



Master of Facility & Real Estate Management

Title assignment	: Added values of citizens' initiatives
Name module/course code	: Master Thesis
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Full-time / Part-time	: Full-time
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Academic year	: 2019-2020
Date	: 17-06-2020
Word count	: 20.275

Added values of citizens' initiatives

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MASTER FACILITY AND REAL ESTATE MANAGEMENT

SAXION UNIVERSITY OF APPLIED SCIENCES - UNIVERSITY OF GREENWICH

17-06-2020

**‘The added values of citizens’ initiatives in
a changing Dutch environment during the
energy transition.**

FOREWORD

In front of you lies the master thesis 'Added values of citizens' initiatives during the energy transition in the built environment'. This master thesis means the final product of the course 'Facility and Real Estate Management' (FREM) of the University of Greenwich and Saxion University of Applied Sciences. Finally, I am proud of the results, and hopefully, it is helping hand for new citizens' initiatives or existing citizens' initiatives who are struggling with several aspects. For the society of the Netherlands, it is crucial to have the possibility to come together in societies or communities. Collaboration between citizens in their neighbourhood increases the social cohesion and provides new possibilities for every citizen to share their sustainable solutions or know-how about sustainable measures for existing dwellings. Furthermore, the quality of life increases when people can come together in social houses.

First of all, I want to thank my tutor Adrienn Eros for her support, motivation, providing feedback and trust during my thesis process. Because of a change from my earlier tutor, I was assigned to Adrienn, and I had to share my plan of action and framework again. Adrienn helped me a lot during the thesis process, and I appreciate that. Furthermore, from September 2019 until December 2019, I travelled through South-East Asia, where I feel great about. I learned a lot, and it was a fantastic time. Finally, I came back home, and I started my first full-time job at an organisation. I had a lovely time there, and I learned so many things in almost four months, but unfortunately, I quit the job because of the Coronavirus. After this, I entirely focused myself on the master thesis, and I came to this product.

During the thesis research, I learned a lot about the real estate of dwellings, the citizens' initiatives in the Netherlands, the current energy transition and finally, the impact on the built environment. I am wondering about citizens who are committed to improving their living environment together and add value to their dwellings. As a result, my interest in sustainability has grown more, and I hope I can use it in my work career.

Lastly, I will thank all the respondents for their obtained information and knowhow.

Willem Lendering

Aerd, 17 June 2020

SUMMARY

The current climate change is related to increased CO₂ emission and has a direct impact on the worldwide regulations around sustainability. In the Netherlands, every citizen is considered an added value in the process of reducing CO₂ emission from renewable sources. The current energy transition ensures that citizens ally in initiatives and participate to make the built environment more sustainable. The linkage between the development of regional networks and the raised impact of dwellings and buildings on the CO₂ emissions leads to the added value of a future-proof environment. The collaboration between different parties and the added value of these relationships have an impact on the current built environment. There are multiple examples of citizens' initiatives to reduce CO₂ emissions.

The purpose of this research is focused on the added values of citizens' initiatives in the built environment during the energy transition. This resulted in the following main question.

How can citizens' initiatives related to energy transition add value to the built environment?

To be able to answer the main research question, the research makes use of the qualitative method with conducting interviews. First, a literature review was elaborated to characterise the different concepts of the research. The concepts of the research are **citizens' initiatives**, the **energy transition** and the **built environment**. On the base of the 3 P's (people, planet and prosperity), the three concepts are separately elaborated and, in the end, compared with each other. Besides, interviews were held to obtain a critical and practice-oriented view of the existing problems for citizens. The qualitative data has been analysed by using axial coding with keywords. The research is then supported by the 3 Ps and the "green modified model" to get a clear overview of the three concepts and their relationships.

Dutch citizens collaborate more and more together, and the number of (small) initiatives are increasing. Due to this increasing number of initiatives, the relationship between citizens' initiatives and the (local) government becomes more necessary and creates new possibilities and opportunities. The Dutch government ensure that citizens can participate in an initiative. However, the participation of citizens in initiatives is not always an easy one. Multiple research shows that the willingness of citizens relates to the establishment of initiatives during the energy transition. The way to establish a citizens' initiative goes through two approaches: citizens set up an initiative themselves or the government tries to participate citizens in their initiatives.

The most essential added values of citizens' initiatives on the built environment during the energy transition, the following statements contribute to this according the 3 P's:

1. **People.** The willingness and participation of citizens and the collaboration and trust between citizens and government is essential to implementing initiatives in the built environment;
2. **Planet.** Changing the approach to more sustainable or renewable resources instead of the current greenhouse gas and fossil materials ensures to reduce the CO₂ emission and increases the involvement of citizens in sustainable initiatives
3. **Prosperity.** Stimulating, facilitating and cooperating citizens' initiatives and implementing sustainable measures in the built environment contributes to more added value to the built environment and increased awareness of sustainability in citizens' dwellings.

In this research, many stakeholders are participating and provides a broad scope of the research. Furthermore, the number of citizens' initiatives is overwhelmed, and the purposes of these initiatives are different. This creates a wide range of particular information, and it turns out trying to focus on the necessary data.

Keywords: citizens' initiatives, built environment, energy transition, social sector, transformation

CONTENT

Foreword	3
Summary	4
Content	5
Introduction.....	7
Problem statement.....	7
Research aim.....	8
Relevance.....	8
Scope.....	8
2 Literature review	9
2.1 The triple bottom line	9
2.2 Citizens' initiatives	10
2.2.1 The creation of citizens' initiatives.....	10
2.2.2 Role and regulations of the Dutch government	12
2.2.3 Impact of citizens' initiatives for Dutch government.....	13
2.2.4 Dutch economy.....	16
2.3 Energy transition.....	17
2.3.1 The energy transition and circular economy.....	17
2.3.2 Impact of energy transition	18
2.3.3 Role of Dutch government.....	20
2.3.4 Impact on citizens' initiatives and the energy transition	20
2.4 Built environment.....	22
2.4.1 Impact on existing dwellings	22
2.4.2 Role of the Dutch government	23
2.5 Government approaches	25
2.6 Business models	27
2.7 Tree diagrams	29
3 Research objectives, questions and data collection	30
3.1 Research objective	30
3.2 Research questions	30
3.4 Data collection techniques	31
4 Research method	32
4.1 Research design and strategy	32
4.2 Sampling	32
4.3 Interviews.....	33
4.4 Operationalisation	33
5 Validity and reliability	34
5.1 Validity	34

5.1.1 Construct validity	34
5.1.2 Internal validity	34
5.1.3 External validity	34
5.2 Reliability	34
5.3 Limitations	35
6 Results	37
6.1 Approaches of the three concepts	37
6.1.1 Approaches of citizens' initiatives	37
6.1.2 Approaches of the energy transition	38
6.1.3 Approaches of the built environment	39
6.2 Relationships between the three concepts	40
6.2.1 Relationship between citizens' initiatives and energy transition	40
6.2.2 Relationship between citizens' initiatives and the built environment	41
6.2.3 Relationship between energy transition and the built environment	42
7 Conclusion	43
8 Recommendations	44
8.1 Recommendations for citizens	44
8.2 Recommendations for government	44
8.2 Recommendations for further research	45
References	46
Appendices	65

INTRODUCTION

In 1997 the Kyoto-pact was signed for the coming ten years. This division consisted of the global industrialised countries, and it determined that emissions should be reduced by 2% compared to 1990 (Nijland & Eck, 2004). This pact declared that the increasing worldwide temperature had to be reduced in the coming years. However, this pact also showed that the collaboration between industrialised countries was not on an individual level to reduce the emissions: few countries complied to the regulations of the pact (Soroos, 2001). In 2000 the United States of America decided to reject the pact, and they were all over again (Victor, 2011) (Lisowski, 2002). In 2015 the Paris Agreement was signed by the 21st conference of involved parties (COP-21) to collaborate and reduce CO₂ emission (Falkner, 2016). This agreement was innovative and applicable to most countries and provided a new international climate collaboration. To mark out the agreement for the Netherlands, the Dutch government has to spread out the sustainable goals and indicate where the opportunities are. According to Middlemiss and Parrish, the opportunities depend on the initiatives of citizens with limited power, resources and ability (Middlemiss & Parrish, 2010).

PROBLEM STATEMENT

Countries around the world are focused on the reduction of CO₂ emissions (Sariatli, 2017). The Kyoto-pact is a way to reduce the CO₂ emission and was established in 1997. Since 2015 the Paris Agreement is signed by all countries around the world to hold the global temperature well below 2 degrees Celsius and the limit of 1.5 degrees Celsius (Rogelj, et al., 2016). This agreement derives objectives for the Netherlands, such as carbon emissions budgets, cost efficiency and fairness criteria. To accede to this agreement, the Dutch government conducts a pathway for three situations and different calculations (Vuuren, Boot, Ros, Hof, & Elzen, 2017). Besides that, research about this pathway shows that current measures for reducing the CO₂ emissions do not meet the goal of this purpose from the government (Hotse Smit, 2020). Another approach is suggested to reach the CO₂ reduction and to meet the international agreements (Laarhoven, 2020).

Sustainability becomes essential and urgent for companies and signifies more and more in their daily business. A survey about the relationship between sustainability and companies shows that more than 50 percent of the executives think about sustainability in their business and implement sustainable purposes in their overall business strategy (Bonini, Gerner, & Jones, 2010). Through development in the participation of citizens in sustainability, Dutch regional networks have been developed in recent years. These regional networks are focused on several aspects of sustainability, for instance, energy consumption, waste collection, food production, quality of life and mobility. Each organisation has its way of working to focus on aspects, but there are some similarities between the organisations. The development of these organisations derives from the local and regional level. The development of pluriform forms provides collaboration between participants, which are collaborating in value creation (Kamm, Jonker, & Faber, 2015). Most of these participants benefit from the advantages of regional networks (Sternberg, 2000).

The linkage between the development of regional networks and the raised impact of dwellings and buildings on the CO₂ emissions leads to the added value of a future-proof environment. In the Netherlands, there are multiple examples of citizens' initiatives to reduce CO₂ emissions. A Dutch online platform shares knowledge about citizens' initiatives and what the added values of these citizen initiatives are (HIERopgewekt, 2017). Traditional energy cooperatives existed of enthusiastic citizens of villages with several schemes, but it was tough to prosecute these schemes into reliable schemes. Nowadays, several energy initiatives are developed and become more business-like because determining the schemes becomes more concrete and measurable (Narain & Vries, 2015). These new energy initiatives are an excellent example of the energy transition.

RESEARCH AIM

This research aims to explore what the impact of citizens' initiatives on the built environment is and how the relationship with the energy transition is. The main question for this research is as follows.

How can **citizens' initiatives** related to **energy transition** add value to the **built environment**?

RELEVANCE

The population of the Netherlands is around 17.4 million people, according to the national statistic institution (Centraal Bureau voor Statistiek, 2020). The government expects that Dutch citizens will do more and more in their living environment. A lot of these citizens' initiatives are relevant to the sustainable environment (Kalkbrenner & Roosen, 2016). The current business models are not specified for citizens' initiatives and cause other approaches in the energy transition of the built environment. It is difficult for citizens to set up a successful initiative. Citizens' initiatives are difficult to drive, because of the variety in requirements of the government, financial consequences, different cultures and ethics, continually changing energy transition and many different business models. Nevertheless, there are also a lot of successful citizens' initiatives which add value to the built environment during the energy transition. This research describes the advantages and disadvantages of the citizens' initiatives.

SCOPE

The scope of this research refers to several parameters of the research. It is essential to identify which parameters apply to the research and contribute to the primary domain of the research (Simon & Goes, 2011). To identify these parameters, the range of the research has to be specified and must match the described problem. Afterwards, by matching the parameters with the primary domain of research, a framework within the range of research is provided.

The accepted range of this research consists of three main concepts: citizens' initiatives, the energy transition and the built environment. All three concepts are part of the main question and fit the primary purpose, which is described. The accepted range will be confirmed in the literature review, and all three concepts will be extensively explained. It is essential to understand the three concepts because they have a significant relationship and provide the framework for this research.

The scope of this research focuses on the Netherlands. Outside of the Netherlands, it is not clear what the impact of citizens' initiatives are. Besides, governmental regulations and laws in other countries are different from the current rules and requirements in the Netherlands. At last, the difference in cultures, ethics and interaction between people differs in the other countries.

The scope focuses on citizens' initiatives in the built environment. It will not focus on other initiatives of citizens outside the built environment (for instance, citizens' initiatives in food, sociality or landscape). It provides that the focus is continuously on the built environment.

2 LITERATURE REVIEW

In the introduction appears that this research consists of three concepts: citizens' initiatives, the energy transition and the built environment. Each concept is divided into subjects about the impact of the Dutch society and economy, its relationship with the government and added values in the Netherlands. Afterwards, the governments' regulations are described and will be related to the three concepts. At last, the chosen model is described.

The main question consists of three concepts that are linked to each other. Citizens' initiatives created by a change in social participation. Due to the demand for energy efficiency and more sustainability in the built environment, the energy transition provides new possibilities and challenges for Dutch citizens. Citizens are increasingly participating in sustainable projects from the government or create new initiatives to add value to the built environment. All initiatives take place in the built environment, causing a triangular relationship between the following concepts: citizens' initiatives, the energy transition and the built environment.

2.1 THE TRIPLE BOTTOM LINE

Before the three concepts are explained and elaborated, the three dimensions of the triple bottom line (TBL) are linked to the three concepts: citizens' initiatives, energy transition and the built environment. In the end, the TBL contains a framework to choose the right model and remains a guiding principle through the research.

Citizens and the government are often separately described and contain different views on sustainability and the new sustainable community. Both have to challenge with the energy transition and to follow the course outlined in the built environment (Kemp & Lente, 2011). The involvement of citizens depends on three motivation approaches: economic, ecological and social. These approaches are linked to the TBL, which contains the 3 P's: people, planet and prosperity (Elkington & Rowlands, 1999). Elkington devised to measure the sustainability of organisations and developed the three dimensions. Finally, Elkington recalled his model in 2018 because of the illegal use of the model. The TBL has been reduced to a reporting tool, which is cleverly used by organisations to show how good they are (Elkington, 2018). This recall shows the importance to focus on the promotion of citizens' initiatives and the contribution of citizens during the energy transition. It is not about a tool that is available for every initiative, but the entire experience of an initiative. Finally, the linkage between the three concepts and the TBL is presented.

People, planet and prosperity represent the triple bottom line. People stand for the society (citizens), the planet is related to sustainability (reduction of CO₂ emissions), and prosperity will define the value of dwellings for the society (Slaper & Hall, 2011). According to Van Hal, "the relationship between social cohesion and sustainability (people, planet and profit) is not evident" (Hal & Bueren, 2011). Instead, the relationship between the triple bottom lines and social cohesion can, however, be explained. People and profit are related to real estate; people are associated with social cohesion and planet fits with sustainability. The inner triangle of the TBL belongs to the research about the added values of citizens' initiatives in the built environment during the energy transition.

TBL	Three concepts	Relation
People	Citizens' initiatives	People relate to the social cohesion which is an essential factor of creating citizens' initiatives
Planet	Energy transition	Planet and sustainability are firmly related, and the energy transition is created due to sustainability
Prosperity	Built environment	The built environment is changing to future-proof and contributes to the prosperity of the country

Table 1: TBL related to the concepts

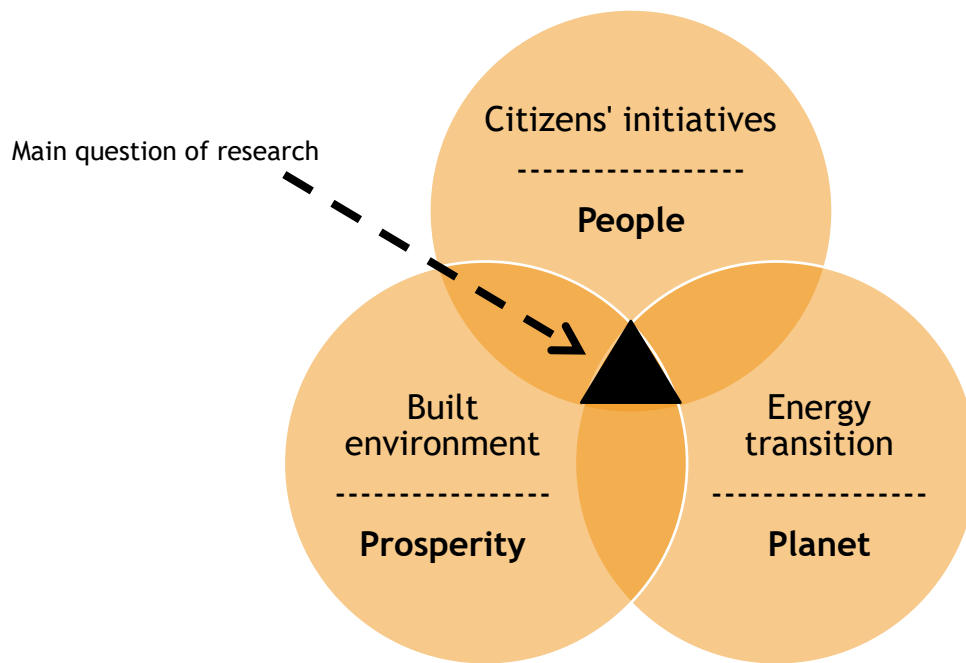


Figure 1: relationship between the concepts and TBL

2.2 CITIZENS' INITIATIVES

Due to the Paris Agreement in 2015, European countries have to decide how to implement these purposes into their economy, daily society and existing regulations. In the Netherlands, it involves substantial problems because of the purpose to reduce the CO₂ emission by 90% to 100% in 2050 (Vuuren, Boot, Ros, Hof, & Elzen, 2017). To achieve this purpose, far-reaching changes have to be implemented in the Dutch energy system, and everybody has to be involved in implementing these changes in the energy system. It occurs a relatively active role for Dutch citizens to achieve the ambitions of the Paris Agreement. A study by Proka et al. shows the increasing demand to induce energy in a commune. A commune is a collaboration between citizens who have the same social goal: reduce the CO₂ emission. These communes arise from a community of people who lives in the same region. Furthermore, this study shows a perspective of more than 40% of Dutch consumers will be involved in these cooperatives (Proka, Hisschemöller, Loorbach, & Overbeke, 2017).

2.2.1 THE CREATION OF CITIZENS' INITIATIVES

Involving citizens in communes are accompanied by the willingness of citizens to be part of the energy transition. The willingness of citizens consists of intrinsic and extrinsic motivation: both motivations inject more information about the behaviour of citizens during engaging citizens in initiatives (McMeekin & Southerton, 2012) (Hellwig, Morhart, Girardin, & Hauser, 2015). Furthermore, the behaviour of citizens differs in specific associations due to an indifference attitude towards those initiatives. Citizens perceive the initiatives positively and speak highly about the initiatives, but these citizens do not undertake any action to get involved in these initiatives (Hamari, Sjöklint, & Ukkonen, 2016). To stimulate citizens, participation in societies and economic benefits are examples of motives for using alternatives (Tussyadiah, 2015). Besides, social cohesion is amongst the participation of citizens by sharing their ambitions and purposes to be more sustainable (Agyeman & McLaren, 2015). Social cohesion is about the degree of binding and network formation in neighbourhoods to improve their environment with initiatives on several subjects (Bovenhoff & Meier, 2015). Social cohesion is divided into three dimensions: participation, trust and integration (Schmeets & Riele, 2014). All three dimensions are linked to the extent to which citizens

are involved in their neighbourhood or a more inclusive environment. The participation of citizens is essential to conserve the social cohesion in cities, but involving new citizens will provide new knowledge and skills to add value to the civil society (Vermeij & Steenbekker, 2015).

With the active participation of citizens', there is a distinction between citizens' participation and citizens' initiatives. The main difference between those concepts is the number of people or organisations which are involved in this participation. Citizens' participation is mostly set up by the government or semi-government organisations (Fitzgerald, et al., 2016). The government is the inventor and decision-maker in the participation of citizens. On the other side, citizens' initiatives are mostly based on small initiatives of citizens, farmers, entrepreneurs, local parties or small organisations (Dam, Salverda, & During, 2011). A commune is a collaboration between citizens who have the same social goal. These communes arise from a community of people who live in the same region. Furthermore, this study shows a perspective of more than 40% of Dutch consumers who will be involved in these cooperatives (Proka, Hisschemöller, Loorbach, & Overbeke, 2017).

The coming together of citizens in their city or neighbourhood is part of the social cohesion and should add values to the built environment in the form of citizens' initiatives during the energy transition. To achieve their purpose, citizens often receive support from the local government (Callahan, 2007). The Dutch government is strongly represented in citizens' initiatives and motivates citizens to think along in the current CO2 reduction strategy (Hoogenboom, 2012). Besides that, citizens' initiatives are developed to take action to solve problems in their community, and Dutch municipalities have adopted policies to facilitate those citizens' initiatives (Bakker, Denter, & Klok, 2011). The development of communes leads to several issues for the government. Furthermore, the initiatives include many customised varieties, and it is difficult to describe one specific definition of citizens' initiatives (Mattijssen, Buijs, Elands, & Dam, 2015). In table two, the different definitions of citizens' initiatives are explained.

DEFINITIONS OF CITIZENS' INITIATIVES

CITIZENS' INITIATIVES	Citizens who voluntarily address an issue they consider important within the public domain rather than waiting or expecting others to take the lead (Oude Vrielink & Verhoeven, 2011).
	Initiatives initiated by the local community or individuals within the local community focus on a specific set of public issues or everyday needs (Igalla & Meerke, 2015).
	Citizens' initiatives are everyday activities of citizens that focus on safeguarding or improving the quality of the public domain (Denters, Bakker, Oude Vrielink, & Boogers, 2013).
	Initiatives contribute to society by citizens. Citizens' initiatives which manifest themselves spatially are interesting for authorities (Dam, Salverda, & During, 2011).
	Informal citizens' initiatives complement governments' activities. These initiatives are the bottom-up initiatives of residents that are currently expected to be high (Haan & Haartsen, 2015).
	Initiatives with less than 20 active members or volunteers with a social purpose, no profit motive, and without professionals or at a certain distance of professionals come into being (Hurenkamp, Tonkens, & Duyvendak, 2015).
	A group of citizens' or individual citizens' who are committed to contributing to (local) society.' (Movisie, 2016).
	A citizens' initiative or social initiative is a non-commercial activity organized and/or carried out by a group of citizens, which takes place in the public domain and which benefits society (Boot, Verhijde, & Bosman, 2013).

Table 2: definitions of the concept 'citizens' initiatives'

The definition of citizens' initiatives is mostly based on a community of citizens who have the same purpose of being more sustainable in their neighbourhood. Those initiatives provide more social value in the neighbourhood or community and are assisted by the government or a lower government agency. Since sustainable development is relatively complex and needs customised skills, organisations can be involved to support these initiatives and transfer their knowledge (Hawkins & Wang, 2011). As a result, the collaboration between citizens and organisations is more and more presented and provides new insights for citizens to operate with several stakeholders. It is essential to separate initiatives from organisations: initiatives are focused on own interests and ideas about the environment or neighbourhood and established for a broad perspective with a common goal. Furthermore, initiatives are the first step in a project with the hope that it will continue. After this, initiatives can provide new projects for organisations and purposes for the strategy of organisations (Rotmans, 2012). Besides, these initiatives provide new insights into the process of those projects.

While citizens and the government agencies are collaborating to add value to their environment, the decision-making process needs to be specified and subdivided for the concerned stakeholders. According to Edelenbos and Monnikhof, the participation of citizens and the policy of the board are strongly related during the process (Edelenbos, Teisman, & Reuding, 2001). A more modern model for the participation of citizens is based on three different generations of participation (Oude Vrielink & Wijdeven, 2011). The third generation of participation is related to citizens' initiatives and the involvement of citizens and active attitude of citizens. Regularly, the citizens adapt to governments' regulations, but in this generation, the roles are changed. In this case, the government adapts to the activities of citizens while they create added value to the environment with initiatives. Citizens' initiatives are characterised by the fact that citizens themselves are operating the policy (Oude Vrielink & Wijdeven, 2007).

Research of Van Dam shows that citizens' initiatives can be successful when they can adapt and mobilise the citizens' initiatives for people and institutions in a plural way. The initiatives cause manifestations and challenges for the local government to steer in a direction that it makes it profitable for the local government to deal with (Dam & Salverda, 2014). The citizens decide by themselves how to achieve it, when they want to do it and what they exactly want. The local government is the next step in this process to a qualitative living environment (Denters, Tonkens, & Verhoeven, 2013).

2.2.2 ROLE AND REGULATIONS OF THE DUTCH GOVERNMENT

Involving citizens' in the government-governance system provides ongoing progress to achieve the Paris Agreement purpose in reducing the CO2 emission (Walch, 2018). The government in the Netherlands is generally structured into a top-down or bottom-up organisation within legislation and policy. The participation of citizens into these government's systems is minimal and notes problems to collaborate with other partnerships in achieving the purpose of the Paris Agreement. A change in the general structure of the Dutch government will be a first step to indicate which relationships will be framed (Interprovinciaal Overleg, 2018). Concerning the citizens' initiatives, the local government has an impact on initiatives because of the local connection between citizens' and the municipalities. Research about the local regulations for citizens' initiatives is an expansion to the exercises of local governments. They recognised as activities with a significant capacity at the government level, where public dwellings and their condition profit by their practices (Hassink, Salverda, Vaandrager, & Dam, 2016).

According to a research of TNO Delft, Dutch citizens have to deal with a lot of barriers and regulations to be more sustainable and measure up to the energy transition (Bastein, Roelofs, Rietveld, & Hoogendoorn, 2013). Firstly, Dutch citizens sense that the individual's contribution to sustainability is much smaller than the participation of business communities or the government.

Secondly, citizens do not prepare too much on sustainable benefits as well as the built environment will probably be confronted with these conditions. Lastly, citizens' thoughts about sustainable resources are not in line with the price of products because the amount of sustainable resources is higher than the existing resources. Citizens mostly involve in sustainable initiatives because of their attraction towards sustainability, environmental circumstances, reduction of energy usage, and belonging to the neighbourhood (Hassink, Salverda, Vaandrager, & Dam, 2016). The citizens interact in a different way than the local government does, because of the difference in two worlds: the informal world and formal world. The informal world belongs to the citizens and consists of the ambitions and interests of citizens in the sustainable built environment (for instance, an ambition to reduce their energy usage and induce their energy). The formal world belongs to the local government and often provides a different approach in ambitions, recognition, appreciation or ideologies compared to the formal world (Callahan, 2007). It results in different ways of thinking of the informal and formal world and the willingness to work together (McHugh, 2006). The citizens are usually involved because of their knowledge about projects. Afterwards, this information is used to make it easier for the government in the decision-making process (Michels & Graaf, 2010).

However, the collaboration between citizens and the government has improved since the last years. Researcher Head described the collaboration between citizens and the government as 'community engagement' (Head, 2007). Typologies about collaboration and participation of citizens and non-government organisations are emphasised and need to be involved in the decision-making process of the government. Besides, 'community engagement' outlines the typology of new ideas about social capital, citizens' initiatives and the collaboration between government and citizens (Weerts & Sandmann, 2016). Besides that, the relationship between citizens and the government (including municipalities) is one of the most critical aspects during the process of citizens' initiatives. The strategy of municipalities can be divided into three different shapes: stimulate (red approach), facilitate (blue approach) and co-produce (white approach). The latter relates to the three approaches for citizens during the initiatives.

2.2.3 IMPACT OF CITIZENS' INITIATIVES FOR DUTCH GOVERNMENT

Before the types of citizens are elaborated, the different types of initiatives are specified. Due to the changing relationship between society, government and economy, initiatives arise to deal with those changes (Basten, Heideveld, Logghe, & Verhagen, 2015). These initiatives contain every sort of movement to be more self-sufficient and self-organised in society and differ from each other characteristic-wise. Instead of a more self-sufficient society, citizens are not reassured by the changing relationship because of more cloudiness of the society and implications of the government withdrawal. Former governments' tasks need to be filled by society, and that occurs problems (Raad voor het Openbaar Bestuur, 2012). Otherwise, the government is moving more and more towards stimulating and facilitating citizens during their process of adding value by initiatives. To step down is necessary for society during the process of stimulating and facilitating, instead of government withdrawal (Binnema, 2014). Generally, the government is willing to provide more space for citizens to implement their initiatives in the society, but in reality, it can be concluded that the government wants to have some influences in the decision-making process of citizens. The main reason for this influence is the present liability for government agencies which the citizens are not aware of (Verhijde & Bosmen, 2013). Due to these relationships between government and citizens, in table three, there are four different types of initiatives (Hurenkamp, Tonkens, & Duyvendak, 2015). These types were divided by two axes: little or much internal contact and little or much external contact.

