| <b>Pseudonym Participant</b> | <b>Function at organization</b>                                  | <b>Duration interview</b> | <b>Date of the interview</b> | <b>Place of interview</b> |
|------------------------------|--|---------------------------|------------------------------|---------------------------|
| <b>Andrea</b>                | Project Manager Housing Initiatives – Province Drenthe           | 54:17 minutes             | 11-04-2024                   | Online via teams          |
| <b>Hilde</b>                 | Policy advisor Housing and Living Environment – Municipality A   | 47:06 minutes             | 30-04-2024                   | Municipal building        |
| <b>Cisca</b>                 | Policy advisor Housing and Living Environment – Municipality A   | 47:06 minutes             | 30-04-2024                   | Municipal building        |
| <b>Guusje</b>                | Policy advisor Environment and Housing – Municipality B          | 37:22 minutes             | 08-05-2024                   | Online via teams          |
| <b>Josefien</b>              | Policy advisor Environment and Cultural History – Municipality C | ± 55 minutes              | 21-05-2024                   | Municipal building        |
| <b>Francine</b>              | Housing Coordinator – Municipality C                             | ± 55 minutes              | 21-05-2024                   | Municipal building        |

Table 1: Overview Interviewees

Table 2 shows that the interviewed municipalities are at different stages regarding the tiny house projects. Due to the unfamiliar process, municipalities that were in the beginning phase of writing the policy were unable to disclose information or to answer interview questions properly. This ensured that the conducted interviews with municipalities further along in the procedure were more comprehensive. Moreover, the unfamiliar process cause uncertainties regarding the statements made as policy documents are being altered and finalized. The interviewed municipalities had no previous experiences with tiny houses. Therefore, the quality of the data is affected and the made conclusions are subject to change.

| <b>Municipality</b> | <b>Population density 2023 (CBS, N.D.)</b>    | <b>Planning Phase Tiny Houses</b>   |
|---------------------|---|---|
| <b>A</b>            | Less than 250 inhabitants per km <sup>2</sup> | Writing policy on tiny houses and have done a survey to uncover interest of inhabitants.    |
| <b>B</b>            | 250 to 500 inhabitants per km <sup>2</sup>    | Writing policy on tiny houses and searching for a suitable location for tiny house project. |
| <b>C</b>            | Less than 250 inhabitants per km <sup>2</sup> | Will write policy after tiny house pilot and has determined a location for a pilot.         |

*Table 2: Characteristics Interviewed Municipalities*

The conducted interviews were transcribed based on the recordings or handwritten notes. The transcripts were reviewed, relevant categories were grouped, and themes were constructed. These codes were applied to the transcripts to generate an overview and to facilitate analysis in Atlas.ti. Appendix 5 demonstrates the used coding scheme, constructed through inductive and deductive methods as the codes were devised from theory and interviews. After coding the transcript, the interviews were analyzed and relationships between the themes were determined. The results were incorporated into the research findings.

### *3.3 Ethical Considerations*

Concerning the ethical aspects of the research a consent form was constructed, safeguarding the rights of the interviewees. This form is displayed in appendix 3 and 4. The form covered the extent to which the interviewee wished to remain anonymous, whether the interview may be recorded, and clarified the interviewee their right to stop the interview at any moment. One municipality indicated their preference for their responses to be untraceable. As a result, the municipalities and interviewees were anonymized using pseudonyms. Furthermore, one out of four interviews were not allowed to be recorded. Hence, handwritten notes were taken and used to perform the analyses. Therefore, the exact duration of that interview is unknown. During the research the data is stored on the researcher their laptop in the iCloud. Both the laptop and the document were be secured. After completion of the research, the data will be stored for three months. Ultimately, the data will be deleted.

## 4. Results

### 4.1 *Rationale Tiny Houses*

The interview with Andrea of the province uncovered the age group of tiny houses residents. The individuals are older than the age group of starters and are in possession of a home. In a survey to uncover the demand for tiny houses, municipality A discovered a majority of interested residents in the category 55-75 years, although the share of the 18-35 group was of similar significance. In municipality B, the interested parties are characterized in the 25-45 age category, while municipality C notes a mixture of different age groups. These observations contradict the statement of Shearer et al. (2018), claiming that the potential inhabitants are mostly over 40. In contrast, the household composition is a common feature amongst municipalities. Singles and couples express their willingness to live in tiny houses.

Wanting to live sustainably or against low-cost are the important motivations as seen in the theory read according to Andrea. In municipality A sustainability is often referred to, as residents emphasize their desire for self-sufficient living. However, the results of their survey indicated that residents are not keen on the social aspect in the form of community spaces, such as community gardens or food forests. Regarding the age-group of 55-75 years, the assumption is made by Hilde and Cisca of municipality A, that tiny houses function as an opportunity to live smaller. In contrast, in municipality B and C the community feeling is a distinct motivator to inhabit tiny houses, which is consistent with the literature of Boeckermann et al. (2018). Shared spaces are a requirement of the initiative group of municipality B as this group aims to reduce environmental impacts through tiny houses. Furthermore, tiny house villages enable the creation of communities. Through the communal facilities and the shared ideology of residents within tiny house villages, communities emerge. Besides, the ideological motivation to reduce ecological footprint is appointed to in every interview. Therefore, the social and environmental principles of ESG can be recognized in tiny houses villages.

