

‘Willingness to participate’

How citizens of Rotterdam perceive water safety, and how willing they are to participate in the city’s resilience initiatives regarding water safety



Sarah Akhamy
S4122992
s.akhamy@student.rug.nl
Master Thesis Cultural Geography
Faculty of Spatial Sciences
University of Groningen
Dr. Gunnar Mallon
September 2020



**rijksuniversiteit
 groningen**

Abstract

The Dutch city of Rotterdam has a long history of water challenges. Due to climate change, cities such as Rotterdam need to develop strategies to become climate adaptive. Resilience has proven to be a promising way of dealing with the consequences of climate change. These issues are more prominent in urban areas because of the large surface of concrete and asphalt, which absorb heat and make it difficult for water to infiltrate the ground, resulting in higher temperatures and increased flooding of sewage systems, which in turn cause citizens to experience more water nuisance in their living environment. Resilience approaches argue that inclusion and active participation of citizens are needed in resilience initiatives to achieve a resilient city. By conducting (online) focus groups and interviews, this research takes a closer look at the willingness to participate of citizens of Rotterdam in resilience initiatives about water safety in their city. First, findings showed that citizen perceptions and attitudes are divergent on water safety, water management and water nuisance. Second, water safety was viewed by most as no responsibility for citizens, as citizens in this study perceived themselves as having insufficient knowledge about water management and water safety, and not enough of a meaningful impact. Third, Willingness to Participate in water safety initiatives depended on four categories of considerations that citizens have: personal considerations, content and process considerations, housing considerations and responsibility considerations. Finally, the research presents a conceptual framework that shows how concepts such as Sense of Place, resilience and water safety interact with each other within the context of water safety initiatives in Rotterdam.

Keywords: Sense of Place, (urban) resilience, water safety, citizen involvement, Willingness to Participate.

Content

Abstract	1
Content.....	2
1. Introduction.....	5
2. Theoretical framework.....	9
2.1 Resilience as solution for climate change challenges	9
2.1.1 Climate change impacts for cities.....	9
2.1.2 The origin of the notion of resilience: engineering and ecological sciences.....	9
2.1.3 Resilience and systems theory	11
2.1.4 Characteristics of resilience.....	12
2.1.5 Urban resilience and the City Resilience Framework.....	12
2.1.6 Urban resilience and power relations	14
2.2 Maintaining water: water management and water safety in the Dutch and Rotterdam context	15
2.2.1 Water management in the Netherlands and the city of Rotterdam.....	15
2.2.2 Defining water safety and water nuisance in the Netherlands.....	15
2.2.3 What citizens can do to help prevent water nuisance	17
2.3 Social dimensions of resilience: Citizen involvement and Sense of Place.....	18
2.3.1 Citizen involvement: Social participation and collective identification	18
2.3.2 Sense of Place.....	19
2.4 The research’s conceptual model	21
3. Methodology	23
3.1 The city of Rotterdam as a study area: Water issues and solutions	23
3.1.1 Water city Rotterdam.....	23
3.1.2 Rotterdam as a climate adaptive and resilient city.....	24
3.1.3 Water safety initiatives in Rotterdam	25
3.2 Online focus groups and semi-structured interviews	27
3.2.1 Focus groups.....	28
3.2.2 Interviews	29
3.2.3 Participant selection.....	29
3.2.4 Analysis of the data	31
3.3 Ensuring rigour	31
3.4 Research ethics: ethical considerations	32
3.4.1 Privacy, confidentiality, and informed consent.....	32
3.4.2 Power relations	32
3.4.3 Positionality as researcher: critical reflexivity.....	33

4. Analysis.....	34
4.1 Citizen perceptions and attitudes: Perspectives on water safety and responsibility	34
4.1.1 Perspectives on water safety and water nuisance	34
4.1.2 Perspectives on water safety, water management and water nuisance	36
4.1.3 Perspectives on water safety and responsibility.....	38
4.1.3 Perspectives on responsibility in relation to resilience.....	41
4.2 Willingness to Participate: Considerations in citizen involvement	42
4.2.1 Personal considerations	42
4.2.2 Content and process considerations	44
4.2.3 Housing considerations	45
4.2.4 Responsibility considerations.....	47
4.3 Attitudes towards selected water safety initiatives.....	47
4.3.1 Positive attitudes.....	48
4.3.2 Critical attitudes	49
4.3.3 Points for improvement for initiatives according to participants	49
4.4 Review of the conceptual model.....	50
4.4.1 Adjustments to the simplified model	52
4.4.2 Additions made to the simplified model to create the extended model.....	53
5. Conclusion	55
5.1 Answering of the research questions.....	55
5.1.1 How do citizens of Rotterdam perceive water-safety-related concepts, responsibility regarding water safety, and their own part in it?	55
5.1.2 What are reasons for citizens to (not) take part in three water safety initiatives in Rotterdam?.....	56
5.1.3 How are water safety, resilience and Sense of Place related to each other in the case of water safety in Rotterdam?.....	57
5.1.4 Research question: How willing are citizens of Rotterdam to participate in the city's resilience initiatives regarding water safety?.....	57
5.2 General conclusion.....	58
5.3 Recommendations for further research.....	59
6. References	60
7. Appendix.....	64
Appendix A: Focus group guide (Dutch and English).....	64
A1: Dutch version of the focus group guide	64
A2: English version of the focus group guide	68
Appendix B: Interview guide (Dutch and English)	71
B1: Dutch version of the interview guide.....	71

B2: English version of the interview guide	74
Appendix C: Forms for participants about informed consent and basic data	77
C1: Informed consent (focus group).....	77
C2: Informed consent (interview)	78
C3: Basic data form.....	79
Appendix D: Code report.....	80

1. Introduction

You cannot expect the municipality or the water board to do everything to make sure that you have 'dry feet'. I think there is a shared responsibility for residents too, because you use a lot of things that the municipality takes care of and you need to do something in return, I think.” – Male, 28 (Interview 1)

The Dutch city of Rotterdam has a long history with water because of its relatively low location below sea level, and its position at the mouth of the Nieuwe Maas river and the North Sea. This makes the city vulnerable for water threats that make it difficult to 'keep feet dry'. Over the last two decennia, the city has developed numerous plans and strategies to deal with its water challenges. Recently, another water challenge has emerged for the city: climate change. Cities are most vulnerable to climate change effects because of their locations, large populations, high density of infrastructure and capital, and urban characteristics (OECD, 2010). Hence, cities need to develop strategies to become climate adaptive and to deal with the consequences of climate change. One of these consequences is more extreme weather, which results in higher temperatures and heavy rainfall (da Silva et al., 2012; Leichenko, 2011). These issues are more prominent in urban areas because of the large surface of concrete and asphalt, which absorb heat and make it difficult for water to infiltrate the ground (Rotterdams Weerwoord, 2020). This also applies to Rotterdam: it has a large area of concrete surfaces, which results in an overload of rainwater for city sewage systems and can cause sewage water to flood the city streets. In this way, citizens are expected to experience more water nuisance around their houses and in their living environment, making it even more relevant for them to be involved in the topic of water safety.

Two large developments play a key role in the way that the city of Rotterdam currently deals with water issues: the increased use of resilience as response to climate change and the increased attention that has been given to inclusion of non-governmental participation in Dutch governmental policies. The municipality of Rotterdam had already been working on the climate change issues by developing plans and executing projects based on climate adaptation and, more recently, resilience (Gemeente Rotterdam, n.d.-b). Whereas climate mitigation is aimed at minimalization of the causes for climate change (e.g. reduction of CO₂), climate adaptation argues that adaptation to the consequences of climate change are key (Spaans & Waterhout, 2017). Resilience goes a step further by proposing that the focus should not be solely on adapting to climate change consequences, but that the city as a whole should be made resilient (ARUP, 2014). In disaster studies and urban planning, resilience has been presented as a promising way of dealing with the consequences of climate change (Meriläinen, 2019). Rotterdam was one of the first cities in the Netherlands to include adopt resilience in their policies: the city joined the 100 Resilient Cities Network in 2014 and developed its Rotterdam Resilience Strategy in 2016 (100 Resilient Cities, n.d.; Resilient Rotterdam, 2016). The aim of the strategy was to make Rotterdam a water robust and resilient city, in which citizen involvement was one of the key components to make the strategy successful. The increased attention to citizen involvement in Dutch policies can be explained by two societal developments in the context of the Netherlands: a changing role for governments and a changing role for citizens (Resilient Rotterdam, 2016). The changing role for

governments can be explained by the trend of decentralisation in the Netherlands, in which governmental tasks from the national government are handed over to local governments. The changing role of citizens is due to the increased organisational capacity and ability to speak up by individual citizens, making working with citizens more effective than solely working on climate change top-down.

Understanding the way Dutch citizens view water safety and resilience is key for successful citizen involvement in resilience strategies. The Dutch water management sector is famous for its expertise on water safety, both in the Netherlands and in the world. This is also why Dutch people tend to view water safety as a given fact (Heems & Kothuis, 2012). Dutch citizens tend to have a lack of *waterbewustzijn* ('water consciousness'), which means that they have a lack of or not a sufficient level of awareness regarding water safety and the consequences that water threats (such as floods) can have for themselves (Boer et al., 2003). Since the beginning of the 21st century, the Dutch government has created several public campaigns with the aim to raise awareness among the Dutch people about water safety, but these have mostly failed to reach their goal (Heems & Kothuis, 2012). For example, the public campaigns *Nederland Leeft met Water* ('The Netherlands Lives with Water') and *Denk Vooruit* ('Think Forward') started respectively in 2003 and 2006. The goal of these campaigns was to increase communication by the government about water safety risks in the Netherlands and how Dutch citizens can prepare for flood disasters (Heems & Kothuis, 2012). These campaigns failed to help reaching the goal of water conscious behaviour among Dutch citizens, mostly because of their confusing message of 'the fantastic Dutch water safety' and the warning to be ready for new flood disasters. Another issue is that initiators of water management projects and policies can have a different view on the purposes of a project than involved residents do (Buijs, 2009). Thus, as the opening quote indicated, it shows how important it is to take citizen perceptions into account and to explore the amount of responsibility citizens feel regarding their own water safety.

Financial and economic approaches to water safety (both the costs of water management as well as the possible costs of floods) are traditionally, together with technical approaches, the main scientific shapers of Dutch water management and its policies (Bočkarjova et al., 2010). However, these physical sciences alone are not enough for successful water management: firstly, water management is mostly a societal activity, which involves a lot of people "working together to build, operate, and maintain a complex technical system, often under changing conditions" (Lund, 2015, p. 5906). Secondly, water management systems are part of political and social systems, which are organised by laws, governance, and expectations from societies. This means that in water management, the integration of both the physical and social sciences is crucial in order to make water management successful (Lund, 2015). Several academic contributions from social sciences have been made on sociological and political aspects of engagement from communities, stakeholders and agencies in water management, but these studies often tend to separate the social spheres from the physical spheres of water management as well (Lund, 2015). Moreover, involvement of the public in water management projects is often done after the plans are finished. Instead, citizens should be involved throughout the process of plan creation, as doing so results in an increase in the public support for these plans (Breman et al., 2008). Another problem with

the Dutch public perception is the 'water safety myth', which on one hand consists of the 'blind trust' Dutch citizens have in the knowledge and skills of experts and governments, and on the other of the lack of fear for water as 'a possibly life-threatening natural phenomenon' (Heems & Kothuis, 2012). Because of the high quality and the (relatively) great successfulness of the Dutch water management systems, the water systems work smoothly enough for the public to forget about them and takes them for granted (Lund, 2015). The water safety myth is strengthened by this 'taken for granted' attitude Dutch people tend to have towards water safety: the Dutch government keeps the country dry and safe, so there is no reason for citizens to be involved in these processes or prepare for water threats. The above-mentioned issues show the societal and academic problems that are discussed in this study.

The city of Rotterdam was part of the initiative '100 Resilient Cities' and is worldwide known as an example of a resilient city that has innovative urban water safety projects such as water squares and water storage sites. The aim of this study is to see how residents of the city Rotterdam themselves perceive water safety and related topics, who they think are responsible for water safety and what role they see for themselves in this. Rotterdam has a long history of fighting against and living with water, and it has successfully dealt with water safety issues in the past. The city states that it has done so by using a 'typical Rotterdam approach' (Resilient Rotterdam, 2016). This makes it interesting to focus on the interactions between water strategies, and the Sense of Place and feelings of pride residents of Rotterdam have of their city. Therefore, this study will take a closer look at the concepts of water safety, resilience, and Sense of Place, and how and to what degree these might be interacting with each other. These topics are combined in the following research question that is central in this study:

How willing are citizens of Rotterdam to participate in the city's resilience initiatives regarding water safety?

Three sub-questions were developed to answer this research question and to structure the research:

1. How do citizens of Rotterdam perceive water-safety-related concepts, responsibility regarding water safety, and their own part in it?
2. What are reasons for citizens to (not) take part in three water safety initiatives in Rotterdam?
3. How are water safety, resilience and Sense of Place related to each other in the case of water safety in Rotterdam?

To answer the research question, a qualitative research approach is central in this study. Focus groups and semi-structured interviews were conducted with citizens of Rotterdam. By using both methods, triangulation can be achieved, in which the two methods complete each other and their ability to discover the processes of meaning-producing that participants have (Bryman, 2012).

Following the structure of the sub questions, this thesis first presents a theoretical framework that consists of an extended review of literature related to resilience, water safety, Dutch water management, citizen involvement and Sense of Place. Afterwards, the methodology used in the study is explained, in

which Rotterdam as a study area, the research methods for the collected data, and research ethics are discussed. Next, the collected data is examined in relation to the literature in the analysis chapter. In the end, an answer to the research question will be given and recommendations for further research are made in the conclusion.

2. Theoretical framework

The following chapter is structured in the following way: first, key concepts such as resilience, Willingness to Participate, citizen involvement and Sense of Place are defined, and the related theories are presented. Second, an image is created of the 'expert view' of several levels of governments, researchers, and professionals on the issues of urban resilience initiatives regarding water safety. Third, the citizen roles possible in these initiatives are outlined. In the end, a conceptual model is displayed which consists of these theoretical concepts and their connections to each other.

2.1 Resilience as solution for climate change challenges

Over the last decennia, the concept of resilience has been increasingly used in policy-making and in academic contexts such as disaster management, the water sector, and social sciences. Resilience has a prominent place in literature on climate change and climate adaptation, especially in relation to challenges for urban areas (Leichenko, 2011). Because of the popularity of resilience in both research and policy, it is important to take a closer look at its definitions, uses and characteristics.

2.1.1 Climate change impacts for cities

Cities are most vulnerable to climate change effects because of their locations, large populations, high density of infrastructure and capital, and urban characteristics (OECD, 2010). First, large cities are often located in coastal areas, making them more prone to risks from rising sea levels and storm surges. Second, due to urbanisation, urban areas have a higher density of people living there than rural areas, increasing the number of lives being vulnerable to climate change impacts. Third, cities often function as important economic centres, which means that they have a high density of major infrastructures (e.g. buildings and transportation networks) and capital that can be at risk. Fourth and last, certain urban characteristics make cities more vulnerable to climate change effects than rural areas. An example is the large amounts of concrete and asphalt in cities. Climate change results not only in higher temperatures and a rising sea level, it also causes more instances of extreme weather events (da Silva et al., 2012; Leichenko, 2011). On the one hand, the concrete and asphalt in cities absorb heat, which causes the temperature to increase even more in urban areas compared to rural areas. On the other hand, concrete surfaces make it difficult for water to infiltrate the ground in the case of heavy rainfall. In the case of extreme rainfall, it can result in failing sewage systems which cannot process the sudden large amount of water which causes local flooding and water nuisance for citizens.

2.1.2 The origin of the notion of resilience: engineering and ecological sciences

Cities face several challenges when dealing with and preparing for climate change impacts. Two widely used techniques in flood risk management are climate mitigation and climate adaptation. Climate mitigation is aimed at minimalization of the causes for climate change (e.g. reduction of CO₂), whereas climate adaptation argues that adaptation to the consequences of climate change are key (Spaans & Waterhout, 2017) A more recent response to these challenges is the notion of resilience, which argues

that cities need to be resilient in order to make them climate adaptive (Leichenko, 2011). In the frame of Dutch flood risk management, resilience (*veerkracht* in Dutch) is a crucial concept that is defined through three aspects: as the capacity to deal with unforeseen threats, the capacity to offer resistance to such threats and to resist to the consequences of them (Wildavsky, 1988, as cited in Smit, 2006). In planning theory, three types of resilience perspectives are central: engineering resilience, ecological resilience and evolutionary resilience (Davoudi, 2012). The definition of resilience originates from engineering, in which it refers to “the capacity of a structure to return to its initial shape after bearing a load” (Egan et al., 2011, p. 81). In relation to a system (such as a city), engineering resilience can be defined as both a system’s resistance to a disturbance (an impact or stress) and the time it takes before the system returns to its previous ‘stable’ state (Davoudi, 2012). The faster a system ‘bounces back’, the more resilient it is. Engineering resilience implies a ‘notion of a stable equilibrium’, a stable state of the system that existed before an impact happened to which it presumably needs to return (Davoudi, 2012).

Ecological sciences expanded the engineering definition of resilience by adding a system’s ability to adapt to a certain amount of disturbance (Davoudi, 2012). In the case of too much disturbance, when the system cannot stay in or return to the previous ‘stable’ state, the system is able to move to another, new state. Figure 1 shows engineering resilience and ecological resilience in ball-and-cup illustrations. In 1A, the ball can move only within the cup and the ideal, ‘stable’ state is at the bottom of the cup. In 1B, the ball can move within the cup as well, but the ball constantly moves and never settles for a stable position at the bottom. However, when the disturbance is impactful enough, the ball may cross a threshold and move to a new cup (i.e. a new equilibrium). Thus, whereas engineering resilience focuses on whether the system remains at the bottom of the equilibrium, ecological resilience concentrates on whether the system stays within the current equilibrium or moves to an alternative one (Holling, 1996, as cited in Liao, 2012, p.3).

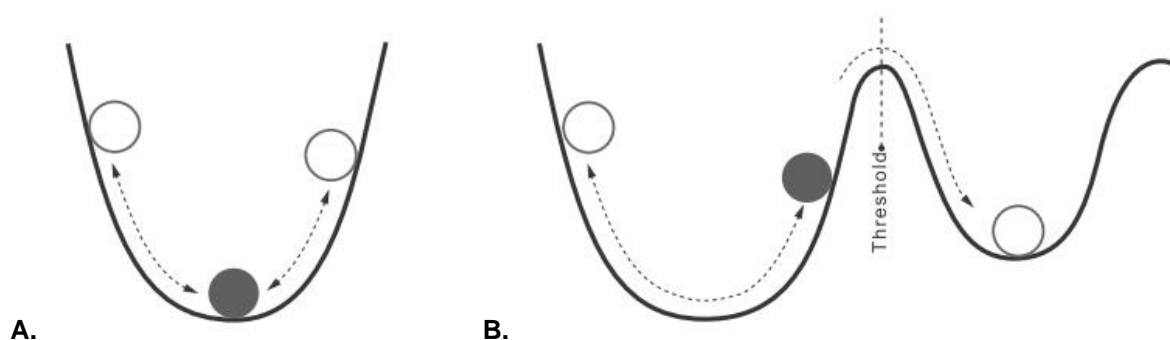
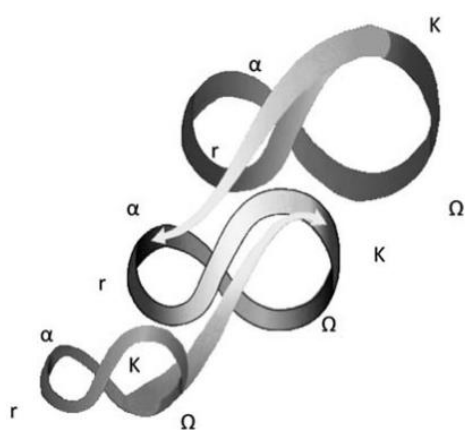


Figure 1. Ball-and-cup heuristic from Liao (2012) illustrating the concepts of engineering resilience (1A) and ecological resilience (1B). The ball represents the state of the system: the grey ball indicates the ‘starting’ point of a system prior to a disturbance, while the white ball indicates the possible state of the system after a disturbance. The cup represents the equilibrium of the system. (Source: Figure 2 in Liao, 2012).