	Much external contact	Little external contact
Much internal contact	Federative initiatives	Cooperative initiatives
Little internal contact	Network initiatives	Light initiatives

Table 3: types of initiatives (Hurenkamp, Tonkens, & Duyvendak, 2015)

Both axes mean the internal or external contact between the citizens and the government. Most typical sort of initiative is the federative initiatives: the involved citizens maintain contact with each other and the government. These initiatives are related to citizens' initiatives and influences of the government: the balance is necessary to maintain the involvement of citizens in the society and the awareness of the government during citizens' initiatives. On the other side, research shows the willingness of citizens to perform initiatives on their way and the governments' influence should be limited to facilitating and cooperation (Sander, 2014). In that case, the initiatives are specified as cooperative: more internal contact between citizens and little external contact with the government. Citizens are more self-sufficient and self-organised, and the influence of the local government is low (Twist, Steen, & Karré, 2009). The other two initiatives (network and light) is not relevant for this study to widely explain. The process of the creation of initiatives for citizens will be explained in more detail.

The development or the creation of citizens' initiatives consists of several components that are closely linked. During the process of creating an initiative, the policymakers, professionals, governmental agencies, citizens and other stakeholders have their input, self-regard and influence in the initiative. Creating a structure of these components is essential and provides more insight into the interests of all stakeholders (Denters, Tonkens, & Verhoeven, 2013). All kind of citizens' initiatives are different, and every single initiative consists of its sort of structure. Furthermore, every initiative contains multiple involved citizens differing from each other. Research about the involved citizens shows different results about the age, background, ethnicity, income and other components in initiatives, but did notice that there is often a certain kind of citizen involved (Verba, Schlozman, Brady, & Nie, 1993). This citizen is described as a higher educated native man above fifty-year, who is a member of multiple associations or institutions (Verba, Schlozman, & Brady, 1995). Instead of the native men, research about the sort persons who were involved in citizens' initiatives is widely spread out (Bauwens, 2016). Most involved citizens participate because of the need for more social involvement, to solve our problems in their neighbourhood and to apply improvements. Other reasons were social motives which relate to pleasure and interests and duty-bound and social motives. These motives relate to the feeling of citizens to contribute to their neighbourhood (Bakker, Denter, & Klok, 2011). The sort citizen who is involved in initiatives differs and delivers problems for the local government. These problems are moving more and more towards a dichotomy in citizens' initiatives: higher native educated citizens and lower educated migrants or older people. It occurs problems during the process of involving citizens into initiatives (Movisie, 2017).

The role of the citizens during the processes with the government differs in several ways. Researchers Pröpper and Steenbeek developed a ladder with six roles for citizens in the decision-making process (see table 4) (Pröpper & Steenbeek, 1999). It is essential to specify the role of citizens during the process because of the decision-making for citizens (Arnstein, 2007). Most of the time, the role for citizens is step six: initiator (Dam, Salverda, & During, 2011). This sort of role overrules how a citizen acts during an initiative. Citizens can be involved because of motives which contain problems in their neighbourhood or motives which are based on participation and personality. On the other side, citizens can also participate in initiatives because of self-interest. It depends on the extent to which it affects their living environment (Wong, 2014). Direct effect means they are more likely to participate

<i>Traprede</i>	<i>Rollen van burgers</i>
6	Initiatiefnemer
5	Samenwerkingspartner
4	Medebeslisser
3	Adviseur
2	Consultor (geconsulteerde)
1	Doelgroep van onderzoek of voorlichting
0	Geen rol

Table 4: role of citizens (Pröpper & Steenbeek, 1999)

Municipalities often consider that citizens act in self-interest and not in society interest (Denters & Klok, 2000). The society interest has a broad reach in citizens' initiatives, and stories about these initiatives fall apart in positive and negative reactions. The positive reactions are often based on the participation and involvement of citizens in their neighbourhood, but the adverse reactions predominate in citizens' initiatives. Studies about the involvement of citizens during the policymaking show different problems: representativeness of citizens, an accurate reflection of the neighbourhood, the democratic influence of citizens and too much focus on higher educated citizens than lower educated citizens (Verba, Scholzman, & Brady, 1995) (Bijl, Boelhouwer, Cloin, & Pommer, 2011) (Verhoef, Ruitenberg, Luttmer, Heirweg, & Andric, 2018). Citizens who represent society in initiatives are mostly involved because of their interest and social skills. These citizens represent the society and switch between government and their interests. The representativeness of citizens in initiatives can be arranged by drawing up procedures for the policy of choosing the representatives. In this case, all citizens are involved in the process and their representativeness is no longer compromised (Pitkin, 1972). Furthermore, representatives of citizens' initiatives during the process of initiatives depend on more aspects such as secure communication, long-term involvement, efficient collaboration, leadership and coordination (Boshuis, 2013). Especially leadership is outstanding during citizens' initiatives, and it is not irrelevant who the leader is or what his or her interests and rights are. It is considered that every citizen initiative has one leader despite the relationships between citizens (Ternström, 2008).

Besides that, the role of citizens in initiatives is not the only aspect that plays a part in the development of initiatives. The strategy and structure of an initiative are part of the whole process and need to be specified before entering the way to the (local) government. The strategy for citizens' initiatives can be specified into three different groups. Firstly, citizens who are passive and indifferent against energy efficiency measures and sustainable initiatives in the built environment during the energy transition. The second group is citizens who act active in the energy transition and add value to the sustainable environment in collaboration with the local government. The third group is looking to alternatives for no gas connection in dwellings by themselves (Buitelaar, Heeger, & Sterrenberg, 2018). Due to the different groups of citizens' initiatives, the approach of certain groups goes through its strategy and structure. Both policies can be customised for each citizen initiative and provide a sort of framework for citizens to fill in themselves. In table five, these frameworks are generally worked out in three different approaches: red, blue and white (Denters, Tonkens, & Verhoeven, 2013)

	Red approach	Blue approach	White approach
Sort approach	Stimulating	Facilitating	Coproduction
Resources	Professionals play an active role during citizens' initiatives	Professionals play a limited role during citizens' initiatives: on request	Professionals and citizens collaborate to develop and produce initiatives
Role government	Active	Limited	Participate
Role citizens	Simplistic	Active	Participate

Table 5: approaches of initiatives (Denters, Tonkens, & Verhoeven, 2013)

The three approaches differ in characteristics, but it is challenging to decide which approach fits best for a particular citizen initiative. Instead of this, most citizens' initiatives consist of a combination of approaches and ask for customisation of support of the government or other stakeholders. The starting point of these approaches is based on successful and severe support, and there is no 'best' approach to choose for citizens during their process of adding value with initiatives (Blom, Bosdriesz, Heijden, Zuylen, & Schamp, 2010).

Citizens' initiatives contain every sort of diversity and customisation belongs to all kinds of initiatives. This research shows that citizens' initiatives consist of three characteristics: sort of initiatives, the role of citizens and approaches regarding strategy and structure. It can be concluded

that different characteristics are related to each other. For example, federative initiatives are coherent (sort initiative), a collaboration partner (role citizen) and the white approach (strategy and structure). All three characters are based on collaboration and join forces. However, every citizen initiative includes different characteristics, and the situation is unconcerned.

The energy transition provides new trends in the market of housing, the built environment and the connection between citizens and the municipalities or provinces. In the last decades, it became evident that citizens are more involved in the improvement in their living environment. The current citizens' initiatives are more focused on sustainability, energy cooperations and neighbourhood initiatives (Igalla & Meerkerk, 2015). Through the rise of digital connectivity and the ability for everybody to go online, the transition period has a significant impact on the communication technologies of citizens' initiatives (Ndou, 2017) (Panopoulou, Tambouris, & Tarabanis, 2014). The improvement process is redefined, and citizens will be more involved in this process and suggest new sustainable initiatives. Besides, these new sustainable initiatives are part of the Dutch economy because of the new approaches in sustainability. It provides a change in the current Dutch economy principles.

2.2.4 DUTCH ECONOMY

The economy of the Netherlands consists of three sectors: the public, private and social sector. The last sector is new and provides the social and economic services and standards to society. The sustainable initiatives of citizens fit in the third sector of the economy: providing a commercial service and standard to be more sustainable now and in the shared future (Bennett & Lemelin, 2014). The research also includes environmental activities and outcomes within the eco-social sector concept. Initiatives of citizens are based on environmental activities which consist of sustainability and a transition in the current energy process. These initiatives are part of the third sector of the changing economy and consist of terms as a society, eco-social resources and outcomes which add value to the current and future economy. The other two sectors are usually based on the market, and they are supposed to focus on the individual organisation and function beyond the community (Defourny & Develtere, 2009). The third social sector is in line with the purposes of the new energy transition. End-users (citizens) are more involved in those processes and will be strived for an optimum social environment during the energy transition. The flexibility for citizens is essential in the third social sector and contributes to a higher impact on sustainability (Belmans, Vingerhoets, & Vaerenbergh (e.a.), 2016). Research about energy cooperation shows the conditions of energy cooperation during their process to be more sustainably involved in their environment. The emphasis on institutional conditions for community projects such as wind or solar pointed out that regular projects are not neutral. In other words, the customised projects influence every process with their actors and players (Schreuer & Weismeier-Sammer, 2010). This relationship will be more elaborated in chapter 2.2 'energy transition'.

Citizens' initiatives consist of many aspects and differ from every single initiative (Aalbers, Kamphorst, & Langers, 2018). It can be concluded that most of the citizens' initiatives are founded by a community of involved citizens who participated in sustainably improving their living environment. Most citizens' initiatives have been founded, because of a new or existing demand to more sustainability or gap in their environment (Boon & Dieperink, 2014). The initiatives cover a total of 582 energy cooperations in the Netherlands. 80% of these cooperations are solar projects, 24% are wind projects, and the rest is based on heath recovery, mobility and other innovative projects (Schwencke, 2019). 70% of these 582 energy cooperation contributes to renewable energy and to be more sustainable in their environment

Citizens' initiatives contain many aspects and impact the current government system. In figure two, the aspects of citizens' initiatives are summarised.

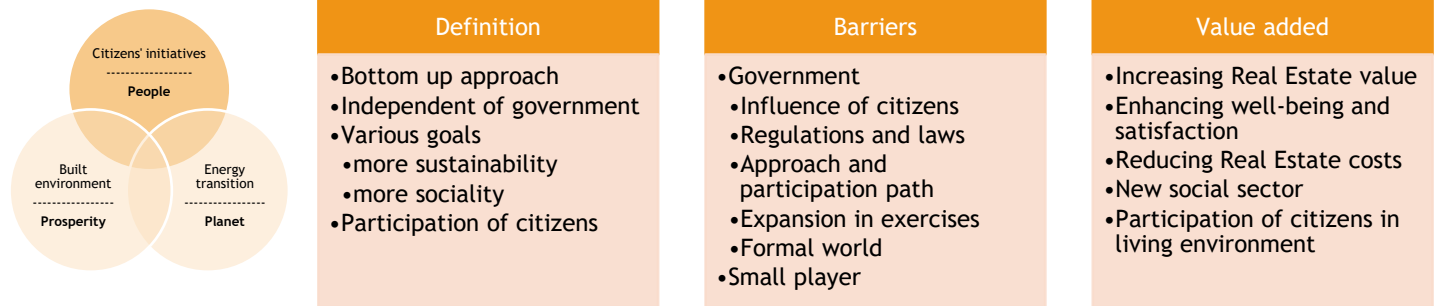


Figure 2: summary citizens' initiatives

In the following subchapters, the other two concepts of the research will be explained and described. The connection between all three concepts will be salvaged at all times. The energy transition is based on the society level and provides more information about the transition for citizens. Furthermore, the built environment is relatively on the same level and is based on existing dwellings.

2.3 ENERGY TRANSITION

At the moment, the energy transition is one of the most influential concepts in daily businesses around the world. Nevertheless, the concept of 'energy transition' is not new. It began centuries ago when the world changed its resources from wood to oil. The industrialisation of the world occurred massive CO₂ emissions (Brown, 2015). During the mid-1960s, the demand for renewable energy was rising, and the pressure from the European Union started to increase. The Dutch government was not impressed with the pressure, and it took years before the policy was changing to an energy transition (Verbong & Geels, 2007).

The term 'transition' comes forward due to the fourth National Environmental Policy Plan (NMP4) (Smith & Kern, 2009). The term is mainly described as a long-term process. Restructuring the current energy systems and policy was the next challenge for policymakers and influential stakeholders. According to the theory of 'transition management', the transition has been assessed, and the results were divided (Kern & Smith, 2008). Despite the satisfactory achievement, the regime of the government was incumbently causing underestimate policy ambitions and visions (Rotmans & Loorbach, 2010). Using more transition management will help to structure the transition. Transition management provides a fundamental framework in which the steering wheel is focused on sustainability and a more visionary process (Rotmans, 2005).

2.3.1 THE ENERGY TRANSITION AND CIRCULAR ECONOMY

In the last decade, the energy transition has increased the attention to renewable products and consumption of these products (Jonker & Faber, 2018). The concept of the circular economy originated from the linear economy and is developed by Pearce and Turner in the early 1990s (Anderson, 2007). Resources are used for several products and will disappear when the durability is expired (Moomaw & Unruh, 1997). The waste of resources on urban and industrial level leads to a change in the harmony between the economy, environment and social aspects (Boulding, 1966) (Ghisellini, Cialani, & Ulgiati, 2016). Because of this, the policy around the economy changed more and innovations and disruptive changes needed to adapt to the sustainable changing environment. This creates problems because of different perspectives and work processes (Rizos, Tuokko, & Behrens, 2017). On the strategy level, the existing vision was not based on specific changes and created unfamiliarity and ignorance (Ritzen & Sandström, 2017).

Mont et al. (2017) state that the circular economy consists of four different principles: product maintenance, product reuse, product repair/refurbishment and product recycling. The circular economy will be more implemented in the current economy, and renewable products and resources are going to be a more significant part of the economy (Loorbach, Brugge, & Taanman, 2008). Researchers have different opinions about the impact of the circular economy and its added value to the economy. Furthermore, many of them mentioned that current organisations struggle with the financing of the circular economy and investing in renewable products and machinery with renewable energy (Ritzen & Sandström, 2017). Earlier investments in production are not part of the circular economy, and it will cost much money to replace them for renewable investments (Prendeville, Sanders, Sherry, & Costa, 2014).

There is at this point, a broad accord among the policymakers that the present framework dependent on non-renewable energy sources is not feasible environmentally, socially and financially (Hargreaves, Hielscher, Seyfang, & Smith, 2013). Nevertheless, the transition to a circular economy is on the right track, and the experience and competence in transition practices will be continuously improved to a higher level (Bastein, Roelofs, Rietveld, & Hoogendoorn, 2013). Besides, the collaboration between the government and the involved organisations or agencies has to be improved (Buren, Demmers, Heijden, & Witlox, 2016). Improving this collaboration, the circular economy promotes activities of a closed loop of non-energy use and contributes to the energy transition (Chen & Kim, 2019).

The energy transition and the circular economy have many linkages but mean differently. The energy transition is the main challenge for the 21st century and will affect every sector in the Netherlands to be more sustainable. The circular economy is part of the energy transition and supports the acceleration during the transition with renewable innovations and reuse of resources to close the loop (Bechtel, Bojko, & Völkel, 2013) (Veolia Group, 2017). In this case, the energy transition will be elaborated and linked to the added values of citizens' initiatives. The circular economy is too expensive and complicated to use.

2.3.2 IMPACT OF ENERGY TRANSITION

During the transition of renewable energy and the process of involving organisations into the transition programme, several researchers, innovators and analysts were part of the fundamental change in the transition of renewable energy instead of the fossil energy sources (Kemp, 2010). They are changing the fundamental functions and services of systems provided different thoughts about the transition model. In total there were four approaches: sociotechnical (Rip & Kemp, 1998), transition management (Rotmans, et al., 2000), social practices (Reckwitz, 2002) and reflexive modernisation (Hendriks, 2008). All approaches are united and have many interfaces to deal with persistent and complex societal problems. Furthermore, the Dutch government choose the transition management approach because of their fundamental principles and long-term vision for short-term action. The short-term action led to more stimulations, ambitions and strategies with the stakeholders. Due to the continuously changing policies and emerging barriers, the combination of long-term vision and short-term action provides more certainty (Bergh & Bruinsma, 2008). The transition path, which is chosen by the government, integrates into the policy framework of the ministry and can count on more commitment and support.

Generally, the transition approach is based on bottom-up management and long-term thoughts (Kemp, 2010). On the other side, transitions are inevitable, and it is hard to understand when they will take place and what their impact will be. Because of their uncertainty, monitoring and estimating transitions will be prescribed whereby it will be easier to react or influence them (Verbong & Loorbach, 2012). In addition to their uncertainty, the process to be more sustainable and lower the CO₂ emission is too slow, and research about accelerating these processes costs much time and is complicated (Solomon & Krishna, 2011). Fazey et al. researched the current transition

to reduce the CO₂ emission and declared that an upscaling of research and action-oriented learning is required to avoid climate issues (Fazeya, et al., 2018). While the Dutch government developed the process for the energy transition, approaching a fundamental transformation has not engaged so far.

The energy transition in the Netherlands consists of different platforms to develop and introduce new ambitions and experiments (Farla, Alkemade, & Suurs, 2010). These platforms are strongly related to the transition model of the Dutch government and help to recover the CO₂ emission. Besides that, the current fossil materials (oil, coal and greenhouse gas¹) are currently the most critical energy sources around the world (EESI: Environmental and Energy Study Institute, 2019). In figure three, it becomes clear that the dependence of fossil materials is still presented (Bergh & Bruinsma, 2008).

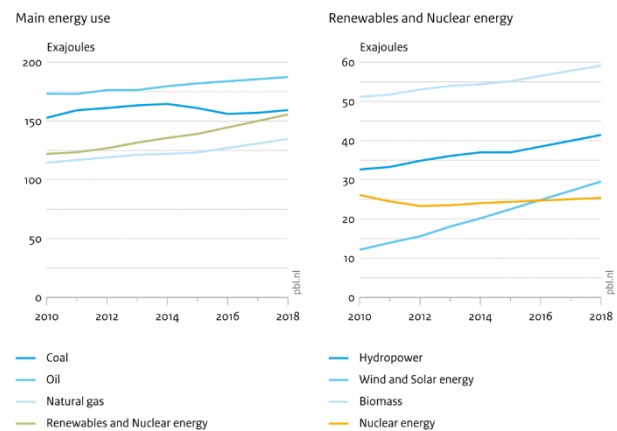


Figure 3: trends in global energy use, 2010-2018 (EESI: Environmental and Energy Study Institute, 2019)

To reduce the usage of fossil fuels, non-fossil energy sources such as wind, water or solar, have to displace the current fossil fuels, and that will be an enormous challenge (Markandya, et al., 2009). The studies herein differ in two ways: optimistic researchers think it is possible, and pessimistic researchers think that it will never happen (York, 2012) (Lund, 2007).

Renewable energy sources consist of five primary sources of useful energy: the sun, the motion and gravitational of the sun, moon and earth, geothermal energy, nuclear reactions and chemical reactions (Twidell & Weir, 2015). The most common renewable resources are solar, wind and geothermal (Subramania, Badruzzamana, Oppenheimer, & Jacangelo, 2011). Citizens' initiatives are primarily based on these renewable resources to invest in a more sustainable environment. These initiatives cover more sectors such as the social sector, the energy sector and the public and private sector.

The emission of CO₂ increases every year. The group of 20 largest economies are responsible for 81% of worldwide CO₂ emission (Olivier, Schure, & Peters, 2017). Renewable energy becomes more and more popular and contributes to the decreasing level of CO₂ emissions worldwide. The global requirement for energy ensures that developments in energy use contribute to the sustainable future of the earth (Sarrica, Brondi, Cottone, & Mazzara, 2016). The opportunities in renewable energy help to mitigate climate change and approaches an excellent way for our future generations. Besides that, renewable energy challenges the current economy in a new approach of a clean environment and includes problems such as lack of information, the transformation of the access to new energy and our daily carbon footprint. Researcher Owusu mentioned new opportunities and measures in the renewable energy economy and associates these opportunities and measures to policy recommendations (Owusu & Asumadu-Sarkodie, 2016). The policy recommendations are considered as optimal use of renewable resources and to reduce the carbon footprint of people around the world. Furthermore, global warming will reduce due to a reduction in greenhouse gas and conventional energy sources (Panwar, Kaushik, & Kothari, 2011).

The availability of renewable resources is essential to identify advantages and opportunities. Due to an exponential growth of global population, the demand for electricity will increase with 2.1% per year to 2040, twice the rate of primary energy demand (Demirbas, Sahin-Demirbas, & Demirbas, 2004) (International Energy Agency, 2019). In growing economies, the demand for electricity shifts

¹ Greenhouse gas is a collective name for all kind of gas which occurs in the atmosphere and keeps the atmosphere warmer than it normally would be (Brander & Davis, 2012).

towards sustainable resources (low-carbon resources). According to Ellabbah, the high costs of fossil fuels provide an attractive approach to renewable resources. The potential for renewable energy sources exceeds the world's current energy demand (Ellabbah, Abu-Rub, & Blaabjerg, 2014). Nevertheless, the current demand for energy cannot deal with the availability of renewable sources (Doan, Eckhouse, Cannon, & Recht, 2019).

The current transition in energy provides new insights into renewable energy sources and other renewable sources, which contributes to the reduction of CO₂ emissions. These renewable sources associate environmental impacts and sustainability with the societal needs of citizens. Citizens deal with these renewable resources and are a prelude to citizens' initiatives with renewable energy (Tigchelaar, et al., 2019). Besides that, these renewable energy sources are not always available for citizens to contribute to the global reduction of fossil energy sources (Demisbas, 2006).

2.3.3 ROLE OF DUTCH GOVERNMENT

Subsequently, the energy transition is strongly related to sustainable energy. Nowadays, energy is mostly generated using fossil materials. These materials provide more CO₂ emissions and a higher global temperature (Minnesma & Segeren, 2017). To change the current generation of energy, the Dutch government has determined that fewer dwellings should use greenhouse gas in 2030. It will be the first step in the transition to reduce CO₂ emissions. New dwellings already have no connection with the greenhouse gas piping system in the Netherlands (Rijksdienst voor Ondernemend Nederland, 2020). There are some exceptions, but most of them already use other heating systems without a gas supply. Householders² usually have two sources in their dwelling to heat up, cook and to use appliances: electricity and greenhouse gas. Solar panels or windmills can sustainably generate the first source of electricity. Greenhouse gas is another source and is generated by non-renewable fossil resources (MilieuCentraal, 2020). In 2016 the Dutch government decided to phase-out the greenhouse gas and replaced them with CO₂ inadequate resources (Ministerie van Economische Zaken, 2016a). After this decision, several municipalities and societal organisations signed a manifest which includes the policy and framework about phasing out gas connections for dwellings (Ridder & Gorter, 2017). Besides that, research about no gas connection shows a minimal contribution to the reduction of CO₂ emission (Säynäjoki, Heinonen, & Junnila, 2012). Investments in no gas connection in dwellings do not meet the expectations that are created and provides problems to involve citizens into those projects. The opinions of Dutch citizens differ in several ways and contributes to the uncertainty policy of citizens to make their dwelling more sustainable.

2.3.4 IMPACT ON CITIZENS' INITIATIVES AND THE ENERGY TRANSITION

Existing heating systems in dwellings are not measured up to the policy of dwellings without a gas connection. Renewable heating sources have to replace the existing heating systems, and this replacement requires an investment in renewable energy sources. The characteristics of this decision-making process mostly relate to the willingness of households to adopt these new energy savings measures (Lemmens, et al., 2014) (Vasseur & Kemp, 2015). Due to ignorance, interest in adopting new measures is expressed late in the construction process of dwellings and creates instability and fragmentation. Householders are often too late in the construction process. Besides that, involving householders earlier in the construction process increases the power of householders into their process and provides more interest of householders to add value in their dwelling (Olaniyan & Evans, 2014). It can be solved by empowering the interest of householders and changing the existing policy in the construction process (Berardi, 2013) (Dvarioniene, et al., 2015).

² A householder consist of one or more people who live in the same house without executing business processes (Centraal Bureau voor de Statistiek, 2020a)

The householders will be saddled with a lot of requirements, rules and procedures. The total investment in dwellings without a greenhouse gas connection will determine at approximately 18.000 euro per dwelling (Huisman, 2018). Also, a too fast introduction of buildings without a gas connection leads to a tight house market (Doodeman, 2018). Surveys among Dutch inhabitants about the investment and involvement in the energy transition (and gas transition) shows that opinions vary widely. Research about the willingness for Dutch citizens to invest in their existing dwelling shows that 43 percent is not going to invest in renewable energy sources (Galen, Warnaar, & Lamers, 2019). Their main reason is the uncertainty surrounding government financing, added value of renewable energy and the thoughts about decreasing investment costs for renewable energy sources (Steenbekkers & Scholt, 2019). Research about sustainable options (such as solar panels, windmills, insulation) shows the difference between citizens: less than average is willing to adopt sustainable resources in their dwelling (Lelij, Graaf, & Visscher, 2016). The existing dwellings are part of the energy transition and have different energy policy than the new dwellings which provides no greenhouse gas connection on the pipe system in the Netherlands. The current energy policy for existing dwellings seems to fulfil the needs of citizens and local executive actors, but the complementary policy for innovation and renewable energy sources are needed to stimulate these innovators for the renovation of existing dwellings (Tambach, Hasselaar, & Itard, 2010) (Faber & Hoppe, 2013).

In the current energy transition, some citizens create their renewable energy project and contact the municipality or other stakeholders to explain and show their project (Castelnovo, 2016). Buitelaar et al. created a framework for citizens and municipalities to simplify and engage in citizens' initiatives during the energy transition (Buitelaar, Heeger, & Sterrenberg, 2018). This tool adds value to inspiration and recognition while working at renewable projects. It can be determined that participating citizens are a mandatory part of the renewable energy project. On the other hand, it is therefore not self-evident that citizens participate in those renewable energy projects (Bronsvoort, Uytterlinde, Heeger, & Huijding, 2018).

The energy transition contains many components and impacts the current government system. In figure four, the aspects of the energy transition are summarised.

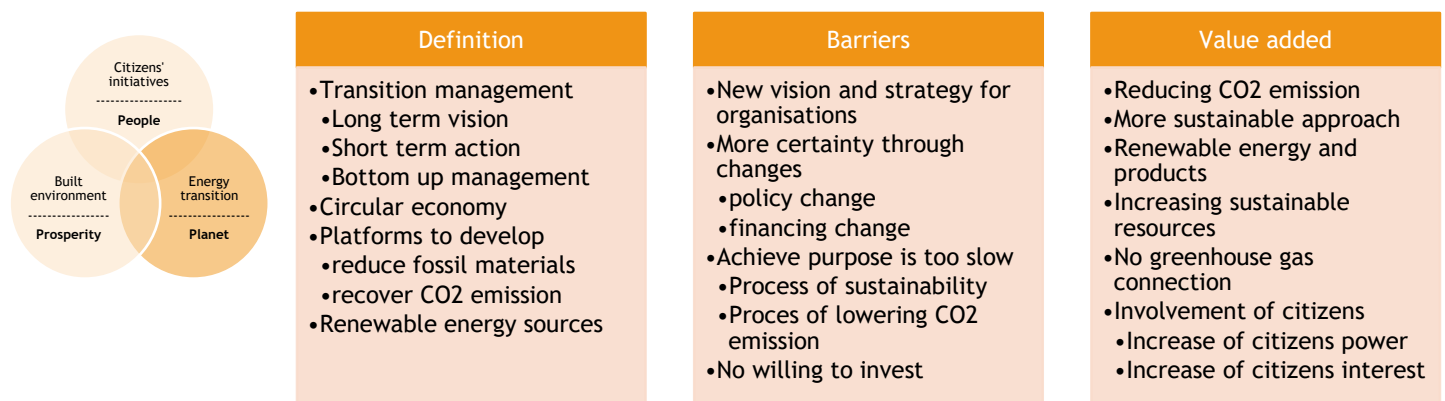


Figure 4: summary of the energy transition

It can be concluded that the participation of citizens during the energy transition depends on several aspects, and it ultimately comes down to the willingness of citizens to be involved. In the next chapter, the last domain 'built environment' is elaborated.