### 4.2 *Affordability*

According to the interviewees, a false assumption exists that tiny houses are of low-cost. Andrea explains that the execution of tiny houses in its purest form requires large plots of land to be able to cultivate crops. Additionally, as the land needs to be zoned residential, it is accompanied with high costs. Shearer et al. (2018) claim that purchasing land is not a requirement, allowing to keep the costs of tiny houses low. In contrast, tiny house communities in Drenthe are compelled to purchase the land regardless the length of the permit, causing a rise in expenses. Other costs, including utilities, furnishing, decorating, and establishing a community garden led to even higher expenses as stated by Guusje from municipality B:

*'You quickly spend one and a half tons for a tiny house and then you don't even have any furnishings or anything like that. You then also must buy the land, decorate the site, and install utilities, which adds up to a reasonable price before you actually live in a tiny house.'*

Therefore, the statement of Saiz (2023), claiming that smaller units decrease the construction costs might be true, but the peripheral issues generate high costs. Although stricter regulations occur for sustainability, there are no guidelines constructed by the municipalities related to the

expenses of tiny houses, even though the national government emphasizes affordability. The municipalities do not perceive tiny houses as an economic viable option. Therefore, there are no existing subsidies to enhance the implementation of tiny dwellings. However, the costs vary between forms of tiny houses. For example, an off-grid tiny house does not require an investment in utilities. Moreover, omitting the option of collectively cultivating produce can decrease expenses as smaller plots of land are required. Eliminating certain aspects allow the residents to decrease their expenses. Furthermore, tiny house villages tend to be located on the outskirts of the cities or towns. Primarily, the scarcity of available land in the inner cities is the foremost reason, but it can also be economically advantageous as prices tend to be lower on the outskirts in accordance with the research of Alonso (1960). Nevertheless, while this research uncovered that tiny houses are less affordable than anticipated, the expenses of tiny houses do remain lower than the average new-build homes. Cisca of municipality A states:

*'We stand with positive attitude, because we also think that it can add to our housing supply. More flexible houses, because it is a temporary format, and it can be appealing to target groups who have less to spend.'*

While tiny houses get promoted as an affordable solution, this is not anticipated. Conversely, municipalities stress the addition of a new housing form. The municipalities observe demand for this distinct housing form and aim to facilitate it.

The interviewed municipalities tend to temporarily permit the parcels to tiny house initiatives. This condones the ability of residents to obtain loans for tiny houses. According to Andrea, a method to reduce costs is by forming a Collective Private Commissioning. A group of initiators wanting to build houses for themselves form a CPC to develop a self-constructed plan. However, this plan will be constructed without a property developer. As a result, the costs of building a new home can be reduced by 11%. CPC's can be involved in various forms of new-build houses, as well as tiny houses. Through forming a CPC and constructing a tiny house village within your own group is a solution to reduce expenses. The tiny house initiative group of municipality B and C are required to unite in a CPC.

### *4.3 Sustainability*

The policies on tiny houses will have an amplified focus on sustainability compared to affordability. According to Hilde and Cisca of municipality A, the policy will address self-sufficient tiny houses. The tiny houses in that municipality are likely to be fully or partially off-grid. Moreover, as possible residents indicate their desire to reduce their footprint, the expectation is that occupants would make their homes sustainable despite possible policy requirements. Additionally, municipality B constructs a policy with a requirement for the usage of sustainable materials.

To ensure reduced environmental impacts, the residents their behavior must conform to the sustainable aspects of the little homes. As stated before, the construction of tiny houses frequently occurs on the outskirts of the town, resulting in an increased car use and a rise in emissions. Between municipalities this issue is addressed differently. One municipality handles

this matter by implementing shared cars, whereas the other aims to focus on the normal parking standard equivalent to new-build projects. Furthermore, the location is not assessed on its proximity to public transport. Another municipality indicated their willingness to connect public transport to the tiny house village after realization. Nevertheless, as Drenthe exists of rural municipalities this requirement to consider sustainable transport methods might be difficult to realize.

Municipalities lean towards zoning locations temporarily for tiny houses, causing reduced investments by residents. According to Guusje from municipality B, residents are reluctant to invest in enhancing sustainability of their properties due to the uncertainty of not residing permanently at the site or the tiny home. Such an approach leads to the diminishing sustainability aspect of the tiny houses as sustainability practices are not fully implemented as seen in the literature of Shearer and Burton (2019).