2.1.3 Resilience and systems theory

The term ‘socioecological resilience’ was coined to extend the ecological resilience definition by adding social dimensions and implying that “social vulnerability and/or strength affects ecological vulnerability and/or strength, and vice versa” (Egan et al., 2011, p. 81). Davoudi (2012) approaches this type of resilience as ‘evolutionary resilience’, which she refers to as the “the ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains” (Davoudi, 2012: 81). The additional part on ‘complex, socio-ecological systems’ is important, as it allows resilience to embody a systematic thinking in which humans are part of ecosystems. In this manner, social aspects are intertwined with ecological aspects of those ecosystems. This is related to systems theory in which social and (bio)physical dimensions are not separated from each other, but are considered interconnected with each other (Straussfogel & von Schilling, 2009). Thus, an impact in the biophysical or ecological dimensions can also be considered an impact in the social dimensions because of the interconnectedness, and the other way around.

The engineering and ecological definitions of resilience are problematic in two ways. First, thinking in terms of ‘stable states of a system’ defines resilience only as a buffer to short-term impacts. Second, a system is seen as something that can be ‘stable’ at one moment in time. In contrast, evolutionary resilience acknowledges that systems change all the time and are thus instable. Instead, it argues that a system undergoes four stages of change in an adaptive cycle shown in Figure 2: growth (r), conservation (K), creative destruction (Ω) and reorganisation (α) (see table in Figure 2). Systems do not need to go through these phases in this order, as they can also skip a phase. In this way, a system (e.g. a city) is unveiled as a complex adaptive system with fast and slow processes on small and large scales, which results in a system constantly adapting and changing, making it more resilient to unforeseen impacts and challenges (Davoudi et al., 2013).



Phase of change	Characteristics
Growth (r)	Rapid accumulation of resources (capitals), competition, seizing of opportunities, rising level of diversity & connections, high but decreasing resilience
Conservation (K)	Growth slows down; stability, certainty, reduced flexibility & low resilience
Creative destruction (Ω)	Chaotic collapse & release of accumulated capital; time of uncertainty when resilience is low but increasing
Reorganisation (α)	Time of innovation, restructuring & greatest uncertainty, but high resilience

Figure 2. The adaptive cycle for evolutionary resilience (left). There are four phases of change, of which its characteristics are outlined in the table (right): growth (r), conservation (K), creative destruction (Ω) and reorganisation (α). The figure on the left shows how a series of adaptive cycles can exist and interact with each other at different scales. (Source: Figure 1 in Davoudi et al., 2013).

2.1.4 Characteristics of resilience

Evolutionary resilience is defined not only as the ability of complex systems to change and adapt continuously, but also to transform when confronted with disturbances. Three key characteristics of resilience are identified and illustrated by applying them to the flood resilience of cities: robustness, adaptability and transformability (Davoudi, 2012; Restemeyer et al., 2015). Robustness means that a system has to be strong to persist a disturbance; in the case of a flood event and a city, it can be achieved by building and maintaining dykes and storm surge barriers (Davoudi et al., 2013; Restemeyer et al., 2015). However, these constructs alone have not always proven to be enough to avoid floods, so both adaptability and transformability are needed. Adaptability describes the capacity of actors within a system to be flexible and to adjust the system to make it less vulnerable (Davoudi, 2012; Davoudi et al., 2013; Restemeyer et al., 2015; Walker et al., 2004). Regarding a flood resilient city, adaptability means that the hinterland is adjusted to flooding so that in the case of a flood, there will be only little damage done to it. It requires not only an adjustment of the physical dimension (such as elevating houses with poles), but also in the social dimension (such as preparing people in what they need to do in case of flooding). In this case, flood risk management for cities “becomes a societal task that calls for [...] the willingness of citizens to actively participate in flood risk management” (Restemeyer et al., 2015, p. 47). Transformability refers to the capacity of a system to be innovative: for flood resilient cities, it means a “shift from ‘fighting the water’ to ‘living with the water’” (Davoudi et al., 2013; Restemeyer et al., 2015, p. 47). Hence, both the physical dimensions (physical environment) and social dimensions (people’s mindsets) of a system need to change in order to achieve robustness, adaptability, and transformability. Thus, making changes in physical spheres only is not sufficient to enhance the resilience of a city as a whole: changes in the social spheres of a city are necessary as well.

2.1.5 Urban resilience and the City Resilience Framework

Urban resilience refers to “the ability of a city or urban system to withstand a wide array of shocks and stresses [and] climate change is understood as but one of the many stresses that cities face” (Leichenko, 2011, p. 164). The 100 Resilient Cities Programme (100RC Programme) defines urban resilience as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience” (Spaans & Waterhout, 2017, p. 110). The NGO Rockefeller Foundation (RFF) initiated the 100RC Programme, which consisted of a worldwide network of one hundred cities to help the cities develop resilient strategies (Resilient Rotterdam, 2016). Rotterdam was one of the first cities to join the programme. The 100RC Programme developed and used a City Resilience Framework as an analytical tool for participating cities to identify for each of its seven qualities of resilience how well cities will be able to respond to changing situations (Resilient Rotterdam, 2016; Spaans & Waterhout, 2017). Figure 3 shows the City Resilience Framework, with the seven qualities of resilience in the inner circle. These qualities show how the 100RC Programme advocated a broader approach to resilience than solely resilience to stresses and shocks, by having cities assess and formulate their impacts: in this way, cities can better adapt to these impacts and transform them into opportunities for growth. For example, city governments can use these opportunities by including diverse and marginalised communities in them.

This brings us to the quality Inclusive, which in the City Resilience Framework is described as “[emphasising] the need for broad consultation and engagement of communities, including the most vulnerable groups” and which “contributes to a sense of shared ownership or a joint vision to build city resilience” (Spaans & Waterhout, 2017, p. 112). So, this quality shows that the inclusion of the public helps to increase a feeling of shared ownership of the resilience issues and to contribute to the city’s resilience. Moreover, the category ‘Collective identity & community support’ is approached as active community engagement, strong social networks and social integration (ARUP, 2014). This category and the Inclusive quality indicate the attention the Framework gives to the social dimensions of resilience, making it clear that the (Complex Adaptive) systems view is at the foundation of the 100RC Programme’s approach, making the Framework align with the evolutionary resilience approach (Spaans & Waterhout, 2017).



Figure 3. An example of a City Resilience Framework as developed by ARUP for the Rockefeller Foundation. The Framework contains four categories on the outer shell of the circle (Leadership & strategy, Health & wellbeing, Infrastructure & ecosystems, and Economy & society), twelve key goals for a resilient city (in the yellow blocks) and seven qualities of resilience in the inner part. (Source: Figure from ARUP, 2014).

2.1.6 Urban resilience and power relations

Critical remarks have been made on urban resilience discourses including the City Resilience Framework, especially regarding the power relations involved. One critique concerns the power to define (urban) resilience: how the decision is made what needs to be resilience, to what it needs to be resilient, at what scale, for what purpose and for whom. It questions how power relations influence decision-making processes on the definition of resilience. Both the definition and use of 'resilience' are never neutral and always political (Dewulf et al., 2019). This is also important to consider when looking at resilience initiatives and their policy documents are approached. In the case of Rotterdam as a 100RC participant, it is important to consider the power relations of actors such as the initiator and the executor, respectively the NGO Rockefeller Foundation and the municipality of Rotterdam. Both actors have different goals, interests, and influences regarding the city's resilience processes, which are the result of power relations in these processes and are thus not neutral.

Another critique is that urban resilience contains a dual discourse with on one side a city's robustness and on the other self-organisation. A city's robustness implies that its economy and infrastructure are its most vital aspects, which are governed by a top-down approach that views technological and physical/spatial means as solutions to external shocks (Meriläinen, 2019). This focus is also visible in the City Resilience Framework, which emphasises that cities are centres of economic activity and opportunities to which people are drawn: in the framework, a city is viewed as an economic system independent from the people living in it (ARUP, 2014; Meriläinen, 2019). In this way, the resilience of economic and infrastructural structures is prioritised by the governing institutions. In the context of Dutch cities, these institutions are mainly municipalities consisting of professionals who make the decisions about (policies on) resilience. At the same time, urban resilience policies increasingly emphasise the importance of bottom-up self-organised neighbourhoods, in which more responsibilities are given to the most vulnerable individuals and communities to empower themselves (Meriläinen, 2019). Hence, the city is split up in two fields of resilience responsibilities: one field consists of the city's economy, infrastructure and technological solutions that are governed top-down at a larger city-wide scale. The other consists of bottom-up empowerment of vulnerable people at a smaller scale, often at neighbourhood or individual level. Instead of benefitting from the advantages of an interconnected, complex system that a city is, the dual approach separates the two fields and disconnects them from each other. This creates an 'expert' side (top-down building of a robust city by professionals) and a non-expert side (bottom-up self-organisation by citizens) in which knowledge, resources and capital are distributed unequally, indicating the power relations present in urban resilience discourses. When approaching urban resilience, it is important to be aware of the (both explicit and implicit) dual discourse of urban resilience, as the disconnection between its two sides can result in misunderstanding and conflicts between those involved.

2.2 Maintaining water: water management and water safety in the Dutch and Rotterdam context

2.2.1 Water management in the Netherlands and the city of Rotterdam

Rijksoverheid, the Dutch government, ascribes two tasks in Dutch water management: to protect against floods, and to provide good water quality while also making sure there is sufficient ground and surface water (Rijksoverheid, n.d.-b). These tasks indicate the two main aspects of Dutch water management: the water quantity aspect with a strong focus on flood risk management, and the water quality aspect with a focus not only on drinking water for humans, but also on animals and the environment. Four levels of governments are involved in Dutch water management: Rijksoverheid, provinces, *waterschappen* (water boards) and municipalities. In the case of Rotterdam, many levels of governments are involved in its water management: Rijksoverheid and its executive agency on infrastructure *Rijkswaterstaat* at the national level, the Province of South Holland at the provincial level, and three water boards (*Hoogheemraadschap van Delfland*, *Hoogheemraadschap van Schieland en de Krimpenerwaard* and *Waterschap Hollandse Delta*) and the municipality of Rotterdam at the local level (Gemeente Rotterdam, n.d.-b). Each of these governments has its responsibilities with regard to water management and water safety in the Netherlands and specifically in the city of Rotterdam (Rijksoverheid, n.d.-b). *Rijkswaterstaat* is the water manager of large waters such as the sea and rivers like the Rhine and the Meuse, and it is responsible for the maintenance of dykes, dams, and storm surge barriers. The Province of South Holland is responsible for the regional execution of national water policy and the management of the ground water quality in the province (Provincie Zuid-Holland, n.d.). The three water boards are responsible for the (maintenance of) regional flood barriers, the treatment of wastewater, and the water quality in regional waters such as canals, creeks, and ditches. Moreover, although they are the formal managers of ponds and small lakes, municipalities often maintain these bodies of water. The management of small bodies of water is also one of the tasks for the municipality of Rotterdam, among its other tasks on the management of urban ground water, and the disposal of wastewater and storm water through sewage systems. In conclusion, water management is mainly seen in technocratic terms as the (traditional) task for these levels of governments regarding the water quality maintenance and flood risk management.

2.2.2 Defining water safety and water nuisance in the Netherlands

The Dutch water management and its governments mainly focus on the maintenance of the (ground) water quality and flood risk management. In the Dutch context, water management is predominantly focused on the flood risk management because of the country's high vulnerability to flooding and its long history with floods (*Rijkswaterstaat*, n.d.). The focus shows the deep connection and even the interconnectedness that exists between water management and the topic of water safety with regard to flood risks in the Netherlands: both in the Dutch history and culture.

However, one should be aware of the two English translations 'water security' and 'water safety' that exist for the Dutch term *waterveiligheid*. To avoid confusion, it is important to stress the differences

between these English terms as both are used in water management and water studies but have two different definitions. 'Water security' is defined in threefold by the UN Water as "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability" (UN-Water, 2013). The term water security is an overarching definition, as its three parts contain three important aspects of the relations between humans and water: access to sufficient water of good quality, protection against threats of water, and preservation of ecosystems. The second aspect about protection against water threats is especially key, as it includes a definition for water safety and refers to water safety issues: the former part 'protection against water-borne pollution' refers to drinking water safety (and thus water quality), while the latter part '[protection against] water-related disasters' refers to disasters such as floods and droughts (and thus water quantity). Thus, water safety is an aspect of water security.

According to the website *Helpdesk Water*, an initiative created by the Dutch government to share knowledge and answer questions about water policy and water management, *waterveiligheid* is simply defined as "safety against high water levels from seas, rivers and lakes" (Helpdesk Water, n.d.-d). In *Waterveiligheid – Begrippen begrijpen*, a report published by Rijkswaterstaat to inform the public about and explain terms used regarding *waterveiligheid*, surprisingly the term *waterveiligheid* itself is actually not defined, but it is clear that the term is used to describe the protection against floods (in the Netherlands) and thus refers to same definition as its English translation water safety (Rijkswaterstaat, 2017). However, in a list of developments affecting the water safety, heavy rainfalls are mentioned as a development that will increasingly lead to more water nuisance. Interestingly, it is stated that, in contrast to England, an explicit distinction is made in the Netherlands between 'water safety' and 'water nuisance' because "the consequences of a flood due to a dyke breach can be incomparably larger than those from water nuisance due to heavy rainfall" (Rijkswaterstaat, 2017, p. 31). The distinction indicates that, in the context of Dutch water management, water safety is aimed at avoiding 'real' danger to people and property by flooding (Rijksoverheid, n.d.-a). The consequences of a flooding in the Netherlands are calculated by a module estimating the number of (deadly) victims, the number of impacted people, and/or the material and economic damage (Rijkswaterstaat, 2017). In this line of reasoning, water safety is about keeping the risk of flooding and its dangerous consequences as low as possible.

Wateroverlast (water nuisance) is not seen as (a type of) flooding by Helpdesk Water. However, the definition for *wateroverlast* itself is rather diverse: although water nuisance itself is not defined on the website, Helpdesk Water differentiates two types and their causes. With regard to residences, these two are *hemelwateroverlast* (water nuisance in residences caused by rainfall, either from the public road or the sewer) and *grondwateroverlast* (water nuisance in basements and crawl spaces of residences caused by ground water levels) (Helpdesk Water, n.d.-b, n.d.-a). These definitions of water nuisance have a focus on water nuisance in residences of citizens and indicate the small-scale and short-term focus of the concept. It adds to the image of a distinction between the water safety and water nuisance.

Water safety is hereby seen as a large-scale operation to avoid danger to the lives and economic structures in cities and regions. Water nuisance is considered as consisting of small-scale, non-life-threatening temporary incidents at the individual level. Furthermore, it becomes visible that water management, particularly flood risk management and water safety, is mainly seen in technocratic terms as the (traditional) task for governments and experts which is 'too big' for citizens to handle. Meanwhile, water nuisance is regarded as only relevant for individual citizens and their residences.

2.2.3 What citizens can do to help prevent water nuisance

There are ways in which citizens can contribute to water management and the prevention of water nuisance. With regard to the contribution of citizens in dealing with water nuisance, Helpdesk Water proposes that citizens can either accept temporary and incidental water nuisance, or take measures themselves (Helpdesk Water, n.d.-c). The latter can be done by retaining water on one's property or by installing a threshold at the (front) door. The first measure of water storage is one that citizens can take to help *prevent* water nuisance, while the second can be executed to help in dealing with the *consequences* of water nuisance. *Ons Water* is an initiative from all important actors in Dutch water management to make Dutch people aware that clean, safe, and sufficient water is not something that should be taken for granted. *Ons Water* describes that water nuisance can happen due to long-term rainfall or heavy short-term rainfalls, and that municipalities and water boards are taking measures, such as the disconnection of sewage systems or the creation of underground water storage basins (*Ons Water*, n.d.-b). Although municipalities and water boards have an important role in the prevention of water nuisance, fifty to seventy percent of urban surfaces is privately owned, which means that citizens need to do their part as well (*Ons Water*, n.d.-a). *Ons Water* proposes four measures citizens can take to prevent water nuisance: taking out tiles from one's garden and replacing them with plants to help the drainage of rain water; installing a rain barrel to store water; installing a green rooftop which absorbs rain water; and disconnecting a rain pipe from the roof to let water infiltrate in the ground. These four measures all have the goal to decrease the amount of water that flows into sewage systems in the case of heavy rainfall. In the case of Rotterdam, the city adopted a Resilient Strategy which argues that the city is a complex adaptive system in which there is also an essential task for society in building resilience. There are several options for citizens of Rotterdam to contribute to the improvement of water safety in their city, such as the proposed measure of water storage on one's property. These initiatives in cities such as Rotterdam are part of urban resilience initiatives and have the aim to improve water safety and include citizen involvement.

Since water management (including the management of water from heavy rainfalls) requires not only adjustment of physical environments but also of social dimensions, it means that the dealing with water becomes a societal task in which the willingness of citizens to actively participate is crucial. With a focus on citizens and their attitudes, 'Willingness to Participate' is a variation on the economic term 'Willingness to Pay' (often abbreviated to WTP), a term commonly used in relation to people as consumers. 'Willingness to Pay' describes the level or limit that people have when it comes to paying for a certain service/product, especially regarding what it brings themselves (Bočkarjova et al., 2010).

'Willingness to Participate' thus describes how willing people are to take part in water safety initiatives, in relation to what it might bring them as well. The term combines 'Willingness to Pay' with social participation to create an identifiable term adaptable to citizen involvement in water resilience initiatives.

2.3 Social dimensions of resilience: Citizen involvement and Sense of Place

As the resilience quality Inclusive from the City Resilience Framework showed, the inclusion of the public helps to increase a feeling of shared ownership of the resilience issues and to contribute to the city's resilience. Moreover, in the Rotterdam Resilient Strategy, there has been an institutional shift in the resilience planning in Rotterdam from resilience regarded as a task for the public government, towards an inclusive approach in which resilience is regarded a task for public government, NGOs, private companies and individual citizens (Spaans & Waterhout, 2017). This shift can be related to two societal developments in the context of the Netherlands: a changing role for governments and a changing role for citizens (Resilient Rotterdam, 2016). The changing role for governments can be explained by the trend of decentralisation in the Netherlands, in which governmental tasks from the national government are handed over to local governments. The changing role of citizens is due to the increased organisational capacity and ability to speak up by individual citizens, making working with citizens more effective than working on climate change top-down. The inclusion of other (non-governmental) parties in the resilience task for Rotterdam is furthermore important with regard to non-governmental ownership of paved surfaces which hinder the drainage of rainfall in the ground. So, for resilience initiatives regarding the dealing with heavy rainfall, it is necessary for Rotterdam to include them in their strategy as well, as the water boards and municipality cannot do it on their own. These aspects makes it crucial to take a closer look at the social dimensions of resilience.

2.3.1 Citizen involvement: Social participation and collective identification

The involvement of the public has several names, amongst them 'citizen participation', 'public engagement' and 'citizen involvement', of which the latter term will be used in this study. The changing and important role for citizens in resilience approaches raises the question as to why exactly it is considered to play a crucial factor in achieving resilience.

Citizen involvement is the active involvement of members of the society in a project: either as individuals, or as communities or groups. Citizen involvement can be seen as the combined result of social participation and collective identification. Egan et al. (2011) state that the social participation and the collective identification of a community are important aspects of the level of resilience that a human group has in an ecosystem. Social participation in the context of this study can be described as the active involvement of members of the society in resilience initiatives: these can be both as individuals, or as communities or groups (Egan et al., 2011). It is important to note that social participation is a nurtured action; it is a learned cultural behaviour. Therefore, the level of social participation can vary because of different cultural sets of values, habits and practices, and thus participatory policies need to adjust their approaches to these cultural differences.

The collective identification of a community with (that is, their collective relation to) a certain place turns a space into a territory for this community (Egan et al., 2011). Therefore, the greater the collective identification with a territory, the more the community members agree on their collective identification, and the more effectively their social participation will be. Greater collective identification thus increases the effectiveness of social participation. Collective identification and social participation as processes are intrinsically linked with the ecosystems that humans are living in, thus a combination of a strong collective identification of a community with a territory and greater social participation increases the resilience of both the human group and the ecosystem it is part of (Egan et al., 2011). For resilience initiative areas concerning water safety, it means that strong social participation of community members from the initiative area and strong collective identification of the community living in the initiative area can increase the resilience of the entire ecosystem against water threats. So, citizen involvement needs to be not only included in resilience strategies, but a strategy on its own.

This is increasingly done in emerging approaches in water management. Water management is mostly a societal activity involving a lot of people “working together to build, operate, and maintain a complex technical system, often under changing conditions” (Lund, 2015, p. 5906). Moreover, water management systems are part of political and social systems, which are organised by laws, governance, and expectations from societies. This means that in water management, the integration of both the physical and social spheres is crucial in order to make water management successful (Lund, 2015). To do so, collaborative approaches are increasingly used, which requires active involvement of stakeholders and the public (Pahl-Wostl et al., 2007). In urban water management however, citizen involvement is often limited to paying taxes and fees (R. de Graaf & der Brugge, 2010). New collaborative approaches try to broaden citizen involvement by demanding for a mutual dialogue between ‘water management experts’ and citizens, instead of a one-way exchange of expert knowledge. A changing role for citizens means that they need to take more ownership and be more involved in processes of water management plans (Pahl-Wostl et al., 2007). Thus, a shift in the role for citizens is essential in achieving resilience for urban water management.