2.4 BUILT ENVIRONMENT

The built environment in the Netherlands consists of millions of buildings which are qualified to become more sustainable. The number of buildings in the Netherlands differs in dwellings and non-dwellings: at the beginning of 2020, there are almost 8 million dwellings and approximately 500.000 non-dwellings (Dekker & Schuur, 2018) (Eerenbeemt, 2020). Both types of buildings contribute to the increasing level of CO₂ emissions in the Netherlands and worldwide (Younger, Morrow-Almeida, Vindigni, & Dannenberg, 2008). In 2016 the Paris Agreement was established to reduce the level of CO₂ emissions of greenhouse gas around the world with 55% in total (United Nations Climate Change, 2020). It occurs new regulations for dwellings and non-dwellings and affects the built environment for Dutch citizens. Research of Wilby shows the impact of climate change on the built environment. Due to a growing population, infrastructure and ecology of cities are at risk from the effects of climate change. The impact on the built environment can subdivide into four main areas: urban ventilation and cooling, urban drainage and flood risk, water resources and outdoor spaces (Wilby, 2007) (Priemus, 2005).

People use energy in buildings; buildings itself do not use energy (Janda, 2011). The citizens use buildings to work and live in. Every user of buildings is part of the whole system of climate change in the Netherlands. This climate change has an impact on the current economy in the Netherlands and especially on the built environment. The built environment contributes to the CO₂ emission level in the atmosphere and hence to climate change (Hammond, Booth, Lamond, & Proverbs, 2012). The built environment associates to climate change because of the impact of the built environment in urban areas where the emission of greenhouse gases is increasing. However, the built environment is one of the potentials to play a critical role in decreasing the level of CO₂ (Butera, 2010).

Adapting sustainable measures in the existing and new built environment will beneficially affect the climate. The built environment takes its lead in CO₂ mitigation and provides a lower emission of CO₂. A decade ago, there was a debate about the citizens' contribution and their influence on the climate change of an increasing temperature around the world (Frumkin & McMichael, 2008). Firstly, influential persons were sceptical about the relationship between increasing CO₂ emission and the effect on public health. After this debate, it became clear that there is undoubtedly the relationship between increasing CO₂ emission and public health and its contribution to a warmer atmosphere. The implications on public health were ranged, and its effects have been identified. Due to the complexity of climate-based science and uncertainty about details of the public health, it remains guesswork for one clear cause. Many aspects contribute to the increasing CO₂ emission and the effect on public health in existing and new buildings (Klein Rosenthal, et al., 2007). Research about the influence of the inside air permeability and quality in existing dwellings shows improved health when an existing dwelling is renovated and after that functions healthier by providing fresher air and also using less energy (Breyse, et al., 2011). To renovate existing dwellings there are many measures, but it is essential to scale these measures in financial benefits, to reduce the energy usage and to retain the policy of the government (Menassa & Baer, 2014). Furthermore, the occupancy rate of the building will improve, and the inside climate improves due to healthier inside air (Kilkis, 2009).

2.4.1 IMPACT ON EXISTING DWELLINGS

The biggest challenge in rebuilding dwellings is the enormous costs to invest in energy-neutral installations. Research agency Ecorys shows that homeowners have to invest around 18.000 euros (Duurzaam Nieuws, 2018) (Oei, Haffner, Til, Heidecke, & Slaakweg, 2018). This investment is one of the conditions which provides contradictory interests. To maintain the interest of citizens in the energy transition, the Dutch government has to change its policy for innovations, interests, initiatives and so on to renovate the existing dwellings in the built environment. In the Netherlands,

many different dwellings are causing multiple ways of climate systems and heat generation, which occurs customisation for dwellings to become more sustainable. In this case, the heating generation via greenhouse gas and radiators is the most common system (Peeters, Veken, Hens, Helsen, & D'haeseleer, 2008). The fossil sources will be replaced by renewable sources, such as sun, wind, water or biomass (Farla, et al., 2006). The share of renewable sources in total demand for energy is 7.4 percent and is increasing every year (Centraal Bureau voor de Statistiek, 2019a). Besides that, in 2020 the goal was to reach 17% renewable sources in the total demand of energy, thus to reach the goal in 2030 will be complicated (Junginger, Agterbosch, Faaij, & Turkenburg, 2004). The built environment represents a complete task to achieve climate goals. Its potential in decreasing the CO₂ emission level by energy efficiency is excellent. However, multiple energy sources and environmental standards affect the decision-making of using renewable sources (Ramirez-Villegas, Eriksson, & Olofsson, 2016).

2.4.2 ROLE OF THE DUTCH GOVERNMENT

To achieve these climate goals, the Dutch government established various regulations to achieve these goals in the next years. In 2003 the first purpose aimed at greenhouse gas reduction and less energy use: these requirements were accepted by the European Parliament of the Energy Performance of Buildings (EPBD) (Dijk, Wouters, & Hogeling, 2008). One of these requirements was based on an energy certificate per existing dwelling or non-dwelling. The potential of the energy certificate was based on the motivation to become more sustainable, using less and low-cost energy (electricity and gases) and assessed the carbon emission of existing dwellings and non-dwellings. Overall, the energy performance of existing and new buildings was assessed by an energy certificate (Sunnika, 2005). Since 1995 the energy performance certificate (EPC) is developed for new buildings, and since 2008 the EPC is compulsory for existing buildings in the Netherlands (Gilijamse & Jablonska, 2002). The EPC is an energy tool to identify the primary energy demand of households in buildings and is calculated according to space heating, water heating, extra energy, lightning, PV panels³ and cogeneration (Filippidou, Nieboer, & Visscher, 2016). The calculation method of the EPC rate shows an energy label from label A to G: labels A, B and C are 'green labels' and labels C, D, E, F and G are 'red labels'. One-third of the existing dwellings are labelled with A, B or C and the rest is C or lower and has to be improved according to requirements of the Dutch government in the collective years (Brounen & Kok, 2011).

In 2012 the Energy Saving Covenant for the Rental Sector was signed by the Dutch government and other stakeholders to achieve an energy saving of 33% on the energy consumption between 2008 and 2021 (Spies, Hazeu, Laurier, & Kamminga, 2012). This covenant purposes more energy savings in existing dwellings in the rental sector and provides more possibilities to become sustainable. Besides that, most dwellings are labelled with an energy label D or lower and cannot fit with the future regulations of the signed covenant. Due to high renovation costs, lack of knowledge or waiting time for innovations, the achievement of specific purposes is mostly difficult-attained (Baborska-Narozny, Stevenson, & Ziyad, 2016).

To achieve the government's purposes, energy efficiency measures (EEM) can be implemented in existing dwellings and provide a decrease in energy usage. There are many measures to implement, and each is characterised by three main properties: investment costs, payback time and energy efficiency (Tigchelaar & Liedelmijer, 2013). Most used EEM's in dwellings are wall/floor/roof insulation, draught-proofing, double-glazed windows and switching to advanced appliances such as demand response or day/night sensors (Di Foggia, 2018) (Gardner & Stern, 2008). These EEM's are investments for private homeowners to become more energy-efficient and add value to dwellings.

³ PhotoVoltaic systems (PV) are cells that generate constant electricity when sunlight shines on it and deliver electricity to all kinds of electric appliances and buildings (Koppen, 1979).

Besides that, the government stimulates housing associations and other private homeowners to join EEM's and add value to the whole dwelling sector in the Netherlands.

Furthermore, using subsidies, strict regulations and governances will provide a change in the standard way of energy usage and add value to the purpose of less energy use, a decrease of CO₂ emission and healthier dwellings to live. On the other side, research shows that the current EEM the government will not reach the purpose of less than 49% CO₂ emission in 2030. The main reason for this is partly determined by the small measures which have been taken. Adding insulation, changing conventional lightning for sustainable lightning and using more sensors add value to more efficient use of energy, but will not provide a faster framework to achieve the purposes. Therefore, more significant and more renovation measures are needed (Filippidou, Nieboer, & Visscher, 2016). In figure five, the CO₂ emissions of households are shown between 2000 and 2030.

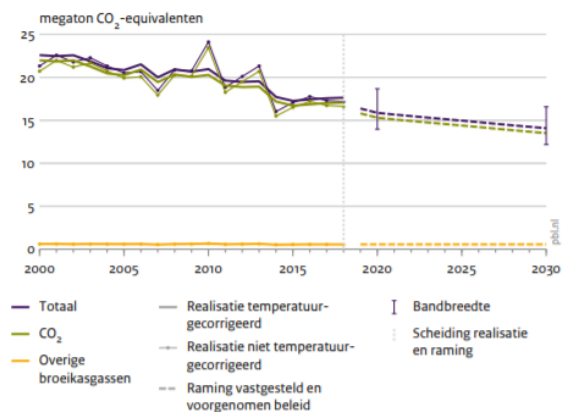


Figure 5: CO₂ emissions of households

Furthermore, private homeowners are not always willing to invest in their dwelling to become more sustainable and add value to energy efficiency (Conijn, Dröes, Rouwendal, Schilder, & Vries, 2017-02). On the other side, recent research shows a decrease in the CO₂ emission between 2017 and 2020 because of more savings in the dwelling sector. Subsidies (ISDE+⁴), additional savings policy and energy efficiency measures provide this effect in decreasing CO₂ emissions (Schoots & Hammingh, 2019).

Due to encouraging the saving of dwellings in the Netherlands, the Real Estate of dwellings in the Netherlands consists of two different types of energy-savings: investment behaviour and curtailment behaviour. According to Han et al., the energy-saving has been split into two conditions (Han, Nieuwenhijzen, Vries, Blokhuis, & Schaefer, 2013). The investment behaviour is subdivided in governmental substitution, offering free products, legislation and giving feedback. This subdivision can be promoted by the local government to be safer using energy. Otherwise, the curtailment behaviour is formulated as human aspects, for instance, shortening shower time, lowering room temperature, and so on. Research about the energy-saving in current dwellings concluded that the return on investment (ROI) time is too short to invest in these sort of energy savings. Otherwise, it costs too much money for families to invest in energy savings techniques such as solar panels or LED lightning (Bogerd, 2009).

The built environment contains many components and impacts the current government system. Concepts as existing dwellings, the role of the Dutch government and the current Dutch economy provide new insights into the built environment. In figure six, the aspects of the built environment are summarised.

⁴ ISDE+ is a subsidy for private homeowners to invest in energy efficiency measures such as heat pumps, PV cells and boilers. It is released by the Dutch government (Rijksdienst voor Ondernemend Nederland, 2020c).

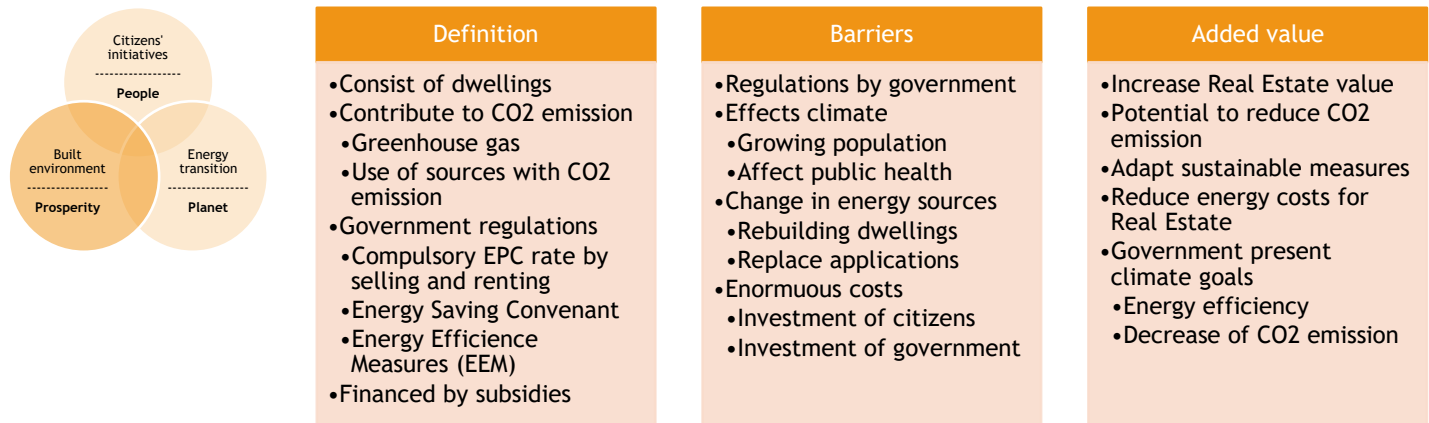


Figure 6: summary of the built environment

It can be concluded that the built environment has to deal with innovations and contributes to the increasing demand to reduce the CO2 emission in the Netherlands. Nevertheless, citizens play an essential role in the energy transition for the built environment and look with a sceptical view of the investments for their existing dwelling to be more sustainable. In the next chapter, the approaches of the government are elaborated.

2.5 GOVERNMENT APPROACHES

The Dutch government plays an essential role in citizens' initiatives, the energy transition and the built environment. For each of these concepts, the role of the Dutch government is elaborated and clarifies the share of the Dutch government. The main purpose of the Dutch government during citizens' initiatives and the added value of the government will be described in this chapter. Furthermore, it reveals several approaches for the Dutch government to implement.

The Dutch government has several regulations due to climate change. These regulations contribute to the purpose of a 49% reduction of CO2 emissions in 2030 and also impacts the economy with different regulations based on energy reduction. Concerning the citizens' initiatives, the local government has an impact on the initiatives, because of the local connection between citizens and the municipalities (Hassink, Salverda, Vaandrager, & Dam, 2016). Government employees esteem the human capacity of the activities and perceive that green urban citizens' initiatives add to connection in the area and other approach destinations that are similar to reintegration, care, cognisance about nearby nutrition and spatial quality. They welcome the inclusion of the initiators and recognise that citizens, as a rule, have more confidence in the intensity of citizens' initiatives than in government activities and approaches (Parag, Hamilton, White, & Hogan, 2013).

Local and national government plays an essential role during citizens' initiatives (Troost, 2016). Citizens' initiatives, energy transition and the built environment have a linkage with the government and differ in many ways, because of the customisation of citizens' initiatives. Governmental regulations provide a sort framework for citizens to follow, but these frameworks often do not work for citizens and provide more questions than solutions (Toorn, Nieuwenhuis, & Burggen, 2015). It depends on the willingness of citizens and government to involve and support the initiatives. The government's approach to social initiative is always the interaction between a person's efforts concerning the movement of the other. It results in four perspectives for the government concerning citizens' initiatives (Schulz, Heijer, Baas, & Steen, 2017).

This model refers to the steering wheel during the process and which path or network fits with the specifically customised initiative. The four perspectives are new public management, network governance, societal resilience and public administration (Steen, et al., 2018). The Dutch market

forces seem to work with three dimensions: society, market and government. All three dimensions are framed in a policy triangle, and every initiative follows the path through the dimensions. It purposes a more reliable society value and socialisation of citizens, the market and government (Steen, Scherpenisse, & Twist, 2015a).

Furthermore, Dutch society is generally based on a dynamic surrounding for democratic policy around the participation of citizens in the society (Tonkens, 2014). Since 2013 the participation society was born in the Netherlands. Herewith, this should lead to a new form of management, which should take place more in line with the 'mature' social reality and less 'leading' (Es, 2017). It is in line with the conception of citizens' initiatives in the built environment according to the government. Citizens themselves should conduct these initiatives, and according to the three approaches (stimulate, facilitate and cooperate), create a framework to perform the interests. After this, the government will be involved in the process and will play a particular role.

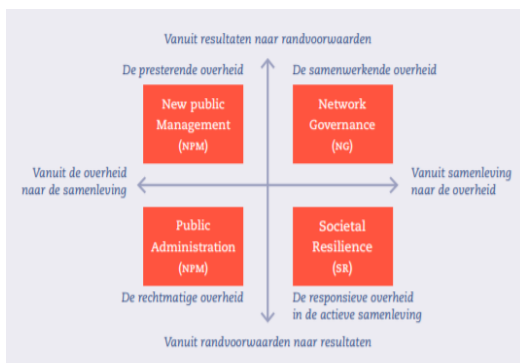


Figure 7: four perspectives of government and citizens (Steen, Chin-A-Fat, Twist, & Scherpenisse, 2014)

The four perspectives are determined according to four principles. The vertical axis refers to emphasis in the effort: achieving satisfactory results or creating the necessary conditions. In other words, the conservative approach is based on creating necessary conditions and after that, achieving results. The progressive approach is based on achieving results and after that creating the conditions. The horizontal axis referred from government to society and reversed (Steen, Chin-A-Fat, Twist, & Scherpenisse, 2014). However, these four perspectives are divided into a conservative and progressive approach which relates to the model about a hierarchical and network municipality.

Nowadays, municipalities intend to change from a hierarchical approach to a network approach to provide space for a participation society (Hugen, 2016). Besides that, municipalities are struggling with the changing role of policymakers and the existing structural framework (Nientied, 2014). The network approach is related to the sustainable area development according to citizens' initiatives and the willingness of municipalities to support (Ban, 2014). Policymakers in local government often define the initiative or social problem for citizens which decreases public support (Vereniging van Nederlandse Gemeenten, 2018). Due to the missing use of creativity, collaboration and productive society in the area development citizens are not willing to participate in governments' projects to add value in the sustainable built environment during the energy transition (Overbeek & Salverda, 2013). As researched before, the white approach contains characteristics of coproduction which contributes to the new approach for local government (municipalities): guidance to a flexible and interactive local government in collaboration with citizens (Twist & Steen, 2013). Citizens' initiatives operate more efficiently when the local government (municipality) supports using the co-production approach and collaborates with the involved citizens (Schoor & Scholtens, 2015). The participation of citizens in initiatives is changing to the participation of municipalities in citizens' initiatives: citizens create their initiative, and the municipality follows the particular initiative (Salverda & Pleijte, 2015). According to the perspectives of Steen et al., the role of municipalities moves towards 'network governance', because of the increasing collaboration between government and citizens and the rotation of citizens' participation to government participation in initiatives.

Finally, all kind of aspects of citizens' initiatives is elaborated. The concept 'citizens' initiatives' plays an essential role during the current energy transition in the Netherlands. Citizens' initiatives show much connection with the built environment and, to deal with governmental regulations around sustainability, the initiatives contribute to a more sustainable environment and reduction of

CO2 emissions. However, stimulating citizens will be necessary to achieve the government's goals because they influence the success of citizens' initiatives (Dubbeling, 2012). Stimulation opportunities are actively engaged citizens, financial support and collaboration with existing neighbourhood associations (Diepenmaat, 2009). It is essential to structure these characteristics into a particular model. Based on the following concepts, the model will be described: citizens' initiatives (people), the energy transition (planet) and the built environment (profit).

2.6 BUSINESS MODELS

The approach of strategy in the current business models will be affected due to the energy transition (Lopes de Sousa Jabbour, 2019). The first step towards performance-oriented business models presumes that costumers do not only want to have access but rather want to have an exceptional performance which occurs different approaches and resources (Lin, Lyau, Tsai, & Chen, 2010). These steps recommend achieving a result-oriented business model which designs for the targeted outcome of adding values (Sempels & Hoffmann, 2013).

In this case, the energy transition affects the framework or structure continuously for citizens' initiatives because it often fluctuates (Boons, Montalvo, Quist, & Wagner, 2013). Existing business models which are specified in added values obstruct transitions because of restraint in changes and the conservative approach (Bidmon & Knab, 2018). The existing structure of such models cannot be adopted to new approaches due to the energy transition (Nillesen & Pollitt, 2016). Imitation is the market conditions, and continuously competition provides a complex environment to determine fixed business models (Teece, 2010). In this case, citizens' initiatives are customisation concepts and are continually changing with market conditions (Toorn M. v., 2015). It means that flexible business models are a prerequisite for developing citizens' initiatives (Jonker, Tap, & Straaten, 2012).

To stay in line with the process, institutional barriers as regulations must be taken away to achieve the purpose of the initiatives. Success factors in setting up a network for citizens to allow working together are as follows (Narain & Vries, 2015)

1. Create processes which add value to the economic value and increasing the quality of life
2. Create a network of organisations, knowledge institutions, citizens and social networks
3. Focus on a small scale for a big ambition reach

Business models have to deal with continuously fluctuations in market conditions and the adaptability to retain the market position relative to the competition. The business models for FM and CREM guarantees commercial organisations to add value to their core business. Furthermore, the assumption that business models always developed for organisations is necessary to haggle (Jonker, Tap, & Straaten, 2012). Networks of citizens belong to the development of business models; besides their core business have no profit motive. Their focus is generally on improving the living environment and adds value to the built environment. To establish a useful business model, the current business models can be adjusted to a handful business model for citizens. Because of this, some business models (BM) about Real Estate (RE) are shortly explained in table six.

Business model	Source	Explanation
FM Value Map	(Jensen, 2010) (Prevosth & Voordt, 2011).	This model is based on the added value of FM to the core business and the environment. However, the FM Value Map is comprehensive and developed to serve as a basis for other FM models
Impact of RE	(Jensen, et al., 2012) (Vries, 2007)	This model shows that the added value of FM/CREM defined as three interventions: profitability, productivity and competitive advantage. Besides, BM is not focused on the environment of the organisation, which is a condition for the added value of citizens' initiatives.

Input of RE	(Heijer, 2011)	The model is useful for organisations with RE projects and the alignment between these projects and the output performance. In this case, it is not based on an organisation which has a RE problem
Value Adding Management	(Hoendervanger, Bergsma, Voordt, & Jensen, 2017) (Sokovic, Pavletic, & Kern Pipan, 2010)	This model is useful to identify which CREM strategic items are not in line with the corporate strategy items. Due to the energy transition and additional consequences, this model is not applicable for citizens' initiatives

Table 6: an overview of business models

Above mentioned models have its characteristics which refer to the customisation business model for citizens' initiatives. Besides, the continuously changing environment for citizens and the adjustment for municipalities in participation for citizens' policy provides an uncertainty environment to develop a standard and applicable business model for citizens. Nevertheless, most initiatives are developed according to two approaches: bottom-up by citizens themselves (self-initiative) and top-down by the local government due to a social issue (Heijden, Dam, Noortwijk, Salversa, & Zanten, 2011). Participation of citizens changes the approach of the government because of a turn to the participation of citizens during energy transition projects and the increase of involvement of citizens.

Generally, the different components of the added value of citizens' initiatives can be elaborated using a green modified model (Lindholm & Aaltonen, 2011). This model consists of three parts and conclude which green influences affect the core business of the organisation. Through adding 'supporting environmental sustainability' in the model, this model refers to sustainability as a strategy for organisations (Sarasoja & Aaltonen, 2012). The first part consists of influences which occurs by internal and external conditions and impact the strategy level of the organisation. Also, these strategy levels purpose to elaborate on the core business performance level of the citizens' initiative. In case, these strategy levels fit with the three dimensions people, planet and prosperity and contribute to adding value to the built environment during the energy transition.

The summarise at the end of each chapter contributes to defining a customisation business model for every citizen initiative. The characteristics of each domain are merged in a conceptual model which is converted using the green modified model. Figure eight shows the conceptual model.

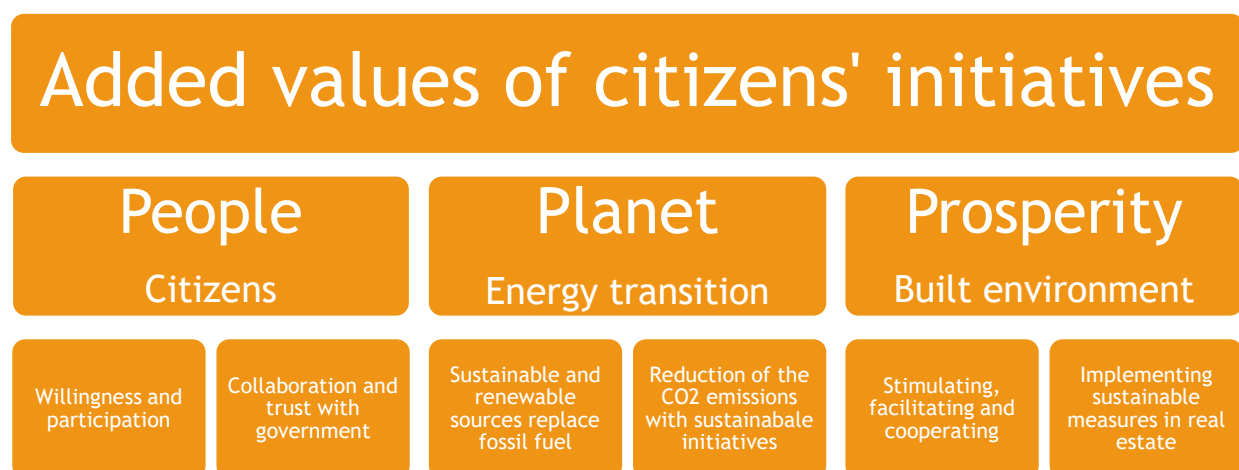


Figure 8: conceptual model

2.7 TREE DIAGRAMS

The tree diagram shows in an excellent way what the structure of the research is. Besides that, the results of the literature review on the research are explained in this diagram. According to Sinnamon and Andrews, the tree diagram is a system to analyse the cut-sets of several approaches in the research (Sinnamon & Andrews, 1998). The tree diagrams are used to collect all random concepts which are related to the term and research (Ambarwati, 2011). The tree diagram reveals all characteristics of citizens' initiatives, the energy transition and the built environment and divides this into relations between the characteristics. In appendix B, all tree diagrams are shown.

3 RESEARCH OBJECTIVES, QUESTIONS AND DATA COLLECTION

3.1 RESEARCH OBJECTIVE

The research objective determines the main research question. The objective can be subdivided into two different approaches: primary and secondary objectives (Doody, 2014). The difference between them is primary is bound to achieve, and secondary is aimed at accidental circumstances.

The research aims to find out which citizens' initiatives creates added value for the built environment. In the last decade, a lot of exciting initiatives of Dutch citizens are created and tried to add value to their environment. Besides that, some of these citizens' initiatives finished, but many more have not been applied. At the same time, the initiatives, which finished, have added value to the environment. The continuously changing circumstances in the energy transition provide a system for citizens' initiatives which is hard to work with. Due to the regulations of the government, a lot of citizens' initiatives needs to be specified and occurs initiatives which are not possible in current regulations. Furthermore, the citizens' initiatives that yield something are an example of added values for the next citizens' initiatives. Besides, the built environment takes advantages of successful citizens' initiatives and measure up to the governments' regulations.

Added values of citizens' initiatives provide favourable circumstances for the built environment. It is important to note that the added values of citizens' initiatives only apply to the Dutch market and environment.

3.2 RESEARCH QUESTIONS

The main question is to evaluate and formulate which added values are most applicable and standard for new initiatives of citizens. This central question is as follows formulated:

How can **citizens' initiatives** related to **energy transition** add **value** to the **built environment**?

The following sub-research questions formulated to answer the main question. To obtain a clear overview of the sub-questions, figure nine shows a graphical representation.

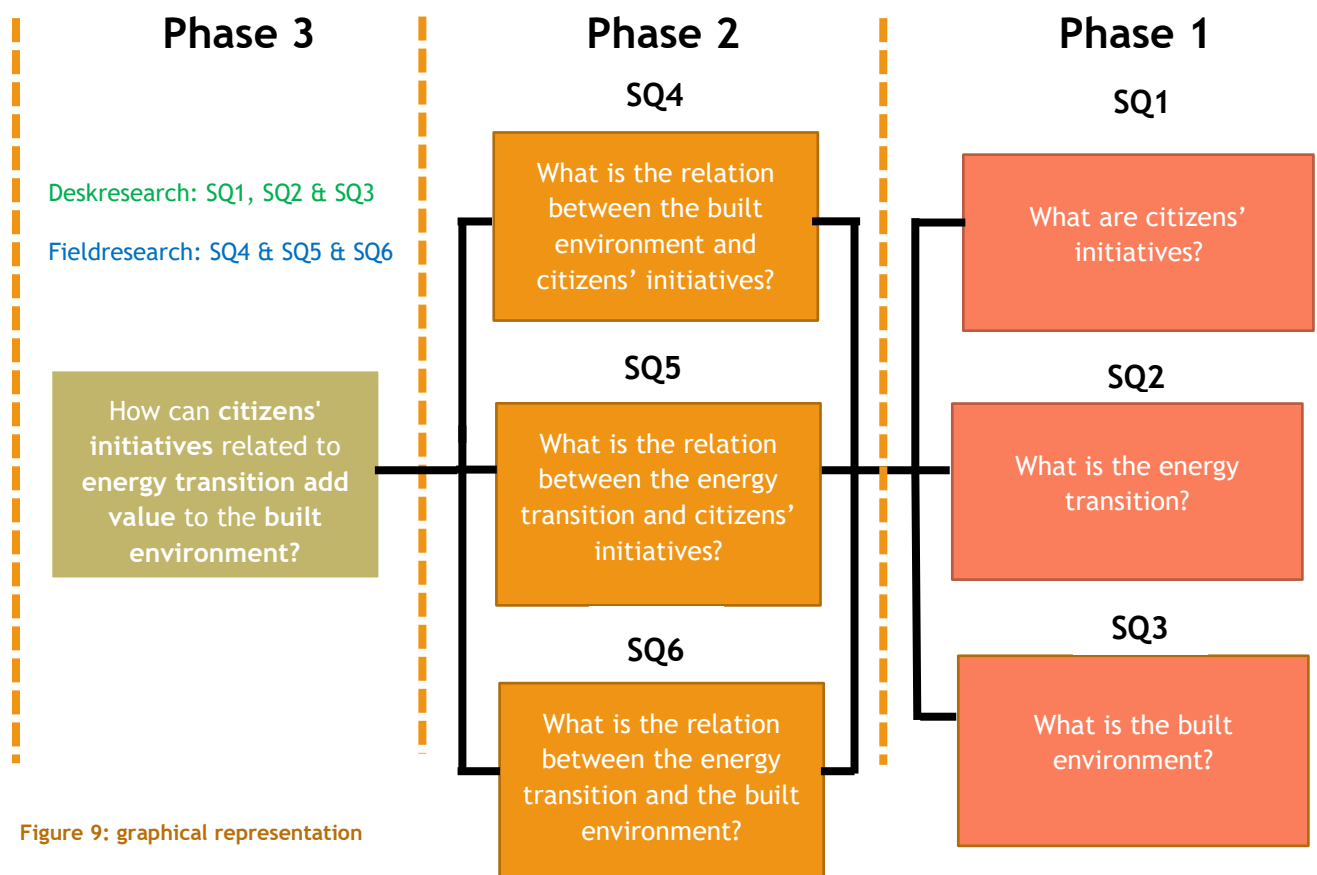


Figure 9: graphical representation

3.4 DATA COLLECTION TECHNIQUES

As already explained in the chapter, the research consists of two different techniques: desk research and field research. Mostly, the desk research is used (SQ 1, 2 and 3), and sometimes the field research is used (SQ 3 and 4), see figure 7. The main question subdivides into four sub-questions, which also subdivides into smaller questions.