#### *4.4 Barriers Implementing Tiny Houses*

##### *4.4.1 Failing Projects*

In the province of Drenthe tiny houses appear to be relatively new. The municipalities are constructing policies on this concept, and few have been constructed. Proposals to implement tiny house projects have been created, but frequently prove to be unsuccessful. According to Andrea of the province Drenthe, misconceptions on tiny houses are the underlying cause. Stakeholders are unaware what the housing form entails. A general assumption is that the little homes are low-cost, or stakeholders leave out the environmental aspect, resulting in noncorresponding requirements of other stakeholders. The projects that complete construction phase are initiated with the ambition to live sustainably. Projects started from the affordability perspective, encounter the less affordable aspect of tiny houses, causing the project to fail. Additionally, Andrea stresses municipalities wanting to facilitate tiny houses, but proposing a location unfitted for tiny houses, such as locations close to a highway, a temporary location or land unable to grow crops. Overall, false expectations from various parties and unfitting aspects akin to tiny houses ensure the failure of tiny house projects.

##### *4.4.2 Complications*

Legislative barriers delay projects due to unfamiliarity and inertness according to Smith and Wiek (2012), which was also evident in this study. Policies are being constructed, resulting in lengthy processes of several years. Municipality B has been coordinating a tiny house project for a period longer than two years and policy has to be created. Due to its novelty, regulations are not set to allow tiny houses. Firstly, existing regulations determine a minimum area that must be built on the residential plot. Furthermore, land is parceled out, not allowing the construction of multiple houses on a residential plot. Hence, transformations in regulations are necessitated. Additionally, whether parcels are temporarily or permanently available for tiny houses determines the length of the process. For permanent residency adjustment of the environmental plan is compulsory, which involves longer processes. However, as stated before, temporary residency results in increasing difficulty for residents to acquire a loan. Nevertheless, sites for tiny houses are regularly licensed on a temporary basis. The motivation is explained by Guusje:



*'I think that most locations only get permitted temporary for tiny houses, because it is still such a new housing form, and it is difficult to estimate how attractive it will remain in the future.'*

Besides, municipality B and C mentioned that tiny houses are not the priority of municipalities. The primary concern is affordable housing due to the residential crisis. This in combination with the long processes of tiny house projects, ensures that tiny houses have no precedence. Thus, the main complications of implementing tiny houses are generated by governance. Therefore, governance hinders the development of sustainable places as encountered in the literature of Saiz (2023) and Teixeira Dias et al. (2023). Another complexity is finding a suitable location. Equally to other new-build projects the location needs to be tested against the environmental aspects. The tests include a soil survey, an assessment on noise pollution and protected flora and fauna and the suitability of the plans within the public housing task. Parcels that traditionally will not allow construction, such as close to industrial sites and highways, are automatically excluded, resulting in limited available plots for tiny house villages. Furthermore, tiny houses require large plots of land and infill locations appear scarce. If locations are found, tiny houses do not integrate with the surroundings due to its different structure.

Tiny houses appear to attract specific household compositions. According to Guusje, not everyone is willing or able to live in little houses, as living comfort would diminish. Furthermore, the residents are keen on implementing eco-friendly ideology. These factors prove that tiny houses are not beneficial to a large group, reducing the demand for tiny houses and complicating the implementation of tiny houses on large scale. Even though tiny houses are a good addition to the housing market, tiny houses are unfitted to have a significant impact on the housing crisis.

#### *4.5 Combining Affordability and Sustainability*

Given the experiences from the policy perspective, tiny houses are restricted in providing the solution in combining sustainability and affordability. The municipalities are not imposing strict requirements on the sustainability or affordability of tiny houses. According to the municipalities, the aspects are combinable to an extent as residents are responsible for the degree of sustainability and affordability. Stated by the interviewed municipalities the solution to combining the concepts is through literal small houses or bungalows, such as flex-houses. Due to its eco-friendly construction, these dwellings are similar to tiny houses. However, flex-houses do not require large plots for communal facilities and the residents have a less ecological incentive. To respond to the residential crisis, houses of smaller size are needed. Omitting the requirement for large parcels and allowing for denser and more efficient land use is in line with the literature of Monroy et al. (2020) in achieving affordable and sustainable housing.

## 5. Conclusion

This research attempts to answer the question: *What are the experiences of policymakers regarding tiny housing projects with respect to affordability and sustainability in Drenthe, The Netherlands?*. Contrary to the expectation, the main conclusion of this research is that tiny houses are not the remedy in combining sustainability and affordability. Tiny dwellings appear not to be as affordable anticipated as the dwellings require large plots of land causing an increase in expenses. Further, utilities, furnishing, decorating the land are other practices driving up the price. The sustainability aspect can be realized through tiny houses. Residents are interested in self-sufficient residency and cultivating their own products. According to the interviewed municipalities the solution to combining sustainability and affordability is through literal small houses, as these can be constructed more intensively and efficiently.

This research showed that governance is the main obstacle to implement tiny houses. In Drenthe the concept of tiny dwellings is relatively new resulting in unfitting regulations and non-existing policies. Therefore, this ensures that governance prevents the creation of sustainable places. Nevertheless, the expectation is once policy is constructed, and current regulations have undergone changes, it will facilitate the implementation of tiny houses. The other principles of ESG can also be retraced. Municipalities tend to focus on the sustainable aspect of tiny houses in their policies compared to the affordable aspect. Furthermore, the social principle is reflected in the communal facilities.