2.3.2 Sense of Place

Sense of Place (SOP) is described as “the emotional bonds and attachments people develop or experience in particular locations and environments, at different scales” (Foote & Azaryahu, 2009, p. 96). In short, it refers to the relations people have with places. As stated by Tuan (1975, p. 152), a place is “a centre of meaning constructed by experience”, which can be experienced directly (e.g. through individual sensory experience) or indirectly (e.g. through knowledge on places via education or the media) by individuals and groups. This experience-based definition of place shows that SOP emerges from human interactions and experiences with the environment as a spatial setting and that SOP is thus subjective (Masterson et al., 2019). Jorgensen and Stedman (2001) add to the definition of SOP that the place-related constructs Place Identity, Place Attachment and Place Dependence form the core of the SOP concept. These three place-related SOP concepts are based on three place concepts in

environmental psychology: Identity, Attachment and Dependence. Place Identity refers to the cognitive connection between people and place: through interactions with places, it is “the process by which people describe themselves in terms of belonging to a specific place” (Stedman, 2002, as cited in Hernández et al., 2007, p. 311). Place Attachment regards the emotional connection people can have to a place: it is the connection that people build with “specific settings, where they tend to remain and where they feel comfortable and safe” (Hidalgo & Hernández, 2001, as cited in Hernández et al., 2007, p. 310). Place Attachment is often predicted by someone’s length of residence, although other characteristics such as the number of relationships within a community and home ownership are also indicators for one’s Place Attachment (Hernández et al., 2007). Place Dependence is defined as the strength of association or commitment that people have to a place (Jorgensen & Stedman, 2001).

Masterson et al. (2019) define the components of SOP differently: they conceptualise SOP as an umbrella term that consists of both place attachment and place meanings, in which place attachment encompasses both place dependence and place identity. It is important to take a closer look at the approaches that both Jorgensen & Stedman (2001) and Masterson et al. (2019) have towards SOP: the former have a quantitative approach to SOP and focus on the measurability of SOP and its sub-concepts, while the latter includes empirical studies that stress the importance of studying the meanings that people give to places to gain understanding of e.g. place-based behaviour. In this study, the decision was made to use an approach somewhere in the middle between these two approaches. For this research, the place-related concept of Place Dependence is not as relevant as Place Identity and Place Attachment, as this study mainly focuses on the cognitive and emotional connections people have with the city of Rotterdam. Thus, to keep the centre of the attention at these connections, it was decided that SOP consists primarily of Place Identity and Place Attachment.

Through attitude theory, place-related constructs such as Place Attachment and Place Identity (and thus Sense of Place) can be regarded as attitudes towards places (Jorgensen & Stedman, 2001; Sampson & Goodrich, 2009). An attitude can be defined as “a response to an exogenous event, object or stimulus” (Fishbein & Ajzen, 1975, as cited in Jorgensen & Stedman, 2001) and a spatial setting such as a place can be seen as an attitude object. Here, a link between SOP and attitudes surfaces: SOP itself is not directly accessible to study, but it is visible through the attitudes that people have towards places. This is important, because these place attitudes can be used to indicate the willingness to participate for citizens.

Another important link is made between SOP and the resilience of a system: SOP literature provides useful conceptual and methodological tools which are increasingly used in understanding “how sense of place may influence the resilience of a system by examining how place attachment and its subcomponents influence adaptive and transformative capacity” (Masterson et al., 2019, p. 556). In the case of Rotterdam, it refers to the ways in which SOP concepts such as Place Attachment and Place Identity influence the adaptive and transformative capacity of the city and its citizens. It is added that the considerations of place meanings are important to understanding how social–ecological change (such

as an impactful event) influences whether people (individual and groups) are willing to work together and act on behalf of a place (e.g. by participating in resilience initiatives together), or whether place meanings can cause community conflict (e.g. conflicting ideas about a place's values). In this way, to understand how citizens' willingness to participate in water safety initiatives in Rotterdam is influenced by socioeconomical change, it is important to look at the meanings that they give to Rotterdam as a place. By doing so, the meanings citizens give to their city influences their attitude towards the city positively and/or negatively, which has consequences for people's willingness to participate and eventually the resilience of Rotterdam as a system.

Moreover, for citizens of Rotterdam, it is expected that a strong Sense of Place in the form of a strong feeling of pride is present among citizens, which may influence their attitudes toward water safety and their responsibilities. It is argued that when asked about one's feelings of pride, indicators for one's Place Identity (e.g. seeing the city as part of one's identity and thus being proud of the city) and Place Attachment (e.g. feeling attached and thus proud of the city) will surface. The reasoning behind this is a recent report on citizens of Rotterdam shows that in the last ten years, an increased number of citizens of Rotterdam indicate that they are proud of Rotterdam: in 2009, 55% of the survey respondents said they were proud of the city, which increased to 75% in 2019 (P. de Graaf, 2019). It is expected that a (stronger) feeling of pride of the city will be visible in a similar feeling of pride of the city's initiatives by citizens, such as of the water safety initiatives.

2.4 The research's conceptual model

Figure 4 shows the simplified conceptual model that is used to conclude what we know from this chapter. The model is simplified, because it is a starting point to provide a visualisation of theoretical perspectives on the concepts and topics. It will be refined in the analysis chapter, in which the collected data from the focus groups and interviews will be used to take a critical look at the model and extend and adapt it if needed. However, the review is not done to 'test' the model, but to show how the collected data can help to better understand how these concepts are interacting with each other.

First, Sense of Place and its place-related constructs Place Identity and Place Attachment can be regarded as attitudes towards places; in the context of Rotterdam, positive attitudes towards a place (such as a strong feeling of pride of the city or one's neighbourhood) can lead to positive attitudes and perceptions towards the city's water safety initiatives. Second, it is argued that when citizens have more positive attitudes towards water safety initiatives, they are more willing to take part in these initiatives, and thus their 'Willingness to Participate' regarding these initiatives increases. Third, to achieve citizen involvement, it is important to know how willing citizens are to participate. So, it is argued that both a strong Sense of Place and a high level of Willingness to Participate can lead to a high level of social participation in water safety initiatives, resulting eventually in a high level of citizen involvement for these initiatives. Finally, resilience refers to a system (the city of Rotterdam and its citizens) which can not only bounce back, but also transform after an 'impact' (such as heavy rainfall). Because humans are part of

ecosystems and thus social aspects are intertwined with ecological aspects of these systems, a high level of successful citizen involvement contributes to Rotterdam's overall resilience, making it water-robust and adaptive to climate change impacts.

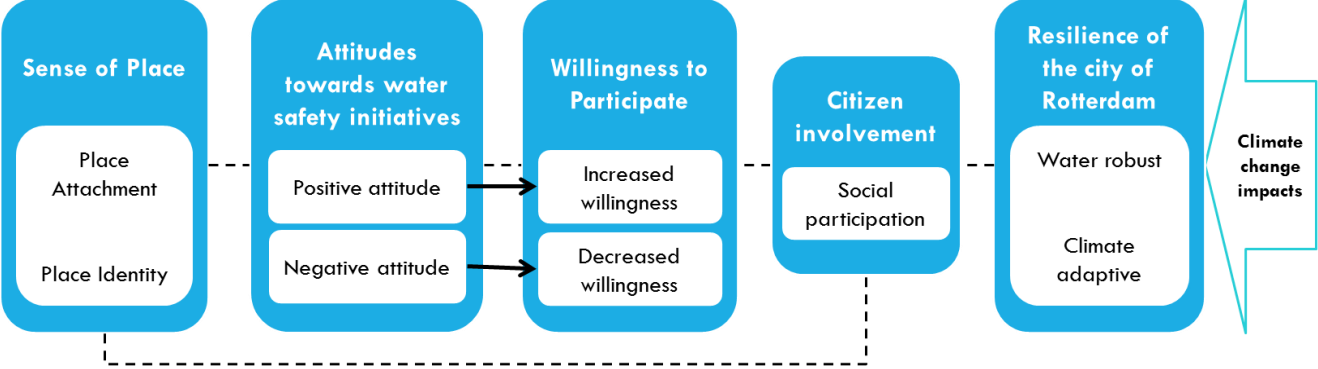


Figure 4. A simplified conceptual model shows the relations between the key concepts in the research. (Created by author).

3. Methodology

3.1 The city of Rotterdam as a study area: Water issues and solutions

3.1.1 Water city Rotterdam

Rotterdam is the second largest city of the Netherlands after Amsterdam and has over 650,000 inhabitants (Centraal Bureau voor de Statistiek, 2020). The municipality of Rotterdam consists of fourteen districts, each made of multiple neighbourhoods (Gemeente Rotterdam, 2018). Eleven of these districts form the city of Rotterdam, the other three districts are villages. The Nieuwe Maas river flows through Rotterdam and into the North Sea, dividing the city in a northern and southern area (see Figure 5). The city centre is situated on the northern bank of the river, which contains most of the city's infrastructure and modern architecture. Rotterdam's world-famous port is located on the south-western bank, which is the largest seaport of Europe and an important economic centre for the city and the Netherlands (Port of Rotterdam, 2019).

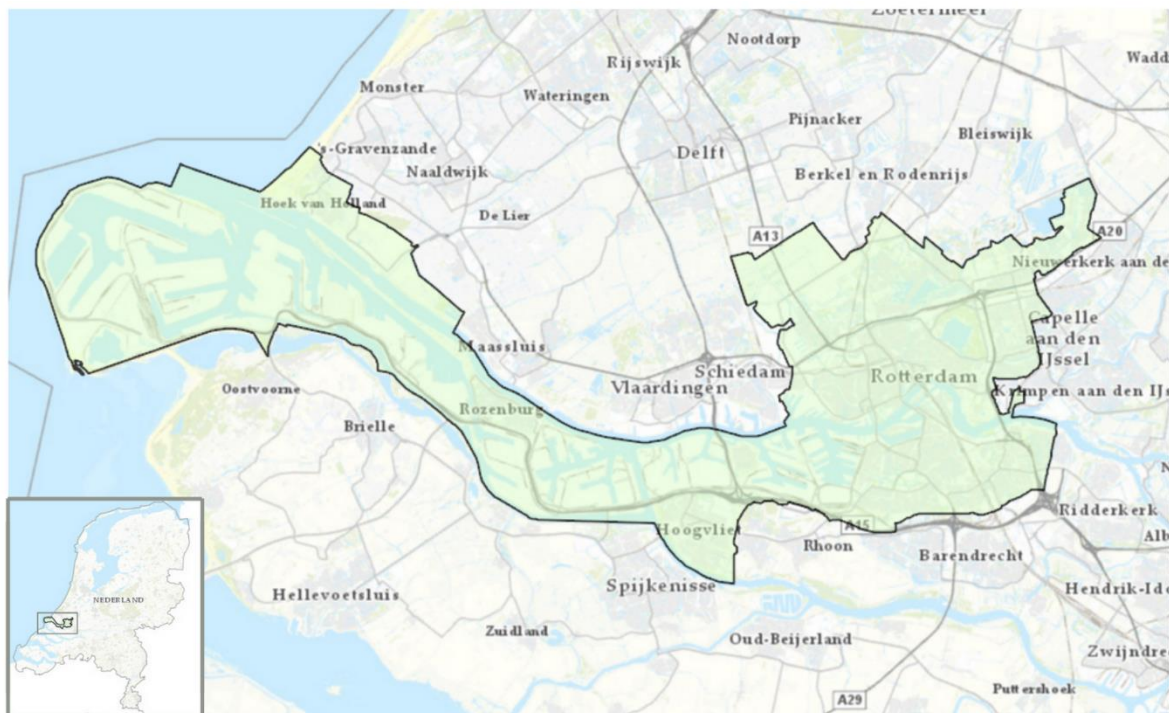


Figure 5. A map showing the location of (the municipality of) Rotterdam (light green area) in the Netherlands. The area on the left (from the area under Vlaardingen to the North Sea) indicates the port area of Rotterdam, whereas the area on the right (under 'Rotterdam') is where the city is located. (Created by author).

Most of the city lies below sea level: some parts are 6 metres below *Normaal Amsterdams Peil* (NAP, Amsterdam Ordnance Datum), a height measure used in the Netherlands in which a height of 0m indicates the average sea level of the North Sea (Rijkswaterstaat, 2019). These areas are protected by dykes, but both people and capital are located in outer-dyke areas which are at least 3 metres above NAP. These outer-dyke areas are protected by storm surges such as the *Maeslantkering*, which closes if the water level of the Nieuwe Maas river is above 3 metres. However, a recent survey in neighbourhoods of Rotterdam showed that citizens experience more water nuisance issues in outer-

dyke areas in Rotterdam-South (south of the Nieuwe Maas) than in inner-dyke areas in Rotterdam-North or the city centre (north of the Nieuwe Maas) (Gemeente Rotterdam, 2020). Rotterdam's geographical location at the mouth of a river and the North Sea, its low location regarding the sea level, and the problems its citizens have with water nuisance, make water an important topic for the city. In this way, water-related topics such as water management and water safety are prioritised and innovatively dealt with, making it an interesting study area for this study.

3.1.2 Rotterdam as a climate adaptive and resilient city

The city of Rotterdam has been working on water plans, climate adaptation programmes and resilient strategies for almost two decades. The municipality first collaborated with the three water boards of Rotterdam in 2001 when they developed *Waterplan 1*, a plan with technical solutions for heavy rainfalls (Gemeente Rotterdam, 2007). After five years of execution of the plan, *Waterplan 2* was developed in 2007. The second water plan was an update on the first plan and viewed dealing with water as an opportunity instead of a burden. Instead of fighting against the water, they realised they had to “give water more space and make sure water was stored creatively” (Gemeente Rotterdam, n.d.-a). *Waterplan 2* was aimed at water-related themes such as water nuisance and water safety. Since 2007, several water storage sites have been developed, such as green roof tops, underground water storage sites and *waterpleinen*. *Waterpleinen* ('water squares') are city squares that store water beneath the square. A review of *Waterplan 2* was published in 2013, which included a plan *Perspectief Rotterdam Waterstad 2030* ('Perspective Rotterdam Water City 2030') and new water projects to work with water, which aimed at making Rotterdam an attractive and waterproof city.

The climate adaptation programme *Rotterdam Climate Proof* introduced in 2009 was the first programme which emphasised that climate adaptation had to be included in strategies for Rotterdam. It was founded on three key points: development of knowledge, execution of climate adaptation measures and the marketing of Rotterdam as innovative delta city (Rotterdam Climate Initiative, 2013). The programme was one of the driving forces behind the *Rotterdamse Adaptatiestrategie (RAS)* ('Rotterdam Adaptation Strategy'), a strategy launched in 2013 with the goal to make Rotterdam climate proof in 2025. This strategy is the first to argue that climate adaptation is not only a task and responsibility of governments (national governments, the municipality of Rotterdam and the three involved water boards), but that they should work together with other parties to achieve climate adaptation. One of the main reasons for this transition is that climate adaptation needs to be done in the urban space, which is shared with citizens, companies, knowledge institutions and interest groups. Hence, these parties are also able to participate and positively contribute to the climate adaptation of Rotterdam. Moreover, a shift in the role for the municipality is visible in the RAS: it requires more of a facilitative and stimulating role instead of solely an executive role. One of the examples given is the 'The green team; Tegel eruit, Groen erin' initiative ('The green team; Tiles out, Greenery [plants] in'), in which citizens of Rotterdam are stimulated to remove tiles from their garden and have more plants in it, which results in a decrease in temperature and easier infiltration of water in the ground.

After Rotterdam became a member of the 100 Resilient Cities (100RC) Network in 2014, it developed its *Rotterdam Resilience Strategy*, which was published in 2016. The strategy incorporated a transition from climate adaptation to resilience by stating that the strategy introduces “a new phase of climate adaptation”. It aimed at making the city of Rotterdam resilient by establishing seven resilience objectives: Balanced community, Clean & reliable energy, Cyber port city, Climate proof, Infrastructure, Network city, and Anchoring resilience (Resilient Rotterdam, 2016). It further expands on the role for citizens by stating that this role is changing due to individuals who are increasingly speaking up and organising themselves. In this way, it would not be sufficient to work on climate adaptation top-down: governments should work more together with citizens. Two reasons are given: on one hand, the possibilities in the public space are limited for the governments as fifty to seventy percent of urban surfaces is privately owned. On the other hand, small-scale approaches affect the scale level of the individual citizen. Moreover, the strategy states that changing relationships between governments and citizens can lead to more attention to self-sufficiency of citizens, also in the case of climate adaptation. Thus, the strategy seems to imply that more responsibilities need to be given to citizens to help make Rotterdam resilient together.

On the national level, the first Spatial Adaptation National Delta Programme was developed in 2014, a programme in which all Dutch governments together set the goal to make the Netherlands climate proof and water robust in 2050 (Ministerie van Infrastructuur en Waterstaat et al., 2019). The Programme is updated every year to check on the status of climate adaptation and water robustness of the Dutch regions. This programme and the previously mentioned regional plans stimulate the establishment of water safety initiatives that want to include citizens at the city, neighbourhood, and individual level of Rotterdam.

3.1.3 Water safety initiatives in Rotterdam

Rotterdam got praised for its water squares and received much attention for them, as the squares were seen as innovative water storage sites. There are nine water squares in Rotterdam, of which the Bentemplein is a famous example in which citizens were involved in the development process by voice their opinions on the looks of the square (Resilient Rotterdam, 2016). The water squares combine two functions: to serve as urban public spaces, and to hold water stored in the case of heavy rainfall (Resilient Rotterdam, 2017). In this way, these squares serve not only as a water storage function to prevent water damage and water nuisance, but also a public-use function which the public directly experiences benefit from. Interestingly, these water squares are presented as symbols for the ‘typical Rotterdam’ climate adaptation, which suggests an implicit relation between ‘a Rotterdam identity’ and water safety. Thus, these water squares and other innovative water safety initiatives that include societal contributions make Rotterdam an interesting study area for this research.

For this research however, it was important that water safety initiatives in Rotterdam were selected which included and focused on citizen involvement. Three water safety initiatives met these criteria, and videos of these were shown as examples for participants in the focus groups and interviews. The three

initiatives were *Water Sensitive Rotterdam*, *Geveltuintjes tegen wateroverlast* ('façade gardens against water nuisance') and *Rotterdams WeerWoord* ('Rotterdam Weather Wise'). All initiatives were executed by the municipality of Rotterdam.

The video for Water Sensitive Rotterdam (WSR) introduces the movement Water Sensitive Rotterdam (WSR) and explains what the movement is about (*Wat is Water Sensitive Rotterdam? (animatie met ondertiteling)*, 2018). WSR is a movement that started in April 2017 with the aim to connect the urban ambitions of various parties in making society aware of the urgency of a climate adaptive city (Resilient Rotterdam, 2016). The programme is part of the municipality and wants to show how a collaboration between the municipality, citizens, organisations, and companies is needed to achieve a resilient water system. Moreover, WSR pleads for a combination of many small-scale projects by citizens and companies (e.g. rain gardens), and effective large-scale projects executed by the municipality (e.g. the Bentemplein water square). For these small-scale projects, WSR investigates how a project contributes to the liveability and social cohesion in the city (Resilient Rotterdam, 2016, p. 157). WSR was introduced in the Rotterdam Resilience Strategy (2016) and the movement stresses its resilience values participation and inclusion: it works together with citizens by having them participate in projects and citizens benefit from the project results.

The second video, 'Geveltuintjes tegen wateroverlast' ('façade gardens against water nuisance'), was made by the municipality of Rotterdam in July 2018 (*Geveltuintjes tegen wateroverlast*, 2018). It shows how people can take tiles out of the sidewalk in front of their houses and make façade gardens by replacing them with plants. The municipality of Rotterdam is one of the Dutch municipalities participating in the '*Tegel Eruit, Plant Erin*' campaign of the *Operatie Steenbreek* foundation. This campaign wants to motivate people to remove tiles from their garden and replace them with plants to help counter negative consequences of the concrete city surfaces such as high temperatures and lower water retaining (Stichting Steenbreek, n.d.). The video explains how façade gardens can be made with help of the municipality and describe the benefits of these gardens.