Phase 1

SQ1: What are the citizens' initiatives?

The used method is a desk research. In the literature review, there are a lot of different sources about citizens' initiatives to answer the first sub-question. Besides, the government plays an essential role during the development of citizens' initiatives.

SQ2: What is the energy transition?

The method used is desk research. The energy transition has similarities with the circularity, but there are differences. Furthermore, the energy transition has an impact on every citizen in the Netherlands. Besides, the government plays an essential role during the energy transition. This sub-question will answer the impacts.

SQ3: What is the built environment?

The method used is desk research. Firstly, the explanation of the built environment is elaborated. Besides, the government created a lot of regulations and laws for the built environment. These will be explained in the sub-question.

Phase 2

SQ4: What is the connection between citizens' initiatives and the energy transition?

The used method is field research. There are a lot of different citizens' initiatives (collected from HIERopgewekt), and the outcomes of these initiatives differ from each other. Furthermore, the added values of these citizens' initiatives need to be researched to answer the main question. The energy transition has an impact on every citizen and relates to the initiatives.

SQ5: What is the connection between citizens' initiatives and the built environment?

The used method is field research. There are a lot of different citizens' initiatives, and these initiatives have a connection with the current energy transition in the Netherlands. Furthermore, the used business models for energy transitions occur a relationship with citizens' initiatives and the way how to focus on these initiatives.

SQ6: What is the connection between the energy transition and the built environment?

The used method is field research. Due to the energy transition in the Netherlands, the built environment will be affected by this transition in the Netherlands.

To answer these sub-questions, interviews will be held. The interviews are semi-structured. To be reliable and valid, a standard interview guide is used. Moreover, there are several themes and topics and an interview guide structures these themes and topics (Saunders, Lewis, & Thornhill, 2016). In appendix C, all interview guides can be found.

4 RESEARCH METHOD

According to the book about research methods, there are several ways to ‘do research’ (Saunders, Lewis, & Thornhill, 2016). To give a clear insight into the theory about several research definitions, the book of Saunders, Lewis and Thornhill is used. This chapter will outline the research strategy, conceptual framework and operationalisations.

According to Saunders et al., the research objective states what the researcher wishes to accomplish as a result of the research (Saunders, Lewis, & Thornhill, 2016). In this research, the focus is to find out what citizens require during their process of living more sustainably—the way how they react to the increased pressure of being more sustainable. The number of stakeholders in this research influences the result of living more sustainable.

The approach of the research clarifies as **inductive**. An inductive approach is related to the various methods of qualitative research (also known as **multi-method qualitative**). The variety of interview guides and interviews lead to an inductive approach within a **multi-method**.

4.1 RESEARCH DESIGN AND STRATEGY

To clarify which sort of research methods are used, it is essential to describe the research design. According to Saunders et al., the research union shows the methodological approach to choose and achieve the methods which are involved in the research.

To identify which approach is applicable for the research, the theory development needs to be chosen. The aim of the research is about to recognize and formulate the added values of citizen initiatives. There are two different approaches to acquire data for answering the sub-questions, and finally, the main question. These approaches are qualitative and quantitative. The qualitative method consists of interviews, target groups or non-numerical data (data that have not been quantified). The quantitative method includes numerical data or data that have been quantified (Saunders, Lewis, & Thornhill, 2016).

The most applicable and reliable approach is the qualitative method. This method consists of several elements which are related to each other, using a variety of data and data techniques to develop a conceptual framework. To obtain enough qualitative data, interviews will be held with several people who are involved in this sort of initiatives. The primary purpose of these interviews, depending on the person, will be focused on the added values of these initiatives. Furthermore, it is essential to enhance the value of these initiatives, so that frequent and future initiatives will be more applicable and future-oriented to measure up to the circularity and energy transition in the dwellings’-built environment.

To identify which added values are applicable and reliable, a variety of data will research using a multi-method qualitative study. To declare this decision, many citizen initiatives are already worked out regarding the databank HIERopgewekt (HIERopgewekt, 2018). The variety of citizen initiatives provides a data collection of added values. To identify which added values are most applicable, the model of added value management (see literature review) is used.

4.2 SAMPLING

In the network of PhD Moniek Kamm, there are many researchers, CEO or people who are familiar with citizens initiatives or the circular transition. Moniek Kamm is a PhD researcher, who is currently studying at the Radboud University in Nijmegen. The study of Kamm can be formulated as: ‘researching regional entrepreneurial networks where these networks focus on the sustainable development of the region. In this region, citizens, entrepreneurs and governments work together on concrete activities and projects.’ (Kamm, 2018).

The connection between this research and the research of Moniek Kamm can be explained through several conversations between the student and the researcher. In the last decade, there are many citizens' initiatives founded. These initiatives worked divided of each other, but the main goal is the same: add value to their environment and be more sustainable. Furthermore, these subdivided initiatives have increasingly collaborated. These new collaborations between citizens' initiatives are regional networks. The way how they were founded and developed is a part of the research of Moniek Kamm. It is more focused on the social role of regional networks. The network consists of subdivided persons who are involved in regional, provincial and national networks. These persons are essential to interview, because of their knowledge about citizens' initiatives, circular economy and the energy transition.

4.3 INTERVIEWS

In this research, interviews were held among the different stakeholders. The stakeholders differ in much expertise. The interviews were conducted in an inductive approach, which means that difference interviews were held with specified interview guides. Every interview consists of strategy and purpose, which depends on the interviewer and their expertise in the work field. One interview was held by the methodology of a focus group. A focus group interview consists of more participants and provides a social environment for every participant. Also, a deeper understanding and new insights are the advantages of a focus group interview (Breen, 2006).

The focus group consisted of members of a networking group in the north of the Netherlands. This focus group helps current citizens' initiatives to be successful and what the added values of these initiatives for the built environment will be. All of them had their own experience and know-how in the work field.

The other interviews were held according to one by one interview. All the stakeholders provided very suitable and applicable information and experience for the research questions. The different approaches of the interview guides help to achieve the best result of the interviewer. Every interviewer has its expertise and provides the data which is in line with the topics of the interview guide. Furthermore, these guides are a guideline during the interview to obtain the right answers (Saunders, Lewis, & Thornhill, 2016). In table seven, an overview of all respondents is created.

Code	Interviewer	Company
TB	Tim Broeders	ING Real Estate
RS	Rene Schellekens	RVO Nederland
LC	Leo Crombach	Lijnspeel Coöperatie
MO	Manon Ottens	Gemeente Montferland
CAV	Cees Anton de Vries	Origami
MK	Moniek Kamm	Saxion and Radboud University
IG	Igor Grevers	ICS Nederland
GA	Guido Ariessen	DKK Gelderland
FG	Focus Group (4 persons)	NoordenDuurzaam

Table 7: Overview of respondents

4.4 OPERATIONALISATION

An operationalisation model consists of abstract concepts which cannot be measured. To measure these abstract concepts, indicators will be used. The indicators are shown in the elaborated tree diagrams in appendix B. This research is divided into three concepts: citizens' initiatives, the energy transition and the built environment. In the literature review, each domain is subordinated in three concepts to elaborate and to find out what the definition, barriers and value-added are

5 VALIDITY AND RELIABILITY

5.1 VALIDITY

Validity is one of the science canons of inquiry. According to Saunders et al. (2016), *‘validity refers to the appropriateness of the measures used, the accuracy of the analysis of the results and generalisability of the findings: are the measures being used in the research to assess the phenomenon being studied measure?’*

In other words, validity refers to the degree to which people measure what they claim to measure. Validity consists of three different aspects: construct validity, internal validity and external validity.

5.1.1 CONSTRUCT VALIDITY

This research aims to obtain knowledge about the added values of citizens’ initiatives applying circularity and the energy transition. To have applicable construct validity, the underlying concept needs to be covered by the operationalisation (Sprang, 2019). In this research, the added values of citizens’ initiatives measure to clarify the differences in successful initiatives and less successful initiatives. These findings will be measured using semi-structured interview guides and the literature review.

5.1.2 INTERNAL VALIDITY

Internal validity means: ‘the extent to which findings can attribute to interventions rather than any flaws in your research design.’ (Saunders, Lewis, & Thornhill, 2016) Some threats of internal validity can explain as an event which changes participants’ perception, informing participants about an issue which can lead to future consequences for them or a lack of clarity about cause and effect (Cook & Campbell, 1979). In this research, internal validity increases to aligning the coordination of the various cases should be done as valid as possible. Furthermore, the conclusions of the interviews will check with the respondents.

5.1.3 EXTERNAL VALIDITY

External validity means: ‘the extent to which the research results from a particular study are generalisable to all relevant contexts.’ (Saunders, Lewis, & Thornhill, 2016). The external validity in this research is (very) weak: it is impossible to generalise the conclusions of this research with other research. At least 12-15 interview will be done, and that number of interviews does not fit in the scope of the total population. Furthermore, the research aims to obtain added values of citizens’ initiatives.

5.2 RELIABILITY

According to Saunders et al., reliability is formulated as follows: *‘the extent to which data collection technique will yield consistent findings, similar observations would be made, or conclusions reached by other researchers or there is transparency in how sense was made from the raw data.’* (Saunders, Lewis, & Thornhill, 2016)

In this research, reliability sometimes presents, and there are some threats. These threats can categorise into participant error and bias and researcher error and bias. The first threat, participant error and prejudice, is based on the performance and responsiveness of the participant. The participant can influence during the interview in open spaces: they feel overheard. Furthermore, the time of the interview can affect the performance of the participant. Instead of this, the literature review is essential to obtain enough secure data.

Otherwise, researcher error and bias are a threat. For instance, the research is not sufficiently prepared or too tired and misunderstood the interviewees. Researcher bias can occur when the researcher allows his or her subjective view. In this research, the researcher needs to follow the interview guide and prepares before the interview started. Equally important, the interviews will record.

5.3 LIMITATIONS

To become reliable and valid research, the limitations of the research needs to be recognised and covered. As above-mentioned, time planning, and money are the most common limitations. To covers the time limit, planning is worked out. Due to this research, money limitation is not entirely applicable.

Other limitations are a too broad scope of the research. In this research, the scope of the research is delimited by using a funnel and conceptual model. Subsequently, the main question and sub-questions formulated, and the scope is delimited. Besides that, the scope of the research is too broad and need more specific research on the impact of the energy transition on the built environment. Furthermore, the added values of citizens' initiatives are related to the social aspects of citizens' in the Netherlands. The research must be based on the Real Estate of citizens' initiatives, what it brings to the built environment, and what the added values of these sort of initiatives are. In a certain level of citizens' initiatives, the research will focus on small projects and the relationship between the citizens' and the local government. It depends on the region in the Netherlands where the citizen initiative will be held. The focus needs to be specified overall of the Netherlands and not specific for one area.

Another limitation is the country where the research is done. In this case, the research is only based on the Netherlands and does not apply to other countries all around the Netherlands or in Europe. The cases and studies which used in this research are derived from researchers around the world. The core of the overall study has many interfaces in the different countries, and the explanation of concepts is mainly comparable, but there are more aspects it depends on. As stated by Daft, the organisational culture and ethics differs in every country and has an impact on the values of that specific country (Daft, Murphy, & Willmott, 2010). To identify culture and ethics, research about these values is required to do. The citizens are guided by the culture and ethics of that country and how they react to changes. The behaviour of citizens differs in several aspects and will affect the guidelines to react on initiatives of citizens' or other organisations. To identify these guidelines, further research is recommended. Differences in cultures and ethics are mainly the aspects which contribute to the consideration of specific research in one country instead of more countries.

Furthermore, cultures and ethics aspects are not the only aspects to choose one country. Other reasons are the barrier of languages. Every country has its language, and the definitions of terms can be different in countries. Besides, the pronouncing of the term is also different in countries, and a misconception is often made. Research of Reed spread the English language in three circles. The three different circles represent countries where English uses as a native language, second language and a foreign language. The conclusion is a broad pronunciation of terms in these different levels of English-speaking countries. Some terms pronounced in the other dimension and affect the content of specific terms (Reed & Levis, 2015).

The limitation of research contents several aspects and can be broad. Due to the number of limitations, the research will abbreviate to achievable research. At last, there is also potential limitations in the chosen strategy of the research. All interviewers have experience with one of the definitions of the research, but this may be a limitation. The experience in conducting crucial research is not very broad (Saunders, Lewis, & Thornhill, 2016). Besides, there was a limit in the amount of time to interview all different regional or local networks of citizens' initiatives. The

approach of networks depends on the region where they live, the several laws and guidelines of the local government. For instance, citizens' initiatives in northern of the Netherlands differs from initiatives in the south of the Netherlands, because of local regulations and guidelines of municipalities.

Another possible limitation is the number of interviews. Furthermore, the quality of the respondents must be at a certain level. This requirement can lead to a lack of respondents. To be ahead of this, it is essential to involve planning to schedule the interviews. Afterwards, the planning of interviewers was primarily followed by the author. Unfortunately, some interviews could not continue for various reasons.

6 RESULTS

In this chapter, the results are described and were obtained through the literature review and the in-depth interviews. The results are subdivided into three phases. The first phase contains the sub-questions one, two and three and the second phase contains the fourth, fifth and sixth sub-questions. The last phase contains the main question, which is answered in conclusion.

The various respondents are classified in associated codes to identify which respondent has his or her experience with the specific topic. The associated codes can be found in appendix A. The axial coding can be found in Appendix D.

6.1 APPROACHES OF THE THREE CONCEPTS

The first phase contains the approaches of citizens' initiatives, the energy transition and the built environment. In the literature review, all three concepts are summarised based on definition, barriers and added value. These aspects are part of the result and will be compared with the results of the interviews.

The three concepts are linked to the 3 Ps from the Three Bottom Line (TBL). People, planet and prosperity are the base for citizens' initiatives to be successful. However, Elkington mentioned that the TBL is often used as a reporting tool which does not correspond to the intention of the 3 P's (Elkington, 2018). LC stated that the use of the 3 P's shifts to a social process for organisations and citizens, and it is essential to make it significant. It can be concluded that the social experience around the 3 P's is essential and to encourage initiatives to go further in the process.

6.1.1 APPROACHES OF CITIZENS' INITIATIVES

In this subchapter, the citizens' initiatives are defined according to the literature review and interviews. The following sub-question is answered: *What are citizens' initiatives?*

The content of the approach of citizens' initiatives differs in aspects. There is not one specific translation for citizens' initiatives. The Dutch government follows the definition of the Dutch organisation 'Movisie'. This definition is primarily based on the contribution of citizens' initiatives, but the elements of citizens' initiatives are not specified in this definition. According to RS and GA, the citizens' initiatives consist of two different approaches: the social domain and the physical domain. The social domain contains the participation of citizens' in their living environment where they contribute to the society of the area. These initiatives are in line with the elements of the three economic sectors in the Netherlands. As stated by Bennett and Lemelin, the social sector is the newest in the Dutch economy (Bennett & Lemelin, 2014). The other sector contains elements of the public and private sector, which belongs to the built environment in the physical domain. In these sectors, the citizens are also involved in initiatives to be more sustainable, but 'it is more about business cases and the financing and investment of sustainable measures' according to TB.

Citizens' initiatives contain several aspects. To structure these aspects, figure @ shows an overview of all aspects of a citizens' initiative on the base of literature and respondents.



To summarise this model, MO, RS, LC and GA mentioned that the willingness of citizens is one of the first steps to take. This can be developed through the participation society of the Dutch government (Denters, Tonkens, & Verhoeven, 2013). CAV interprets that the government observed that citizens must be involved in projects to think along about adding value in their living environment and be more sustainable. Therefore, society participates more and more in governments' projects (Hassink, Salverda, Vaandrager, & Dam, 2016). On the other hand, citizens are willing to add value in their dwellings and surrounding but were not supported by the government during the process (Verhijde & Bosmen, 2013). CAV mentioned these developments and possibilities to realise plurality in these initiatives. The bottom-up approach from citizens to the government is characterised from an English approach, according to IG. Citizens develop the initiative, and the involvement of the government happens in a further stadium of the process. MK mentioned the variety of citizens' initiatives and the resulting fragmentation of the environment. The flexibility of citizens is being tested in specific initiatives (Belmans, Vingerhoets, & Vaerenbergh (e.a.), 2016). Overall, RS stated that customisation of every initiative is one of the added values for citizens.

6.1.2 APPROACHES OF THE ENERGY TRANSITION

Since the beginning of the NMP4, the term 'energy transition' began to implement in current governments' regulations. Policymakers and researchers adopt it into the 'transition management' model, and the Dutch Ministry of Economic Affairs carried it out in an energy transition project (Kern & Smith, 2008). The attention of the energy transition is for renewable energy sources and a new circular economy raised (Anderson, 2007). MO and RS indicate the increasing demand for energy transition for the municipalities and citizens. RS and CAV went into the citizens part of the energy transition and mentioned that the purpose is often too focused on technical, financial and energetical sources. The purpose of citizens is generally meant to create more social cohesion and more sustainability in their living environment. MO went into the municipality part of the energy

transition and mentioned that municipalities are confronted with national regulations about the energy transition. These regulations could be reflected by citizens, and that creates uncertainty among the citizens.

Nevertheless, the Dutch government structures the energy transition to use the transition management model as fundament (Rotmans, 2005). This model is based on a long-term vision with short-term action (Bergh & Bruinsma, 2008). Advantages of this approach are more stimulation and ambitions for citizens during the process of initiatives. The impact of the energy transition is broad and affects citizens, as stated by MO and CAV. FG also mentioned that a structured collaboration between citizens and the government is necessary. MK thinks that the rise of regional networks will create new opportunities.

Moreover, these opportunities provide less reduction of CO₂ emissions (Owusu & Asumadu-Sarkodie, 2016), but cannot deal with the demand of energy usage (Doan, Eckhouse, Cannon, & Recht, 2019). In addition to this, LC and GA stated that the process of a citizen initiative during the energy transition cost too much time. An upscaling of the process of citizens' initiatives will create more support for the willingness of citizens (Fazeya, et al., 2018).

The Dutch government decided to less usage of greenhouse gas. To achieve the purposes, existing dwellings must disconnect its current gas connection on the Dutch piping system (Rijksdienst voor Ondernemend Nederland, 2020). According to MK and RS, no gas connection will not meet the expectations about the decrease of CO₂ emissions, and that is endorsed by research about these expectations (Säynäjoki, Heinonen, & Junnila, 2012). On the other side, MO draws up an implementation agenda in the municipality to disconnect dwellings of the greenhouse gas. Research about using less greenhouse gas shows the benefits and the contribution to less CO₂ emissions, confirmed by MO and MK.

However, the finance of disconnecting dwellings of the greenhouse gas and implementing other sustainable measures provide problems for involved citizens and the government. Research shows an investment of 18.000 euro per dwelling and the uncertainty is who is responsible for this investment (Huisman, 2018) (Oei, Haffner, Til, Heidecke, & Slaakweg, 2018). Therefore, citizens are saddled with more uncertainties as to the added value of renewable energy and the decreasing costs for the investment in sustainable measures (Steenbekkers & Scholt, 2019) (Lelij, Graaf, & Visscher, 2016). MO often mentioned that citizens could invest in their dwelling, but the willingness of citizens or the financial subsidy is not available. According to RS, the energy transition is focusing too much on finance, but not on purpose. FG reveals a new approach for the government: coordination mechanism to frame the energy transition for citizens' initiatives.

6.1.3 APPROACHES OF THE BUILT ENVIRONMENT

In the Netherlands, the built environment consists of two sorts of buildings: dwellings and non-dwellings. Citizens are interested in added value to dwellings and try to achieve this through citizens' initiatives during the energy transition. The impact of citizens on climate change is increasing due to a growing population and more needed infrastructure (Wilby, 2007). FG supports citizens to add more sustainable measures in the built environment and the potential to reduce the CO₂ emissions with these measures (Butera, 2010). TB remarks about the increasing demand for more sustainability in dwellings and supports these initiatives. Research about sustainable measures shows an upscaling in applying these in existing dwellings (Menassa & Baer, 2014), but according to TB, citizens are not compulsory to invest in sustainability. On the other side, TB mentioned that investments in the built environment depend on the emotion of citizens (around 80%), and the rest depends on the business case. RS and MO do not agree with this and says it is mainly due to misunderstanding and financial disadvantages for citizens. Citizens are not willing to invest in their dwelling without financial compensation (Conijn, Dröes, Rouwendal, Schilder, & Vries, 2017-02). In

municipalities, energy counters are available for citizens to borrow money to invest in their dwelling, but citizens are not aware of this possibility, according to MO. CAV refers to more collaboration between citizens themselves and their purpose to invest in the built environment. IG agrees with this and quotes that the government is moving towards more cooperation and collaboration.

6.2 RELATIONSHIPS BETWEEN THE THREE CONCEPTS

The three concepts are separately described and have many interfaces to each other. To ensure that the research focuses on the added value of the concepts, the relationship between the concepts are elaborated within the role of government. Besides, the 3 P's shapes a triangle between the three concepts and will answer the main question.

6.2.1 RELATIONSHIP BETWEEN CITIZENS' INITIATIVES AND ENERGY TRANSITION

Citizens' willingness to be involved in initiatives and contributing to the reduction of CO₂ emission in the energy transition is increasing (Verhoef, Ruitenbergh, Luttmer, Heirweg, & Andric, 2018). The awareness of the impact of the CO₂ reduction in their living environment is increasing, and citizens participate more in initiatives to deal with the expectations of the Dutch government about the interests of citizens (Twist, Steen, & Karré, 2009). Respondent MO mentioned that the municipality organises meetings for citizens to explain the framework of the government about the energy transition. MK described some small initiatives in a region where the government experienced issues with the willingness of citizens and the expectations of the government. Furthermore, MO experienced that citizens are not always aware of the contribution of the energy transition to their living environment, because of a lack of information or the uncertainty in investments costs. According to IG and GA, citizens play an essential role during the energy transition and have been through that citizens are willing to involve in projects or initiatives about sustainability. MO agrees with this comment and emphasises that the government is open to collaborating with citizens to improve their living environment. RS thinks that the current energy transition will change the role of the government because of their current role. Citizens' issues in villages or cities are not always apparent, and the government often has not an accurate representation of it (Parag, Hamilton, White, & Hogan, 2013). Besides, citizens expect that initiatives will always improve their living environment and added value for their dwellings while the process of sustainability (Berardi, 2013).

The willingness of citizens is increasing more, and their contribution to the energy transition cannot go fast enough, according to LC. LC experienced that the transition is going too slow for citizens, and that will create less involvement of citizens in the participation of the government. The Dutch government participate with citizens, but this process goes too slow, and the willingness and awareness of citizens are decreasing due to this time process (Olaniyan & Evans, 2014). Members of the FG mentioned that collaborating between involved stakeholders to implement the transition in initiatives is not the right framework to do. FG suggested to deal with the local government about the process and create together a framework for the elaboration of initiatives.

Moreover, multiple research shows that speed or time path is essential during the energy transition. A too slow process causes less involvement of citizens in initiatives because of the decreasing added value of sustainable measures (Solomon & Krishna, 2011). Fazeya et al. and MK suggested to upscale the process of initiatives to maintain the interest of citizens for specific initiatives (Fazeya, et al., 2018).

TB contributes to supporting citizens in the energy transition to obtain a monitoring's framework wherein citizens can ask about support, success factors and investment possibilities. TB mentioned that mainly the remarks about investment possibilities is often used, which can be confirmed by MO. Research also confirmed the uncertainty of citizens during the energy transition and the estimation of citizens about the investment costs (Verbong & Loorbach, 2012). According to RS, the

focus of the energy transition for citizens is often too much on energy, technical aspects and finance, and that does not correspond to the interests of citizens. RS suggests focusing more on the citizens that are involved in initiatives dealing with uncertainties and issues. LC mentioned that issues related to leadership and the division of roles ensure issues for citizens in the energy transition. CAV shares some of the remarks of LC but go beyond the issues and developed a transition model for citizens to use. This model shows the essences of collaborating between the citizens and the stakeholders to perform together in the energy transition. This will ensure new possibilities and opportunities for the involved citizens and to deal with the energy transition (Owusu & Asumadu-Sarkodie, 2016).

Generally, the relationship between citizens' initiatives and the energy transition creates new added values to perform together in initiatives. CAV and LC described the necessary leadership of a citizen while the process of initiatives. It will ensure the added value of citizens' initiatives during the energy transition. MK, MO, IG and GA mentioned the essential role of citizens in an initiative and agreed with this comment to the compulsory leader in an initiative. FG showed the framework for citizens and the importance to stay close to the initiative and its issues.

6.2.2 RELATIONSHIP BETWEEN CITIZENS' INITIATIVES AND THE BUILT ENVIRONMENT

The added values of citizens' initiatives related to the energy transition also affect the relationship between citizens and the built environment. FG summarise that the collaboration between citizens, government and other stakeholders affects the basis of making the built environment more sustainable. This collaboration becomes essential due to a growing population in the Netherlands (Wilby, 2007). Furthermore, every user of the built environment is responsible for the increasing CO₂ emission (Hammond, Booth, Lamond, & Proverbs, 2012). Besides that, the current citizens' initiatives can contribute to climate change to become more sustainable and add sustainable measures in their dwellings (Butera, 2010).

TB and IG mentioned that the investment in dwellings by citizens themselves cause problems around the investment costs. The government arranged multiple regulations and laws about the sustainability in the built environment, but this will not affect the plan of action of citizens according to TB and RS. Multiple research shows the high investment costs for citizens to improve their dwelling to become more sustainable (Huisman, 2018) (Oei, Haffner, Til, Heidecke, & Slaakweg, 2018). This cause the problems around the investment's costs. MK suggests developing more regional networks or initiatives because of more control in investments costs and publicity. RS confirms that initiatives are necessary, but also mentioned that the government plays a role in the development of an initiative and the place where it happens. If the government decided to improve a particular neighbourhood, then the citizens must agree with that. MO agrees that the government plays an essential role in the built environment but disproves that citizens must agree with the decision. MO and CAV noticed that the government and citizens are involved in those initiatives about the built environment, and the relevance will be elaborated and grant to the citizens.

The comments of MO and CAV ensure new possibilities to change the standard procedures of the citizens' initiatives (Peeters, Veken, Hens, Helsen, & D'haeseleer, 2008). The reduction of the CO₂ emission in the built environment aims coherence with renewable sources which can apply in the process of initiatives (Farla, et al., 2006). MK noticed an example of an initiative where the citizens want to apply renewable sources in their neighbourhood, but the citizens were not allowed due to a lack of know-how. RS also mentioned an example that the government is not familiar with the possibilities of renewable resources. On the other side, RS notices another example whereby the government collaborate with the citizens' initiative members to become more sustainable. LC and CAV speak about the feeling of citizens with their dwelling and the importance of this feeling. These comments are in line with the new possibilities to change standard procedures and become more flexible (Ramirez-Villegas, Eriksson, & Olofsson, 2016). The role of the government becomes

necessary to implement sustainable measures in the built environment and engage citizens' initiatives in this process (Diepenmaat, 2009). This transition is related to the energy transition and is confirmed by the comment of LC to speed up the transition.