### 5.1 *Recommendation*

Collaboration and communication are essential in designing successful tiny house projects. This study identified that the failure of tiny house projects is generated by mismatched expectations among the involved parties. Through a bottom-up approach including possible residents in the policy making process, clarity is ensured on the wishes of the residents and the policymakers. Especially, since the distinct ideology behind tiny houses needs to be reflected in the policy. Furthermore, the transparency results in trust and patience of possible residents. Not only collaborating with the demand side can ensure success, but also with other municipalities. Several municipalities are involved in tiny house projects, but all municipalities are at different stages of the process. Learning from other municipalities their experiences and policies can contribute to succeeding projects. Without collaboration and communication, policies arise unfitted for the demand.

### 5.2 *Reflection*

The original plan for this research was to perform a case-study on the experiences of stakeholders from the demand, supply, and policy side in Borger. However, low responses from the demand and the supply side were experienced. This necessitated alteration of the research plan to exclusively the policy side and a broadening of the scope to the province of Drenthe. Due to the limited available time, no other stakeholders in other regions of the demand and supply side were contacted. Changing the plan in the limited available time might have had a negative impact on the results, as fewer interviews were conducted than planned. This may also have resulted in less depth of the results, as various interviews had already taken place.

As previously mentioned, limitations were experienced regarding the interviewed municipalities. The interviewed municipalities were at different stages in the tiny house planning process, resulting in participants unable to answer questions precisely. Because it is a relatively new concept in the province, the policy and process are still unknown and subject to change. As a result, the interviewees' answers and the made conclusions may alter as they proceed through the process, affecting the quality of the data.

### *5.3 Future Research*

For future research, multiple suggestions can be made. The first suggestion is the evolution of policy on tiny houses. Municipalities are introduced to tiny houses and try to realize them. During this process other unseen circumstances can be encountered which necessitate alteration of policy. Studying these processes and the reasoning is worthwhile to examine. Another suggestion is the relationship between improved policies on tiny houses and the demand for tiny homes. Currently, policies are developing and few tiny houses are implemented. The creation of policies facilitates the implementation of tiny homes. Therefore, the demand for tiny houses may increase. Lastly, this study was performed in a thinly populated province. Future research could uncover possible differences between the high and low densely populated provinces in the Netherlands.

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## Appendix 1: Interview guide (Dutch)

Voor de start van het interview introduceer ik mezelf. Daarna wordt er aan de geïnterviewden een kleine samenvatting over het onderzoek gegeven en wordt er uitgelegd waarom dit onderzoek wordt uitgevoerd. Hierna wordt gevraagd of de geïnterviewde het toestemmingsformulier wil invullen en of er nog vragen zijn vooraf aan het interview. Zodra dit geregeld is, start het interview met de volgende kernvragen:

### Openingsvragen:

Kunt u zich kort voorstellen?

### Ervaringen tiny houses:

Wat was de eerste keer dat u in aanraking kwam met tiny houses met betrekking tot uw werk?

- Wat zijn de hindernissen die jullie ervaren met betrekking tot tiny houses? Wat waren de dingen die wel goed gingen?
- Wat is volgens u een cruciaal onderdeel waardoor tiny house projecten succesvol zijn?
- Wat is uw mening of mening namens de gemeente over tiny houses?
- Wat zijn de voor- en nadelen van tiny houses?
- Wat zijn de motivaties van de mogelijke tiny house bewoners om klein te gaan wonen?

### Afwegingen tiny houses:

Merken jullie dat er nog steeds veel vraag is voor tiny houses?

- Denkt u dat dit zo blijft of zal dit toe of afnemen?
- Zijn tiny houses vooral aantrekkelijk voor een bepaalde groep mensen bijvoorbeeld die minder te besteden hebben, zoals starters of laag-inkomens groepen of ziet u ook andere mensen geïnteresseerd in tiny houses?
- Hebben jullie ook een bepaalde leeftijdsgroep / doelgroep in gedachten als jullie tiny house willen bouwen?

### Regulaties tiny houses:

Wat is het planning proces dat te werking gaat bij tiny houses? En hoeveel tijd gaat daar meestal overheen?

- Aan wat voor regelgevingen moeten tiny houses / de kavel voldoen?
- Wie zijn er allemaal betrokken bij het maken van wetten en het beleid?
- Zijn er maatregelen / wetten / regulaties vanuit de provincie of gemeente die het implementeren van tiny houses bevorderen?
- Waardoor komt dit en is dit de reden dat ze nog niet op grote schaal worden geïmplementeerd?
- Wat belemmert de provincie/gemeente om tiny houses niet verder door te kunnen voeren?
- Aan wat voor een eisen moeten tiny houses en de mogelijke locatie allemaal voldoen?
- Hoe denkt u dat het beleid van tiny houses gaat ontwikkelen? Wat zijn de prioriteiten op dit gebied?



- Hoe verloopt het proces / hoe makkelijk is het om een gebied van bestemming te veranderen?