The third video about Rotterdams WeerWoord ('Rotterdam Weather Wise') gives an overview of five projects of the initiative that were completed in 2019 (*Terugblik 2019*, 2020). One of the projects is a food/sponge garden which provides fruits and vegetables for the food bank and at the same time functions as an experimental garden with different types of plants and soils to see how they work with extreme weather conditions. Another project is the distribution of rain barrels among citizens: these rain barrels function as water tanks which citizens can use to store water in instances of rainfall and later use this water in dryer periods. Rotterdams Weerwoord started in the beginning of 2019 as an initiative by the municipality of Rotterdam. Its goal is to "prepare Rotterdam for a more extreme climate together" by working together with Rotterdam citizens in making the city weather resilient (Rotterdams Weerwoord, 2020).

3.2 Online focus groups and semi-structured interviews

In total, three individual interviews and three focus groups were done in the same time period of a month. The total amount of participants was sixteen, of which thirteen took part in the focus groups that consisted of three to five people per session. The data collection consisted of triangulation of online focus groups and semi-structured interviews, which took place from the end of May 2020 until the end of June 2020. Triangulation refers to the use of “more than one method or source of data in the study of social phenomena” (Bryman, 2012, p. 392). The focus groups formed the centre of the research and interviews were done as a complementary method, so both methods and their retrieved data completed each other. Both research methods had a semi-structured approach that leaned towards a more structured approach. This was done so similar guides could be developed for both methods which consisted of the same central topics and questions, and a few sub-questions which could be used if there was little response. The guides were based on the research aim and were made in the same structure, so the data from both could be checked out with each other. Although guides often are general lists of key concepts, the guides used in this research were more structured and contained several questions and sub-questions, making them more similar to question schedules (Dunn, 2016). However, there was some flexibility in the order in which questions were asked, but too much flexibility could make it difficult to link focus group data and interview data to each other.

An overview of the structure and order of the guides can be found in the Appendices A and B. There was a strict order in the discussion of topics, but the order of questions asked on these topics was more flexible. The first part of the interviews consisted of questions on topics such as pride, water safety and water nuisance. In the second part, video elicitation was used: a video elicitation interview is a research method that uses video clips to prompt participants discuss certain issues more extensively (Li & Ho, 2019). Processing visual images (e.g. photos or videos) using words use more of the brain’s capacity than words alone do (Glaw et al., 2017). Therefore, photo elicitation (which video elicitation is a variation of) is a process that provides more and different information than interviews without it. Using video elicitation thus helps to discover different layers of meaning, especially in focus groups in which participants collectively produce meanings. Moreover, the videos provided the participants with visual examples of initiatives, which for some clarified what was meant with the term ‘water safety initiative’. After each video was shown, the participants were asked to respond to them and indicate whether they would participate in the initiative and why (not). After the three videos were presented, participants were asked a second time about their reasons (not) to participate in water safety initiatives, to see whether these had stayed the same, had changed or new reasons were added.

After the first focus group was conducted, two adjustments were made to the guide for focus groups and interviews. First, the question ‘How do you personally feel about your safety regarding water and its possible threats for you?’ was added. It was not present in the first version of the guide, but the question was asked in the first focus group and it was deemed to be of importance for the research. Second, the question about reasons to participate was adjusted to a question about participants’ considerations,

because the initial question was met with confusion by participants. No further adjustments were made to the guides.

3.2.1 Focus groups

The focus group as a qualitative research method is a form of a group interview with the goal to explore a specific theme or topic in depth in a relatively unstructured setting (Bryman, 2012). Additionally, interaction between participants is a key characteristic of focus groups: a session is often dynamic and energetic as people respond to contributions of others (Cameron, 2016). In a focus group, the researcher is interested in the ways in which individuals discuss certain issues as members of a group, rather than simply as individuals. More specifically, this research was focused on how people responded to each other's views and how they collectively built up their view out of the interactions that take place within the session. The usage of online focus groups enabled the participants to respond to examples of water safety initiatives in Rotterdam and to discuss to what extent they would be willing to participate in these and in which ways. Furthermore, the participants could discuss definitions of the concepts, how they view it, who they think are responsible for taking care of it and their own roles in it as citizens of the city.

Three of the benefits of using the focus group method as mentioned in Bryman (2012, pp. 503–504) are highlighted for this study: first, focus groups help to develop an understanding about why people feel the way they do about a topic: in a session, the participants can ask each other what their reasons are and possibly agree with or challenge these reasons. Participants might modify their view or voice their (dis)agreement with other participants, which helps providing an image of the (various) views on the topics. The focus group not only allows the participants to challenge each other's views, but it also makes them reflect on their own perspectives. The challenging of each other's views and reasons happened multiple times in the conducted focus groups, which helped to clarify lines of thoughts of participants. Second, participants can bring forward issues in relation to a topic that they think are important or interesting. These can be aspects the researcher did not think of as relevant for a topic, but which might be relevant for the participants. In this way, it can produce new insights for the researcher. Third, focus groups allows the researcher to study the ways in which individuals in a group setting make sense of a phenomenon and construct meaning around it. As the construction of social phenomena is not done by isolated individuals, focus groups can show the processes in which people collectively construct meaning to such phenomena. Hence, the sessions provide more rich and in-depth data than using only one-on-one interviews would. It was evident that the responses in interviews were less extended and detailed than those in focus groups. In my view, this was mainly because the interviewees constructed their answers by themselves and not with others.

Several practical decisions were made for the focus group sessions that are important to mention. First, I would call the participants one day before the focus group to explain the content of the research and the focus group. This was done over the phone or via online call. It provided an opportunity for the participants to ask questions about the session. Moreover, the conversation would help to build rapport

with the participants and ensured they felt more comfortable with me and the session, which also helped to encourage them to show up for the session. Second, a test focus group was done to see whether the questions were easy to understand and to check the order of questions. Third, to not miss what is being said, two additional researchers assisted in the focus groups as note-takers. In a session, one of them would take notes of observations and participants' responses. This helped to do an early and preliminary analysis of the data from the focus groups and to get an early understanding of the data. Fourth, two screen recordings were made of the session: one in Google Meet and one via PowerPoint as a back-up. These included a recording of the screen to provide another layer of information (e.g. facial expression or movements) and to help make identifying someone speaking in the recording easier in the process of transcribing. Fifth, the focus group guides were quite structured for focus groups (see Appendix A). Focus groups are known to be relatively unstructured because the participants often have a certain amount of basic or minimum knowledge on the discussed topics (Bryman, 2012). However, this research focused on the (kinds of) knowledge and opinions participants had on topics and how they collectively constructed it. Moreover, some participants indicated to have little to no knowledge on certain topics, which could produce valuable information as well. I took this into account by developing a more structured focus group guide to help spark more responses from participants who might feel they had insufficient knowledge.

3.2.2 Interviews

Three semi-structured interviews were used alongside the focus groups for different reasons: to make up for cancelled focus groups, to avoid having participants who knew each other be in one focus group, and to avoid having an 'expert' participant in a focus group. The participant to whom the last reason applied already had considerable knowledge on the water topics and could possibly 'silence' other participants in a focus group because of this. However, I still wanted to include this participant in my research because of their knowledge, as they had a unique view on the topics.

The guide used in the interviews is included in Appendix B. As stated before, the interview guide had a similar structure to the focus group guide. Although participants in interviews were not challenged by other participants unlike the participants in focus group, this missing effect was countered because findings from the focus groups could be checked for credibility with findings from the interviews through triangulation (Bryman, 2012). The use of triangulation, in which multiple research methods are used (focus groups and interviews in this research), helped to increase the credibility of the research. Credibility is an aspect of trustworthiness and refers to how credible the research's findings are.

3.2.3 Participant selection

There were little requirements for the participants to take part in the research: as generalisation was not the aim of this research, the participants did not need to be representatives of 'the citizens of Rotterdam'. In e.g. focus groups, it did not matter whether these were done at neighbourhood level (only with residents from one neighbourhood) or at cross-neighbourhood level (with residents from different

neighbourhoods). Moreover, as was explained before, participants did not require a certain minimum of knowledge on the topics, because the focus of the research was not on the amount of knowledge they had. Thus, the only criterium for participants was that they are citizens of Rotterdam. In Table 1, an overview of the participants is shown and in Table 2, a summary of participants characteristics is provided to show the housing situations for the participants. The anonymous participant in the second focus group is a participant that decided to leave the session halfway. Because of the missing data on the other half of the session, I decided to exclude them and their personal data from the research. However, because they made contributions in the beginning of the sessions and other participants responded to them, I decided to use their answers for context, but I did not use direct quotes from them. To find participants, I called and sent e-mails to neighbourhood associations and study associations in Rotterdam, I posted messages on social media (e.g. Facebook groups about Rotterdam), and I asked people around me if they knew people living in Rotterdam for my research. I also bought an online Facebook advertisement and posted my message on websites of citizen associations in Rotterdam.

Focus group/interview	Gender	Age
<i>Focus groups</i>		
Focus group session 1 Saturday 23 May 2020 14:00-16:00h	Male	62
	Female	57
	Female	21
	Female	24
	Male	54
Focus group session 2 Wednesday 3 June 10:00-12:00h	Female	22
	Male	57
	Female	26
	Male	34
	<i>[anonymous participant]</i>	<i>N/A</i>
Focus group session 3 Saturday 13 June 10:00-12:00h	Female	59
	Female (1)	25
	Female (2)	25
<i>Interviews</i>		
Interview 1: 30 May 10:00-11:00h	Male	28
Interview 2: 6 June 14:00-15:00h	Female	50
Interview 3: 21 June 14:00-15:00h	Female	52

Table 1. Overview of the participants per each research method. Because two female participants have the same age, it was decided to name them 'Female (1)' and 'Female (2)'.

	Yes	No
Do you have a garden?	8	7
Do you have a basement?	6	9
	Owned	Rental
What is your type of housing?	6	9

Table 2. Summary of the participants' housing situation.

3.2.4 Analysis of the data

To analyse the data, transcripts were made of the video screen recordings of the focus groups and interviews. Transcripts are written versions of what is said in these recordings. The transcripts of the interviews are complete and very detailed, whereas the transcripts of the focus groups are abridged, meaning that only key sections of the discussions are transcribed (Cameron, 2016). This was done because the transcribing of focus groups can be extensive and not all parts of the recording are equally relevant for the research as they might go off topic.

In the coding process, three types of codes were used: descriptive, analytic, and in vivo. Descriptive codes refer to codes deriving from interpretation of the textual data, whereas analytic codes reflect a theme that is sometimes based on the theory (Bryman, 2012). In vivo codes are a type of descriptive codes which directly derive from statements of participants (Cope, 2016). Coding has three main purposes: data reduction, data organisation, and analysis. Thus, coding helps to understand data by reducing it and producing themes out of it. A code report with the codes for this research is included in Appendix D. After the coding process, a thematic analysis was done in which key themes were extracted from the data (Bryman, 2012). The coding process helped to connect the research questions, literature, and data to each other, which in turn helped extracting themes from the data. The thematic analysis was based on the structure of the guides, which was based on the sub-questions of the research.

3.3 Ensuring rigour

Ensuring rigour refers to the establishment of trustworthiness of a qualitative research (Stratford & Bradshaw, 2016). Bryman (2012) presents four criteria for trustworthiness: credibility, transferability, dependability, and confirmability. I will reflect on the two criteria of credibility and transferability in more detail in the conclusions.

I created a document in which I kept records of the steps before, during and after the data collection. This helped to strengthen the dependability of this qualitative study, which refers to the 'reliability' of the research (Bryman, 2012). This document contained lists of aspects of focus groups I had to consider, and formats for emails and posts that I could use in my search for participants. I used the document as

a guide and a place of storage in the process of data collection. The document helped organising the arrangement processes of the focus groups and interviews.

3.4 Research ethics: ethical considerations

When doing research, one must take into account several ethical considerations. Following Dowling (2016), some of these considerations are discussed here.

3.4.1 Privacy, confidentiality, and informed consent

Regarding the online data collection, I had to deal with different ethical issues than with face-to-face data collection. One of the issues was privacy: an example is the name that was shown in the focus group video calls. During the call the day before the focus group, I already told the participants to be aware of the published name and advised them to change it to solely their first name.

All participants were asked to fill in two forms: an informed consent form and a basic data form. The informed consent forms were used in this research to let the participants know that their confidentiality and anonymity would be guaranteed and to make sure they were aware of the content of the research they participate in. The informed consent file was based on a Dutch informed consent form provided by the University of Groningen (see Appendix C). In this form, it was clearly stated what would be done with the data: the data is only used for research purposes, the data will not be shared with others, and it will be made sure that others cannot have access to the data (Committee for the Revision of the Netherlands Code of Conduct for Research Integrity, 2018).

The basic data forms asked the participants to provide basic information about themselves: name, age, gender, the neighbourhood they live in, the type of housing (owned or rental), (not) having a garden, (not) having a basement. Except for their names, this data was used in this research in two ways. On the one hand, age and gender were used to refer to a participant easier when presenting quotes from focus groups or interviews. On the other hand, information on the neighbourhood and the housing situation of participants helped to (geographically) contextualise them and their options with regard to participation in initiatives. However, this information is not presented in a way that it can be related to a certain respondent.

3.4.2 Power relations

In the use of focus groups, a problem arose about the effect the group and being in a group could have on the responses of participants (Bryman, 2012). Participants could express more culturally expected views instead of what they think or not engage in certain discussions because of prominent participants. This also happened in the focus groups that were conducted, because some participants had more knowledge and/or had more to say about certain topics, which possibly caused other participants to not add their thoughts or opinions. In these situations, I tried to encourage other people to respond to these

prominent participants, by asking them what they thought about it, whether they agreed and whether they wanted to respond or add something. In this way, I have the feeling that I tried to balance the contributions of the participants by minimising the influence of power relations (Dowling, 2016).

3.4.3 Positionality as researcher: critical reflexivity

As someone who is neither from Rotterdam nor living there, I was an outsider to several topics that were discussed in the focus groups and interviews. An outsider is someone who differs from their informants, especially with regard to being a member of a certain social group (Dowling, 2016). Being an outsider can be a disadvantage, because I do not share the same perspective on the world and experiences with the participants in my research, which could make my interpretation less reliable. However, my outsider position also provided opportunities to gather more in-depth information from respondents, because I was able to ask them to explain examples in more details, which strengthen my interpretation of these examples. Additionally, some of the respondents were students, which made me (as a student) an insider to some extent. This resulted in an increase in the validity of my interpretations of their answers, and at the same time caused student participants to talk more freely. So, my hybrid position as both an insider (as a student) and an outsider (as not being a Rotterdammer) provided some disadvantage, but it mainly created opportunities for my interpretations of situations in the data collection.

With regard to the interactions between participants and the researcher in my research, I noticed some participants were hesitant to answer, or seemed as if they felt ashamed when they did not know an answer to the question asked. In my point of view, this was because they saw me as 'the researcher' and as an expert on the topics. I tried to minimise this ascribed 'expert' role by explaining in the introduction that there were no right or wrong answers to questions and that all views were welcome (Myers, 1998, as cited in Cameron, 2016).

Another aspect of my position as researcher was my (indirect) relation to some participants: a few of them were 'friends of friends', which might have influenced their participation in my research both positively (e.g. more open to speak their mind) and negatively (e.g. trying more to give a desired answer). Except for one person, all of these participants were part of the focus groups, in which the influence of other participants outweighed my influence on their answers. The influence of my indirect relations to some participants was kept at minimum because I stressed the importance of professional interactions in the research before the focus group or interview started.

4. Analysis

This chapter presents the results from the data collection and is based on the main themes generated from the data analysis. Quotes are translated from Dutch and they are used to illustrate or emphasise results. The themes are presented in a structure based on the order of the sub-questions in this research, so . First, sub-chapter 4.1 covers the first sub-question, in which citizen perceptions of and attitudes towards water safety concepts and topics are discussed. Second, sub-chapter 4.2 covers the second sub-question, in which the reasons for citizens to (not) take part in the three examples of water safety initiatives are presented in two ways. On the one hand, four types of considerations in citizen involvement are described. On the other hand, attitudes of the participants towards the three examples are portrayed. Third and last, sub-chapter 4.3 covers the third sub-question, in which the conceptual model of the theoretical framework is refined based on the collected data to show how water safety, resilience and Sense of Place relate to each other in the context of water safety initiatives in Rotterdam.

4.1 Citizen perceptions and attitudes: Perspectives on water safety and responsibility

The way citizens define concepts and aspects of water safety provides useful information on their perceptions and attitudes regarding water safety. In turn, these citizen approaches to water safety related topics help to better understand the context in which citizens form their decision to participate in initiatives or not. Moreover, it provides insight on their perspectives on responsibility of water safety topics.

4.1.1 Perspectives on water safety and water nuisance

A striking theme was the citizen's knowledge and perceptions on water management, water safety and water nuisance. Two findings on the content of water safety are highlighted to start with. First, there was no real accordance on the definition of water safety, mainly because it consists of different types at different scales. As a 57-year old male respondent in the second focus group state that he thought about "keeping dry feet" when he thinks about water safety, the majority stated that water safety is about avoiding floods. However, what was meant with this varied amongst the participants, both amongst focus groups and interviews, and within focus groups. Across the respondents, a large part viewed it as avoiding flooding and prevent the dykes from breaching, which most of them referred to as a task for the water boards or (national or regional) governments. This is similar to the definition of "safety against high water levels from seas, rivers and lakes" that Dutch water management institutions use and which refers to the prevention from a flood disaster (Helpdesk Water, n.d.-d). However, several participants also mentioned that water safety referred to safe drinking water for them:

"Besides dry feet, water safety is about clean drinking water for me. Water safety is the managing of all the water so we can use it well, drink it safely and are protected against it as well" – Female, 26 (Focus group 2)

In this way, this definition of water safety is similar to the UN Water three-folded definition of water security as access to quality water for human well-being, protection against water pollution and disasters, and preserving ecosystems (UN-Water, 2013). Moreover, the definition the female participant gives for water safety is similar to the definition for water management by the Dutch governments, which includes the tasks of protection against floods, providing good water quality and ensuring sufficient ground and surface water (Rijksoverheid, n.d.-b). So, the view of these participants on the content of water safety is broader and different from the view of the Dutch governments, which tend to focus solely on safety against high water levels. This was in contrary to my expectation that the respondents would have the same view on water safety as the Dutch governments involved in water safety. However, this different view might be explained by the lack of involvement most citizens had in the topic of water safety: several participants identified to have little knowledge about water safety and water management, and at the same time stated not to be involved in water safety projects or initiatives. Some even saw their little knowledge about water management and water safety as a result from their lack of involvement. At the same time, it affirms Buijs' (2009) observation that involved 'experts' in water management projects and policies have a different view on the purposes of a project than (involved) residents do. This emphasises the importance of consideration of the different views that citizens have on water safety.

Second, some respondents seemed to make a distinction within water safety based on scale. This is best visible in the following response of a participant in the second focus group:

"For me personally water safety is about drinking water and rainwater discharge on the streets. If I look at it from a larger scale, so not from my personal life, but as a country, then I think about dykes and river discharges. I think I feel there is a difference between daily life and on a larger scale" – Female, 22 (Focus group 2)

In her answer, the respondent makes a distinction between small-scale water safety (daily life, as an individual) and large-scale water safety (as a country). She views the latter as dyke maintenance and water control, which is similar to the tasks that Dutch water management authorities ascribe themselves. In the same way, she views conscious use of water and water nuisance as small-scale water safety that is something she can work on in her daily life. This distinction based on the size of scale is made by many participants and can be linked to the impact respondents consider they can have on these two scales of water safety. For example, one respondent of the first focus group stated prevention of dyke breaches and maintenance of safe drinking water quality is part of water safety, and said the following:

"Safety is something that is a little bit distant from me because I don't feel that I can do something about it. But the quality of water - which can also mean safety of course – it is something that we directly can do something about" – Female, 21 (Focus group 1)

Thus, water safety is not only divided at different scales, but also based on the direct or indirect impact that citizens feel they have. It was stated by multiple participants that direct impact in water safety by citizens referred to minimal pollution of water, reduction of the amount of (drinking) water one uses and

the stimulation of water infiltration in the ground by making their gardens 'greener' (i.e. having less tiles and more plants). These direct impacts take place at a local and small-scale level and can be done in a short time by people themselves. Aspects that respondents felt they had indirect or no impact on, were the building and maintenance of large infrastructures such as dykes and storm surges at a large-scale level. Participants argued that the various levels of governments and the water boards were responsible for these tasks because of their knowledge and resources (e.g. money), and that citizens do not (need to) have a say in this because they do not have the knowledge and resources. Because of this separation between impacts, almost all respondents indicated that they did not feel responsible for taking care of water safety. This is related to the long history of water boards with the management of water: because these institutions have been taking care of the water management 'behind the scenes', it is not visible for citizens and they tend to forget about it. This refers back to the 'water safety myth' in which citizens developed a 'blind trust' in the knowledge and skills of experts and governments, and a lack of fear for water as 'a possibly life-threatening natural phenomenon' (Heems & Kothuis, 2012). The water safety myth explains the feeling of many participants that they cannot have a direct impact on water safety and as a result did not feel as if there is a meaningful role for them in water safety.