Generally, citizens' initiatives add value to the built environment. This can be explained by the described components about more collaboration between citizens and government, use of renewable sources, investment in existing dwellings, feeling of citizens about their living environment and neighbourhood, and the contribution to reducing the CO₂ emission. MO and TB agreed with the transition to a more sustainable built environment, but both note that it is impossible to implement sustainable measures in the existing dwelling stock to become 100% sustainable. Not all citizens are willing to implement sustainable measures in their dwelling (Conijn, Dröes, Rouwendal, Schilder, & Vries, 2017-02). MK and CAV strive to preserve the knowledge acquired and using this knowledge for further initiatives.

6.2.3 RELATIONSHIP BETWEEN ENERGY TRANSITION AND THE BUILT ENVIRONMENT

Climate change and the regulations around the energy transition impacts the built environment for its users. In 2015 the Paris Agreement was signed to reduce the CO₂ emission in the Netherlands and other countries (Rogelj, et al., 2016). Due to this agreement, the Dutch government created multiple regulations around sustainability and ensured that citizens have to participate in the energy transition (Rotmans, et al., 2000). LC developed a model about the participation of citizens in initiatives which is based on the involvement of key stakeholders. In the energy transition, it is necessary to clarify what the framework is to become more sustainable so that the built environment benefit from the decisions taken. 'In this way, you guarantee a process from ideas to feasible ideas to a tangible good product.'

The energy transition impacts the built environment via several regulations or advice. One of these regulations focuses on 'no greenhouse gas connection in existing and new dwellings' (Rijksdienst voor Ondernemend Nederland, 2020). RS is convinced that no greenhouse gas connection in the built environment will contribute to the reduction of CO₂ emissions. MK and IG agree with this comment but notices that the policy around no greenhouse gas connection is split up. FG refers to the transformation process of the government and creates more initiatives for citizens to participate. The transformation process is also based on more renewable sources (Farla, Alkemade, & Suurs, 2010). Furthermore, the regulations about energy transitions also impact the built environment with the compulsory EPC rate for existing and new dwellings (Dijk, Wouters, & Hogeling, 2008).

7 CONCLUSION

The current climate change is related to increased CO₂ emission and has an impact on the worldwide regulations around sustainability. In the Netherlands, every citizen is considered an added value in the process of reducing CO₂ emission from renewable sources. The current energy transition ensures that citizens ally in initiatives and participate to make the built environment more sustainable. These citizens' initiatives consist of many aspects and add value to the built environment during the energy transition. For this research, the following main question is formulated:

How can citizens' initiatives related to energy transition add value to the built environment?

The aim of the research is focused on the added values of citizens' initiatives in the built environment during the current energy transition. The willingness of citizens and the participation of the government is essential to develop an initiative. Besides, the purpose of the initiative must be feasible and flexible to ensure that the opportunities can be achieved. A fundamental framework provides insight into the structure, strategy and involved citizens and how deal with the transition management of the Dutch government. The role of the government is essential in citizens' initiatives. The result was that the stimulation, facilitation and cooperation between citizens and the Dutch government is essential in carrying out the initiatives in the built environment. This affects the participation of citizens and provides a solid basis for success. Due to the role of the government, every initiative is tailor-made so that citizens and stakeholders can approach in several ways. This results in a higher chance of added value for the built environment and, finally, increasing value for existing real estate and a reduction in the CO₂ emission.

The effect of citizens' initiatives on the built environment correspond with the purpose to apply energy-saving measures to the dwelling of citizens. every initiative is tailor-made so that citizens and stakeholders can approach in several ways. Using energy counters to borrow money to invest in dwellings or to open subsidies or gifts to invest will not always work to achieve the purpose of the citizens' initiative. The added-value of citizens' initiatives depends on all kinds of aspects, and it seems that more willingness and participation of citizens and a visible framework often provides more added value for the built environment during the energy transition.

To summarise the most essential added values of citizens' initiatives on the built environment, the following statements contribute to this according to the 3 P's:

4. **People.** The willingness and participation of citizens and the collaboration and trust between citizens and government is essential to implementing initiatives in the built environment;
5. **Planet.** Changing the approach to more sustainable or renewable resources instead of the current greenhouse gas and materials, CO₂ emissions are reduced and citizens' involvement in sustainable initiatives is increased;
6. **Prosperity.** Stimulating, facilitating and cooperating citizens' initiatives and implementing sustainable measures in the built environment contributes to more added value to the built environment and increased awareness of sustainability in citizens' dwellings.

8 RECOMMENDATIONS

The recommendations are specified for citizens and the government to deal with the current circumstances and the findings of the research. Besides, the second part consists of recommendations for further research.

8.1 RECOMMENDATIONS FOR CITIZENS

Dutch citizens are faced with the challenge of being more sustainable and involved in initiatives to achieve this challenge. Generally, there are two sorts of citizens in initiatives: those who are involved in initiatives and those who are not willing to involve in initiatives because of a variety of circumstances. The citizens who are involved in initiatives are participating via two options: an initiative created by themselves or an initiative created by the government. Initiatives created by the government often occurs a difference in interests because of the purpose of the citizen or government. Both on the side of the government and the side of citizens, there is much enthusiasm to focus more on initiatives from citizens themselves to tackle social issues. Citizen initiatives offer opportunities to focus more on the perspective of citizens in tackling social issues. Citizens themselves determine which problems they want to tackle in their environment and how they do this. Ideally, this will lead to solutions that are in line with the living world and the needs of the people involved, and that can, therefore, count on more support from the key stakeholders.

Regularly, citizens participate in an initiative to achieve its purpose. This purpose is focused on a more sustainable environment, more social cohesion and a better living environment. The purpose of citizens often differs relative to the purpose of the government, and this cause problem in the collaboration between citizens and the government. Trust in each other is an essential aspect, while the initiative is carried out and ensures that there are more interfaces to succeed. Citizens want to arrange and record reciprocity in advance, which creates more trust in the collaboration between both parties. To arrange the trust in each other, citizens will be recommended to focus on trust and collaboration with the government and maintain their purpose to become more sustainable in their living environment. Small initiatives mostly will not succeed when it is not clear who is the leader and what the added values are. To succeed in those initiatives, the purpose must be specified and create a clear framework to add value to the environment

8.2 RECOMMENDATIONS FOR GOVERNMENT

Citizens' initiatives influence the relationship between citizens and the government. Citizens get to work on social issues where the government previously had the initiative. The government also encourages this. That does not mean that the government is not available on these topics. Initiators need financial help, they perform activities which a permit must be applied for, and the government keeps an eye on the interests of the citizens. Besides, the initiative connects to the objectives of the government itself and therefore, the citizens and the government reinforce each other.

Citizen initiatives are still running into practice bottlenecks in contact with the government. The expressed desire of the government to stimulate the energy transition arouses citizens' expectation that initiatives can count on a positive response and cooperation from the government. There is a significant group of citizens who are willing to do something for society. When they subsequently experience a cautious attitude from the government in practice, this leads to frustration. Governments must deal appropriately with citizens and their interests in the performance of their interests. This means that the government takes citizens seriously and treats them with respect. Governments should not act as impersonal bureaucracies. They always have an eye for the human dimension. When it comes down to it, the government seeks personal contact. It prevents or solves problems with the citizen through excellent communication and the availability to help them. The government must share enough space for citizens to develop their sustainable initiatives to add

value to the built environment. The citizens need to be assured that the government will be open and welcoming towards their initiatives. Furthermore, the role of citizens and the government is necessary for the process and customisation are paramount.

8.2 RECOMMENDATIONS FOR FURTHER RESEARCH

This research focused on the added values of citizens' initiatives on the built environment. The scope is specified to the built environment, but sometimes it is too broad, and the focus will be more on sociality and the social impact on the living environment. Now, the coronavirus affects the whole organisation around citizens' initiatives and the living environment of citizens and ensures that the success factors are changing. The role of the government will be focused more and more on facilitating and stimulating because of the increasing self-sustainability of citizens. Furthermore, the current effect of the coronavirus on the environment leads to another approach of sustainable, efficient measures, and the demand for the reduction of the CO₂ emission will increase. Research to the effect of the coronavirus on citizens' initiatives, which purposes the reduction of CO₂ emission, in the built environment will be recommended.

The current energy transition contains a lot of different approaches and affects all sectors in the Dutch economy. One of these approaches focuses on the reduction of gas connections in existing dwellings. In the Netherlands, the gas piping system is extensive and stop using this piping system will cost a lot of money and investment costs. The opportunity for using these piping systems for other sustainable sources will be recommended. Further research must show this opportunity.

Multiple research shows that citizens are experienced that the investments costs of sustainable measures in their dwelling are a lot. The efficiency and benefits for their energy bill are not always clearly described and ensures the decreasing willingness of citizens to implement sustainable measures in their dwelling. The government plays an essential role in the awareness of citizens in the energy transition to reduce CO₂ emission. The motives of citizens are primarily recognised, but more research to the willingness of citizens concerning the investments will be recommended. This research will image the benefits of implementing sustainable measures in existing dwellings and the awareness of citizens with the current energy transition.

REFERENCES

- Aalbers, C., Kamphorst, D., & Langers, F. (2018). *Bedrijfs- en burgerinitiatieven in stedelijke natuur: Hun succesfactoren en knelpunten en hoe de lokale overheid ze kan helpen slagen*. Wageningen: Statutory Research Tasks Unit for Nature & the Environment, WUR. Opgehaald van <https://library.wur.nl/WebQuery/wurpubs/fulltext/452013>
- Agyeman, J., & McLaren, D. (2015). *Sharing Cities: A Case for Truly Smart and Sustainable Cities*. Boston: MIT Press.
- Ambarwati, R. (2011). *The Effectiveness of Tree Diagram Technique as a Means of Teaching Writing*. Semarang State University. Semarang: Semarang State University. Opgehaald van <https://lib.unnes.ac.id/7705/1/10234.pdf>
- Anderson, M. (2007). An introductory note on the environmental economics of the circular economy. *Sustainability Science*, 2(1), 133-140.
- Arnstein, S. (2007). A Ladder of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216-224. doi:doi.org/10.1080/01944366908977225
- Baborska-Narozny, M., Stevenson, F., & Ziyad, F. (2016). User learning and emerging practices in relation to innovative technologies: A case study of domestic photovoltaic systems in the UK. *Energy Research and Social Science*, 13, 24-37. doi:10.1016/j.erss.2015.12.002
- Bakker, J., Denter, S., & Klok, P. (2011). Welke burger telt mee(r) in de doe-democratie? *B en M: tijdschrift voor beleid, politiek en maatschappij*, 38(4), 402-418.
- Ban, R. v. (2014). *Organisatie van Grote Gemeenten bij Stedelijke Gebiedsontwikkeling*. Delft: Delft University. Opgehaald van <https://repository.tudelft.nl/islandora/object/uuid:ee91e89c-6f31-4260-a275-908bdc43137f/datastream/OBJ/download>
- Bastein, T., Roelofs, E., Rietveld, E., & Hoogendoorn, A. (2013). *Kansen voor de circulaire economie in Nederland*. Delft: TNO Nederland.
- Basten, F., Heideveld, A., Logghe, K., & Verhagen, M. (2015). *Quick Scan: Aard, impact en omvang maatschappelijk initiatief*. Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. Opgehaald van <https://kennisopenbaarbestuur.nl/media/207445/quick-scan-aard-omvang-en-impact-van-maatschappelijk-initiatief.pdf>
- Bauwens, T. (2016). Explaining the diversity of motivations behind community renewable energy. *Energy Policy*, 93, 278-290. doi:10.1016/j.enpol.2016.03.017
- Bechtel, N., Bojko, R., & Völkel, R. (2013). *Be in the Loop: Circular Economy & Strategic Sustainable Development*. Karlskrona, Sweden: Blekinge Institute of Technology.
- Belmans, R., Vingerhoets, P., & Vaerenbergh (e.a.), I. v. (2016). *De eindgebruiker centraal in de energietransitie*. Brussel: KVAB Standpunt 44.
- Bennett, N., & Lemelin, R. (2014). Situating the eco-social economy: conservation initiatives and environmental organizations as catalysts for social and economic development. *Community Development Journal*, 49(1), 69-84. doi:10.1093/cdj/bst017
- Berardi, U. (2013). Stakeholders' influence on the adoption of energy-saving technologies in Italian homes. *Energy Policy*, 60, 520-530. doi:10.1016/j.enpol.2013.04.074

- Bergh, J. v., & Bruinsma, F. (2008). *Managing the Transition to Renewable Energy: Theory and Practice from Local, Regional and Macro Perspectives*. Amsterdam: Edward Elgar Publishing.
- Bidmon, C., & Knab, S. (2018). The three roles of business models in societal transitions: New linkages between business model and transition research. *Journal of Cleaner Production*, 178, 903-916. doi:10.1016/j.jclepro.2017.12.198
- Bijl, R., Boelhouwer, J., Cloin, M., & Pommer, E. (2011). *De sociale staat van Nederland 2011*. Den Haag: Sociaal en Cultureel Planbureau (SCP). Opgehaald van https://www.werkhoezithet.nl/doc/kennisbank/sociale_staat_Nederland_2011.pdf
- Binnema, H. (2014). Terugtrekken of opzij stappen. Beleidsadviezen over minder overheid en meer samenleving. *Bestuurskunde*, 23(3), 47-55.
- Blom, R., Bosdriesz, G., Heijden, J. v., Zuylen, J. v., & Schamp, K. (2010). *Help een burgerinitiatief!* Den Haag: InAxis, Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. Opgeroepen op mei 28, 2020
- Bogerd, A. (2009). *Energiebesparing in bestaande woningvoorraad*. Delft: TU Delft.
- Bonini, S., Gerner, S., & Jones, A. (2010). How companies manage sustainability. *McKinsey&Company*. Opgehaald van <https://www.mckinsey.com/business-functions/sustainability/our-insights/how-companies-manage-sustainability-mckinsey-global-survey-results>
- Boogers, M. (2010). Independent Local Political Parties in the Netherlands. *Local Government Studies*, 36(1), 75-90. doi:10.1080/03003930903435807
- Boon, F., & Dieperink, C. (2014). Local civil society based renewable energy organisations in the Netherlands: Exploring the factors that stimulate their emergence and development. *Energy Policy*, 69, 297-307. doi:10.1016/j.enpol.2014.01.046
- Boons, F., Montalvo, C., Quist, J., & Wagner, M. (2013). Sustainable innovation, business models and economic performance: an overview. *Journal of Cleaner Production*, 45, 1-8. doi:10.1016/j.jclepro.2012.08.013
- Boot, C., Verhijde, M., & Bosman, M. (2013). *'Regel die Burgerinitiatieven'*. Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. Opgehaald van https://vng.nl/files/vng/pagina_attachments/2013/20131201rapport-regel-die-burgerinitiatieven.pdf
- Boshuis, W. (2013). *Actieve burgers en leiderschap: de rol van leiders bij burgerinitiatieven in Nederland*. Utrecht: Universiteit Utrecht. Opgehaald van <https://dspace.library.uu.nl/handle/1874/278852>
- Boulding, K. (1966). Economics of the Coming Spaceship Earth. *Sixth Resources for the Future Forum on Environmental Quality in a Growing Econom* (pp. 3-14). Washington D.C.: Johns Hopkins University Press.
- Bovenhoff, M., & Meier, S. (2015). *Meer sociale cohesie door voorzieningen? Een literatuurstudie naar het verband tussen sociale cohesie en maatschappelijke voorzieningen op het platteland*. Research Centre for Built Environment, NoorderRuimte. Groningen: Hanze University of Applied Sciences. Opgehaald van <https://research.hanze.nl/en/publications/meer-sociale-cohesie-door-voorzieningen-een-literatuurstudie-naar>

- Brander, M., & Davis, G. (2012). *Greenhouse Gases, CO₂, CO₂e, and Carbon: What Do All These Terms Mean?* Ecometrica, White Paper. Opgehaald van <https://ecometrica.com/assets/GHGs-CO2-CO2e-and-Carbon-What-Do-These-Mean-v2.1.pdf>
- Breen, R. (2006). A Practical Guide to Focus-Group Research. *Journal of Geography in Higher Education*, 30(3), 463-475. doi:10.1080 / 03098260600927575
- Breyse, J., Jacobs, D., Weber, W., Dixon, S., Kawecki, C., Aceti, S., & Lopez, J. (2011). Health Outcomes and Green Renovation of Affordable Housing. *Public Health Reports*, 126, 64-75. doi:10.1177/003335491112605110
- Bronsvort, I., Uytterlinde, M., Heeger, A., & Huijding, P. (2018). *Van klimaatakkoord naar duurzame woning: verkenning van de aansluiting tussen rijksbeleid en de leefwereld van bewoners*. Den Haag: Platform31. Opgehaald van <https://www.platform31.nl/publicaties/van-klimaatakkoord-naar-duurzame-woning>
- Brounen, D., & Kok, N. (2011). On the economics of energy labels in the housing market. *Journal of Environment, Economics and Management*, 62(2), 166-179.
- Brown, L. (2015). *The Great Transition: Shifting from Fossil Fuels to Solar and Wind Energy*. Washington: WW Norton & Company.
- Buitelaar, S., Heeger, A., & Sterrenberg, L. (2018). *Burgerparticipatie in de warmtetransitie*. Den Haag: Platform31. Opgehaald van <https://www.platform31.nl/publicaties/burgerparticipatie-in-de-warmtetransitie>
- Buren, N. v., Demmers, M., Heijden, M. v., & Witlox, F. (2016). Towards a Circular Economy: The Role of Dutch Logistics Industries and Governments. *Sustainability*, 7(8), 647.
- Butera, F. (2010). Climate change and the built environment. *Advances in Building Energy Research*, 4(1), 45-75. doi:10.3763/aber.2009.0403
- Callahan, K. (2007). Citizen Participation: Models and Methods. *International Journal of Public Administration*, 30(11), 1179-1196. doi:doi.org/10.1080/01900690701225366
- Castelnovo, W. (2016). Co-production Makes Cities Smarter: Citizens' Participation in Smart City Initiatives. In F. M., B. E., & S. M., *Co-production in the Public Sector* (pp. 97-117). Springer, Cham. doi:10.1007/978-3-319-30558-5_7
- Centraal Bureau voor de Statistiek. (2018). *Hoogste aantal nieuwbouwwoningen in acht jaar*. Opgehaald van [www.cbs.nl](https://www.cbs.nl/nl-nl/nieuws/2018/04/hoogste-aantal-nieuwbouwwoningen-in-acht-jaar): <https://www.cbs.nl/nl-nl/nieuws/2018/04/hoogste-aantal-nieuwbouwwoningen-in-acht-jaar>
- Centraal Bureau voor de Statistiek. (2019, Januari). *Voorraad woningen en niet-woningen; mutaties, gebruiksfunctie, regio*. Opgeroepen op Maart 12, 2019, van CBS: [https://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=81955ned&D1=a&D2=1,l&D3=0,5&D4=\(l-17\)-l&VW=T](https://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=81955ned&D1=a&D2=1,l&D3=0,5&D4=(l-17)-l&VW=T)
- Centraal Bureau voor de Statistiek. (2019a, mei 29). *Aandeel hernieuwbare energie naar 7,4 procent*. Opgeroepen op mei 25, 2020, van www.cbs.nl: <https://www.cbs.nl/nl-nl/nieuws/2019/22/aandeel-hernieuwbare-energie-naar-7-4-procent>
- Centraal Bureau voor de Statistiek. (2020a, mei 19). *Particulier huishouden*. Opgehaald van www.cbs.nl: <https://www.cbs.nl/nl-nl/onze-diensten/methoden/begrippen?tab=p#id=particulier-huishouden>

- Centraal Bureau voor Statistiek. (2020, januari 3). *Bevolking groeit naar ruim 17,4 miljoen inwoners*. Opgehaald van [www.cbs.nl](https://www.cbs.nl/nl-nieuws/2020/01/bevolking-groeit-naar-ruim-17-4-miljoen-inwoners): <https://www.cbs.nl/nl-nieuws/2020/01/bevolking-groeit-naar-ruim-17-4-miljoen-inwoners>
- Chen, W., & Kim, H. (2019). Circular economy and energy transition: A nexus focusing on the non-energy use of fuels. *Energy & Environment*, 30(4), 586-600. doi:10.1177/0958305X19845759
- Conijn, J., Dröes, M., Rouwendal, J., Schilder, F., & Vries, P. d. (2017-02). *Het beleid in de koopsector: verleden, heden en toekomst*. Amsterdam School of Real Estate. Amsterdam: ASRE research papers.
- Cook, T., & Campbell, D. (1979). *Quasi experimentation: Design and Analysis issues for Field Settings*. Chicago: Rand McNally.
- Cramer, J. (2017). The Raw Materials Transition in the Amsterdam Metropolitan Area: Added Value for the Economy, Well-Being, and the Environment. *Journal of Environment: Science and Policy for Sustainable Development*, 59(3), 14-21.
- Daft, R., Murphy, J., & Willmott, H. (2010). *Organization: theory and design*. Singapore: South-Western Cengage Learning EMEA.
- Dam, R. v., & Salverda, I. &. (2014). Strategies of citizens' initiatives in the Netherlands: connecting people and institutions. *Critical Policy Studies*, 8(3), 323-339. doi:10.1080/19460171.2013.857473
- Dam, R. v., Salverda, I., & During, R. (2011). *Effecten van burgerinitiatieven en de rol van de rijksoverheid* (Vol. 5). Wageningen: Alterra, Wageningen UR.
- Defourny, J., & Develtere, P. (2009). Defourny, J., & Develtere, P. (2009). The social economy: the worldwide making of a third sector. The worldwide making of the social economy. Innovations and changes, 15-40. *Innovations and changes*, 15-40. Opgehaald van <https://orbi.uliege.be/bitstream/2268/13613/1/Chap%201%20Defourny%20Develtere.pdf>
- Dekker, T., & Schuur, R. (2018). *Werkdocument verduurzaming utiliteitsbouw*. Amsterdam: Rabobank en ABN AMRO.
- Demirbas, A., Sahin-Demirbas, A., & Demirbas, A. (2004). Global Energy Sources, Energy Usage, and Future Developments. *Energy sources*, 26(3), 191-204. doi:10.1080/00908310490256518
- Demisbas, A. (2006). Global Renewable Energy Resources. *Energy sources, Part A: Recovery, Utilization, and Environmental Effects*, 28(8), 779-792. doi:10.1080/00908310600718742
- Denters, B., Tonkens, E., & Verhoeven, I. &. (2013). *Burgers maken hun buurt*. Twente: Platform 31.
- Denters, S., & Klok, P. (2000). Councillor attitudes to ("interactive") governance. Evidence from a survey in five Dutch urban municipalities. *NIG Conference "From Government tot Governance"*, (pp. 1-16). Enschede. Opgehaald van <https://research.utwente.nl/en/publications/councillor-attitudes-to-interactive-governance-evidence-from-a-su>
- Denters, S., Bakker, J., Oude Vrielink, M., & Boogers, M. (2013). *Burgerinitiatieven in Overijssel*. Enschede: University of Twente. Opgehaald van <https://core.ac.uk/download/pdf/18296762.pdf>

- Di Foggia, G. (2018). Energy efficiency measures in buildings for achieving sustainable development goals. *Heliyon*, 4, 21. doi:10.1016/j.heliyon.2018.e00953
- Diepenmaat, H. (2009). *Transitiemonitoring*. Erasmus University. Rotterdam: Drift.
- Dijk, D. v., Wouters, P., & Hogeling, J. (2008). The European Directive on Energy Performance of Buildings (EPBD)-The EPBD Buildings Platform. *ASHRAE-transactions*, 114(2), 338-341. Opgehaald van <https://search.proquest.com/openview/cac13ca4c5dec994796aff53d9f06f58/1?pq-origsite=gscholar&cbl=34619>
- Doan, L., Eckhouse, B., Cannon, C., & Recht, H. (2019, September 15). *Bloomberg*. Opgeroepen op mei 20, 2020, van [www.bloomberg.com](https://www.bloomberg.com/graphics/2019-can-renewable-energy-power-the-world/): <https://www.bloomberg.com/graphics/2019-can-renewable-energy-power-the-world/>
- Doodeman, M. (2018). Nederland van het gas af, maar wie betaalt de transitie? *Cobouw*, pp. https://www.cobouw.nl/bouwbreed/nieuws/2018/05/heijmans-te-snelle-invoering-gasloos-bouwen-niet-gezond-voor-woningmarkt-101260988?vakmedianet-approve-cookies=1&_ga=2.35323425.1881481432.1546599726-1026697177.1539164706.
- Doody, O. (2014). Setting a research question,. *Nurse Researcher*, 23(4), 19-23. doi:10.7748/nr.23.4.19.s5
- Dubbeling, M. (2012). Na de olie. *Blauwe Kamer*, 5, 48-53. Opgehaald van https://www.connectingcities.eu/nl/wp-content/uploads/2009/05/DOWNLOAD-501_Blauwe-Kamer_Na-de-olie.pdf
- Duurzaam Nieuws. (2018). *Gasloze woning dreigt strop te worden voor huiseigenaar*. Opgehaald van www.duurzaamnieuws.nl: <https://www.duurzaamnieuws.nl/gasloze-woning-dreigt-strop-te-worden-voor-huiseigenaar/>
- Dvarioniene, J., Gurauskiene, I., Gecevicius, G., Trummer, D., Selada, C., Marques, I., & Cosmi, C. (2015). Stakeholders involvement for energy conscious communities: The Energy Labs experience in 10 European communities. *Renewable Energy*, 75, 512-518. doi:10.1016/j.renene.2014.10.017
- Edelenbos, J., Teisman, G., & Reuding, M. (2001). *Interactieve besluitvorming als sturingsopgave*. Rotterdam: InnovatieNetwerk Groene Ruimte en Agrocluster. Opgehaald van <https://edepot.wur.nl/82235>
- Eerenbeemt, M. v. (2020, januari 29). Nederland kreeg in 2019 grootste aantal nieuwbouwwoningen sinds tien jaar. *De Volkskrant*. Opgehaald van <https://www.volkskrant.nl/economie/nederland-kreeg-in-2019-grootste-aantal-nieuwbouwwoningen-sinds-tien-jaar~b6975f36/>
- EESI: Environmental and Energy Study Institute. (2019). *Fossil Fuels*. Opgeroepen op Mei 14, 2020, van [eesi.org](https://www.eesi.org/topics/fossil-fuels/description): <https://www.eesi.org/topics/fossil-fuels/description>
- Elkington, J. (2018). 25 Years Ago I Coined the Phrase “Triple Bottom Line.” Here’s Why It’s Time to Rethink It. *Harvard Business Review*. Opgehaald van <https://hbr.org/2018/06/25-years-ago-i-coined-the-phrase-triple-bottom-line-heres-why-im-giving-up-on-it>
- Elkington, J., & Rowlands, I. (1999). Cannibals with forks: the triple bottom line of 21st century business. *Alternatives Journal*, 24(4), 42-43.