### **Afweging duurzaamheid en betaalbaarheid:**

Betaalbaarheid en duurzaamheid zijn twee belangrijke concepten als het gaat om tiny houses. Maar vaak kan je de een niet bereiken ten koste van de ander. Hoe gaan jullie hier mee om?

- In hoeverre denkt u dat bij tiny houses of in het algemeen de twee concepten; duurzaamheid en betaalbaarheid te combineren zijn?
- Wat zijn mogelijke oplossingen of manieren om de balans beter te vinden tussen betaalbaarheid en duurzaamheid volgens u?
- Welke van de twee aspecten zijn belangrijker voor jullie als provincie/gemeente?
- In hoeverre denkt u dat tiny houses een rol kunnen spelen in het verminderen van de huizen crisis? Waarom (niet)?
- Tiny houses worden vaak geplaatst aan de rand van steden/dorpen. Is dit een bewuste keuze? En hoe wordt er met het feit om gegaan dat men dan juist vaker de auto pakt en dus het duurzaamheidsaspect verminderd?

### **Afsluitende vragen:**

Is er nog iets wat u kwijt wilt of heeft u vragen voor mij?

- Na het transcriberen van het interview, zou ik de uitwerking opsturen om te kijken of u nog iets wilt veranderen?

Na het stellen van alle vragen, wordt de opname beëindigd. De geïnterviewden worden bedankt voor hun deelname.

Voor elke gemeente zijn ook nog specifieke vragen gecreëerd om een zo goed mogelijk resultaat te krijgen. Deze zijn hieronder beschreven.

### ***Casestudy Gemeente A:***

- Waarom is ervoor gekozen om de term kleine bungalows te gebruiken in plaats van tiny houses in het gemaakte beleid?
- Waardoor is het tiny house project dat in de gemeente liep spaak gelopen?
- Denkt u dat tiny houses aan het keurmerk van de gemeente kunnen bijdragen of brengen ze deze juist in gevaar?

### ***Casestudy Gemeente B:***

- Hoever zijn jullie nu in het proces?
- Wat heeft tot nu toe het meeste tijd gekost in het proces?
- In 2020 was een tiny house project hier afgeblazen. De redenen waren toch te weinig animo in verband met de toch relatief hoge prijzen en de locatie was niet geschikt. Hoe zorgen jullie ervoor dat dat deze keer niet nog een keer gebeurt?

- Hoe komt het dat er toch weer een nieuw tiny house project is gestart nadat een voorgaande was stopgezet? Had dat te maken met enthousiaste mogelijke bewoners of kwam dat toch vanuit de gemeente?
- Ook stond er dat de regelgeving tiny houses niet toe liet? Wat wordt hiermee bedoelt en wat hebben jullie verandert om het implementeren van tiny houses toe te laten?

***Casestudy Gemeente C:***

- Hoelang zijn jullie al bezig met het tiny house project?
- Wat heeft tot nu toe het meeste tijd gekost in het proces?
- Op wat voor soort tiny houses focussen jullie?
- Is deze initiatiefgroep de eerste groep die belangstelling toont voor tiny houses of is dat al vaker voorgekomen in de gemeente?
- Zijn jullie al belangstellenden verloren vanwege de meestal lange processen van tiny house projecten?
- Op een gegeven moment werd er een andere locatie voorgesteld voor de tiny houses. Wat waren de redenen hierachter?
- Waarom is ervoor gekozen om geen eis te stellen aan afkomst, dus dat de bewoners uit de gemeente moesten komen?
- Wat zijn de reacties van omwonenden nu jullie een definitieve locatie aangewezen hebben?
- Hoelang duurt het nog volgens jullie voordat de eerste huisjes geplaatst kunnen worden?

## **Appendix 2: Interview guide (English)**

The Dutch interview guide has been translated by AI and checked on mistakes.

Before the start of the interview, I will introduce myself. Subsequently, a brief summary of the research will be provided to the interviewees, explaining why this research is being conducted. Then, they will be asked if they would like to fill out the consent form and if they have any questions before the interview. Once this is arranged, the interview will commence with the following core questions:

### **Introducing questions:**

Can you briefly introduce yourself?

### **Experiences with Tiny Houses:**

What was the first instance you encountered tiny houses in relation to your work?

- What obstacles have you encountered regarding tiny houses? What were the aspects that went well?
- In your opinion, what is a crucial component for the success of tiny house projects?
- What is your opinion, or the opinion on behalf of the municipality, regarding tiny houses?
- What are the pros and cons of tiny houses?
- What are the motivations of potential tiny house residents to live in tiny houses?

### **Considerations for Tiny Houses:**

Do you notice that there is still high demand for tiny houses?

- Do you think this demand will remain the same, increase, or decrease?
- Are tiny houses mainly attractive to a specific group of people, such as those with lower incomes like starters or low-income groups, or do you also see interest from other demographics?
- Do you have a particular age group/target audience in mind when considering building tiny houses?

### **Regulations for Tiny Houses:**

What is the planning process involved in tiny houses, and how much time does it usually take?