4.1.2 Perspectives on water safety, water management and water nuisance

Until now, two findings on citizens perspectives on the content of the term water safety have been discussed. However, another key finding shows that many participants also made diverse divides between water safety, water management and water nuisance. Two main perspectives on these concepts emerged from the interviews and focus group discussions. The first perspective views water safety and water nuisance as two categories within water management, whereas the second perspective views water nuisance as part of water management and water safety as separate from water management. The second perspective is best visible in the response of a 50-year-old female interviewee. After being presented with the three examples of initiatives, the interviewee, who worked at a water board in Rotterdam, asked if the initiatives were aimed at water safety. When asked if she could explain what she meant, she gave the following answer:

"I didn't have the association with these initiatives when it comes to water safety. More with water management. [...] I think water safety is more about flooding and water management is about the smooth management of water, to deal in a different way with a surplus or lack of water" – Female, 50 (Interview 2)

In the definitions she gives to water safety and water management, she seems to make a distinction between both concepts as different types of dealing with water. When asked if she regarded the initiatives as water management initiatives instead, she confirmed that she felt they were. The same distinction between water safety and water management became clearer in her answer to the question if water management and water safety are two different things. She stated that she felt water safety is about personal risks and (the risk of) damage, whereas water management is more about how one can

take responsibility and contribute themselves in dealing with water. This also entailed different roles for citizens for her:

“I have the feeling that I can have a more direct role in water management than in water safety. Because water safety is not a really large risk for me: it is not something I deal with every day, but water management is something you can work on every day” – Female, 50 (Interview 2)

In this statement, it is visible that she sees different gradations of risk for water management and water safety. This is also present in the divide that Rijkswaterstaat, an important governmental actor in the Dutch water sector, makes: for water safety, it developed a model that calculates the risk in number of deaths and the level of damage (Rijkswaterstaat, 2017). No such tool exists for water management, nor for water nuisance. Thus, the interviewee associated water safety with risk, danger, and damage, and perceived the mentioned initiatives as part of water management in general. She stated that she viewed water nuisance as a not life-threatening phenomenon on a daily base, which is why she did not see it as part of water safety. Rijkswaterstaat makes a similar divide between water safety and water nuisance: in their perspective, water safety deals with consequences of a flood due to a dyke breach, which can be incomparably larger than those from water nuisance due to heavy rainfall (Rijkswaterstaat, 2017). This clear distinction between water nuisance and water safety is thus based on the risks, frequency, scale, and impact of consequences of each concept.

The divide between water safety and water nuisance was also implicitly present in the focus group discussions, in which many participants seemed to have a view similar to the Dutch government. Some respondents, such as the one mentioned above, took this divide further as they seemed to make a divide between water management and water nuisance on one hand, and water safety on the other. An example to illustrate the distinction between water management (including water nuisance) and water safety is the aspect of frequency: several participants indicated that they perceived water management as a daily task which citizens can contribute to on a daily base, whereas water safety events in the form of threats were seen as incidental and happening once every couple of years. Remarkably, a similar view on the frequency of water nuisance events was present in the responses, while at the same time ambiguous views on the frequency of water nuisance unfolded. A small number of participants had experienced water nuisance around their house, which for most of them was due to an incidental broken water pipe. Only one respondent had experienced water nuisance in her basement due to heavy rainfall once every couple of years, until she installed a submersible pump to get the water out of her basement. Most participants never experienced water nuisance in or around their house, although some mentioned large puddles on the streets or in their garden due to heavy rainfall as water nuisance experiences. Additionally, most seemed to view these puddles as indirect water nuisance, and water nuisance in or around their house as direct water nuisance. However, this divide was blurred by the many responses in both the interviews and focus groups which stated that water nuisance is about floods, either from incidental heavy rainfall or flooding sewage systems. This definition is comparable to the definition of *hemelwateroverlast* as provided by Helpdesk Water, which refers to water nuisance in residences caused by rainfall from public roads or the sewage systems (Helpdesk Water, n.d.-b). In this definition

of water nuisance as floods in residences, water nuisance and water safety overlap with each other as two fields in water management concerning flood events. The perceptions that respondents have of the terms water safety and water nuisance varies, but there are also overlaps. Examples are the prevention of floods and responsibilities for governments. In conclusion, multiple perceptions on the terms and fields of water management, water nuisance and water safety can be distinguished, of which the divide between water safety and water nuisance is most evident. The three concepts are separated from each other based on certain aspects and seem to partially overlap on other aspects, but there is not one universal way in which participants construct these differences and overlaps.

4.1.3 Perspectives on water safety and responsibility

The participants approached responsibility for water management and water safety in various categories and at various scales. Most participants had little knowledge about the responsible institutions for water management and water safety. A majority could tell which institutions were responsible on a national or regional level (Rijksoverheid, Rijkswaterstaat and water boards were mentioned most frequently) but most did not know which institutions were responsible at a city level or neighbourhood level. The little knowledge about responsible institutions for water safety at a large scale was related to little knowledge of the institutions managing water safety in their own area, which created two groups of participants. One group of people who stated to have little to no knowledge on water safety, and another of those that declared to have more knowledge about it. Across the focus groups and interviews, the group of respondents who had some knowledge pointed at the water boards as responsible for water management plans and infrastructure at the city and neighbourhood level, and viewed the municipality as in charge of the execution of the plans and the maintenance of the infrastructure.

Although many respondents seemed to have little knowledge about the topic of water safety and who is responsible for it, none of them indicated to feel unsafe when asked about their own feeling of safety regarding water and possible threats. A 34-year-old male respondent of the second focus group who said he was not concerned himself with water safety, identified this as “a compliment for those that are” because he “did not feel afraid about water safety”. Another respondent made a similar comment:

“I think that because I am not concerned with it, I feel rather safe. Though when I think about it, I am thinking that maybe I should worry about it. But no, I do not worry about it” – Female (1), 25 (Focus group 3)

Thus, these responses make clear that they felt safe because they are not engaged in the topic of water safety. However, several respondents expressed their worries about water safety in relation to consequences of climate change, such as rising sea levels that could result in dyke breaches and large floods. In addition, the lack of feelings of unsafety about water threats was often explained by respondents as too large to grasp:

“Just like every global problem – climate change, rising sea levels, et cetera – [it] is beyond Rotterdam and it is so large... you are aware of it and you worry about it, but you know you do not have much

influence on it. [...] But I am not really scared. And that is because you have no idea how large it is” – Female, 24 (Focus group 1)

The quote shows that water safety is not a topic of interest for the respondent because she cannot comprehend its size and the size of its consequences. As a result, she feels that she does not have enough influence on water safety to make a difference. At the same time, this did not result in her feeling afraid of water threats. This seeming paradox can be clarified by tracing her lack of feelings of unsafety about water threats back to the lack of water consciousness that Dutch citizens often tend to have. This lack of water consciousness refers to citizens that are insufficiently aware of water safety and the consequences that water treats can have for them (Boer et al., 2003). The lack of water consciousness seems to be present among more participants and it explains why most of them declared not to feel responsible for water safety.

The distant feeling many respondents had towards water safety was also present in the topic of citizen responsibility regarding water safety. It was often stated by participants that they thought citizens were not responsible because they did not know how citizens can contribute or have a positive impact on water safety. However, some argued that citizens have certain responsibilities regarding water safety, as the following quote in the introduction of this thesis showed:

You cannot expect that the municipality or the water board does everything to make sure you have dry feet. So, I think that there is a shared responsibility for citizens, because you use a lot of things the municipality takes care of. So, you have to do something back” – Male, 28 (Interview 1)

The quote shows how the participant felt that citizens are responsible for ensuring water safety as well and that citizens need to have a more active role in water safety. This is similar to the plea for more citizen involvement in urban resilience thinking: e.g. the Rotterdam Resilient Strategy argues that citizen involvement is needed to make Rotterdam as a city resilient (Resilient Rotterdam, 2016). Thus, the view of the male participant is in concurrence with the perspective by resilience policies. However, it becomes clear that to achieve successful citizen involvement, a change in the responsible actors for water safety is necessary. A transition needs to be made from water safety as only a task for the municipality and the water boards, to water safety as a shared responsibility for citizens and various levels of governments, as the male respondent argued for.

Although multiple respondents seem to share this view, the way they perceive the tasks and roles for citizens differs. The citizen role and tasks are related to the topic of responsibility. A 57-year-old female partially agreed with the quote above in that there is responsibility for citizens as well and she declared that citizens should be told clearly what they can and cannot do in water safety, but that people “should decide themselves what they do with that information” (Focus group 1). Moreover, she felt that citizens are made responsible:

“Well we are made responsible in a way. Honestly, I do not know what I think about [citizens] not being allowed to put tiles in your garden, that it all must be a garden. Obligatory, so to say. And I get it, but on

the other hand I think it is a kind of limitation of your freedom. Because your garden is yours [and] then you cannot decide yourself what you want to do with it” – Female, 57 (Focus group 1)

Even though the act of taking tiles out of one's garden she is referring to is not obligatory by any government, the quote shows how the respondent feels that citizens are forced to do so and views it as a limitation of citizens' freedom. The respondent views the campaign as an interference in her personal space, which was another prominent sentiment amongst participants. A main statement on this was that governments such as the municipality should provide citizens with the required information, after which citizens should make the decision themselves if they want to do so or not. So, for citizens to be involved, the municipality should not be involved with citizens too much and trust citizens with the responsibility to make the decisions on their own. Hence, citizens need not only to be actively involved, but also to be made responsible and to be trusted with this responsibility. As Pahl-Wostl et al. (2007) stated, collaborative approaches with stakeholders and the public are essential for successful water management. In the context of this research, it means that the municipality, as the main actor in urban resilience, should not only involve citizens but work together with citizens. Following this line of reasoning, the municipality needs to move from a one-way exchange of expert knowledge towards citizens to a mutual dialogue between water management experts and citizens (Pahl-Wostl et al., 2007). This not only implies a changing role for citizens, but also for the municipality. Following the female respondent's comment, this means that giving citizens responsibilities for water safety would also imply that citizens get ownership and influence in water safety topics. This can also be linked to the Inclusive quality in the City Resilience Framework that was used to make the Rotterdam Resilient Strategy, which argued that the inclusion of the public helps to increase a feeling of shared ownership of the resilience issues and to contribute to the city's resilience (Spaans & Waterhout, 2017). Thus, a feeling of shared ownership is an important aspect of citizen responsibility towards water safety.

When it comes to tasks related to responsibility for water management and tasks related to responsibility for water safety topics, participants in both the focus groups and interviews seem to make a clear distinction between the two. As stated before, water management (often perceived as including water nuisance) and water safety are viewed in various ways. Water safety is seen by the majority as a large-scale activity that is taken care of by national, regional, and local governments (Rijksoverheid and its executive agency Rijkswaterstaat, provinces, water boards and municipalities) at a large (national and/or regional) scale. According to these respondents, the tasks for these governments include the maintenance of storm surges such as the Maeslantkering, and dykes along both the North Sea and the Nieuwe Maas river. In this perspective, the goal of water safety is to protect the country or region from floods that may cause severe damage for infrastructure and people. This task for the governments can be seen as a task to achieve the robustness characteristic of resilience, in which a system needs to be strong to persist a disturbance barriers (Davoudi et al., 2013; Restemeyer et al., 2015). However, these tasks were viewed by most as the only impactful tasks for water safety. In this line of reasoning, many did not see any tasks left for citizens for two reasons: they viewed the (individual) impact of their available actions as being too small to make a change, and they felt they did not have enough knowledge on the matter to get involved. As a result, water safety was regarded by them as a responsibility for the

governments. This emphasises the idea that citizens feel excluded and at the same time exclude themselves from water safety.

4.1.3 Perspectives on responsibility in relation to resilience

When participants included water management in the discussion about responsibility, most stated that citizens had an impact on water management and should be responsible for it as well. For example, responses mentioned that people could be more conscious about the quantity of water they use or make their gardens greener. Thus, whereas citizens were perceived to have no meaningful role in water safety, they did have a role and responsibilities in water management. This is linked to the view of some respondents that water management and water safety are two separate fields at different scales and with different roles for citizens. Furthermore, the divide affirms the dual discourse critique made by Meriläinen (2019) on urban resilience. The dual discourse states that urban resilience is separated in two fields: city's robustness and citizens' self-organisation. According to the dual discourse, the city's robustness is governed top-down by governmental institutions which use infrastructural and technological solutions. Examples of infrastructural and technological solutions for water safety in Rotterdam are the maintenance of dykes and storm surges, and the construction of water squares. In maintaining the city's robustness, the resilience of economic and infrastructural structures are prioritised compared to other aspects of the city. This view is also implied by the perspective illustrated by many respondents that water safety as the protection against floods is and should remain "a task of experts" at various levels of governments.

On the other side of the dual discourse, citizens' self-organisation happens bottom-up from neighbourhoods, communities, and individuals at a local scale, with the idea of empowerment for those most vulnerable (Meriläinen, 2019). Hence, more responsibilities are assigned to citizens which might indicate citizen involvement, but it in fact creates two separate fields and disconnects the city's robustness from citizens' self-organisation. By making these fields separate from each other, the interconnectedness of the city as a system with various dimensions is ignored and denied. The same divide of the dual discourse is present in the responses of participants: water safety (mainly its robustness aspect) is seen as the responsibility of 'experts' in the governments, while water management (at large and small scale) is seen as a responsibility for both governments and citizens. As a result, the dual discourse way of thinking about responsibility fails to recognise the interconnectedness of a city as a system and instead divides it in two separate fields. In the context of Rotterdam, resilience plans argue that citizen involvement is needed to achieve resilient city. However, with the presence of a dual discourse in resilience initiatives this could lead to the opposite result, namely that the praised interconnectedness of the city is not used effectively. Moreover, it can lead to citizens to not feel responsible for water safety and not feeling willing to be involved. Furthermore, it also send a confusing message to citizens about both 'the amazing Dutch expertise on water safety' and the need for citizens to be actively involved in water safety. This is similar to confusing message of 'Dutch expertise on water safety' and the warning to prepare for floods by campaigns that tried to enhance Dutch citizens' water consciousness (Heems & Kothuis, 2012). Many respondents expressed the same

confusion about the value of their role and impact in water safety and questioned their ascribed responsibility in it. To conclude, the perceptions of respondents on responsibility indicated that they have a similar view as the dual discourse in urban resilience, which is criticised by Meriläinen (2019) as ignoring the interconnectedness of a city. This results in a confusing and paradoxal message from governments in Rotterdam about a shared responsibility for citizens and governments in water safety on the one hand, and large-scale technological solutions for water safety as solely a governmental task on the other.

4.2 Willingness to Participate: Considerations in citizen involvement

Willingness to Participate refers to how willing people are to take part in water safety initiatives in relation to what it might bring them as well. To find out how willing people are, it is important to consider the reasons they have, because they decide based on these reasons whether they want to participate or not in the initiatives. In this decision-making process, the reasons to participate and reasons not to participate are weighted against each other in what I call the consideration process. Although a decision-making process is a psychological process, the consideration processes found in the participants shows that considerations are internal processes which are also heavily influenced by external contextual factors. Based on this process, four categories of considerations can be defined regarding participants' Willingness to Participate in water safety initiatives in Rotterdam. The four categories of considerations indicated the different contextual aspects the participants took into account when asked about reasons to participate and reasons not to. These reasons provided insights on their 'weighting' processes of several aspects involved in their participation: these can be details on an initiative such as its content and location, or relate to the context of the participant (e.g. their housing situation and their personal situation). However, it is important to note that the results presented here are by no means meant to be viewed as generalizable for citizens of Rotterdam, as the categories of considerations will be different in another group of participants. Thus, even if the four presented categories of considerations can be clearly distinguished based on the collected data, it does not mean these are the same for all citizens. Nevertheless, these four categories of considerations provide insights on the processes within people when they are deciding whether to partake in water safety initiatives in Rotterdam.

4.2.1 Personal considerations

The first category of considerations refers to a participant's personal situation. Three types of personal considerations can be identified: someone's physical condition, the available time someone has, and social considerations. A first type of this consideration is someone's physical condition such as one's physical health, which is illustrated by the quote below:

"My physical condition [...] if I have to bend over a lot, I will get a backache, so that would prevent me from participating" – Male, 62 (Focus group 1)

The quote shows how the male participant feels that he cannot partake in water safety initiatives that involve a certain amount of physical effort. He refers to the creation and maintenance of façade gardens such as the ones in the video *Geveltuintjes tegen wateroverlast* by the municipality of Rotterdam. The façade gardens require physical efforts to build them in the first place and to maintain them on the long-term. This created a threshold for the male respondent, as he stated to be unable to make these efforts.

The second type of personal consideration is the available time participants are willing to invest in the initiative. Multiple respondents in interviews and focus groups mentioned that their main consideration for participation would be the amount of time it would ask from them:

“[T]he consideration for me would be that it will not take up too much time. I work fulltime and I think my social life is important as well, so I would not want to spend hours on [a] water safety initiative” – Female (1), 25 (FG3)

The quote indicates that the respondent only wants to participate if it does not require her to invest a lot of time. A 26-year old female respondent in the second focus group had the same view and stated that she wanted to know what the time investment is that she would have to make. Additionally, a 34-year-old male participant in the same focus group stated that he would like to know “whether participation would be a one-time investment or a periodical investment”. The responses emphasise that time is an important aspect in respondents’ consideration processes. Related to Willingness to Participate, this refers to how much time people are willing to invest to participate. This investment in initiatives was by some respondents linked to investments of money that Dutch citizens are obliged to pay via water board taxes. A 57-year-old male respondent stated that “he invests in the maintenance of water in his living area” because he pays his annual water board taxes (Focus group 2). He then questioned whether he had to invest more in water safety than the taxes. Thus, where Willingness to Pay is mostly determined by investment of money, investment of time seems a crucial aspect of respondents’ Willingness to Participate.

Time is not only an important aspect to respondents, so are social considerations. The following quote illustrates this:

“Before, I gave time as my answer, but now that I viewed the videos, I see that it is a together-thing with multiple people. Something social, that is something I think is nice to see” – Female (1), 25 (Focus group 3)

The response shows how the Willingness to Participate in an initiative is not only viewed as an individual process, but a social or collective process as well. In the videos, neighbours were visible many times participating in initiatives together. Multiple respondents responded they “became very enthusiastic to contribute” due to these images, while one 21-year-old female respondent even stated she “wanted to send her neighbour a message to get started next week” (Focus group 1). One interviewee, a 52-year-old woman who participated in several social initiatives in her neighbourhood, had a similar response after she watched the initiatives:

“[Willingness to participate] also depends on how involved you feel in the neighbourhood. [You] feel more involved if people you know are involved. Yes, then you automatically feel more involved, but I think that is the case for everyone” – Female, 52 (Interview 3)

In her response, the respondent states that she would be more willing to take part in an initiative if people she knew (e.g. from her neighbourhood) would be participating in it as well, because she would feel more involved in the initiative already. Here, a link with Sense of Place (SOP) arises: the 52-year-old female respondent had stated that she felt very connected to her neighbourhood. Moreover, she was very proud of her neighbourhood and the social cohesion in it. SOP as a feeling of pride plays an important role in people’s “collective motivation”, that is their motivation to join an initiative together with e.g. neighbours. SOP was expressed as participants’ Place Attachment and Place Identity through feelings of pride. A strong feeling of SOP to Rotterdam was visible in nearly all responses. Several participants stated Rotterdam “felt like home” and that they had multiple social contacts (family and/or friends) in Rotterdam, which made them feel personally connected to the city. Feeling at home and having social contacts are aspects of Place Attachment, as they indicate the emotional connections people have to Rotterdam (Hernández et al., 2007). Moreover, when asked whether they felt they were a ‘Rotterdammer’ (a resident of Rotterdam), nearly all participants indicated to feel they were a Rotterdammer. This was often linked to the ‘hard working’ and straightforward mentality of people in the city, which many stated to appreciate or apply to themselves. Thus, identifying oneself as a Rotterdammer was the most prominent aspect of Place Identity amongst the respondents (Jorgensen & Stedman, 2001). Other aspects that indicated a strong Place Identity were one’s family history with Rotterdam and “being an insider”. When it comes to Place Attachment, the majority stated that they felt most connected to their neighbourhood, even more so than to their city. This was visible in the times participants indicated to be more willing to take part in initiatives in their neighbourhood or close to their neighbourhood. Although the location of an initiative was also mentioned in relation to travel time, location was often stated to be of importance for one’s connection to the initiative and its surroundings. Nearly all respondents perceived examples of green initiatives as positive because the initiatives would “look nice in the streets”, but several mentioned that they would primarily consider participating if the initiative would brighten up their own street or area. Thus, the closer the initiative would be to one’s living environment, the more willing most participants would be to participate.