- Ellabbah, O., Abu-Rub, H., & Blaabjerg, F. (2014). Renewable energy resources: Current status, future prospects and their enabling technology. *Renewable and Sustainable Energy Reviews*, 39, 748-764. doi:10.1016/j.rser.2014.07.113
- Es, E. v. (2017). *De participatiesamenleving: deelnemen aan ontheiligde systemen*. Nijmegen: Radboud University Nijmegen. Opgehaald van https://theses.ubn.ru.nl/bitstream/handle/123456789/4667/Es%2C_E._van_1.pdf?sequence=1
- Faber, A., & Hoppe, T. (2013). Co-constructing a sustainable built environment in the Netherlands—Dynamics and opportunities in an environmental sectoral innovation system. *Energy Policy*, 52, 628-638. doi:10.1016/j.enpol.2012.10.022
- Faber, N. (2018). Triple Transitie: circulaire economie en het energieakkoord. *Duurzaam Nieuws*, p. 3. Opgehaald van <https://www.duurzaamnieuws.nl/triple-transitie-circulaire-economie-en-het-energieakkoord/>
- Falkner, R. (2016). The Paris Agreement and the new logic of international climate politics. *International Affairs*, 92(5), 1107-1125. doi:10.1111/1468-2346.12708
- Farla, J., Alkemade, F., & Suurs, R. (2010). Analysis of barriers in the transition toward sustainable mobility in the Netherlands. *Technological Forecasting and Social Change*, 77(8), 1260-1269. doi:10.1016/j.techfore.2010.03.014
- Farla, J., Mulder, M., Verrips, A., Gordijn, H., Menkveld, M., Dril, T. v. & Kroon, P. (2006). *Energie. Welvaart en Leefomgeving*, 259-314. Opgehaald van www.publications.tno.nl
- Fazeya, I., Schäpke, N., Caniglic, G., Patterson, J., Hultman, J., Mierlof, B. v. & Wittmayer, J. (2018). Ten essentials for action-oriented and second order energy transitions, transformations and climate change research. *Energy Research and Social Science*, 40, 54-70. doi:10.1016/j.erss.2017.11.026
- Filippidou, F., Nieboer, N., & Visscher, H. (2016). Energy efficiency measures implemented in the Dutch non-profit housing sector. *Energy and Buildings*, 132, 107-116. doi:10.1016/j.enbuild.2016.05.095
- Fitzgerald, C., McCarthy, S., Carton, F., O Connor, Y., Lynch, L., & Adam, F. (2016). Citizen participation in decision-making: can one make a difference? *Journal of Decision Systems*, 25(1), 248-260. doi:10.1080/12460125.2016.1187395
- Frumkin, H., & McMichael, A. (2008). Climate Change and Public Health: Thinking, Communicating, Acting. *American Journal of Preventive Medicine*, 35(5), 403-410. doi:10.1016/j.amepre.2008.08.019
- Gaalen, C. v., Warnaar, M., & Lamers, S. (2019). *Onderzoek Verduurzaming: een heilig huisje in aanbouw?* Utrecht: Nibud. Opgehaald van <https://www.nibud.nl/beroepsmatig/nibud-huiseigenaren-wachten-met-verduurzamen-op-overheid/>
- Gardner, G., & Stern, P. (2008). The Short List: The Most Effective Actions U.S. Households Can Take to Curb Climate Change. *Environment Science and Policy for Sustainable Development*, 5(50).
- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*(114), 11-32.

- Gilijamse, W., & Jablonska, B. (2002). *Verbetering Energieprestatie Bestaande Woningen*. Energieonderzoek Centrum Nederland. Opgehaald van <https://publicaties.ecn.nl/PdfFetch.aspx?nr=ECN-C--02-079>
- Haan, E. d., & Haartsen, T. (2015). Succespercepties van burgerinitiatieven in Randland. *Rooilijn*, 48(4), 296-302. Opgehaald van <https://research.hanze.nl/en/publications/succespercepties-van-burgerinitiatieven-in-randland>
- Hal, A. v., & Bueren, E. v. (2011). Managing Change. In E. v. Bueren, H. v. Bohemen, L. Itard, & H. Visscher, *Sustainable Urban Environments: An Ecosystem Approach* (pp. 367-390). Delft: Springer Science & Business Media.
- Hamari, J., Sjöklint, M., & Ukkonen, A. (2016). The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*, 67(9), 2047-2059. doi:10.1002/asi.23552
- Hammond, F., Booth, C., Lamond, J., & Proverbs, D. (2012). *Solutions for Climate Change Challenges in the Built Environment*. John Wiley & Sons.
- Han, Q., Nieuwenhijzen, I., Vries, B. d., Blokhuis, E., & Schaefer, W. (2013). Intervention strategy to stimulate energy-saving behavior of local resident. *Energy Policy*, 52, 706-715.
- Hargreaves, T., Hielscher, S., Seyfang, G., & Smith, A. (2013). Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environmental Change*, 23(5), 868-880. doi:10.1016/j.gloenvcha.2013.02.008
- Hassink, J., Salverda, I., Vaandrager, L., & Dam, R. v. (2016). Relationships between green urban citizens' initiatives and local governments. *Cogent Social Sciences*, 2(1). doi:10.1080/23311886.2016.1250336
- Hawkins, C., & Wang, X. (2011). Sustainable Development Governance: Citizen Participation and Support Networks in Local Sustainability Initiatives. *Public Works Management and Policy*, 17(1), 7-29. doi:10.1177/1087724X11429045
- Head, B. (2007). Community Engagement: Participation on Whose Terms? *Australian Journal of Political Science*, 42(3), 441-454. doi:10.1080/10361140701513570
- Heijden, J. v., Dam, R. v., Noortwijk, R. v., Salversa, I., & Zanten, I. v. (2011). *Van Doe-het-zelf naar Doe-het-samen Maatschappij: experimenteren met Burgerinitiatief*. Den Haag: Ministerie voor Binnenlandse Zaken en Koninkrijksrelaties. Opgehaald van <https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/brochures/2011/08/29/experimenteren-met-burgerinitiatief/07dw2011g021.pdf>.
- Heijer, A. d. (2011). *Managing the university campus: Information to support real estate decisions*. Delft: Eburon Academic Publishers.
- Hellwig, K., Morhart, F., Girardin, F., & Hauser, M. (2015). Exploring Different Types of Sharing: A Proposed Segmentation of the Market for "Sharing" Businesses. *Psychology and Marketing*, 32(9), 891-906. doi:10.1002/mar.20825
- Hendriks, C. (2008). On inclusion and network governance: the democratic disconnect of Dutch energy transitions. *Public Administration*, 1009-1031. doi:10.1111/j.1467-9299.2008.00738.x

- HIERopgewekt. (2017, november 28). *Lokale duurzame energie: het wordt nu serieus*. Opgehaald van www.hieropgewekt.nl: <https://www.hieropgewekt.nl/kennisdossiers/lokale-duurzame-energie-het-wordt-nu-serieus>
- HIERopgewekt. (2018). *Organisatie*. Opgehaald van www.hieropgewekt.nl: <https://www.hieropgewekt.nl/kennisdossiers/organisatie>
- Hoendervanger, J., Bergsma, F., Voordt, T. v., & Jensen, P. (2017). Tools to manage and measure adding value by FM and CREM. In P. Jensen, & T. v. Voordt, *Facilities Management and Corporate Real Estate Management as Value Drivers* (p. 334). Oxon: Routledge.
- Holsteyn, J. v. (2018). The Dutch parliamentary elections of March 2017. *West European Politics*, 41(6), 1364-1377. doi:10.1080/01402382.2018.1448556
- Hoogenboom, M. (2012, februari 1). Kunnen burgerinitiatieven wel zonder de overheid? *Sociale vraagstukken*. Opgehaald van <https://www.socialevraagstukken.nl/kunnen-burgerinitiatieven-wel-zonder-de-overheid/>
- Hotse Smit, P. (2020, juni 8). Analyse stikstofrapport commissie-Remkes: 'Remkes' laatste stikstofrapport: kabinet is na een jaar nog steeds niet doordrongen van omvang stikstofcrisis'. *de Volkskrant*. Opgeroepen op juni 9, 2020, van <https://www.volkskrant.nl/nieuws-achtergrond/remkes-laatste-stikstofrapport-kabinet-is-na-een-jaar-nog-steeds-niet-doordrongen-van-omvang-stikstofcrisis-ba975854/?referer=https%3A%2F%2Fwww.google.com%2F>
- Hugen, J. (2016). *De overheid trekt zich terug: burgerinitiatieven opnemen in het planningsproces*. Faculteit der Managementwetenschappen. Nijmegen: Radboud Universiteit Nijmegen. Opgehaald van https://theses.ubn.ru.nl/bitstream/handle/123456789/1993/Hugen%2c_Jelle_1.pdf?sequence=1
- Huisman, C. (2018, 5). Nederland van het gas af, maar wie betaalt de transitie? *Volkskrant*. Opgehaald van <https://www.volkskrant.nl/nieuws-achtergrond/nederland-van-het-gas-af-maar-wie-betaalt-de-transitie--b5b194cf/>
- Hurenkamp, M., Tonkens, E., & Duyvendak, J. (2015). *Wat burgers bezielt: een onderzoek naar burgerinitiatieven*. Amsterdam: NICIS Kenniscentrum Grote Steden.
- Igalla, M., & Meerke, I. v. (2015). De duurzaamheid van burgerinitiatieven. Een empirische verkenning. *Bestuurswetenschappen*, 3(69), 25-53. doi:10.5553/Bw/016571942015069003003
- International Energy Agency. (2019, November). *Electricity*. Opgehaald van www.iea.org: <https://www.iea.org/reports/world-energy-outlook-2019/electricity>
- Interprovinciaal Overleg. (2018, Februari 28). Regionale aanpak vormt basis voor een Klimaatakkoord. *Interprovinciaal Overleg*. Opgehaald van <https://ipo.nl/publicaties/regionale-aanpak-vormt-basis-voor-een-klimaatakkoord>
- Janda, K. (2011). Buildings don't use energy: people do. *Architectural Science Review*, 54(1), 15-22. doi:10.3763/asre.2009.0050
- Jensen, P. (2010). The facilities management value map: a conceptual framework. *Facilities*, 28(3/4), 175-188.

- Jensen, P., Sarasoja, A., Voordt, T. v., & Coenen, C. (2012). *How Can Facilities Management Add Value To Organisations As Well As To Society*. Opgehaald van https://www.irbnet.de/daten/iconda/CIB_DC27176.pdf
- Jensen, P., Voordt, T. v., Coenen, C., Felten, D. v., Lindholm, A., Nielsen, S. & Pfenninger, M. (2012). In search for the added value of FM: what we know and what we need to learn. *Journal of Facilities*, 30(5/6), 199-217.
- Jonker, J., & Faber, N. (2018). *Koers zetten naar een circulaire economie*. Nijmegen: Sigma.
- Jonker, J., Tap, M., & Straaten, T. v. (2012). *Nieuwe Business Modellen*. Nijmegen: Radboud University Nijmegen. Opgehaald van [https://www.nieuwebusinessmodellen.nl/dl/pdf/database-instructies/WPNBMJonkerNL\(2012\).pdf](https://www.nieuwebusinessmodellen.nl/dl/pdf/database-instructies/WPNBMJonkerNL(2012).pdf)
- Junginger, M., Agterbosch, S., Faaij, A., & Turkenburg, W. (2004). Renewable electricity in the Netherlands. *Energy Policy*, 32(9), 1053-1073. doi:10.1016/S0301-4215(03)00063-6
- Kalkbrenner, B., & Roosen, J. (2016). Citizens' willingness to participate in local renewable energy projects: The role of community and trust in Germany. *Energy Research and Social Science*, 13, 60-70. doi:10.1016/j.erss.2015.12.006
- Kamm, M. (2018, November 21). Introduction thesis. (W. Lendering, Interviewer) Nijmegen.
- Kamm, M., Jonker, J., & Faber, N. (2015). Strategievorming in HUBs: waardecreatie organiseren door nieuwe vormen van regionale samenwerking. *Research project: Strategizing Collective Action: strategy formation in communities*. Nijmegen: Radboud University.
- Kemp, R. (2010). The Dutch energy transition approach. *International Economics and Economic Policy*, 7, 291-316. doi:10.1007/s10368-010-0163-y
- Kemp, R., & Lente, H. v. (2011). The dual challenge of sustainability transitions. *Environmental Innovation and Societal Transitions*, 1(1), 121-124. doi:10.1016/j.eist.2011.04.001
- Kern, F., & Smith, A. (2008). Restructuring energy systems for sustainability? Energy transition policy in the Netherlands. *Energy Policy*, 36(11), 4093-4103. doi:10.1016/j.enpol.2008.06.018
- Kilkis, S. (2009). Rational Exergy Management Model for Sustainable Buildings to Reduce CO2 Emissions. *Proceedings of the 40th Congress on HVAC&R* (22), 391-412.
- Klein Rosenthal, J., Kinney, P., Sclar, E., Knowlton, K., Crauderueff, R., & Brandt-Rauf, P. (2007). Links between the built environment, climate and population health: Interdisciplinary environmental change research in New York City. *Annals of the Academy of Medicine*, 36(10), 834-846.
- Koppen, C. v. (1979). De mogelijke betekenis van zonne-energie voor de mondiale energievoorziening. *Klimaatbeheersing*, 10(8), 547-556. Opgehaald van <https://pure.tue.nl/ws/files/4417036/606208.pdf>
- Laarhoven, K. v. (2020, juni 8). Commissie-Remkes: Nederland doet onvoldoende tegen stikstofuitstoot. *NRC Handelsblad*. Opgeroepen op juni 9, 2020, van <https://www.nrc.nl/nieuws/2020/06/08/commissie-remkes-nederland-doet-onvoldoende-tegen-stikstofuitstoot-a4002097>

- Lelij, B. v., Graaf, M. v., & Visscher, J. (2016). *Energievoorziening 2015-2050: publieksonderzoek naar draagvlak voor verduurzaming van energie*. Amsterdam: Motivaction. Opgehaald van <https://www.energiekaart.net/wp-content/uploads/2016/01/Consumenten-onderzoek-Movares-energievoorziening-2015-2050.pdf>
- Lemmens, J., Burgt, J. v., Bosma, T., Wijngaart, R. v., Bommel, B. v., & Koelemeijer, R. (2014). *Het potentieel van zonnestroom in de gebouwde omgeving van Nederland*. Arnhem: Planbureau voor de Leefomgeving & DNV GL. Opgehaald van https://www.pbl.nl/sites/default/files/downloads/pbl-2014-dnv-gl-het-potentieel-van-zonnestroom-in-de-gebouwde-omgeving-van-nederland_01400_1.pdf
- Lin, C., Lyau, N., Tsai, Y., & Chen, W. &. (2010). Modeling Corporate Citizenship and Its Relationship with Organizational Citizenship Behaviors. *Journal of Business Ethics*, 95, 357-372. doi:10.1007/s10551-010-0364-x
- Lindholm, A., & Aaltonen, A. (2011). Green FM as an addin value element for the core business. *CFM's Nordic Conference* (pp. 22-23). Copenhagen: Centre for Facilities Management Realania Research, DTU Management Engineering.
- Lisowski, M. (2002). Het spel op twee niveaus spelen: het besluit van de Amerikaanse president Bush om het Kyoto-protocol te verwerpen. *Milieupolitiek*, 11(4), 101-119. doi:10.1080/714000641
- Loorbach, D., Brugge, R. v., & Taanman, T. (2008). Governance in the energy transition: Practice of transition management in the Netherlands. *International Journal of Environmental Technology and Management*, 9(2-3), 294-315.
- Lopes de Sousa Jabbour, A. (2019). Going in circles: new business models for efficiency and value. *Journal of Business Strategy*, 40(4), 36-43. doi:10.1108/JBS-05-2018-0092
- Lund, H. (2007). Renewable energy strategies for sustainable development. *Energy*, 32(6), 912-919. doi:10.1016/j.energy.2006.10.017
- Markandya, A., Armstrong, B., Hales, S., Chiabai, A., Criqui, P., Mima, S. & Wilkinson, P. (2009). Public health benefits of strategies to reduce greenhouse-gas emissions: low-carbon electricity generation. *The Lancet*, 374(9706), 2006-2015. doi:10.1016/S0140-6736(09)61715-3
- Mattijssen, T., Buijs, A., Elands, B., & Dam, R. v. (2015). *The significance of green citizens' initiatives: analysis of characteristics and effects of 264 initiatives in the Netherlands*. Wageningen: Statutory Research Tasks Unit for Nature & the Environment. Opgehaald van <https://www.wur.nl/nl/Onderzoek-Resultaten/Wettelijke-Onderzoekstaken/WOT-Natuur-en-Milieu.htm>
- McHugh, D. (2006). Wanting to be Heard But Not Wanting to Act? Addressing Political Disengagement. *Parliamentary Affairs*, 59(3), 546-552. doi:10.1093/pa/gsl027
- McMeekin, A., & Southerton, D. (2012). Sustainability transitions and final consumption: practices and socio-technical systems. *Technology Analysis and Strategic Management*, 24(4), 345-361. doi:10.1080/09537325.2012.663960
- Menassa, C., & Baer, B. (2014). A framework to assess the role of stakeholders in sustainable building retrofit decisions. *Sustainable Cities and Society*, 10, 207-221. doi:10.1016/j.scs.2013.09.002

- Michels, A., & Graaf, L. d. (2010). Examining Citizen Participation: Local Participatory Policy Making and Democracy. *Local Government Studies*, 36(4), 477-491. doi:10.1080/03003930.2010.494101
- Middlemiss, L., & Parrish, B. (2010). Building capacity for low-carbon communities: The role of grassroots initiatives. *Energy Policy*, 38(12), 7559-7566. doi:10.1016/j.enpol.2009.07.003
- MilieuCentraal. (2020). *Kolen, olie en gas*. Opgeroepen op mei 19, 2020, van www.milieucentraal.nl: <https://www.milieucentraal.nl/klimaat-en-aarde/energiebronnen/kolen-olie-en-gas/>
- Ministerie van Economische Zaken. (2016a). *Energierapport. Transitie naar duurzaam*. Den Haag: Ministerie van Economische Zaken.
- Ministry of Economic Business, Infrastructure and Environment. (2016). *Nederland circulair in 2050*. Den Haag: Rijksoverheid Nederland. Opgehaald van <https://www.rijksoverheid.nl/documenten/rapporten/2016/09/14/bijlage-1-nederland-circulair-in-2050>
- Minnesma, M., & Segeren, E. (2017). *Nederland: 100% duurzame energie in 2030*. Stichting Urgenda.
- Mont, O., Plepys, A., Whalen, K., & Nußholz, J. L. (2017). *Business model innovation for a Circular Economy: Drivers and barriers for the Swedish industry - the voice of REES companies*. Lund: Mistra REES.
- Moomaw, W., & Unruh, G. (1997). Are environmental Kuznets curves misleading us? The case of CO2 emissions. *Environment and Development Economics*, 2, 451-463. doi:10.1017/S1355770X97000247
- Movisie. (2016). *Burgerinitiatieven en de basisfuncties vrijwilligerswerk*. Utrecht: Movisie. Opgehaald van https://www.movisie.nl/sites/default/files/alfresco_files/Prestatieveld4/Burgerinitiatieven%20en%20de%20basisfuncties%20vrijwilligerswerk.pdf
- Movisie. (2017, september 15). Participatiesamenleving anno 2017: volop kansen. (D. d. Bruijn, Red.) *Werken naar vermogen*. Opgeroepen op mei 27, 2020, van <https://www.movisie.nl/artikel/participatiesamenleving-anno-2017-volop-kansen>
- Narain, A., & Vries, C. d. (2015). *Publiek Denken: Bouwen aan Regionale Netwerken*. Den Haag: DuurzaamDoor. Opgehaald van http://www.origame.eu/downloads/publiek_denken_small.pdf
- Ndou, V. (2017). E - Government for Developing Countries: Opportunities and Challenges. *The Electric Journal of Information Systems in Developing Countries*, 18, 1-24. doi:10.1002/j.1681-4835.2004.tb00117.x
- Nientied, P. (2014, december 7). Minder regisseren en meer netwerken in de gemeente. *Innovatief organiseren*. Opgehaald van <https://www.innovatieorganiseren.nl/gastcolumns/minder-regisseren-en-meer-netwerken-de-gemeente/>
- Nijland, H., & Eck, J. v. (2004). WELVAART EN LEEFOMGEVING: WAT BETEKENT DE TOEKOMSTIGE MOBILITEIT VOOR HET KLIMAAT? *Colloquium Vervoersplanologisch Speurwerk* (pp. 5-6). Antwerpen: Rijksinstituut voor Volk en Gezondheid.

- Nillesen, P., & Pollitt, M. (2016). New Business Models for Utilities to Meet the Challenge of the Energy Transition. In F. Sioshansi, *Future of Utilities Utilities of the Future* (pp. 283-301). Creek: Academic Press. doi:10.1016/B978-0-12-804249-6.00015-4
- Oei, A., Haffner, R., Til, H. v., Heidecke, L., & Slaakweg, A. (2018). *Van CV-ketel naar duurzame warmte*. Rotterdam: Milieudefensie.
- Olaniyan, M., & Evans, J. (2014). The importance of engaging residential energy customers' hearts and minds. *Energy Policy*, 69, 273-284. doi:10.1016/j.enpol.2013.12.023
- Olivier, J., Schure, K., & Peters, J. (2017). *Trends in global CO2 and total greenhouse gas emissions*. The Hague: PBL Netherlands Environmental Assessment Agency. Opgehaald van https://www.pbl.nl/sites/default/files/downloads/pbl-2017-trends-in-global-co2-and-total-greenhouse-gas-emissions-2017-report_2674.pdf
- Oude Vrielink, M., & Verhoeven, I. (2011). Burgerinitiatieven en de bescheiden overheid. *Beleid en Maatschappij*, 38(4), 377-387. Opgehaald van http://www.collective-action.info/sites/default/files/webmaster/_POC_LIT_OudeVrielink-en-Verhoeven_Burgerinitiatieven-en-de-bescheiden-overheid.pdf
- Oude Vrielink, M., & Wijdeven, T. v. (2007). *Wat Kan wél! kan. Hoe bewoners zelf bijdragen aan sociale binding in de wijk*. Tilburg/Rotterdam: Tilburgse School voor Politiek en Bestuur/SEV.
- Oude Vrielink, M., & Wijdeven, T. v. (2011). Ondersteuning in viereen: zichtlijnen in het faciliteren van burgerinitiatieven in de buurt. *B en M: tijdschrift voor beleid, politiek en maatschappij*, 38(4), 438-455.
- Overbeek, G., & Salverda, I. (2013). Visies op Netwerkend Samenwerken voor een Groene en Veerkrachte Economie. In G. Overbeek, & I. Salverda, *De Energieke Overheid: Visies op Netwerkend Samenwerken voor een Groene en Veerkrachte Economie* (pp. 9-13). Wageningen: LEI Wageningen UR. Opgehaald van <https://edepot.wur.nl/283847>
- Owusu, P., & Asumadu-Sarkodie, S. (2016). A review of renewable energy sources, sustainability issues and climate change mitigation. *Cogent Engineering*, 3(1). doi:10.1080/23311916.2016.1167990
- Panopoulou, E., Tambouris, E., & Tarabanis, K. (2014). Success factors in designing eParticipation initiatives. *Information and Organization*, 24(4), 195-213. doi:10.1016/j.infoandorg.2014.08.001
- Panwar, N., Kaushik, S., & Kothari, S. (2011). Role of renewable energy sources in environmental protection: A review. *Renewable and Sustainable Energy Reviews*, 15(3), 1513-1524. doi:10.1016/j.rser.2010.11.037
- Parag, Y., Hamilton, J., White, V., & Hogan, B. (2013). Network approach for local and community governance of energy: The case of Oxfordshire. *Energy Policy*, 62, 1064-1077. doi:10.1016/j.enpol.2013.06.027
- Peeters, L., Veken, J. v., Hens, H., Helsen, L., & D'haeseleer, W. (2008). Control of heating systems in residential buildings: Current practice. *Energy and Buildings*, 40(8), 1446-1455. doi:10.1016/j.enbuild.2008.02.016
- Pitkin, H. (1972). *The Concept of Representation*. Los Angeles: Univeristy of California Press.

- Planing, P. (2015). Business Model Innovation in a Circular Economy Reasons for Non-Acceptance of Circular Business Models. *Open Journal of Business Model Innovation*.
- Potting, J., Hanemaaijer, A., Delahaye, R., Ganzevles, R., Hoekstra, R., & Lijzen, J. (2018). *Circulaire economie: Wat we willen weten en kunnen meten. Systeem en nulmeting voor monitoring van de voortgang van de circulaire economie in Nederland*. Den Haag: Planbureau voor Leefomgeving.
- Prendeville, S., Sanders, C., Sherry, J., & Costa, F. (2014). *Circular Economy: Is it enough?* Cardiff: Ecodesign Centre. Opgehaald van https://www.researchgate.net/profile/Sharon_Prendeville/publication/301779162_Circular_Economy_Is_it_Enough/links/5727a2be08aef9c00b8b4ddd.pdf
- Prevosth, J., & Voordt, T. v. (2011). *De toegevoegde waarde van FM: begrippen, prioriteiten en maatregelen in de zorgsector*. Delft: FMN Nederland.
- Priemus, H. (2005). How to Make Housing Sustainable? The Dutch Experience. *Environment and Planning B: Planning and Design*, 32(1), 5-19. doi:10.1068/b3050
- Proka, A., Hisschemöller, M., Loorbach, D., & Overbeke, G. (2017). *Naar een Strategie voor de Nederlandse energiecoöperaties (2018-2025)*. Dutch Research Institute for Sustainability Transitions (DRIFT). Opgehaald van <https://drift.eur.nl/wp-content/uploads/2017/12/Naar-een-Strategie-voor-de-Nederlandse-energiecooperaties.pdf>
- Pröpper, I., & Steenbeek, D. (1999). *De aanpak van interactief beleid: elke situatie is anders*. Bussum: Coutinho.
- Raad voor het Openbaar Bestuur. (2012). *Loslaten in vertrouwen: naar een nieuwe verhouding tussen overheid, markt en samenleving*. Den Haag: Raad voor het Openbaar Bestuur. Opgeroepen op mei 28, 2020
- Ramirez-Villegas, R., Eriksson, O., & Olofsson, T. (2016). Assessment of renovation measures for a dwelling area - Impacts on energy efficiency and building certification. *Building and Environment*, 97, 26-33. doi:10.1016/j.buildenv.2015.12.012
- Reckwitz, A. (2002). Toward a theory of social practices; a development in culturalist theorizing. *European Journal of Society*, 5(2), 243-263. doi:10.1177/13684310222225432
- Reed, M., & Levis, J. (2015). *The Handbook of English Pronunciation*. Oxford: John Wiley & Sons.
- Reiche, D., & Bechberger, M. (2004). Policy differences in the promotion of renewable energies in the EU member states. *Energy Policy*, 32(7), 843-849. doi:10.1016/S0301-4215(02)00343-9
- Ridder, P. d., & Gorter, Y. (2017). *#VanGasLos: de beleving van de burger centraal tijdens de aardgastransitie*. Rotterdam: Waai Innovation Partners. Opgehaald van <http://warmopweg.nl/wp-content/uploads/2017/10/VanGasLos-De-beleving-van-de-burger-centraal-tijdens-de-aardgastransitie.pdf>
- Rijksdienst voor Ondernemend Nederland. (2014). *Technieken voor een energieneutrale woning*. Den Haag: Rijksdienst voor Ondernemend Nederland.
- Rijksdienst voor Ondernemend Nederland. (2020). *Aardgasvrij*. Opgeroepen op mei 19, 2020, van www.rvo.nl: <https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/duurzame-energie-opwekken/aardgasvrij>

- Rijksdienst voor Ondernemend Nederland. (2020c). *Investeringssubsidie duurzame energie (ISDE)*. Opgeroepen op mei 26, 2020, van www.rvo.nl: <https://www.rvo.nl/subsidie-en-financieringswijzer/isde>
- Rijksoverheid. (2018, Juni). *Klimaatbeleid*. Opgehaald van www.rijksoverheid.nl: <https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/klimaatbeleid>
- Rip, A., & Kemp, R. (1998). Technological change. In S. Rayner, & L. Malone, *Human choice and climate change* (Vol. 2, pp. 327-399). Washington DC: Batelle.
- Ritzen, S., & Sandström, G. (2017). Barriers to the Circular Economy - Integration of Perspectives and Domains. *Procedia CIRP*, 64, 7-12. doi:10.1016/j.procir.2017.03.005
- Rizos, V., Tuokko, K., & Behrens, A. (2017). *A review of definitions, processes and impacts*. Brussel: CEPS Research Reports.
- Rogelj, J., Elzen, M. d., Höhne, N., Fransen, T., Fekete, H., Winkler, H. & Meinshausen, M. (2016). Paris Agreement climate proposals need a boost to keep warming well below 2 °C. *Nature* 534, 631-639. doi:doi.org/10.1038/nature18307
- Rotmans, J. (2005). *Societal Innovation: Between Dream and Reality Lies Complexity*. University of Maastricht. Maastricht: DRIFT Research Working Paper. Opgehaald van https://papers.ssrn.com/sol3/papers.cfm?abstract_id=878564
- Rotmans, J. (2012). *In het oog van de orkaan*. Rotterdam: Aeneas. Opgeroepen op mei 29, 2020
- Rotmans, J., & Loorbach, D. (2010). Assessing the Dutch Energy Transition Policy: How Does it Deal with Dilemmas of Managing Transitions? *Journal of Environmental Policy & Planning*, 9(3-4), 315-331.
- Rotmans, J., Kemp, R., Asselt, M. v., Geels, F., Verbong, G., & Molendijk, K. (2000). *Transities en transitie management. De casus van een emissiearme energievoorziening*. Maastricht: 4th National Environmental Policy Plan (NMP-4) of the Netherlands, October 2000, ICIS & MERIT.
- Salverda, I., & Pleijte, M. (2015). *Provincies en groene burgerinitiatieven*. Leernetwerk. Wageningen: Alterra Wageningen UR. Opgehaald van https://www.wur.nl/upload_mm/a/8/b/4b0d6b69-00ca-49a1-95a7-1ff2cd9d5f5f_Provincies%20en%20groene%20burgerinitiatieven.pdf
- Sander, F. (2014). *Duurzame Ontwikkeling door Collectief Bewonersinitiatief.: Leidraad voor professionals om bewonersgroepen aan de duurzaamheidsopgave te verbinden*. Delft: TU Delft.
- Sarasoja, A., & Aaltonen, A. (2012). Green FM as a Way to Create Added Value. In P. Jensen, T. v. Voordt, & C. Coenen, *The Added Value of Facilities Management. Concepts, Findings and Perspectives* (pp. 195-203). Kongens Lyngby: Polyteknisk Forlag.
- Sariatli, F. (2017). Linear Economy versus Circular Economy: A comparative and analyzer study for Optimization of Economy for Sustainability. *Visegrad Journal on Bioeconomy and Sustainable Development*, 6(1), 31-34. doi: 10.1515/vjbsd-2017-0005
- Sarrica, M., Brondi, S., Cottone, P., & Mazzara, B. (2016). One, no one, one hundred thousand energy transitions in Europe: The quest for a cultural approach. *Energy Research and Social Science*, 13, 1-14. doi:10.1016/j.erss.2015.12.019

- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (Vol. 7). Essex: Pearson Education Limited.
- Säynäjoki, A., Heinonen, J., & Junnila, S. (2012, September). A scenario analysis of the life cycle greenhouse gas emissions of a new residential area. *Environmental Research Letters*(7). doi:10.1088/1748-9326/7/3/034037
- Schmeets, H., & Riele, S. t. (2014). Declining Social Cohesion in The Netherlands? *Social Indicators Research*, 115(2), 791-812. doi:10.1007/s11205-013-0234-x
- Schoor, T. v., & Scholtens, B. (2015). Power to the people: Local community initiatives and the transition to sustainable energy. *Renewable and Sustainable Energy Reviews*, 43, 666-675. doi:10.1016/j.rser.2014.10.089
- Schoots, K., & Hammingh, P. (2019). *Klimaat- en energieverkenning 2019*. Den Haag: Planbureau voor de Leefomgeving. Opgehaald van <https://www.pbl.nl/sites/default/files/downloads/pbl-2019-klimaat-en-energieverkenning-2019-3508.pdf>
- Schreuer, A., & Weismeier-Sammer, D. (2010). *Energy cooperatives and local ownership in the field of renewable energy technologies: a literature review*. Vienna: WU Vienna University of Economics and Business.
- Schulz, M., Heijer, I. d., Baas, J. d., & Steen, M. v. (2017). *Sturen en stromen: overheid in een samenleving waarin iedereen stuurt*. Rotterdam: Nederlandse School voor Openbaar Bestuur. Opgehaald van <https://www.nsob.nl/sites/www.nsob.nl/files/2019-10/NSOB-2017-Sturen-en-stromen.pdf>
- Schwencke, A. (2019). *Lokale Energie Monitor 2019*. Utrecht: HIER opgewekt. Opgehaald van https://www.hieropgewekt.nl/uploads/inline/Lokale%20Energie-monitor%202019_DEF_feb2020_3.pdf
- Sempels, C., & Hoffmann, J. (2013). *Sustainable innovation strategy: creating value in a world of finite resources*. Palgrave Macmillan. doi:10.1057/9781137352613
- Setälä, M., & Schiller, T. (2012). *Citizens' initiatives in Europe: Procedures and Consequences of Agenda-Setting by Citizens*. Palgrave Macmillan.
- Simon, M., & Goes, J. (2011). *Assumptions, limitations, delimitations and scope of the study*. Seattle, WA: Dissertation Success LLC. Opgehaald van <https://www.dissertationrecipes.com/wp-content/uploads/2011/04/Assumptions-Limitations-Delimitations-and-Scope-of-the-Study.pdf>
- Sinnamon, R., & Andrews, J. (1998). Improved efficiency in qualitative fault tree analysis. *Quality and Reliability Engineering International*, 293-298. doi:10.1002/(SICI)1099-1638(199709/10)13:5<293::AID-QRE110>3.0.CO;2-Y
- Slaper, T., & Hall, T. (2011). The Triple Bottom Line: What Is It and How Does It Work? *Indiana Business Review*, 86(1), 4-8.
- Smith, A., & Kern, F. (2009). The transitions storyline in Dutch environmental policy. *Environmental Politics*, 18(1), 78-98. doi:10.1080/09644010802624835
- Sokovic, M., Pavletic, D., & Kern Pipan, K. (2010). Quality Improvement Methodologies - PDCA Cycle, RADAR Matrix, DMAIC and DFS. *Journal of Achievements in Materials and Manufacturing Engineering*, 43(1), 476-483.

- Solomon, B., & Krishna, K. (2011). The coming sustainable energy transition: History, strategies, and outlook. *Energy Policy*, 39(11), 7422-7431. doi:10.1016/j.enpol.2011.09.009
- Soroos, M. (2001). Wereldwijde klimaatverandering en de futiliteit van het Kyoto-proces. *Global Environmental Politics*, 2(1), 1-9. doi:10.1162/152638001750336541
- Spies, J., Hazeu, W., Laurier, J., & Kamminga, J. (2012, juni 28). *Convenant Energiebesparing Huursector*. Opgeroepen op mei 26, 2020, van www.rijksoverheid.nl: <https://www.rijksoverheid.nl/documenten/convenanten/2012/06/28/convenant-huursector>
- Sprang, H. v. (2019). Academic Skills. *College*. Deventer: Saxion. Opgeroepen op January 10, 2019
- Steen, M. v., Chin-A-Fat, N., Twist, M. v., & Scherpenisse, J. (2014). *Naar een ge(s)laagde strategie: een evaluatie van het Interdepartementaal Programma BioBased Economy*. Rotterdam: Nederlandse School voor Openbaar Bestuur.
- Steen, M. v., Scherpenisse, J., & Twist, M. v. (2015a). *Sedimentatie in sturing: systeem brengen in netwerkend werken door meervoudig organiseren*. Rotterdam: Nederlandse School voor Openbaar Bestuur.
- Steen, M. v., Teisman, G., Verker, J., Ophoff, P., Buuren, A. v., & Molenveld, A. (2018). *Werkende samenwerking: Handelingsopties van gemeenten voor het versterken van regionale economie en arbeidsmarkt*. Den Haag: VNG: Vereniging van Nederlandse Gemeenten. Opgehaald van <https://www.binnenlandsbestuur.nl/Uploads/2018/6/2018-VNG-Denktank-v5-onderzoek.pdf>
- Steenbekkers, A., & Scholt, S. (2019). *Onder de pannen zonder gas? Woningeigenaren en hun afwegingen voor aardgasvrije alternatieven*. Den Haag: Sociaal en Cultureel Planbureau. Opgehaald van <https://woningadvies.revenberg.net/wp-content/uploads/Onder-de-pannen-zonder-gas.pdf>
- Stegeman, H. (2015). *The potential of the circular economy*. Amsterdam: Rabobank.
- Sternberg, R. (2000). Innovation Networks and Regional Development—Evidence from the European Regional Innovation Survey (ERIS): Theoretical Concepts, Methodological Approach, Empirical Basis and Introduction to the Theme Issu. *European Planning Studies*, 389-407. doi:10.1080/713666420
- Subramania, A., Badruzzamana, A., Oppenheimer, J., & Jacangelo, J. (2011). Energy minimization strategies and renewable energy utilization for desalination: A review. *Water Research*, 45(5), 1907-1920. doi:10.1016/j.watres.2010.12.032
- Sunnika, M. (2005). *The Energy Performance of Buildings Directive (EPBD): improving the energy efficiency of the existing housing stock*. Delft: Delft University of Technology (DUT). Opgehaald van http://www.buildingrating.org/sites/default/files/background_doc_j.pdf
- Tambach, M., Hasselaar, E., & Itard, L. (2010). Assessment of current Dutch energy transition policy instruments for the existing housing stock. *Energy Policy*, 38(2), 981-996. doi:10.1016/j.enpol.2009.10.050
- Teece, D. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3), 172-194. doi:10.1016/j.lrp.2009.07.003
- Ternström, I. (2008). Leadership, Coordination and Cooperation in Common-Pool Resource Management. *The Beijer Institute of Ecological Economics Discussion Paper*(205), 1-21.

- Tigchelaar, C., & Liedelmijer, K. (2013). *Energiebesparing: een samenspel van woning en bewoner - Analyse van de module Energie WoOn 2012*. Den Haag: Ministerie van Binnenlandse Zaken. Opgehaald van <https://publicaties.ecn.nl/PdfFetch.aspx?nr=ECN-E--13-037>
- Tigchelaar, C., Kooger, C., Lidt de Jeude, M. v., Niessink, R., Paradies, G., & Koning, N. d. (2019). *Alle bestaande woningen aardgasvrij in 2050: Wie moet wat, wanneer en hoe doen?* Amsterdam: TNO Publiek. Opgehaald van <http://www.publications.tno.nl>
- Tonkens, E. (2014). Herover de participatiesamenleving. *Socialisme en Democratie*, 71(1), 85-94. Opgehaald van https://www.evelientonkens.nl/wp-content/uploads/2015/02/evelien_tonkens_-_herover_de_participatiesamenleving.pdf
- Toorn, M. v. (2015, december). In cocreatie je netwerk verder helpen. *Publiek Denken: Bouwen aan Regionale Netwerken*, pp. 29-31. Opgehaald van http://www.origame.eu/downloads/publiek_denken_small.pdf
- Toorn, M. v., Nieuwenhuis, J., & Burggen, T. v. (2015, december). Een nieuw gevoel van eigenwaarde: de rol van de overheid in netwerken met burgers en bedrijven. *DuurzaamDoor: Special*, p. 32.
- Troost, S. (2016). *Is vertrouwen de sleutel? Onderzoek naar de rol van vertrouwen van burgers in de gemeente bij het ontstaan- en voortbestaan van burgerinitiatieven*. Utrecht: University of Utrecht. Opgehaald van <https://dspace.library.uu.nl/handle/1874/341595>
- Tussyadiah, I. (2015). An Exploratory Study on Drivers and Deterrents of Collaborative Consumption in Travel. In I. Tussyadiah, & A. Inversini, *Information and Communication Technologies in Tourism* (pp. 817-830). Vancouver: Springer, Cham. doi:10.1007/978-3-319-14343-9_59
- Twidell, J., & Weir, T. (2015). *Renewable Energy Resources*. Routledge.
- Twist, M. v., & Steen, M. v. (2013). Netwerksturing vereist Gemengd Organiseren. In G. Overbeek, & I. Salverda, *De Energieke Overheid: Visies op Netwerkend Samenwerken voor een Groene en Veerkrachtige Overheid* (Vol. 2, pp. 26-39). Wageningen: LEI Wageningen UR. Opgehaald van <https://edepot.wur.nl/283847>
- Twist, M. v., Steen, M. v., & Karré, P. (2009). Als burgers het heft in eigen handen nemen: van representatieve naar doe-het-zelf democratie. *Res Publica*, 4, 521-535.
- United Nations Climate Change. (2020). *The Paris Agreement*. Opgehaald van www.unfccc.int: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- Vasseur, V., & Kemp, R. (2015). The adoption of PV in the Netherlands: A statistical analysis of adoption factors. *Renewable and Sustainable Energy Reviews*, 41, 483-494. doi:10.1016/j.rser.2014.08.020
- Veolia Group. (2017). La REcyclerie-conferentie: op weg naar energietransitie. #LivingCircular (p. 1). Londen: Veolia Group. Opgehaald van <https://www.livingcircular.veolia.com/en/inspirations/la-recyclerie-conference-moving-towards-energy-transition>
- Verba, S., Schlozman, K., & Brady, H. (1995). *Voice and Equality: civic voluntarism in American politics*. Cambridge: Harvard University Press.
- Verba, Schlozman, K., Brady, H., & Nie, N. (1993). Citizen activity: who participates? what do they say? *American Political Science Review*, 87(2), 303-318. Opgehaald van

- https://www.academia.edu/18813337/Citizen_Activity_Who_Participates_What_Do_They_Say
- Verbong, G., & Geels, F. (2007). The ongoing energy transition: Lessons from a socio-technical, multi-level analysis of the Dutch electricity system (1960-2004). *Energy Policy*, 35(2), 1025-1037. doi:10.1016/j.enpol.2006.02.010
- Verbong, G., & Loorbach, D. (2012). *Governing the Energy Transition: Reality, Illusion or Necessity?* Rotterdam: Routledge.
- Vereniging van Nederlandse Gemeenten. (2018). *Werkende Samenwerking: Een handreiking voor burgemeesters, wethouders, raadsleden en ambtenaren om op een andere wijze te kijken, denken en handelen bij vraagstukken bij de gemeentegrenzen overstijgen*. Den Haag: Vereniging van Nederlandse Gemeenten. Opgehaald van https://vng.nl/sites/default/files/werkende-samenwerking-handreiking_20180611.pdf
- Verhijde, M., & Bosmen, M. (2013). *Regel die burgerinitiatieven*. Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.
- Verhoef, J., Ruitenbergh, M., Luttmer, C., Heirweg, D., & Andric, S. (2018). *Burgerinitiatief: Waar een wil is.... Onderzoek naar de rol van overheidsinstanties bij burgerinitiatieven*. De Nationale Ombudsman. Opgehaald van <https://www.nationaleombudsman.nl/system/files/bijlage/Burgerinitiatieven%20waar%20een%20wil%20is%20rapport%202018-020.pdf>
- Vermeij, L., & Steenbekker, A. (2015). *Dichtbij Huis: Lokale binding en inzet van dorpsbewoners*. Den Haag: Sociaal en Cultureel Planbureau. Opgehaald van https://www.researchgate.net/profile/Lotte_Vermeij/publication/312474670_Dichtbij_huis_Lokale_binding_en_inzet_van_dorpsbewoners/links/587e123708ae4445c06f6bf3/Dichtbij-huis-Lokale-binding-en-inzet-van-dorpsbewoners.pdf
- Victor, D. (2011). *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming*. New York: Princeton University Press.
- Vries, J. d. (2007). *Presteren door vastgoed: Onderzoek naar de gevolgen van vastgoedingrepen voor de prestatie van hogescholen*. Delft: Eburon. doi:978-90-5972-178-4
- Vuuren, D. v., Boot, P., Ros, J., Hof, A., & Elzen, M. d. (2017). *The implications of the Paris Climative Agreement for the Dutch climate policy objectives*. The Hague: PBL Netherlands Environmental Assessment Agency. Opgehaald van https://www.pbl.nl/sites/default/files/downloads/pbl-2017-the-implications-of-the-paris-climate-agreement-on-dutch-climate-policy-objective_2580.pdf
- Walch, D. (2018). *The credibility of the Dutch pledge to implement the 2015 Paris Agreement*. Wageningen: Wageningen University and Research. Opgehaald van <https://edepot.wur.nl/461856>
- Weerts, D., & Sandmann, L. (2016). Community Engagement and Boundary-Spanning Roles at Research Universities. *The Journal of Higher Education*, 81(6), 632-657. doi:10.1080/00221546.2010.11779075
- Wilby, R. (2007). A Review of Climate Change Impacts on the Built Environment. *Built Environment*, 33(1), 31-45. doi:10.2148/benv.33.1.31

- Willemsen, G. (2007). Trias Energetica not always in the lead. *Energy Magazine*, 2(7), 37-39.
Opgehaald van <https://www.osti.gov/etdeweb/biblio/20963438>
- Wong, W. (2014). *Meer zielen, meer ideeën, meer oplossingen: participatie in stedelijke ontwikkeling*. Delft: Technische Universiteit Delft.
- York, R. (2012). Do alternative energy sources displace fossil fuels? *Nature Climate Change*, 2, 441-443. doi:10.1038/nclimate1451
- Younger, M., Morrow-Almeida, H., Vindigni, S., & Dannenberg, A. (2008). The Built Environment, Climate Change, and Health: Opportunities for Co-Benefits. *American Journal of Preventive Medicine*, 35(5), 517-526. doi:10.1016/j.amepre.2008.08.017

APPENDICES

This research contents the following appendices.

Appendix A: an overview of respondents

Appendix B: tree diagrams

Appendix C: interview guides

Appendix D: axial coding format

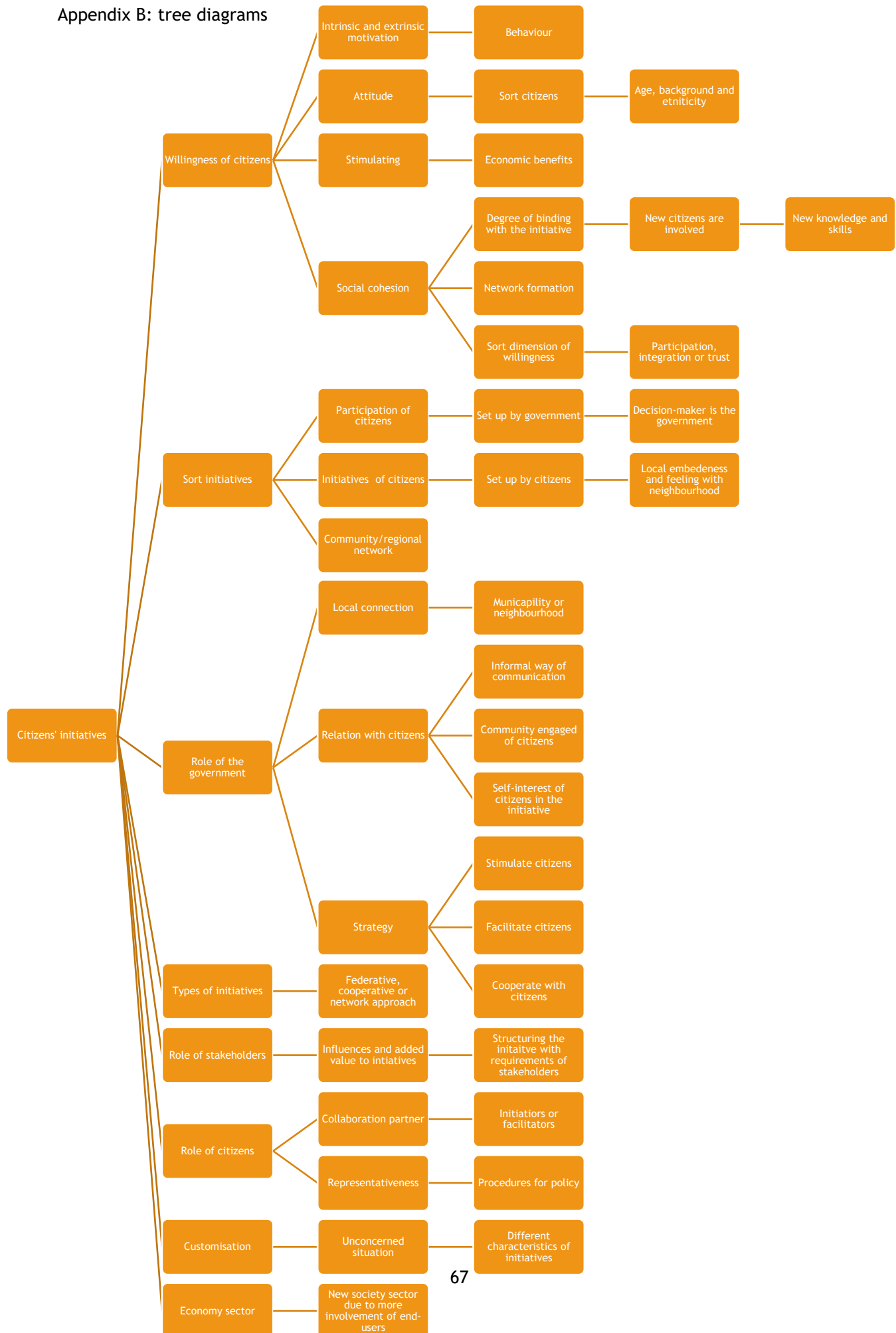
Appendix A: respondents

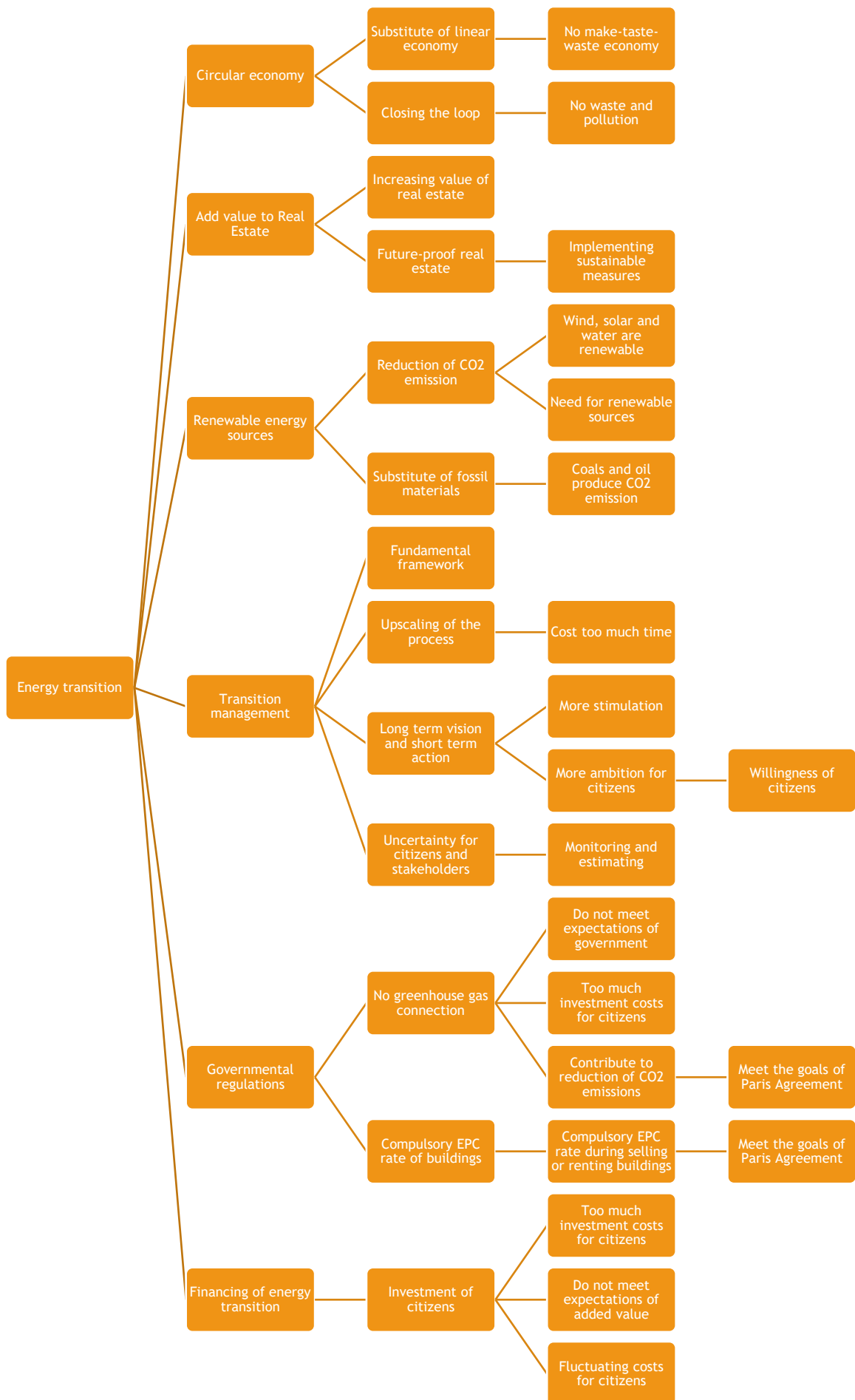
In total, nine interviews were held for this research. In this overview, all respondents are described, and the total minutes are indicated

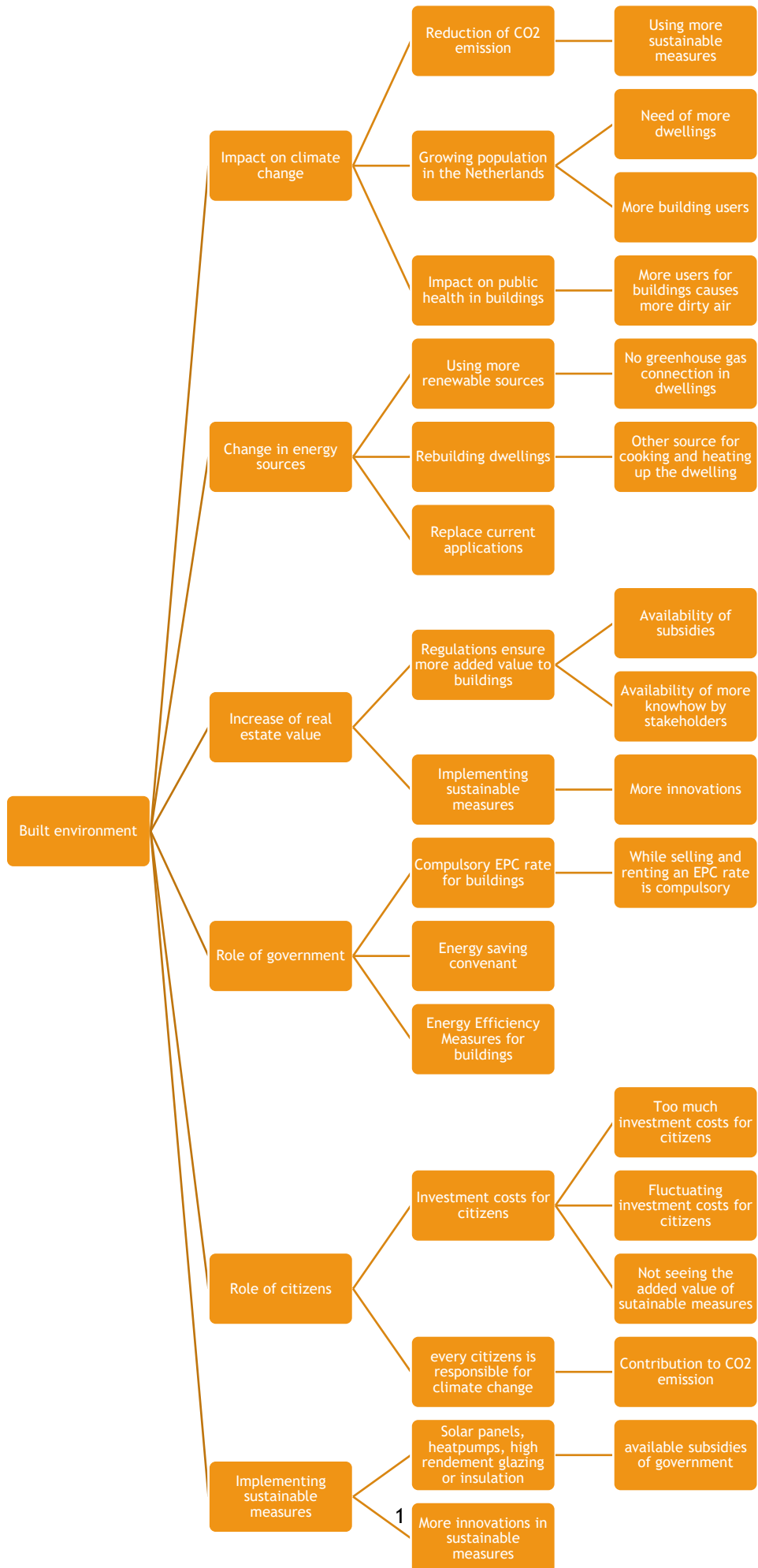
No.	Interviewer	Function	Company	Date	Length	Code
1	Tim Broeders	Commercial sustainability Specialist	ING Real Estate Finance	27-6-2019	0.41.02	TB
2	Rene Schellekens	Senior Consultant Energy Transition	RVO Nederland	24-6-2019	0.54.14	RS
3	Leo Crombach	CEO at Lijnspeel Cooperation	Lijnspeel Coöperatie	2-7-2019	1.02.13	LC
4	Manon Ottens	Manager Energy Transition and Sustainability	Gemeente Montferland	19-7-2019	0.48.46	MO
5	Cees Anton de Vries	CEO Origami	Origami	28-6-2019	0.56.28	CAV
6	Moniek Kamm	Lecturer and researcher	Saxion and Radboud University	11-3-2020	1.08.52	MK
7	Igor Grevers	Senior Manager of Government and Real Estate	ICS Nederland	5-7-2019	0.57.02	IG
8	Guido Ariessen	Consultant village houses and small villages	DKK Gelderland	15-7-2019	1.13.39	GA
9	Focus Group: Miriam Gietema Arjen P. van Leeuwen Niels Faber Peter Borgsma	A regional network for energy transition and 'table democratic'	NoordenDuurzaam	12-7-2019	1.23.55	FG

Table 8: an overview of all respondents

Appendix B: tree diagrams







Appendix C: interview guides

Interviewguide Tim Broeders, ING Real estate

Interviewguide Tim Broeders	
Intro	Allereerst wil ik u bedanken voor de tijd die u vrijmaakt om dit interview af te nemen die betrekking heeft tot de verduurzaming van de bebouwde omgeving door middel van initiatieven vanuit coöperaties/netwerken
Topics aangeven	Topics voor dit interview - Rol van ING REF in het verduurzamen van de bebouwde omgeving - Werkwijze om te verduurzamen • Betrekken van particuliere woningbeleggers • Organiseren van duurzaamheid • Financieel aantrekkelijk maken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u mij vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Ik stop dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	Ik heb een mobiel met videorecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat ik nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat ik u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Wat is de rol van de ING om de huidige woningen en toekomstige woningen te verduurzamen?
Rol van ING in de verduurzaming van de bebouwde omgeving Financieel belang van ING en particuliere beleggers	- Hoe is jullie betrokkenheid met de huidige energie transitie? (o.a. circulariteit, nieuwe regelgeving) - In hoeverre speelt ING een rol om Nederland in 2050 volledig in een circulaire economie te handelen? - Wat zijn volgens jou de cruciale aandachtspunten/criteria die zich voltrekken bij het verduurzamen van de bebouwde omgeving (woningen) om het te doen slagen? - Hoe zie jij dit in de aankomende 20 jaar dit ontwikkelen? - Wat is in jullie ogen de juiste manier om particuliere woningbeleggers aan te trekken en ze de juiste richting in te sturen? - Zie jij knelpunten in het betrekken van deze particuliere beleggers bij het verduurzamen van hun woningen en waar liggen die dan voornamelijk? - Wat is jouw visie op deze ontwikkeling en hoe denk je dat dit over bijv. 10 à 15 jaar geregeld is? - De huidige subsidies zijn talrijk, bijv. de SDE+ subsidie voor zonnepanelen. Brengen deze subsidie een toegevoegde

	waarde aan het verduurzamen van de omgeving (woningen) of denk je dat hier een andere structuur gewenst is? (geen subsidies, maar gezamenlijke aanpak/lenen)
Rol van overheden	- Op welke manier onderhoudt de ING hun contacten met de overheden tijdens het verduurzamen van de omgeving? - Wat is de rol van ING tijdens het verduurzamen van woningen die in bezit zijn van particuliere beleggers en hierbij gemeenten betrokken zijn? - Zijn er knelpunten/aandachtspunten tussen de verschillende overheidsinstanties, ING als financier en de particuliere woningbeleggers?
Regelgeving en financieel	- De huidige EPC wordt vervangen door de nieuwe regelgeving NTA 8800. In hoeverre gaat deze een invloed hebben op het verduurzamen van de woningen wegens de nieuwe richtlijnen en regels? Of heeft dit nauwelijks impact? - Hoe denkt u over de huidige regelgeving? - Denkt u dat de financiën ervoor zorgen dat particuliere woningbeleggers een keuze overwegen in het wel/niet toepassen van hun initiatieven?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze verduurzamingsprojecten op de bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denkt u over de toekomstige ontwikkelingen voor een verduurzaamd Nederland? - Wat zijn volgens u huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe ziet u de bebouwde omgeving over 10 jaar (rond 2030)?
Bedanken voor het interview	Ik bedank u voor het deelnemen aan dit interview!