- What regulations must tiny houses/parcel adhere to?
- Who are involved in creating laws and policies?
- Are there measures/laws/regulations from the province or municipality that promote the implementation of tiny houses?
- What impedes the province/municipality from further implementing tiny houses?
- What requirements must tiny houses and potential locations meet?
- How do you think the policy for tiny houses will develop? What are the priorities in this area?
- How does the process/go about changing a designated area?

### **Trade-off Sustainability and Affordability:**

Affordability and sustainability are two crucial concepts when it comes to tiny houses. However, often, you cannot achieve one without sacrificing the other. How do you deal with this?

- To what extent do you think the two concepts; sustainability and affordability, can be combined in tiny houses or in general?
- What are possible solutions or ways to achieve a better balance between affordability and sustainability, in your opinion?
- Which of the two aspects are more important to you as a province/municipality?
- To what extent do you think tiny houses can play a role in reducing the housing crisis? Why (or why not)?
- Tiny houses are often placed on the outskirts of cities/towns. Is this a deliberate choice? And how is the fact that people tend to use cars more often addressed, thus reducing the sustainability aspect?

### **Closing Questions:**

Is there anything else you would like to add or any questions you have for me?

- After transcribing the interview, would you like to review the transcript to see if any changes are needed?

After asking all questions, the recording will be terminated. The interviewees will be thanked for their participation.

Specific questions were also created for each municipality to get the best possible result. These are described below.

### ***Case study Municipality A:***

- Why was it chosen to use the term small bungalows instead of tiny houses in the policy made?
- What caused the tiny house project that ran in the municipality to fail?
- Do you think tiny houses can contribute to the municipality's seal of approval or do they actually jeopardize it?

### ***Case study Municipality B:***

- On the news, things have been fairly quiet about the tiny house project in Emmen. How far are you now in the process?
- What has taken the most time in the process so far?
- In 2020, a tiny house project here had been called off. The reasons were too little enthusiasm due to the relatively high prices and the location was not suitable. How do you make sure that doesn't happen again this time?
- How come a new tiny house project was started after a previous one was cancelled? Was that due to enthusiastic potential residents or did it come from the municipality after all?

- It also said that regulations did not allow tiny houses. What is meant by this and what have you changed to allow the implementation of tiny houses?

***Case study Municipality C:***

- How long have you been working on the tiny house project?
- What has taken the most time in the process so far?
- What kind of tiny houses are you focusing on?
- Is this initiative group the first group to show interest in tiny houses or has this already happened before in the municipality?
- Have you lost any interested parties because of the usually long processes of tiny house projects?
- At one point, another location was proposed for the tiny houses. What were the reasons behind this?
- Why was it chosen not to have a requirement of origin, i.e. that the residents had to come from the municipality?
- What are the reactions of local residents now that you have designated a final location?
- How long do you think it will take before the first houses can be placed?

**Appendix 3: Consent form interview (English)**

university of  
 groningen

faculty of spatial sciences

research ethics committee

**Information sheet – Research Ethics Committee (REC)**

For research project:

Title: Sustainable and Affordable? A research on tiny house projects in Drenthe.

Subtitle: How sustainability and affordability can be achieved at the same time.

Thank you very much for taking the time to consider getting involved in my research project.

Nowadays, affordability and sustainability are pressing issues due to climate change, and the increasing house prices. When implementing sustainability measures, house prices often increase even more, while the demand for affordable housing is increasing. Both concepts thus seem hard to combine. Tiny houses are dwellings that seem to bring the two concepts together and in countries as the United States of America and Australia, tiny houses have been implemented a lot. However, in the Netherlands, this trend seems to lag behind. This research aims to find the reason why tiny houses have not been implemented on large scale in the Netherlands, which barriers are found, and to what extent tiny houses can actually combine the two concepts. The research is being conducted in Drenthe, as several tiny house projects are going on there.

**Confidentiality and participant rights**

- The interviews will be audio-recorded and notes will be taken during the interview.
- You have the right to ask to have the recording turned off whenever you decide and you may also end the interview at any time.
- If you wish so you will be sent a copy of the interview notes, and you will have the opportunity to make corrections or request the erasure of any materials you do not wish to be used.
- The information you provide will be kept confidentially in a locked facility or in a password protected file on my computer up to 3 months upon completion of my research.
- The main use of the information you provide will help me towards my bachelor thesis, which upon completion will publicly be available on the internet.
- The data may also be used for articles, book chapters, published and unpublished work and presentations.
- The data will only be accessible to the supervisor of the research project and the researcher.
- Unless you have given explicit permission to do so, personal names or any other information which would serve to identify you as an informant will not be included in this research or in any future publication or reports resulting from this project.

As a participant you have the right to:

- Decline to participate;
- Decline to answer any particular question;
- Ask for the audio-recorder to be turned off at any time;
- End the interview at any time
- Withdraw from the study up until the moment the research has been published;
- Ask any questions about the study at any time during participation; and
- Ask for the erasure of any materials you do not wish to be used in any reports of this study.

Once again we thank you for taking the time to find out more about our research. We are at your disposal for any questions you might have. You can also contact my supervisors at the address below.