Beforehand, I expected that people’s previous experiences with water nuisance in or around their house (e.g. in their garden or basement) would have an influence on their Willingness to Participate. However, only one participant had experiences with water nuisance in her house, which was not enough to make this a type of personal considerations and this explains why it is not discussed here.

4.2.2 Content and process considerations

The content and process considerations are about the thoughts that participants have on the contents and processes of an initiative. Two categories of these considerations are distinguished: the (previously

established) knowledge about an initiative and (sufficient) information and clarity about both the initiative's content and goals, and the expected role for citizens.

A first type of content consideration is the knowledge people have about an initiative. This refers to either familiarity with the type of initiative (because of knowledge of previous, similar initiatives), or knowledge about the initiative itself. For example, a 57-year-old female stated in the first focus group that she had considered to install a green rooftop on her garage, but she discovered that it was not possible because of its location. So, because she had explored the option of a green rooftop before, she had already established knowledge on the topic. A 25-year-old female in the third focus group had prior knowledge about façade gardens because she had looked up rules for façade gardens on the website of the municipality. She stated that she had seen the video of the second initiative about façade gardens by the municipality of Rotterdam at the time, which she said made her even more enthusiastic to make one herself. This shows how her prior interest in making a façade garden made her look up information about it, resulting in her establishment of knowledge about these gardens, which eventually contributed to her increased willingness to make one. Although she stated she went through this process independent from the façade garden initiative by the municipality, she pointed out that the initiative inspired her even more to do so. Thus, having knowledge about an initiative or similar initiatives makes respondents more willing to take part in the initiative.

A second type is whether sufficient information and clarity is provided about an initiative. This can be either about an initiative's goal and its results, or about the role a citizen has in it. These considerations were mostly present in the second focus group, in which the participants made a distinction between an initiative's short-term and long-term plan, and a short-term and long-term role for participating citizens. Moreover, the participants in that focus group agreed with each other that it should be clear what the initiative's goals are and what the role for citizens is. This is illustrated by the following quote:

"I want to know what the goal [of the initiative] is [and] whether the process to get to that goal is clear. [...] I want to have a concrete result envisioned when I take part in this. And [...] I want to know what my role in this is" – Female, 26 (Focus group 2)

The respondent added that she wanted it to be clear what she should do to contribute to an initiative, and stated that a simple 'join us' message without a clear vision on the citizen role was not something that would appeal her. Additionally, for some respondents it also mattered whether or not they perceived the initiative and its goal(s) as necessary. To summarise, the goal, process, and citizen role were mentioned as important aspects in respondents' considerations to join an initiative.

4.2.3 Housing considerations

The third category of considerations is the housing situation of the participant. Three types of housing considerations can be identified, which are interrelated to each other: the type of housing, having a garden, and having an available exterior surface (e.g. a flat roof).

The type of housing mattered most in people's considerations: participants owning a house had more options to make adjustments to their apartment or house. Nevertheless, there is a difference between owned houses and owned apartments: when someone owns an apartment in an apartment building, they have to propose the idea to their *Vereniging van Eigenaars* (VvE, 'Association of Owners'), an association of apartment owners in an apartment building of which each owner automatically is a member of when they buy an apartment. The apartment owner has to propose their ideas to the VvE which in turn will vote on the idea and provide the permission to make adjustments to the exterior of their apartment, e.g. adapt one's drainpipe to install a rain water barrel. In contrast, a homeowner can make decisions on adjustments themselves, making it easier for them to participate in water safety initiatives that require adjustments around one's house. Thus, not only does the type of housing make a difference, so does the type of house that people live in. Living in an apartment often means that someone has no access to a garden or roof top, making it not possible for them to take part in initiatives that want to reduce the concrete surfaces and increase 'green' surfaces. This brings us to the other second and third housing considerations regarding the presence of a garden and/or an available exterior surface: having either or both of these provides a citizen with more ways to take part in resilience initiatives. For example, the four measures proposed by Ons Water that citizens can take against water nuisance are all aimed at changes to one's garden or (garage) rooftop (Ons Water, n.d.-a). In contrast to people owning their apartment, people living in rental apartments have to propose the adjustments to a shared garden or rooftop to the owner of the apartment building. The owner can be a person or a housing association, which makes the decision to give permission or not. If permission is denied, people in rental apartments have little means to contribute to the city's resilience to water. This process can create a threshold for people to take part in initiatives and decrease their willingness to participate.

The contrast between type of housing (owned or rental) and type of house (apartment or house) was predominantly present in the first focus group, in which the participants had various types of housing and houses. One 57-year-old female participant, who owned a house with a garden and garage, stated that she had considered a roof top garden for her garage before, but it was not suitable because of its location. However, another participant in her focus group had a different housing situation, as he lived in an apartment building:

"I do not have a garden and also no garden house or whatever, so for me, there is little to do" – Male, 62 (Focus group 1)

The quote shows how the respondent feels that his housing situation limits him from participation in initiatives that for example require citizens to make adjustments to their garden or the rooftop of their garden house. When it comes to the four measures citizens can take to prevent water nuisance according to Ons Water, none of them are an option for the male respondent (Ons Water, n.d.-a). This shows the important role that someone's housing situation has in their participation.

4.2.4 Responsibility considerations

Responsibility considerations are somewhat related to content considerations, especially regarding a citizen's role in an initiative. A responsibility consideration refers to the participants' view on the responsibility of the issue: in other words, how the participant views the 'ownership' of water safety problems and solutions. Two types of responsibility considerations are presented: ownership of the problem, and perceived citizen impact and influence. The responsibility considerations are related to the perceptions and attitudes that participants have on responsibilities for water safety and water management. This type of considerations refers to respondent's awareness of water safety and water threats in their surroundings: several participants argued that as long as they do not have to think about water safety and the possible threads of water to their lives, the people and institutions that are responsible for water safety are doing a good job. Combined with their lack of experiences with water nuisance, it demonstrated for some of the participants that water safety issues should remain the responsibility of primarily those (institutions) that have been keeping them safe from the dangers of water. Moreover, most participants indicated that they thought they had not sufficient knowledge about water management and water safety and viewed their personal impact as insignificant. These respondents did not think their participation to water safety initiatives would make a difference:

"I find it difficult to imagine what I as a citizen can contribute to it. Social cohesion for example, that is something you can actively contribute to as a citizen. But [water safety] might be something you as a citizen do not have much influence on and then it is better to leave it to the professionals" – Female, 22 (Focus group 2)

In the quote, the female respondent explicitly says that it would be better to keep water safety a responsibility for professionals, because citizens do not have enough influence on water safety and she does not see how citizens can contribute to it. Thus, influence or impact is presented as a crucial aspect of responsibility by her. This connection was confirmed in multiple responses that wondered about the (type of) impact of citizens on water safety, such as the following response by a 59-year-old female in the third focus group on the question whether citizens are responsible for water safety:

"If I think about the [water] safety itself, I think the infrastructure is a task for the government, but the way we deal with water is a task for citizens as consumers, which can be of influence on the climate and the increasing temperature. [...] I think we can have an influence on that" – Female, 59 (Focus group 3)

This shows how the respondent assigns a task in water safety for citizens, which refers to the conscious use of water. In this way, several respondents saw options for citizens to have a role, task, and responsibility in water safety.

4.3 Attitudes towards selected water safety initiatives

The three videos of water safety initiatives in Rotterdam offered the respondents concrete examples of initiatives which helped them reflect on their considerations regarding participation. Three categories of

responses to the presented initiatives can be distinguished: positive attitudes, critical attitudes, and points of improvement for similar initiatives that want to include citizens. These three categories of responses provide insights on the ways that respondents 'check' their perceptions and attitudes with the videos, which helped to get a better understanding of how their Willingness to Participate is constructed.

4.3.1 Positive attitudes

In general, the responses to the three presented examples of water safety initiatives in Rotterdam were positive: some participants even mentioned they were interested in learning more about these initiatives. For example, a 28-year-old male participant asked if I could send him the links to the videos of the initiatives afterwards. Multiple participants indicated that they had become enthusiastic about participating in one or more initiatives after the focus group session or interview. As can be seen in the following quote, one of the participants indicated that she felt even more proud of Rotterdam and felt part of the city after learning about these initiatives:

"When I see these initiatives, these are also part of Rotterdam [...] if these things will be here more and more, we can show how we in such a big city can do this – that makes that eventually we can be even more proud of Rotterdam" – Female, 21 (Focus group 1)

The quote shows how she viewed the initiatives as part of Rotterdam, which resulted in her strengthened feeling of pride for Rotterdam as a collective that deals with water safety. Thus, she linked the initiatives to Sense of Place, by making it part of what Rotterdam as a place is, especially for her. How she viewed the initiatives as part of Rotterdam had an influence on her attitude towards Rotterdam as a place (Sampson & Goodrich, 2009). Moreover, she stated that she liked to see "how much initiatives are happening and the real effort that people put for these causes", indicating that she values the collective participation that citizens undertook. In contrast to expectations, the 21-year-old female's place attitudes, such as the SOP components Place Attachment and Place Identity, did not (only) have an influence on her Willingness to Participate, but her Willingness to Participate also influenced her feeling of pride and SOP. This indicated an interaction between the concepts of Willingness to Participate and SOP.

When reflecting on the three videos in the end, preferences became visible amongst the responses. The majority of the responses favoured the videos of *Geveltuintjes tegen wateroverlast* and Rotterdam Weather Wise (RWW) because of how clear, concrete and to-the-point these videos were. In contrast, many respondents thought the video by Water Sensitive Rotterdam (WSR) was (ironically) not clear enough about what WSR and its goals were. Overall, the videos were received with positive reactions because they motivated people to take action and they provided the viewer with examples of ways to do so, as the following quote summarises:

"The last video appeals to me the most because [...] it takes the advantages of all three, so you help the neighbourhood, you store water, and it improves the image of the street" – Female, 24 (Focus group 1)

As an addition to this quote, others also mentioned that the advantages of the initiatives for citizens should be shown. For example, images of streets with many façade gardens show how the façade gardens with plants and flowers not only help with the storage of water, but also help to increase the liveliness of the street and neighbourhood.

4.3.2 Critical attitudes

Several critical remarks were made on the initiatives, with a clear difference in the amount of critique per each initiative. None of the participants knew the Water Sensitive Rotterdam initiative beforehand, while most knew (or recognised) the *Geveltuinjes tegen wateroverlast* by the municipality of Rotterdam. However, they often recognized the façade gardens themselves, not necessarily the initiative by the municipality of Rotterdam. Most critical remarks were made towards WSR, mainly because of the unclarity about the goal of the video. Respondents expressed their confusion about what WSR was, what its target audience was and what goal it tried to achieve, as the following quote illustrates:

“At the end of the video they said, ‘are you participating in a blue, green, or social initiative’ and then I thought ‘well, no’. So, I do not know, at the end it was difficult [to understand] [...] did they wanted to appeal to me, or can you only join if you are already participating in such a green initiative?” – Female, 22 (Focus group 2)

The quote shows that she had difficulties understanding the message of the video and the initiative, and that she thought it was unclear what the goal was. Most of the critical attitudes are similar, in the way that they are opposites of the positive attitudes: these include unclarity about the initiative’s goals, unclarity about who will be responsible for the maintenance after an initiative, and a lack of options for people who do not have access to a garden or rooftop. Interestingly, some aspects that were approached positively by some participants were approached critically by others. For example, two ambiguous views were present in the first focus group. A 24-year-old female respondent said she liked the idea in the RWW video that the municipality facilitates a part of the initiative, such as the transportation and instalment of a rain barrel. On the other hand, a 57-year-old female disliked that it had to be the municipality in the *Geveltuinjes tegen wateroverlast* video who organised the initiative. She said they should “just let people decide themselves whether or not they want it”. She argued that municipalities would install the façade gardens, which would be useless if citizens would not want to maintain them. This example shows how certain aspects that were perceived positively by one person, could be perceived negatively by another.

4.3.3 Points for improvement for initiatives according to participants

Participants proposed multiple points for improvement for water safety initiatives in Rotterdam. These participant recommendations were based on their own considerations about partaking in the presented examples of initiatives. A first point for improvement was made by a 54-year-old male respondent, who stated it was important for initiatives to be concrete about their contents. He thought the first video of Water Sensitive Rotterdam about rising sea levels as a water problem was a topic too distant for people.

In contrast, he approved the videos from the municipality on façade gardens and Rotterdam Weather Wise as they are “close to home, around the corner of the block” and thus more concrete. Overall, the majority of the respondents indicated that important aspects of improvement would be the communication about the role that citizens have to fulfil and more clarity about the available subsidies that citizens can appeal for. Additionally, a 57-year-old female respondent proposed that citizens should be provided with the required information and should be given the space to make their own decisions about how they want to participate. Furthermore, a 59-year-old female participant of the third focus group emphasised that importance of the visibility of initiatives and where information about an initiative can be found. In conclusion, respondents argue for more clarity about an initiative’s content and goals, for more clarity on the role and options for citizens and for more visibility of initiatives.

4.4 Review of the conceptual model

Based on the insights provided by the data analysis, the simplified conceptual model from the theoretical framework was refined and the extended conceptual model is presented in Figure 6. The initial goal of this refined conceptual model was to show how the three concepts of water safety, (urban) resilience and Sense of Place (SOP) related to each other in the context of water safety initiatives in Rotterdam that require citizen involvement. The model shows how the three concepts are indirectly related to each other through other concepts: water safety, (urban) resilience and SOP are connected to each other through the concepts and concept groups of responsibility, citizen considerations and Willingness to Participate. However, the model also includes the three main themes which have been discussed in this chapter: citizen perspectives on water safety, water management and water nuisance (indicated in the figure by the large arrow from citizen perception towards the water sector); citizen perspectives on responsibility of water safety issues (indicated in the figure by the large arrow from citizen perception towards responsibility); and citizen considerations regarding participation in water safety initiatives. The model functions as a summary of the analysis done in this chapter. Two steps will be taken to illustrate how the extended model was created. First, the adjustments made to the simplified conceptual model to create the extended conceptual model of Figure 6 will be justified, by explaining what the data showed. Second, it will be explained why new additions in the extended model have been added.

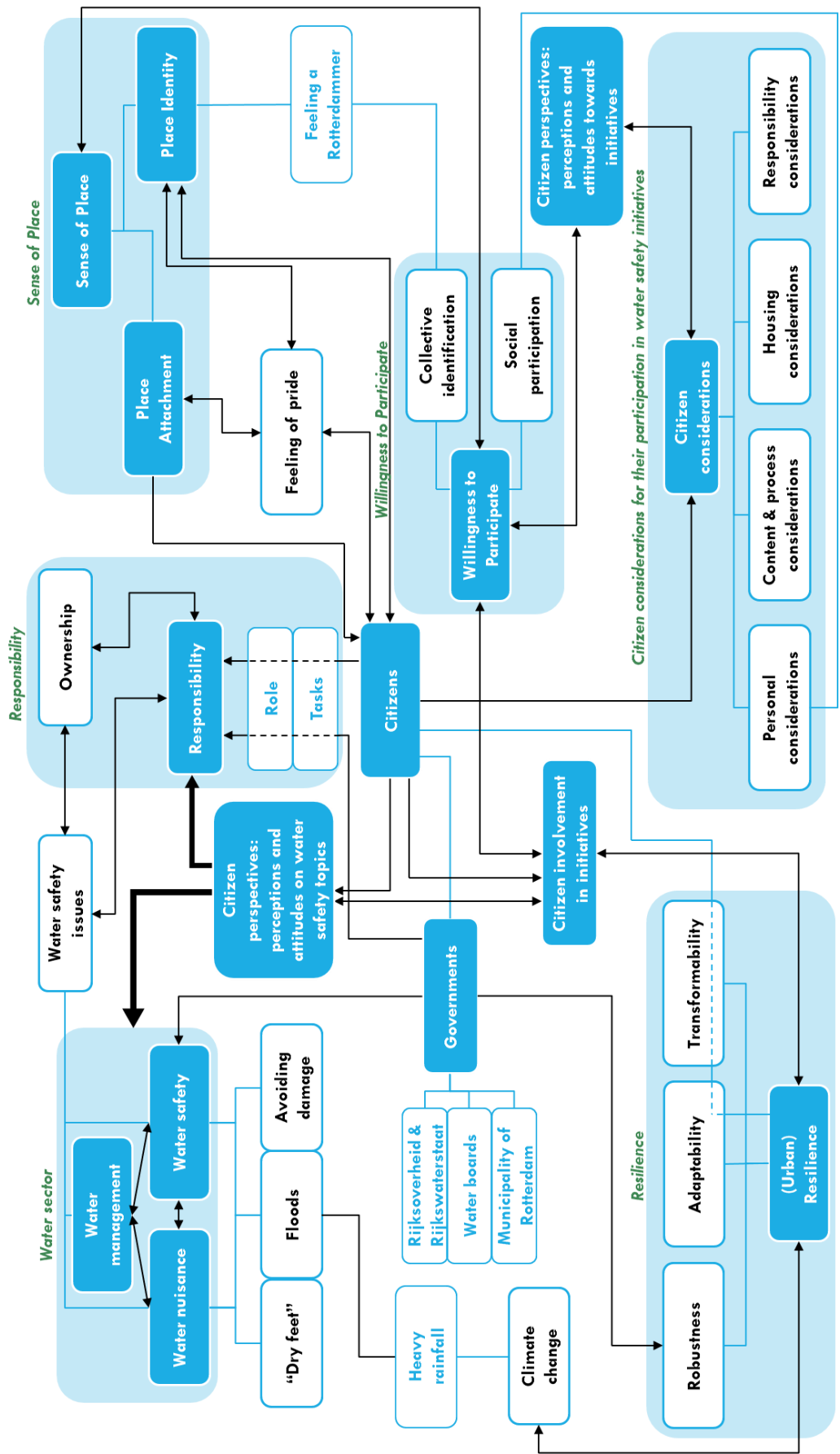


Figure 6. The reviewed conceptual model based on insights from the collected data and data analysis. A blue line indicates a link between the concepts, whereas a black arrowed line indicates an interaction between the concepts. Dark blue concepts are key concepts, concepts written in black letters are regular concepts, and concepts written in blue are sub-concepts. The blue areas around concepts indicate a coherent concept group. To keep the model readable, some aspects of (sub) concepts are not included (e.g. positive attitudes and negative attitudes towards initiatives). Additionally, the term 'citizen perspectives' is put in the model twice, because it is connected on two sides of the model and lines between the two sides would decrease the readability of the model. (Created by author).

4.4.1 Adjustments to the simplified model

The first and largest adjustments made to the model are mentioned here in the same left-to-right order that the concepts were presented in the simplified model. A first adjustment was with regard to Sense of Place, place attitudes, and citizen perceptions and attitudes toward water safety initiatives. In the simplified model, it was argued that SOP and its place-related components Place Identity and Place Attachment could be seen as positive or negative attitudes towards a place. Through the concept of 'feeling of pride', this in turn would result in positive or negative attitudes and perceptions towards water safety initiatives. However, the analysis showed that not SOP, but citizen considerations were most important in connection to these perceptions and attitudes. Nevertheless, SOP was indirectly connected to citizen perceptions and attitudes via Willingness to Participate. So, it turned out that the connection made between citizen perceptions and attitudes and SOP was not only less prominent than expected, but that citizen considerations are more closely linked to these perceptions and attitudes. A related adjustment concerned the argumentation of Egan et al. (2011) that greater collective identification with a territory would cause more community members to agree on that collective identification and result in more effective social participation. A great collective identification with the city of Rotterdam was noticeable among the responses due to strong feelings of pride of the city (Place Attachment) and most respondents identifying as a Rotterdamer (Place Identity). There seemed to be agreement amongst the respondents about what it means to be 'a Rotterdamer': it was stated by many across the focus groups and interviews that it mainly included a 'typically Rotterdam' hard-working mentality and a certain level of connectedness to Rotterdam when it comes to social contacts and involvement in what happens in the city. According to Egan et al. (2001) this would mean that the social participation of these respondents would be more effective in resilience initiatives. However, that was not a part of the scope of this study, but the strong identification with and strong feelings of pride regarding Rotterdam present among the respondents could explain the predominantly positive responses to the presented initiatives through the respondents' relatively strong Willingness to Participate. Either way, the data showed that SOP was not the only aspect which (although indirectly) was connected to citizen perceptions and attitudes towards water safety initiatives, but that citizen considerations played an even larger role in these perceptions and attitudes.