Interviewguide Rene Schellekens, RVO nederland

Interviewguide René Schellekens	
Intro	Allereerst wil ik u bedanken voor de tijd die u vrijmaakt om dit interview af te nemen die betrekking heeft tot de verduurzaming van de bebouwde omgeving door middel van initiatieven vanuit coöperaties/netwerken
Topics aangeven	Topics voor dit interview - Rol van RvO in het verduurzamen in bebouwde omgeving - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u mij vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Ik stop dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	Ik heb een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat ik nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat ik u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Wat is de rol van de Rijksdienst voor Ondernemend Nederland om de bebouwde omgeving van Nederland nu en in de toekomst te verduurzamen?
Rol van de RvO in de verduurzaming van de bebouwde omgeving Initiatiefnemingen van burgers	- Hoe is jullie betrokkenheid met de huidige energie transitie? (o.a. circulariteit, nieuwe regelgeving) - In hoeverre speelt de RvO een rol om Nederland in 2050 volledig in een circulaire economie te handelen? - Wat zijn volgens jou de cruciale aandachtspunten/criteria die zich voltrekken bij het verduurzamen van de bebouwde omgeving (woningen) om het te doen slagen? - Hoe zie jij dit in de aankomende 20 jaar dit ontwikkelen? - Wat is in jullie ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? (aspecten) - Hoe is de werkwijze waarin netwerken acteren te specificeren naar een werkwijze waarvan andere netwerken kunnen profiteren om eenvoudiger een vertaalslag te maken om de bebouwde omgeving te verduurzamen? - Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie?
Rol van overheden	- Op welke wijze acteren gemeenten/provincies tijdens deze initiatiefnemingen om te verduurzamen?

	- Zijn er aandachtspunten (of zelf knelpunten) waartegen overheden aanlopen tijdens een dergelijk proces van burgerinitiatieven? Zorgen deze belemmeringen voor het niet laten doorgaan van dergelijke initiatiefnemingen? Kunnen deze opgelost worden?
Werkproces (het proces tussen de initiatiefnemers (netwerken/coöperaties) en RvO als adviseur/betrokken organisatie)	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces? - Welke acties of processen leveren (g)een bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen.
Regelgeving en financieel	- De huidige EPC wordt vervangen door de nieuwe regelgeving NTA 8800. In hoeverre gaat deze een invloed hebben op de duurzaamheidsinitiatieven van burgers op hun woning wegens de nieuwe richtlijnen en regels? Of heeft dit nauwelijks impact? - Hoe denkt u over de huidige regelgeving? - Op financieel gebied zijn er verschillende subsidiemogelijkheden beschikbaar gesteld, zoals de SDE+ subsidie voor zonnepanelen. Hoe gaan deze subsidiemogelijkheden voor andere grotere projecten in zijn werking en hoe is de besluitvorming vastgesteld? - Zijn volgens u de financiën een knelpunt in het besluitvormingsproces of merkt u daar weinig van? - Denkt u dat de financiën ervoor zorgen dat burgers een keuze overwegen in het wel/niet toepassen van hun initiatieven?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denkt u na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens u huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe ziet u de bebouwde omgeving over 10 jaar (rond 2030)?
Bedanken voor het interview	Ik bedank u voor het deelnemen aan dit interview!

Interviewguide Manon Ottens, gemeente Montferland

Interviewguide Manon Ottens	
Intro	Allereerst wil ik u bedanken voor de tijd die u vrijmaakt om dit interview af te nemen die betrekking heeft tot de verduurzaming van de bebouwde omgeving door middel van initiatieven vanuit coöperaties/netwerken
Topics aangeven	Topics voor dit interview - Rol van de gemeente in het verduurzamen in bebouwde omgeving - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u mij vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Ik stop dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	Ik heb een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat ik nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat ik u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Wat is de rol van de gemeente Montferland om de bebouwde omgeving van Nederland nu en in de toekomst te verduurzamen?
Rol van de gemeente in de verduurzaming van de bebouwde omgeving Initiatiefnemingen van burgers	- Hoe is jullie betrokkenheid met de huidige energie transitie? (o.a. circulariteit, nieuwe regelgeving) - In hoeverre speelt de gemeente een rol om Nederland in 2050 volledig in een circulaire economie te handelen? - Wat zijn volgens jou de cruciale aandachtspunten/criteria die zich voltrekken bij het verduurzamen van de bebouwde omgeving (woningen) om het te doen slagen? - Hoe zie jij dit in de aankomende 20 jaar dit ontwikkelen? - Wat is in jullie ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? (aspecten) - Hoe is de werkwijze waarin netwerken acteren te specificeren naar een werkwijze waarvan andere netwerken kunnen profiteren om eenvoudiger een vertaalslag te maken om de bebouwde omgeving te verduurzamen? - Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie?
Rol van overheden	- Op welke wijze acteren gemeenten/provincies tijdens deze initiatiefnemingen om te verduurzamen? - Zijn er aandachtspunten (of zelf knelpunten) waartegen overheden aanlopen tijdens een dergelijk proces van

	burgerinitiatieven? Zorgen deze belemmeringen voor het niet laten doorgaan van dergelijke initiatiefnemingen? Kunnen deze opgelost worden?
Werkproces (het proces tussen de initiatiefnemers (netwerken/coöperaties) en gemeente als adviseur/betrokken organisatie)	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces? - Welke acties of processen leveren (g)een bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen.
Regelgeving en financieel	- De huidige EPC wordt vervangen door de nieuwe regelgeving NTA 8800. In hoeverre gaat deze een invloed hebben op de duurzaamheidsinitiatieven van burgers op hun woning wegens de nieuwe richtlijnen en regels? Of heeft dit nauwelijks impact? - Hoe denkt u over de huidige regelgeving? - Op financieel gebied zijn er verschillende subsidiemogelijkheden beschikbaar gesteld, zoals de SDE+ subsidie voor zonnepanelen. Hoe gaan deze subsidiemogelijkheden voor andere grotere projecten in zijn werking en hoe is de besluitvorming vastgesteld? - Zijn volgens u de financiën een knelpunt in het besluitvormingsproces of merkt u daar weinig van? - Denkt u dat de financiën ervoor zorgen dat burgers een keuze overwegen in het wel/niet toepassen van hun initiatieven?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denkt u na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens u huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe ziet u de bebouwde omgeving over 10 jaar (rond 2030)?
Bedanken voor het interview	Ik bedank u voor het deelnemen aan dit interview!

Interviewguide Leo Crombach, Lijnspeel Coöperatie

Interviewguide Leo Crombach	
Intro	Allereerst wil ik u bedanken voor de tijd die u vrijmaakt om dit interview af te nemen die betrekking heeft tot de verduurzaming van de bebouwde omgeving door middel van initiatieven vanuit coöperaties/netwerken
Topics aangeven	Topics voor dit interview - Rol van Leo Crombach (Lijnspeel) in het verduurzamen van panden - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u mij vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Ik stop dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	Ik heb een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat ik nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat ik u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Wat is de rol van Lijnspeel om de bebouwde omgeving van Nederland nu en in de toekomst te verduurzamen?
Rol van Lijnspeel in de verduurzaming van de bebouwde omgeving Initiatiefnemingen van burgers	- Hoe is jullie betrokkenheid met de huidige energie transitie? (o.a. circulariteit, nieuwe regelgeving) - In hoeverre speelt jij een rol om Nederland in 2050 volledig in een circulaire economie te handelen? - Wat zijn volgens jou de cruciale aandachtspunten/criteria die zich voltrekken bij het verduurzamen van de bebouwde omgeving (woningen) om het te doen slagen? - Hoe zie jij dit in de aankomende 20 jaar dit ontwikkelen? - Wat is in jullie ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? (aspecten) - Hoe is de werkwijze waarin netwerken acteren te specificeren naar een werkwijze waarvan andere netwerken kunnen profiteren om eenvoudiger een vertaalslag te maken om de bebouwde omgeving te verduurzamen? - Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie?
Rol van overheden	- Op welke wijze acteren gemeenten/provincies tijdens deze initiatiefnemingen om te verduurzamen? - Zijn er aandachtspunten (of zelf knelpunten) waartegen overheden aanlopen tijdens een dergelijk proces van

	burgerinitiatieven? Zorgen deze belemmeringen voor het niet laten doorgaan van dergelijke initiatiefnemingen? Kunnen deze opgelost worden?
Werkproces	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces? - Welke acties of processen leveren (g)een bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen.
Regelgeving en financieel	- De huidige EPC wordt vervangen door de nieuwe regelgeving NTA 8800. In hoeverre gaat deze een invloed hebben op de duurzaamheidsinitiatieven van burgers op hun woning wegens de nieuwe richtlijnen en regels? Of heeft dit nauwelijks impact? - Hoe denkt u over de huidige regelgeving? - Op financieel gebied zijn er verschillende subsidiemogelijkheden beschikbaar gesteld, zoals de SDE+ subsidie voor zonnepanelen. Hoe gaan deze subsidiemogelijkheden voor andere grotere projecten in zijn werking en hoe is de besluitvorming vastgesteld? - Zijn volgens u de financiën een knelpunt in het besluitvormingsproces of merkt u daar weinig van? - Denkt u dat de financiën ervoor zorgen dat burgers een keuze overwegen in het wel/niet toepassen van hun initiatieven?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denkt u na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens u huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe ziet u de bebouwde omgeving over 10 jaar (rond 2030)?
Bedanken voor het interview	Ik bedank u voor het deelnemen aan dit interview!

Interviewguide Cees Anton de Vries, Origame

Interviewguide Cees Anton	
Intro	Allereerst wil ik u bedanken voor de tijd die u vrijmaakt om dit interview af te nemen die betrekking heeft tot de verduurzaming van de bebouwde omgeving door middel van initiatieven vanuit coöperaties/netwerken
Topics aangeven	Topics voor dit interview - Rol van DuurzaamDoor in het verduurzamen van panden - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u mij vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Ik stop dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	Ik heb een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat ik nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat ik u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Wat is de rol van de Rijksdienst voor Ondernemend Nederland om de bebouwde omgeving van Nederland nu en in de toekomst te verduurzamen?
Rol van DuurzaamDoor in de verduurzaming van de bebouwde omgeving Initiatiefnemingen van burgers	- Hoe is jullie betrokkenheid met de huidige energie transitie? (o.a. circulariteit, nieuwe regelgeving) - In hoeverre speelt DuurzaamDoor een rol om Nederland in 2050 volledig in een circulaire economie te handelen? - Wat zijn volgens jou de cruciale aandachtspunten/criteria die zich voltrekken bij het verduurzamen van de bebouwde omgeving (woningen) om het te doen slagen? - Hoe zie jij dit in de aankomende 20 jaar dit ontwikkelen? - Wat is in jullie ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? (aspecten) - Hoe is de werkwijze waarin netwerken acteren te specificeren naar een werkwijze waarvan andere netwerken kunnen profiteren om eenvoudiger een vertaalslag te maken om de bebouwde omgeving te verduurzamen? - Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie?
Rol van overheden	- Op welke wijze acteren gemeenten/provincies tijdens deze initiatiefnemingen om te verduurzamen?

	- Zijn er aandachtspunten (of zelf knelpunten) waartegen overheden aanlopen tijdens een dergelijk proces van burgerinitiatieven? Zorgen deze belemmeringen voor het niet laten doorgaan van dergelijke initiatiefnemingen? Kunnen deze opgelost worden?
Werkproces	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces? - Welke acties of processen leveren (g)een bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen.
Regelgeving en financieel	- De huidige EPC wordt vervangen door de nieuwe regelgeving NTA 8800. In hoeverre gaat deze een invloed hebben op de duurzaamheidsinitiatieven van burgers op hun woning wegens de nieuwe richtlijnen en regels? Of heeft dit nauwelijks impact? - Hoe denkt u over de huidige regelgeving? - Op financieel gebied zijn er verschillende subsidiemogelijkheden beschikbaar gesteld, zoals de SDE+ subsidie voor zonnepanelen. Hoe gaan deze subsidiemogelijkheden voor andere grotere projecten in zijn werking en hoe is de besluitvorming vastgesteld? - Zijn volgens u de financiën een knelpunt in het besluitvormingsproces of merkt u daar weinig van? - Denkt u dat de financiën ervoor zorgen dat burgers een keuze overwegen in het wel/niet toepassen van hun initiatieven?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denkt u na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens u huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe ziet u de bebouwde omgeving over 10 jaar (rond 2030)?
Bedanken voor het interview	Ik bedank u voor het deelnemen aan dit interview!

Interviewguide Moniek Kamm, Saxion Hogeschool en RU Nijmegen

Interviewguide groepsinterviews	
Intro	Allereerst wil ik u bedanken voor het deelnemen aan deze groepsinterview.
Topics aangeven	Topics voor dit interview - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering - Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. De waarde die wordt gecreëerd met deze initiatieven is tot op heden nog niet volledig uitgelicht en daarin zit een vertaalslag. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u ons vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Wij stoppen dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	We hebben een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat wij nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat we u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introducerende vragen	
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Hoe beschrijf je jullie toegevoegde waarde/impact op de bebouwde omgeving op het gebied van duurzame ontwikkeling voor nu en de toekomst?
Evt. aansluiters bij de hoofdvraag Zoek in het verhaal aanknopingspunten over duurzaamheid, circulariteit en de energie transitie	- Wat is in jouw ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? - Hoe is de werkwijze waarin jij acteert om te specificeren naar een werkwijze waarvan andere partijen kunnen profiteren om eenvoudiger een vertaalslag te maken? - Hoe is jou betrokkenheid met de huidige energie transitie Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie? - Wat is een goed businessmodel die bijdraagt aan de huidige energietransitie?
Initiatiefneming	- Hoe zijn jullie opgericht en wat zijn de must-haves om deze initiatiefnemingen op te richten? Wat is absoluut nodig om deze initiatieven op te richten?
Werkproces	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces?

	- Welke acties of processen leveren geen bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen en de algehele omgeving
Samenwerking met betrokken instanties	- Welke instanties zijn betrokken tijdens een dergelijk proces om de burgerinitiatieven in te passen? - Hoe is deze samenwerking tot stand gekomen? - Waar zitten volgens jullie de knelpunten tijdens de samenwerking? - Wat zijn volgens jullie de belangrijke aandachtspunten tijdens het aangaan van deze samenwerkingen? - Wat is de koppeling tussen de werkprocessen en de samenwerkingsverbanden en wat leveren deze op voor de bebouwde omgeving?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving? - Wat zijn de bottlenecks voor het opzetten van burgerinitiatieven in de bebouwde omgeving? - Wat is de manier om businessmodellen in de huidige bebouwde omgeving te implementeren? - Wat zijn de toegevoegde waarden van burgerinitiatieven in de huidige bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denken jullie na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens jullie huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe zien jullie de bebouwde omgeving over 5 of zelf 10 jaar?
Bedanken voor het interview	Allen bedankt voor het deelnemen aan dit interview!

Interviewguide group interview, NoordenDuurzaam

Interview guide group interviews	
Intro	First, I want to thank you all for participating in this group interview about the activities of NoordenDuurzaam and the developments that are taking place.
Indicate topics	Topics for this interview - Method of preserving • Involving initiators • Organizing cooperatives • Involve experts - Impact / value for the built environment - Points for improvement - Sustainable development of the environment
Explanation about the purpose of the research	The research relates to the partnerships between the initiators and authorities. The value that is created with these initiatives has not yet been fully explained and therein is a translation. The aim is to explain these added values / added impact on the built environment in a way that makes the future picture of these initiatives more transparent.
Indicate that the data is processed anonymously and confidentially	Your name will not be saved or saved when processing the data. This way nobody can find out what you said. The things you tell us will only be used for this thesis and are therefore not traceable to people.
If the respondent wants to stop	If you decide during the interview that you no longer want to continue, you can indicate this. We will then stop the interview.
Tell that the conversation is being recorded on tape	We have a mobile with voice recorder with us so that this conversation can be recorded. This also means that we don't have to write down much now. It will be typed out later. It is prescribed by law that we must ask you for permission if we use a voice recorder. That is why I will ask you as soon as the recorder is running whether you consent to this conversation being recorded.
Introductory questions	
Introduction	Accountability for current work and introduction to sustainable development for the environment
START QUESTION	How do you describe your added value / impact on the built environment in the field of sustainable development for now and the future?
Possibly connected to the main question Look for clues in the story about sustainability, circularity and the energy transition	- What do you think is an initiative to make the environment more sustainable and to involve citizens in this? - How can the method in which you act be specified into a method from which other parties can benefit in order to make it easier to translate? - How is your involvement with the current energy transition (circularity) - Which initiatives provide value for the environment that contribute to the energy transition?
Initiation	- How were you set up and what are the must-haves to set up these initiatives? What is necessary to establish these initiatives?

Work process	- Which work processes lead to an improved and more sustainable environment in which to live, work and recreate? - What are the requirements for these work processes to succeed during such a process? - Which actions or processes do not contribute to such a process or, on the contrary, cause more problems to be sustainable? - Describe in a short sketch / story which processes should not be missing during the sustainability of homes and the overall environment
Cooperation with relevant authorities	- Which bodies are involved in such a process to integrate citizens' initiatives? - How did this collaboration come about? - What do you think are the bottlenecks during the collaboration? - What do you think are the essential points of attention when entering into these collaborations? - What is the link between work processes and partnerships and what are the benefits for the built environment?
Completion for built environment	- What are the added values of these citizen initiatives on the built environment? - How do they come about and affect sustainable development in the built environment?
Future development	- How do you think about the future developments that arise from citizens? - What are your current bottlenecks that can be prevented in the future? - How do you see the built environment in 5 or even 10 years?
Thank you for the interview	Thank you all for participating in this interview!

Interviewguide Igor Grevers, ICS Nederland

Interviewguide Igor Grevers	
Intro	Allereerst wil ik u bedanken voor het deelnemen aan deze groepsinterview.
Topics aangeven	Topics voor dit interview - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	• Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. De waarde die wordt gecreëerd met deze initiatieven is tot op heden nog niet volledig uitgelicht en daarin zit een vertaalslag. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u ons vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Wij stoppen dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	We hebben een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat wij nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat we u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Hoe beschrijf je jullie toegevoegde waarde/impact op de bebouwde omgeving op het gebied van duurzame ontwikkeling voor nu en de toekomst?
Evt. aansluiters bij de hoofdvraag Zoek in het verhaal aanknopingspunten over de energie transitie	- Wat is in jouw ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? - Hoe is de werkwijze waarin jij acteert om te specificeren naar een werkwijze waarvan andere partijen kunnen profiteren om eenvoudiger een vertaalslag te maken? - Hoe is jou betrokkenheid met de huidige energie transitie Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie? - Wat is een goed businessmodel die bijdraagt aan de huidige energietransitie?
Initiatiefneming	- Hoe zijn jullie opgericht en wat zijn de must-haves om deze initiatiefnemingen op te richten? Wat is absoluut nodig om deze initiatieven op te richten?
Werkproces	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren?

	- Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces? - Welke acties of processen leveren geen bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen en de algehele omgeving
Samenwerking met betrokken instanties	- Welke instanties zijn betrokken tijdens een dergelijk proces om de burgerinitiatieven in te passen? - Hoe is deze samenwerking tot stand gekomen? - Waar zitten volgens jullie de knelpunten tijdens de samenwerking? - Wat zijn volgens jullie de belangrijke aandachtspunten tijdens het aangaan van deze samenwerkingen? - Wat is de koppeling tussen de werkprocessen en de samenwerkingsverbanden en wat leveren deze op voor de bebouwde omgeving?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving? - Wat zijn de bottlenecks voor het opzetten van burgerinitiatieven in de bebouwde omgeving? - Wat is de manier om businessmodellen in de huidige bebouwde omgeving te implementeren? - Wat zijn de toegevoegde waarden van burgerinitiatieven in de huidige bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denken jullie na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens jullie huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe zien jullie de bebouwde omgeving over 5 of zelf 10 jaar?
Bedanken voor het interview	Allen bedankt voor het deelnemen aan dit interview!

Interviewguide Guido Ariessen, DKK Gelderland

Interviewguide Guido Ariessen	
Intro	Allereerst wil ik u bedanken voor het deelnemen aan deze groepsinterview.
Topics aangeven	Topics voor dit interview - Werkwijze om te verduurzamen • Betrekken van initiatiefnemers • Organiseren van coöperaties • Experts erbij betrekken - Impact/waarde voor de bebouwde omgeving - Aandachtspunten voor verbetering Duurzame ontwikkeling van de omgeving
Uitleg over het doel van het onderzoek	• Het onderzoek heeft betrekking tot de samenwerkingsverbanden tussen de initiatiefnemers en instanties. De waarde die wordt gecreëerd met deze initiatieven is tot op heden nog niet volledig uitgelicht en daarin zit een vertaalslag. Het doel is om deze toegevoegde waarden/toegevoegde impact op de bebouwde omgeving verklaarbaar te beschrijven zodat het toekomstige beeld van deze initiatieven transparanter wordt.
Aangeven dat de gegevens anoniem en vertrouwelijk worden verwerkt	Bij het uitwerken van de gegevens wordt uw naam niet opgeslagen of bewaard. Zo kan niemand achterhalen wat u gezegd hebt. De dingen die u ons vertelt zullen alleen voor deze thesis worden gebruikt en zijn dus niet herleidbaar tot personen.
Als de respondent wil stoppen	Als u tijdens het interview besluit dat u niet meer verder wilt, dan kunt u dat aangeven. Wij stoppen dan met het interview.
Vertellen dat het gesprek op band wordt opgenomen	We hebben een mobiel met voicerecorder bij ons zodat dit gesprek kan worden opgenomen. Dit zorgt er ook voor dat wij nu niet veel hoeven op te schrijven. Het zal later namelijk uitgetypt worden. Vanuit de wet is voorgeschreven dat we u om toestemming moeten vragen als we gebruikmaken van een voicerecorder. Daarom vraag ik u zo meteen, als de recorder loopt, of u toestemming geeft dat dit gesprek wordt opgenomen.
Introductie	Verantwoording van de huidige werkzaamheden en introductie op de duurzame ontwikkeling voor de omgeving
STARTVRAAG	Hoe beschrijf je jullie toegevoegde waarde/impact op de bebouwde omgeving op het gebied van duurzame ontwikkeling voor nu en de toekomst?
Evt. aansluiters bij de hoofdvraag Zoek in het verhaal aanknopingspunten over duurzaamheid, circulariteit en de energie transitie	- Wat is in jouw ogen een initiatiefneming om de omgeving te verduurzamen en burgers hierin te betrekken? - Hoe is de werkwijze waarin jij acteert om te specificeren naar een werkwijze waarvan andere partijen kunnen profiteren om eenvoudiger een vertaalslag te maken? - Hoe is jouw betrokkenheid met de huidige energie transitie Welke initiatieven leveren voor de omgeving waarde op waarmee wordt bijgedragen aan de energietransitie? - Wat is een goed businessmodel die bijdraagt aan de huidige energietransitie?
Initiatiefneming	- Hoe zijn jullie opgericht en wat zijn de must-haves om deze initiatiefnemingen op te richten? Wat is absoluut nodig om deze initiatieven op te richten?
Werkproces	- Welke werkprocessen leiden tot een verbeterd en verduurzaamde omgeving om in te wonen, werken en recreëren? - Wat zijn de eisen aan deze werkprocessen om te slagen tijdens een dergelijk proces?

	- Welke acties of processen leveren geen bijdrage aan een dergelijk proces of zorgen juist voor meer problemen om duurzaam te zijn? - Beschrijf in een kort(e) schets/verhaal welke processen niet moeten ontbreken tijdens het verduurzamen van woningen en de algehele omgeving
Samenwerking met betrokken instanties	- Welke instanties zijn betrokken tijdens een dergelijk proces om de burgerinitiatieven in te passen? - Hoe is deze samenwerking tot stand gekomen? - Waar zitten volgens jullie de knelpunten tijdens de samenwerking? - Wat zijn volgens jullie de belangrijke aandachtspunten tijdens het aangaan van deze samenwerkingen? - Wat is de koppeling tussen de werkprocessen en de samenwerkingsverbanden en wat leveren deze op voor de bebouwde omgeving?
Oplevering voor bebouwde omgeving	- Wat zijn de toegevoegde waarden van deze burgerinitiatieven op de bebouwde omgeving? - Hoe komen deze tot stand en hebben effect op de duurzame ontwikkeling in de bebouwde omgeving? - Wat zijn de bottlenecks voor het opzetten van burgerinitiatieven in de bebouwde omgeving? - Wat is de manier om business modellen in de huidige bebouwde omgeving te implementeren? - Wat zijn de toegevoegde waarden van burgerinitiatieven in de huidige bebouwde omgeving?
Toekomstige duurzame ontwikkeling	- Hoe denken jullie na over de toekomstige ontwikkelingen die vanuit burgers ontstaan? - Wat zijn volgens jullie huidige knelpunten die in de toekomst voorkomen kunnen worden? - Hoe zien jullie de bebouwde omgeving over 5 of zelf 10 jaar?
Bedanken voor het interview	Allen bedankt voor het deelnemen aan dit interview!

Appendix D: axial coding format

[illegible]