Yours sincerely,

Marjolein Elders

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|---|--|
| <b>Researchers contact details :</b> <ul style="list-style-type: none"><li>• <a href="mailto:m.a.h.elders@student.rug.nl">m.a.h.elders@student.rug.nl</a></li></ul> | <b>Main Supervisor contact details:</b> <ul style="list-style-type: none"><li>• <a href="mailto:Mark.van.duijn@rug.nl">Mark.van.duijn@rug.nl</a></li></ul> |
|---|--|

This research project has been approved by the Research Ethics Committee of the Faculty of Spatial Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee Ms. Tineke Dijkman: email: [gradschool.fss@rug.nl](mailto:gradschool.fss@rug.nl) Physical address: Faculty of Spatial Sciences, University of Groningen, Landleven 1, 9747 AD Groningen, The Netherlands.



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### **Agreement to participate - Research Ethics Committee (REC)**

in research project:

Title: Sustainable and Affordable? A research on tiny house projects in Drenthe.

Subtitle: How sustainability and affordability can be achieved at the same time.

The purpose of this research is to find out whether both the affordability and sustainability aspects can be achieved at the same time in housing.

- I have read and I understand the information sheet of this present research project.
- I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.
- I understand that taking part in this study is voluntary and that I have the right to withdraw from the study until the moment that the study has been published, and to decline to answer any individual questions in the study.
- I understand that my participation in this study is confidential. Without my prior consent, no material, which could identify me will be used in any reports generated from this study.
- I understand that this data may also be used in articles, book chapters, published and unpublished work and presentations.
- I understand that all information I provide will be kept confidentially either in a locked facility or as a password protected encrypted file on a password protected computer.

Please circle YES or NO to each of the following:

I consent to my interview being audio-recorded YES / NO

I wish to remain anonymous for this research YES / NO

**If YES**

My first name can be used for this research YES / NO

**OR**

A pseudonym of my own choosing can be used in this research YES / NO

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

Signature of participant: \_\_\_\_\_ Date: \_\_\_\_\_

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

Signature of researcher: \_\_\_\_\_ Date: \_\_\_\_\_

Please fill in the following information. It will only be used in case you want to be sent a copy of interview notes so that you have the opportunity to make corrections.

Address: \_\_\_\_\_

E-mail: \_\_\_\_\_



**Appendix 4: Consent form (Dutch)**

The consent form has been translated by AI and checked on mistakes.



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**Informatieblad - Onderzoekscommissie Ethiek (REC)**

Voor onderzoeksproject:

Titel: Duurzaam en Betaalbaar? Een onderzoek naar tiny house projecten in Drenthe.

Subtitel: Hoe duurzaamheid en betaalbaarheid tegelijkertijd kunnen worden bereikt.

Dank u wel voor uw tijd om mee te willen doen met mijn onderzoeksproject.

Tegenwoordig zijn betaalbaarheid en duurzaamheid urgente kwesties vanwege klimaatverandering en de stijgende huizenprijzen. Bij het invoeren van duurzaamheidsmaatregelen stijgen vaak de huizenprijzen nog meer, terwijl de vraag naar betaalbare huisvesting toeneemt. Beide concepten lijken dus moeilijk te combineren. Tiny houses zijn woningen die de twee concepten lijken te verenigen. In landen als de Verenigde Staten van Amerika en Australië zijn tiny houses al veel geïmplementeerd. Echter, in Nederland lijkt deze trend achter te blijven. Dit onderzoek heeft het doel te achterhalen waarom tiny houses nog niet op grote schaal zijn geïmplementeerd in Nederland, welke hindernissen er zijn en in hoeverre tiny houses daadwerkelijk de twee concepten kunnen combineren. Het onderzoek wordt uitgevoerd in Drenthe, waar verscheidene tiny house-projecten plaatsvinden.

**Vertrouwelijkheid en rechten van deelnemers**

- De interviews worden opgenomen en er worden aantekeningen gemaakt tijdens het interview.
- U heeft het recht te vragen om de opname uit te zetten wanneer u dat besluit en u mag het interview ook op elk moment beëindigen.
- Als u dat wenst, ontvangt u een kopie van de interviewaantekeningen en krijgt u de mogelijkheid om correcties aan te brengen of te verzoeken om het wissen van materialen die u niet wilt laten gebruiken.
- De door u verstrekte informatie wordt vertrouwelijk bewaard in een afgesloten ruimte of in een met een wachtwoord beveiligd bestand op mijn computer tot 3 maanden na voltooiing van mijn onderzoek.
- Het belangrijkste gebruik van de door u verstrekte informatie zal mij helpen bij mijn bachelor project, die na voltooiing openbaar beschikbaar zal zijn op internet.
- De gegevens kunnen ook worden gebruikt voor artikelen, hoofdstukken in boeken, gepubliceerd en ongepubliceerd werk en presentaties.
- De gegevens is alleen toegankelijk voor de begeleider van dit onderzoek en de onderzoeker zelf.
- Tenzij u expliciete toestemming heeft gegeven, worden persoonlijke namen of andere informatie die zou dienen om u als informant te identificeren, niet opgenomen in dit onderzoek of in toekomstige publicaties of rapporten die voortvloeien uit dit project.