A second adjustment is a minor adjustment in the connection between citizen attitudes towards water safety initiatives and Willingness to Participate. First, citizen perceptions were added to citizen attitudes, as they together form the citizen perspective on initiatives. Second, the argumentation that positive or negative attitudes and perceptions result in respectively increased or decreased willingness turned out to be partially present among the participants. However, the direction of the connection is not only from attitudes and perceptions towards Willingness to Participate, but also the other way around, resulting in an interaction between the two key concepts. Thus, someone's Willingness to Participate can also determine their attitudes and perceptions towards initiatives.

Other adjustments were made around the concept of citizen involvement: Willingness to Participate remained an important concept in relation to citizen involvement, but based on the responses, it turned

out that citizen perspectives were essential for citizen involvement as well. Although citizen perspectives are indirectly connected to citizen involvement via Willingness to Participate, citizen perspectives themselves appeared to be of importance for citizen involvement, especially with regard to citizen perspectives on responsibility. This is why it was decided to put the term citizen perspectives two times in the extended model: both 'Citizen perspectives: perceptions and attitudes on water safety topics' and 'Citizen perspectives: perceptions and attitudes towards initiatives' refer to the same term of citizen perspectives, but have different contents, which is why they appear at two different locations. Overall, the connections in the simplified model between citizen involvement and the other concepts remained mostly the same.

4.4.2 Additions made to the simplified model to create the extended model

Three larger themes were added in the extended model that were not included in the simplified model: citizen perspectives that include citizen perceptions and attitudes towards water safety topics; responsibility of water safety and its issues; and citizen considerations regarding their participation in water safety initiatives.

The first theme of citizens perspectives on water safety topics is indicated by the left arrow of the two large arrows in Figure 6. The responses showed how the way that participants view water safety, water management and water nuisance was important in the way they viewed their responsibility regarding these topics, because this often determined for respondents their level of Willingness to Participate and thus the citizen involvement.

This shows the connection between this first theme of citizen perspectives on water safety topics and the second theme of responsibility in water safety. In line with expectations, responsibility turned out to play a crucial role in respondents' perspectives on initiatives and their own role in them. Thus, through citizen perspectives, responsibility was essential in people's Willingness to Participate. A concept that summarises this crucial role is the term ownership, which refers both to ownership of water safety issues and ownership of solutions for these issues. The latter type of ownership indicates a (indirect) connection to citizen involvement and refers to the influence that citizens want to have in the content of water safety initiatives. Moreover, with regard to ownership, responses indicated that the responsibility for water safety issues and solutions should be a shared responsibility for both citizens and the various levels of government. This is indicated by the two dotted arrows from 'Governments' and 'Citizens' through role and tasks to responsibility.

The third theme of citizen considerations regarding participation in initiatives was the largest addition done to the conceptual model. Responses in the study suggested that citizen perspectives on water safety initiatives was mainly based on several kinds of considerations citizens had when they thought about participating. Four categories of considerations could be distinguished based on the collected data: Personal considerations; content and process considerations; housing considerations; and responsibility considerations. Personal considerations refer to someone's personal circumstances,

such as the available time someone has to partake, someone's physical health, and to what extent people are socially engaged with the initiative. This last example refers to whether social contacts (neighbours, family, friends) are (already) participating in the initiative. Content and process considerations refer to aspects such as the location of the initiative, the (minimum) time someone needs to invest, whether participation is one-time or multiple times over a longer period of time, and what role is expected for citizens. Housing considerations are about someone's housing situation: whether their house is rental or owned; whether they live in a house or an apartment; whether they have a garden; and whether they have an available surface for e.g. a green rooftop garden. Responsibility considerations are somewhat related to content and process considerations, and responsibility considerations refer to the perceived 'ownership' of the water safety problem and solutions, the perceived impact by citizens and the general feeling of responsibility of citizens towards water safety. These four categories of considerations are linked to the citizen perspectives on water safety initiatives, making the citizen considerations an important aspect in the process of citizens' Willingness to Participate.

5. Conclusion

In this chapter, the conclusion of this study is presented. First, the sub-questions will be answered, after which an answer is given to the main research question. Next, general conclusions regarding the research and its contribution to the academic field are discussed, as well as reflections on the research process. In the end, recommendations for further research are made.

5.1 Answering of the research questions

5.1.1 How do citizens of Rotterdam perceive water-safety-related concepts, responsibility regarding water safety, and their own part in it?

Respondents had divergent perceptions on the definitions and content of water safety, water management and water nuisance. There was a discrepancy in the definition of water safety: some perceived it as keeping safe from floods, while others mentioned safe drinking water and water quality. At the same time, other respondents linked these two tasks to water management. Thus, the way water safety and water management were defined was for some similar. This can be linked to the two approaches to these concepts which emerged from the responses. The first approach view water safety as a distinct category from water management and water nuisance. In this approach, water safety was concerned with the large-scale protection against life-threatening floods and the maintenance of large infrastructure such as dykes as storm surges, while water management (and water nuisance as a topic in it) is about the non-life threatening and smooth management of water at a small scale. In this approach, taking care of water safety and the risks of water threats is seen as a task for governments, which have a large impact on water safety due to their expert knowledge and their available resources. This approach often argues that citizens do not have the knowledge nor resources to have a meaningful impact for water safety, and thus should not be responsible for it. This is different for water management: a combination of its small-scale focus on preventing local water nuisance and the option to include water management in daily life, makes that this approach perceived an essential role for citizens in water management, e.g. in their use of water. This separation follows a dual discourse which is often observed in urban resilience. In this dual discourse, the city's robustness is seen as a large-scale task for governments and experts on the one hand, while citizens should be empowered to self-organise and take action at a local, small-scale on the other (Meriläinen, 2019). This results in two separate fields of urban resilience, in which knowledge and resources are distributed unequally. This is the opposite goal for a city that tries to be resilient, as a resilient city should acknowledge that it is an interconnected socio-ecological system and that the interconnectedness provides beneficial opportunities (Davoudi, 2012). Thus, it is important to be aware of this discourse when resilience initiatives regarding water safety are discussed.

The second approach viewed water safety and water nuisance as two categories of water management. Some respondents who had this approach stated that governments should be responsible for both categories of water management because of their knowledge and impact, and citizens are not

responsible due to their lack of knowledge and resources. However, the divide between the two approaches to water safety is not clear cut, because some respondents seemed to have views similar to both approaches.

With regard to perceptions on responsibility, it is important to understand citizens' awareness of water safety and its threats. In the water safety myth, citizens have a blind trust in the knowledge and skills of experts and governments, resulting in a lack of fear for water as possibly life-threatening (Heems & Kothuis, 2012). This water safety myth was also visible in the responses in this study: a majority of the participants stated not to feel afraid for water threats, mainly because it is not part of daily life and because they trust the well-established Dutch water management. This explains why many of those respondents did not feel responsible for water safety. Additionally, many respondents were insufficiently aware of water safety and its consequences, which showed how their lack of water consciousness contributed to their lack of feeling responsible for water safety (Boer et al., 2003). However, several participants also stated that citizens should have a (shared) responsibility in water safety, mainly because small impacts can have a large impact together.

5.1.2 What are reasons for citizens to (not) take part in three water safety initiatives in Rotterdam?

Although this sub-question initially focused on reasons (not) to take part in the chosen initiatives, it turned out that considerations (not) to take part were of a larger importance when reflecting on participation in one of the initiatives. Four categories of considerations were distinguished based on the responses. First, personal considerations referred to someone's personal circumstances, such as the amount of time someone has available to partake, someone's physical health, and to what extent people are socially engaged with the initiative. The last example is a form of social participation and refers to whether social contacts (neighbours, family, friends) are (already) participating in the initiative (Egan et al., 2011). Second, content and process considerations refer to aspects such as the location of the initiative, the (minimum) time someone needs to invest, whether participation is one-time or multiple times over a longer period, and what kind of role is expected for citizens. Third, housing considerations are about someone's housing situation: whether their house is rental or owned; whether they live in a house or an apartment; whether they have a garden; and whether they have an available surface for e.g. a green rooftop garden. Fourth and last, responsibility considerations are somewhat related to content and process considerations, and refer to the perceived 'ownership' of the water safety issues and solutions, the perceived impact by citizens, and the general feeling of responsibility of citizens towards water safety. In the review of the three water safety initiatives, it became clear that most respondents had positive attitudes towards the initiatives. Preferred aspects of these initiatives included clarity about the goal(s) of the initiative and about the role for citizens, the social aspects of participation, and an overview of the benefits for citizens to participate. The latter was presented as one of the main reasons to participate, as e.g. the plants and flowers in façade gardens increase the liveliness of the streets and neighbourhood. Thus, it was important for respondents what participation would bring them as well, which relates to their Willingness to Participate (Bočkarjova et al., 2010).

5.1.3 How are water safety, resilience and Sense of Place related to each other in the case of water safety in Rotterdam?

The extended conceptual model in Figure 6 showed how water safety, resilience and Sense of Place are indirectly related to each other through the concepts of (feelings of) pride, citizen perspectives, responsibility, and citizen considerations. The model showed how citizens go through a process of reflection on their different types of considerations to participate in an initiative, after which they construct their perceptions and attitudes towards an initiative. In this process, contextual factors such as respondents' Place Attachment and Place Identity to Rotterdam, and their feeling of responsibility get involved. Most respondents felt proud of Rotterdam and perceived Rotterdam as their home, which indicate that a strong Place Attachment was present among these participants (Hernández et al., 2007). Moreover, a majority stated to identify as 'a Rotterdammer', which suggests they had a strong Place Identity with regard to the city (Jorgensen & Stedman, 2001). Along with social participation, these social aspects were considered as well by respondents in their Willingness to Participate (Egan et al., 2011). The consideration process is related to the establishment of people's Willingness to Participate, on which they base whether to get involved in the initiative. In turn, this leads to citizen involvement in resilience initiatives that try to make Rotterdam a resilient city with regard to water safety issues. However, the ownership of these water safety issues was important for citizen perspectives on water safety topics and citizen involvement in these. Thus, because these citizens perspectives determined respondents' Willingness to Participate, which in turn was linked to citizen involvement, water safety issues were connected to resilience via people's sense of responsibility and perspectives on water safety.

5.1.4 Research question: How willing are citizens of Rotterdam to participate in the city's resilience initiatives regarding water safety?

This aim of this thesis was to see how residents of the city Rotterdam themselves perceived water safety and water-safety-related topics, who they viewed as responsible for water safety and what role they saw for themselves in this. The extent to which respondents were willing to participate was mainly dependent on their perceptions and attitudes of an initiative. These perceptions and attitudes were constructed by (four types of) considerations that the respondent took into account. These were based on contextual factors which referred to factors related to the person self (such as their available time and physical health, but also their housing situation), the initiative (its content, goals and location), social aspects (such as involved neighbours) and perspectives (such as the person's view on who should be responsible). Especially responsibility was an important aspect in people's Willingness to Participate: whether it was about responsibility about the water safety issue or responsibility of solutions to water threats, it was related to many aspects of the consideration of participation process. Moreover, how water safety, water management and water nuisance were perceived seemed to be related to citizen perspectives on, knowledge about and experience with these topics. Many respondents had little knowledge about water safety and water management, and most were unaware of water safety threats

in their living area. This confirmed a lack of water consciousness and indicated the presence of the water safety myth among participants (Boer et al., 2003; Heems & Kothuis, 2012). This also explained the relatively little involvement in water safety initiatives that many respondents had, which in turn was related to citizens' sense of responsibility for water safety. This study suggests that one of the main drivers behind people's Willingness to Participate was their feeling of responsibility towards water safety, i.e. water safety being their task as well.

As stated before, currently there is a transition in (Dutch) resilience policies such as the Rotterdam Resilience Strategy from 'water safety as a governmental or expert task' to 'water safety as a task for everyone' by the inclusion of citizen involvement (Resilient Rotterdam, 2016). However, it seems to be at risk of creating the dual discourse of the city's top-down robustness of infrastructures by governments on one hand and bottom-up self-organisation of citizens on the other (Meriläinen, 2019). This is undesirable, because it ignores the interconnectedness of the physical and social spheres of Rotterdam as a system, which is the core of urban resilience thinking in which a city functions as an interconnected socio-ecological system (Leichenko, 2011). Moreover, it contradicts the plea of the Rotterdam Resilience Strategy that citizen involvement is essential for a resilient city, because its dual discourse implies that solely small-scale solutions are part of citizen responsibilities, while it provides citizens with no actual ownership or involvement in water safety.

5.2 General conclusion

This research provided insights on the Willingness to Participate among residents of Rotterdam to partake in water safety initiatives in the city through data collection in focus groups and interviews. Although the findings are not meant to be generalisable, they give insights in the ways that some citizens of Rotterdam construct their Willingness to Participate.

With regard to the trustworthiness of this research, two of the trustworthiness criteria defined by Bryman (2012) are discussed: credibility and transferability. First, credibility refers to the feasibility of the research findings related to the multiple accounts of social realities that can exist. During the data collection, I summarised answers of respondents or answers on a certain topic, and asked respondents whether this was a correct interpretation or if they wanted to add anything to it. In this way, credibility of the interpretations of responses is ensured. Second, transferability is related to what in quantitative research is called generalisation and refers to the extent to which research results can be applied to other context than the one in the study. Research topic factors such as the resilience policies Rotterdam uses and the 'typical Rotterdams' Sense of Place elements that are key elements in this research limit the transferability of this research. Moreover, the used research methods of online focus groups and interviews also limit the transferability, as this certainly had an impact on the data collection itself and the collected data.

Reflections on this research indicate that, in contrary to expectations, the connection between Sense of Place (via citizen attitudes) and Willingness to Participate in the water safety initiatives was less present than expected. This can be a result of the research methods used; hence it might be interesting to study this in more details in further research. This research might provide opportunities for new citizen involvement initiatives, but these should provide more information and be clearer about the initiative's goals and perceived role for citizens. With regard to reflections on the researcher's process and the outcomes, the largest obstacle experienced was the consequences of the coronavirus measures. Although the research plan had to be adjusted during the conduction of the research which I in hindsight would have approached the research differently, I would not change the chosen research methods of (online) focus groups and interviews, as it taught me helpful skills about new ways of doing (qualitative) research.

5.3 Recommendations for further research

Some recommendations for further research are discussed here. A first recommendation is a mixed methods approach in which e.g. document analysis is used to take a closer look at policy documents and get a deeper understanding of the governmental and expert perspective on citizen involvement in water safety initiatives that are part of urban resilience policies. Another recommendation would be a study with Rotterdam as a case study that would have a larger focus on the content of Sense of Place, for example to see in which ways aspects such as 'the typically Rotterdam approach' might relate to or even stimulate citizen involvement. Or, a research can be conducted that study how Sense of Place elements are used in initiatives to enhance urban resilience of Rotterdam. Lastly, a research with a stronger focus on attitudes and perceptions on responsibility might be interesting, as responsibility was only a sub-concept in this research and proved to be of larger importance than expected, making it an interesting research topic to study further.

6. References

- 100 Resilient Cities. (n.d.). *Rotterdam*. Retrieved December 8, 2019, from <https://www.100resilientcities.org/cities/rotterdam/>
- ARUP. (2014). *City Resilience Framework*.
- Bočkarjova, M., Geurts, P. A. T. M., Oosterhaven, M., & van der Veen, A. (2010). Mag het wat kosten? In H. van der Most, S. de Wit, B. Broekmans, & W. Roos (Eds.), *Kijk op waterveiligheid. Perceptie en communicatie van risico's van overstromingen* (p. 3). Eburon.
<https://www.narcis.nl/publication/RecordID/oai:research.vu.nl:publications%2Fb4fe9d2a-8bc2-4180-a0ab-a491f3143a4f>
- Boer, J. de, Goosen, H., & Huitema, D. (2003). *Bewust werken aan waterbewustzijn: Studie naar de rol en relevantie van het begrip waterbewustzijn voor het waterbeleid*. www.watervrkenningen.nl
- Breman, B., Pleijte, M., Ouboter, S., & Buijs, A. (2008). *Participatie in waterbeheer: Een vak apart*. <http://library.wur.nl/way/bestanden/clc/1893888.pdf>
- Bryman, A. (2012). *Social Research Methods* (4th ed.). Oxford University Press.
- Buijs, A. E. (2009). Public support for river restoration. A mixed-method study into local residents' support for and framing of river management and ecological restoration in the Dutch floodplains. *Journal of Environmental Management*, *90*(8), 2680–2689.
<https://doi.org/10.1016/j.jenvman.2009.02.006>
- Cameron, J. (2016). Focusing on the Focus Group. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (4th ed., pp. 203–224). Oxford University Press.
- Centraal Bureau voor de Statistiek. (2020). *Regionale kerncijfers Nederland*.
<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/70072NED/table?dl=3ED4D>
- Cope, M. (2016). Organizing and Analyzing Qualitative Data. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (4th ed., pp. 373–393). Oxford University Press.
- da Silva, J., Kernaghan, S., & Luque, A. (2012). A systems approach to meeting the challenges of urban climate change. *International Journal of Urban Sustainable Development*, *4*(2), 125–145.
<https://doi.org/10.1080/19463138.2012.718279>
- Davoudi, S. (2012). Resilience: A Bridging Concept or a Dead End? *Planning Theory & Practice*, *13*(2), 299–333. <https://doi.org/10.1080/14649357.2012.677124>
- Davoudi, S., Brooks, E., & Mehmood, A. (2013). Evolutionary Resilience and Strategies for Climate Adaptation. *Planning Practice and Research*, *28*(3), 307–322.
<https://doi.org/10.1080/02697459.2013.787695>
- de Graaf, P. (2019). *Feitenkaart - Rotterdammers over hun stad: Omnibusenquête 2019*.
- de Graaf, R., & der Brugge, R. van. (2010). Transforming water infrastructure by linking water management and urban renewal in Rotterdam. *Technological Forecasting and Social Change*, *77*(8), 1282–1291. <https://doi.org/10.1016/j.techfore.2010.03.011>
- Dewulf, A., Karpouzoglou, T., Warner, J., Wesselink, A., Mao, F., Vos, J., Tamas, P., Groot, A. E., Heijmans, A., Ahmed, F., Hoang, L., Vij, S., & Buytaert, W. (2019). The power to define resilience in social-hydrological systems: Toward a power-sensitive resilience framework. *WIREs Water*, *6*(e1377), 1–14. <https://doi.org/10.1002/wat2.1377>

- Dowling, R. (2016). Power, Subjectivity and Ethics in Qualitative Research. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (4th ed., pp. 29–44). Oxford University Press.
- Dunn, K. (2016). Interviewing. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (4th ed., pp. 149–188). Oxford University Press.
- Egan, D., Hjerpe, E. E., & Abrams, J. (2011). *Human Dimensions of Ecological Restoration: Integrating Science, Nature, and ...* - Google Boeken.
https://books.google.nl/books?hl=nl&lr=&id=WsjLLarLv3MC&oi=fnd&pg=PA79&dq=socioecological+resilience+public+participation&ots=jwDm2Ph7eb&sig=cDiAaZKk_nnAMoZJUrgAsOXpSgl#v=onepage&q=socioecological+resilience+public+participation&f=false
- Foot, K. E., & Azaryahu, M. (2009). Sense of Place. In *International Encyclopedia of Human Geography* (pp. 96–100). Elsevier. <https://doi.org/10.1016/B978-008044910-4.00998-6>
- Gemeente Rotterdam. (n.d.-a). *(Herijking) Waterplan 2*. Retrieved August 15, 2020, from <https://www.rotterdam.nl/wonen-leven/waterplan-2/>
- Gemeente Rotterdam. (n.d.-b). *Hoe werkt het watersysteem in Nederland?* Retrieved May 22, 2020, from <https://www.rotterdam.nl/wonen-leven/watersysteem/>
- Gemeente Rotterdam. (2007). *Waterplan 2 Rotterdam - Werken aan water voor een aantrekkelijke stad*.
- Gemeente Rotterdam. (2018). *Wijkprofiel Rotterdam*. Wijkprofiel 2014-2016-2018.
<https://wijkprofiel.rotterdam.nl/nl/2018/rotterdam>
- Gemeente Rotterdam. (2020). *Wijkprofiel Rotterdam 2020*.
<https://wijkprofiel.rotterdam.nl/nl/2020/rotterdam>
- Glaw, X., Inder, K., Kable, A., & Hazelton, M. (2017). Visual Methodologies in Qualitative Research. *International Journal of Qualitative Methods*, 16(1), 160940691774821.
<https://doi.org/10.1177/1609406917748215>
- Heems, G. C., & Kothuis, B. L. M. (2012). *Waterveiligheid: managen van kwetsbaarheid voorbij de mythe van droge voeten: de Nederlandse omgang met overstromingsdreiging*. Waterworks.
www.umlib.nl/taverne-license
- Helpdesk Water. (n.d.-a). *Grondwateroverlast*. Retrieved July 3, 2020, from <https://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/handboek-water/themas/wateroverlast-0/grondwateroverlast/>
- Helpdesk Water. (n.d.-b). *Hemelwateroverlast in woning*. Retrieved July 3, 2020, from <https://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/handboek-water/themas/wateroverlast-0/hemelwateroverlast/>
- Helpdesk Water. (n.d.-c). *Kans op wateroverlast*. Retrieved July 3, 2020, from <https://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/handboek-water/themas/wateroverlast-0/kans-wateroverlast/>
- Helpdesk Water. (n.d.-d). *Waterbegrippen: waterveiligheid*. Retrieved December 8, 2019, from <https://www.helpdeskwater.nl/onderwerpen/waterveiligheid/primaire/technische-leidraden/overig/begrippen-technische/virtuele-map-14/waterveiligheid/>
- Hernández, B., Carmen Hidalgo, M., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and