Als deelnemer heeft u het recht om:

- Weigeren deel te nemen;
- Weigeren een bepaalde vraag te beantwoorden;
- Vragen om de audio-opname op elk moment uit te zetten;
- Het interview op elk moment beëindigen;
- U terugtrekken uit het onderzoek tot het moment dat het onderzoek is gepubliceerd;
- Op elk moment tijdens deelname vragen stellen over het onderzoek; en

- Verzoeken om het wissen van materialen die u niet wilt laten gebruiken in enige verslagen van dit onderzoek.

Nogmaals dank ik u voor uw tijd om meer te weten te komen over ons onderzoek. Ik sta tot uw beschikking voor eventuele vragen die u heeft. U kunt ook contact opnemen met mijn begeleiders op het onderstaande adres.

Met vriendelijke groet,

Marjolein Elders

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|--|--|
| <b>Contact gegevens onderzoeker :</b> <ul style="list-style-type: none"><li>• <a href="mailto:m.a.h.elders@student.rug.nl">m.a.h.elders@student.rug.nl</a></li></ul> | <b>Contact gegevens begeleider:</b> <ul style="list-style-type: none"><li>• <a href="mailto:Mark.van.duijn@rug.nl">Mark.van.duijn@rug.nl</a></li></ul> |
|--|--|

Dit onderzoeksprogramma is goed gekeurd door de Onderzoekscommissie Ethiek van de faculteit Ruimtelijke Wetenschappen. Vragen over de ethische uitvoering van dit onderzoek kunnen worden gericht aan de secretaris van de Commissie mevr. Tineke Dijkman: email: [gradschool.fss@rug.nl](mailto:gradschool.fss@rug.nl). Fysiek adres: Faculteit Ruimtelijke Wetenschappen, Rijksuniversiteit Groningen, Landleven 1, 9747 AD Groningen, Nederland.



### Overeenkomst tot deelname - Onderzoekscommissie Ethiek (REC)

In onderzoeksproject:

Titel: Duurzaam en Betaalbaar? Een onderzoek naar tiny house projecten in Drenthe.

Subtitel: Hoe duurzaamheid en betaalbaarheid tegelijkertijd kunnen worden bereikt.

Het doel van dit onderzoek is om vast te stellen of zowel de betaalbaarheid als duurzaamheidsaspecten tegelijkertijd kunnen worden bereikt in huisvesting.

- Ik heb het informatieblad van dit onderzoeksproject gelezen en begrepen.
- Ik heb de gelegenheid gehad om dit onderzoek te bespreken. Ik ben tevreden met de antwoorden die ik heb gekregen.
- Ik begrijp dat deelname aan dit onderzoek vrijwillig is en dat ik het recht heb om mij terug te trekken uit het onderzoek tot het moment dat het onderzoek is gepubliceerd, en het recht heb om individuele vragen in het onderzoek te weigeren om te beantwoorden.
- Ik begrijp dat mijn deelname aan dit onderzoek vertrouwelijk is. Zonder mijn voorafgaande toestemming zal geen materiaal dat mij zou kunnen identificeren, worden gebruikt in enige rapporten die voortvloeien uit dit onderzoek.
- Ik begrijp dat deze gegevens ook kunnen worden gebruikt in artikelen, hoofdstukken in boeken, gepubliceerd en ongepubliceerd werk en presentaties.
- Ik begrijp dat alle informatie die ik verstrek vertrouwelijk zal worden bewaard, hetzij in een afgesloten faciliteit, hetzij als een met een wachtwoord beveiligd versleuteld bestand op een met een wachtwoord beveiligde computer.

Gelieve JA of NEE aan te geven bij elk van de volgende:

Ik stem ermee in dat mijn interview wordt opgenomen JA / NEE

Ik wens anoniem te blijven voor dit onderzoek JA / NEE

**Indien JA**

Mijn voornaam mag worden gebruikt voor dit onderzoek JA / NEE

**OF**

Een pseudoniem naar eigen keuze mag worden gebruikt voor dit onderzoek JA / NEE

**"Ik stem ermee in om deel te nemen aan dit individuele interview en erken de ontvangst van een kopie van dit toestemmingsformulier en het informatieblad van het onderzoeksproject."**

Handtekening deelnemer: \_\_\_\_\_ Datum: \_\_\_\_\_

**"Ik stem ermee in om mij te houden aan de voorwaarden zoals uiteengezet in het informatieblad en ik garandeer dat er geen schade zal worden toegebracht aan enige deelnemer tijdens dit onderzoek."**

Handtekening onderzoeker: \_\_\_\_\_ Datum: \_\_\_\_\_

Vul alstublieft de volgende informatie in. Het zal alleen worden gebruikt in het geval dat u een kopie van de interviewaantekeningen wilt ontvangen, zodat u de gelegenheid heeft om correcties aan te brengen.

Adres: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Appendix 5: Code tree**

The code tree used to analyze the interviews were based on the principles of ESG. The code tree can be found below.