- place identity in natives and non-natives. *Journal of Environmental Psychology*, 27(4), 310–319. <https://doi.org/10.1016/j.jenvp.2007.06.003>
- Jorgensen, B. S., & Stedman, R. C. (2001). Sense of Place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, 21(3), 233–248. <https://doi.org/10.1006/jev.2001.0226>
- Leichenko, R. (2011). Climate change and urban resilience. *Current Opinion in Environmental Sustainability*, 3(1), 164–168. <https://doi.org/10.1016/j.cosust.2010.12.014>
- Li, B. Y., & Ho, R. T. H. (2019). Unveiling the Unspeakable: Integrating Video Elicitation Focus Group Interviews and Participatory Video in an Action Research Project on Dementia Care Development. *International Journal of Qualitative Methods*, 18, 1–10. <https://doi.org/10.1177/1609406919830561>
- Liao, K.-H. (2012). A Theory on Urban Resilience to Floods - A Basis for Alternative Planning Practices. *Ecology and Society*, 17(4), 1–15. <https://doi.org/10.5751/ES-05231-170448>
- Lund, J. R. (2015). Integrating social and physical sciences in water management. *Water Resources Research*, 51(8), 5905–5918. <https://doi.org/10.1002/2015WR017125>
- Masterson, V. A., Enqvist, J. P., Stedman, R. C., & Tengö, M. (2019). Sense of place in social–ecological systems: from theory to empirics. *Sustainability Science*, 14(3), 555–564. <https://doi.org/10.1007/s11625-019-00695-8>
- Meriläinen, E. (2019). The dual discourse of urban resilience: robust city and self-organised neighbourhoods. *Disasters*, 44(1), 125–151. <https://doi.org/10.1111/disa.12367>
- Ministerie van Infrastructuur en Waterstaat, Ministerie van Landbouw Natuur en Voedselkwaliteit, & Ministerie van Binnenlandse Zaken en Koninkrijkrelaties. (2019). *Deltaprogramma 2020*. <https://deltaprogramma2020.deltacommissaris.nl/>
- OECD. (2010). Cities and Climate Change. In *Urban Development and Local Government*. OECD Publishing. <https://doi.org/10.1787/9789264091375-en>
- Ons Water. (n.d.-a). *Droogte en wateroverlast: wat kun je zelf doen?* Retrieved July 3, 2020, from <https://www.onswater.nl/onderwerpen/droogte-en-wateroverlast-wat-kun-je-zelf-doen>
- Ons Water. (n.d.-b). *Hoe ontstaat wateroverlast?* Retrieved July 3, 2020, from <https://www.onswater.nl/onderwerpen/hoe-ontstaat-wateroverlast>
- Pahl-Wostl, C., Tàbara, D., Bouwen, R., Craps, M., Dewulf, A., Mostert, E., Ridder, D., & Taillieu, T. (2007). The importance of social learning and culture for sustainable water management. *Ecological Economics*, 64(3), 484–495. <https://doi.org/10.1016/j.ecolecon.2007.08.007>
- Port of Rotterdam. (2019). *Feiten & Cijfers. Een schat aan informatie*.
- Provincie Zuid-Holland. (n.d.). *Water*. Retrieved July 2, 2020, from <https://www.zuid-holland.nl/onderwerpen/landschap/water/>
- Resilient Rotterdam. (2016). *Rotterdam Resilience Strategie*.
- Resilient Rotterdam. (2017). *Het waterplein als het symbool voor Rotterdamse klimaatadaptatie*. <https://www.resilientrotterdam.nl/news/waterplein-symbool-rotterdamse-klimaatadaptatie>
- Restemeyer, B., Woltjer, J., & van den Brink, M. (2015). A strategy-based framework for assessing the flood resilience of cities – A Hamburg case study. *Planning Theory & Practice*, 16(1), 45–62.

- <https://doi.org/10.1080/14649357.2014.1000950>
- Rijksoverheid. (n.d.-a). *Water safety*. Retrieved July 3, 2020, from <https://www.rijkswaterstaat.nl/english/water/water-safety/index.aspx>
- Rijksoverheid. (n.d.-b). *Waterbeheer in Nederland*. Retrieved December 8, 2019, from <https://www.rijksoverheid.nl/onderwerpen/water/waterbeheer-in-nederland>
- Rijkswaterstaat. (n.d.). *Water*. Retrieved July 3, 2020, from <https://www.rijkswaterstaat.nl/english/water/index.aspx>
- Rijkswaterstaat. (2017). *Waterveiligheid - Begrippen begrijpen (2e druk)*.
- Rijkswaterstaat. (2019). *Normaal Amsterdams Peil (NAP)*. <https://www.rijkswaterstaat.nl/zakelijk/open-data/normaal-amsterdams-peil#12450>
- Rotterdam Climate Initiative. (2013). *Rotterdamse adaptatiestrategie*.
- Rotterdams Weerwoord. (2020). *Rotterdam Weather Wise urgency document*.
- Sampson, K. A., & Goodrich, C. G. (2009). Making Place: Identity Construction and Community Formation through “Sense of Place” in Westland, New Zealand. *Society & Natural Resources*, 22(10), 901–915. <https://doi.org/10.1080/08941920802178172>
- Smit, B. J. H. (2006). *Veiligheid ten aanzien van overstromingsrisico's; weerstand versus veerkracht*. [www.infopuntveiligheid.nl/Infopuntdocumenten/Smit 8 Overstromingsrisico.pdf](http://www.infopuntveiligheid.nl/Infopuntdocumenten/Smit%208%20Overstromingsrisico.pdf)
- Spaans, M., & Waterhout, B. (2017). Building up resilience in cities worldwide – Rotterdam as participant in the 100 Resilient Cities Programme. *Cities*, 61, 109–116. <https://doi.org/10.1016/j.cities.2016.05.011>
- Stichting Steenbreek. (n.d.). *Over stichting Steenbreek*. Retrieved May 1, 2020, from <https://www.operatiesteenbreek.nl/over-stichting-steenbreek/>
- Stratford, E., & Bradshaw, M. (2016). Qualitative Research Design and Rigour. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (4th ed., pp. 117–129). Oxford University Press.
- Straussfogel, D., & von Schilling, C. (2009). Systems Theory. In *International Encyclopedia of Human Geography* (pp. 151–158). Elsevier. <https://doi.org/10.1016/B978-008044910-4.00754-9>
- Tuan, Y.-F. (1975). Place: An Experiential Perspective. *Geographical Review*, 65(2), 151–165. <https://doi.org/10.2307/213970>
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). *Resilience, Adaptability and Transformability in Social-ecological Systems* (Vol. 9, Issue 2). and Society.

7. Appendix

Appendix A: Focus group guide (Dutch and English)

A1: Dutch version of the focus group guide

Een **dikgedrukte vraag/dikgedrukt onderwerp** was een belangrijke vraag of belangrijk onderwerp in verband met de dataverzameling en de beantwoording van de onderzoeksvragen; deze vragen of onderwerpen moesten dus sowieso gesteld worden. De niet-dikgedrukte vragen werden gesteld als er onduidelijkheid was of weinig response op de dikgedrukte vraag.

Introductie

Bij de introductie werkte ik met een korte PowerPointpresentatie om uit te leggen wat we gingen doen in de sessie, wat er van de deelnemers verwacht werd, en welke regels we gebruikten met betrekking tot praten/de beurt krijgen (in verband met de opname). Bij de introductie vertelde ik het volgende:

- Ik wil u bedanken voor uw deelname aan mijn onderzoek. We beginnen deze focusgroepsessie met een uitleg over wat we vandaag zullen doen. Allereerst wil ik u erop wijzen dat deze focusgroep opgenomen wordt: dit wordt gedaan zodat ik dit gesprek achteraf kan uitschrijven en deze data kan verwerken voor mijn onderzoek. Ik zal beginnen door mezelf kort voorstellen. Mijn naam is Sarah Akhamy en ik doe de masteropleiding Culturele Geografie, waarbij deze online focusgroep onderdeel is van het onderzoek voor mijn scriptie. Ik zal vandaag de sessie leiden en [naam mede-onderzoeker] helpt mij hierbij door notities te maken. Ik zal straks het doel van mijn onderzoek uitleggen, waarna ik opnieuw zal vertellen wat een focusgroep is en wat er vandaag van u verwacht wordt. Daarna volgt een overzicht van de structuur van deze sessie. Voelt u zich alstublieft vrij om tussendoor vragen te stellen, bijvoorbeeld als iets niet duidelijk genoeg is.
- Dit onderzoek gaat over 'resilience' (of veerkracht in het Nederlands) in de stad Rotterdam, waterveiligheid en projecten die deze waterveiligheid in Rotterdam willen verbeteren. Hierbij richt het onderzoek zich vooral op de manier waarop inwoners van Rotterdam naar deze onderwerpen kijken, wie ze hiervoor verantwoordelijk vinden en welke rol ze voor zichzelf in deze onderwerpen zien. Het doel van dit onderzoek is om meer inzicht te krijgen in hoeverre inwoners zelf bereid zijn om mee te doen in Rotterdamse initiatieven die de waterveiligheid willen verbeteren.
- Ik zal nu iets meer vertellen over deze online focusgroepsessie en hoe de data uit deze sessie zal worden gebruikt. Een focusgroep is een soort groepsinterview van ongeveer 1,5 tot 2 uur. Het grote verschil met een interview is dat het niet alleen om vraag en antwoord gaat tussen de interviewer en de geïnterviewde, maar dat de deelnemers onderling ook op elkaar kunnen reageren. Er zijn een paar belangrijke punten voor uw deelname aan deze focusgroepsessie:
 - Punt 1: Er is steeds één iemand aan het woord; als mensen door elkaar praten, zorgt dit voor problemen op de geluidsopname. Daarom vraag ik u om uw microfoon uit te zetten als u niet aan het woord bent. Als u op iemand wilt reageren, kunt u uw hand

opsteken. Als u een vraag heeft, kunt u uw vinger opsteken. Zou u dit nu een voor een kunnen testen, door uw microfoon uit en aan te zetten? Dank u wel.

- Punt 2: Omgang met de data: Zoals ik u gisteren individueel heb verteld, is deelname aan dit onderzoek vrijwillig en als u wilt stoppen kan dit op ieder moment, ook achteraf. Alle data wordt vertrouwelijk behandeld en de data wordt geanonimiseerd, wat betekent dat de data niet terug te herleiden is tot uzelf. Daarom zal ik bijvoorbeeld alleen bepaalde basisgegevens zoals uw geslacht en leeftijd gebruiken in mijn onderzoek. De data uit deze sessie wordt alleen gebruikt voor dit onderzoek en zal niet gedeeld worden met anderen buiten mijn onderzoek.
- Punt 3: Deze groepssessie is open en het is belangrijk om iedereen ideeën, gedachten en meningen te horen. Verder zal ik af en toe vragen stellen om de discussie op gang te laten komen, maar het gaat vooral om de discussie tussen jullie. Het is in focusgroepen vooral de bedoeling dat jullie op elkaar reageren en met elkaar in gesprek/discussie gaan over de onderwerpen. Dit is erg belangrijk en ik wil u dan ook zeggen dat u bij het geven van uw gedachten en meningen ook kritisch mag zijn.
- Dan zal ik nu een kort overzicht geven van deze sessie:
 - In het eerste deel wordt u gevraagd naar definities, meningen en gedachten over bepaalde concepten zoals trots, waterveiligheid en burgerparticipatie.
 - In het tweede deel zullen we verschillende voorbeelden van waterveiligheidsinitiatieven in Rotterdam bespreken.
- Tot zover mijn kant van de introductie, heeft u nog vragen? Mochten bepaalde onderdelen wat onduidelijk zijn, dit zullen we juist in de focusgroep gaan bespreken. Dan zou ik u nu willen vragen of u uzelf kort kunt voorstellen door uw naam te zeggen, vertellen in welke wijk u woont en hoelang u al in Rotterdam woont [*Participanten stellen zich voor*].
- Dank u wel. Dan zijn we nu klaar met de formele introductie.

Deel 1: de onderwerpen en concepten

'Sense of Place': trots op Rotterdam

- **Kunt u dingen noemen van Rotterdam waar u trots op bent** (bijv.: wat mist u het meeste als u uit de stad bent?)? **Waarom?**
- **En dingen van Rotterdam waar u minder of niet trots op bent** (bijv.: wat mist u het meeste als u uit de stad bent?)? **Waarom?**
- Zou u over uzelf kunnen vertellen of u zich trots op Rotterdam voelt? **Waarom (niet)?**
- **Voelt u zich een Rotterdammer? Waarom (niet)?**

Waterveiligheid & waterbeheer

- **Wat is waterveiligheid volgens u/voor u?** Als u aan waterveiligheid denkt, waar denkt u dan aan?
- **Wie is/zijn er denkt u verantwoordelijk voor waterveiligheid in Nederland?**

- **Zou u kunnen vertellen wat u weet over het waterbeheer in Rotterdam? En over dat in uw eigen wijk of buurt?**
 - **Wie zijn er volgens u verantwoordelijk voor?**
 - Vindt u dat u genoeg weet over het waterbeheer in Rotterdam? Waarom wel/niet?
- **Vindt u dat inwoners zelf verantwoordelijk zijn voor waterbeheer in de omgeving waar ze wonen? En waarom (niet)?**
- **Hoe zit het met uw eigen gevoel over uw veiligheid wat betreft water (en de mogelijke gevaren hiervan voor u)?**

Wateroverlast

- **Wat is wateroverlast volgens u/voor u?** Als u aan wateroverlast denkt, waar denkt u dan aan?
- **Zou u elk kunnen vertellen over uw persoonlijke ervaringen met wateroverlast?**
Bijvoorbeeld over wat voor wateroverlast u heeft gehad, hoe vaak, of hoe erg de schade was?
- **Zou u iets kunnen vertellen over wateroverlast in uw omgeving?** Bijv. in uw wijk, of bij vrienden/familie die ook in Rotterdam wonen?

Waterveiligheidsinitiatieven (& Burgerparticipatie)

- **Wat weet u van waterveiligheidsinitiatieven in Rotterdam?** Kunt u enkele omschrijven?
- **Zou u wat meer kunnen vertellen over of u zelf meedoet of mee heeft gedaan in waterveiligheidsinitiatieven in Rotterdam? En waarom?**
- **Zou u kunnen beschrijven wat voor u de afweging(en) zou(den) zijn om mee te doen aan zulke initiatieven?**
 - Wat zouden voor u redenen/overwegingen zijn om mee te doen aan initiatieven voor waterveiligheid?
 - En wat zouden redenen/overwegingen voor u zijn om niet mee te doen aan zulke initiatieven?

Deel 2: Waterveiligheidsinitiatieven in Rotterdam

Voorbeelden waterveiligheidsinitiatieven Rotterdam

Ik laat u zo drie voorbeelden zien van waterveiligheidsinitiatieven in Rotterdam. Ik wil u vragen om bij elke video te bedenken wat u van het genoemde initiatief vindt, of u het al kent, en of u eraan zou meedoen en waarom wel/niet.

- De eerste video gaat over Water Sensitive Rotterdam (WSR)
 - *Het Water Sensitive Rotterdam (WSR) Programma ontwikkelt maatregelen om Rotterdam voor te bereiden op de gevolgen van klimaatverandering, zoals op steeds extremere regenbuien en op extreme hitte en droogte. Het programma is bedoeld om een brede laag van de samenleving van de urgentie van de klimaatverandering te doordringen en ervoor te zorgen dat meer mensen, organisaties en bedrijven in de samenleving gaan samenwerken aan zowel*

kleine toepasbare projecten door burgers en bedrijven als grootschalige projecten (Resilient Rotterdam, 2016).

- Video 'Wat is Water Sensitive Rotterdam? (Animatie met ondertiteling)' (1:33 min):
<https://www.youtube.com/watch?v=d9ZF7rVMQpM>
- De tweede video is van de gemeente Rotterdam en gaat over geveltuintjes die worden gemaakt in de stad tegen wateroverlast. Het is onderdeel van de 'Tegel Eruit, Plant Erin' campagne van Operatie Steenbreek.
 - De 'Tegel Eruit, Plant Erin' actie is in 2015 gestart door Stichting Operatie Steenbreek, een stichting die de verstening van steden wil tegengaan door steden te vergroenen. Dit wordt gedaan om negatieve gevolgen van verstening op de leefomgeving tegen te gaan, zoals een hogere temperatuur in de stad, afname van de biodiversiteit, vermindering van het vasthouden van water, overbelasting op het riool, slechte luchtkwaliteit door toename van fijnstof en een negatief effect op de gezondheid door de afwezigheid van groen (Bron: <https://www.operatiesteenbreek.nl/over-stichting-steenbreek/>). De campagne 'Tegel eruit, Plant Erin' heeft als doel om inwoners van deelnemende gemeenten te motiveren om de tegels uit hun tuinen te halen en die te vervangen met planten. De gemeente Rotterdam is een van de deelnemende gemeenten.
 - Video 'Geveltuintjes tegen wateroverlast' waarin in Rotterdam tegels in de straat eruit worden gehaald en geveltuintjes worden gemaakt (1:35):
<https://www.youtube.com/watch?v=-MhRy1DtwSk>
- De derde video gaat over het Rotterdams Weerwoord.
 - Gestart begin 2019: "Het Rotterdams Weerwoord staat voor: Samen onze stad voorbereiden op een extremer klimaat. Dat houdt in dat we als gemeente Rotterdam niet alleen, maar voor, met én door de Rotterdammers de stad weersbestendig maken. Samen met u gaan we ervoor dat ook in de toekomst Rotterdam voor alle Rotterdammers een fijn, gezond en veilig thuis is." (Bron: <https://www.rotterdam.nl/wonen-leven/rotterdams-weerwoord/>)
 - Video 'Terugblik 2019' met Weerwoord-initiatieven in 2019 (3:47 min):
<https://www.youtube.com/watch?v=5z4lhjoXwqg>
- **[Na elke video] Wat vindt u van het initiatief/de initiatieven in deze video? Kende u het? Zou u eraan meedoen? Waarom wel/niet?**

(Zelfde 3 vragen als voor de waterveiligheidsinitiatieven voorbeelden:)

- **Zou u kunnen beschrijven wat voor u de afweging zou zijn om mee te doen aan zulke initiatieven?**
 - Wat zouden voor u redenen/overwegingen zijn om mee te doen aan initiatieven voor waterveiligheid?
 - En wat zouden redenen/overwegingen voor u zijn om niet mee te doen aan zulke initiatieven?

Einde van de focusgroep

- **Is er nog iets niet gezegd vandaag, waarvan u denkt dat het nuttig is voor mijn onderzoek om te weten?**

- **Heeft u nog opmerkingen of toevoegingen aan dit gesprek? Of vragen?**
- **Wat vond u van deze focusgroepsessie? Heeft u nog tips voor verbeteringen?**

Ik wil u allen bedanken voor uw deelname aan dit onderzoek. Zoals ik aan het begin heb gemeld, zal ik zorgvuldig met de gegevens uit deze focusgroep omgaan. Als u op een later moment na dit gesprek nog vragen of toevoegingen heeft, kunt u mij een bericht sturen via Facebook of Whatsapp, of via mijn mailadres s.akhamy@student.rug.nl

A2: English version of the focus group guide

A **bold question or topic** was an important question/topic in relation to the data collection and the answering of the research question(s); these questions or topics were discussed in any case. The non-bold questions would be asked if there was unclarity about the bold question or not enough response.

Introduction focus group:

For the introduction, I used a PowerPoint presentation so the participants could read along with the information I was providing, as it was a lot of information and this would help to make it more clear to them and less of a long and formal introduction talk.

- I started by thanking the participants for coming after which I shortly introduced myself & the goal of my research.
- I then explained the reason I was recording the focus group session was for the processing of the data.
- I explained some of the conventions of focus group participation:
 - There would be some 'rules' in the focus group. First, only one person would speak at a time, because it could cause problems with the recordings if people would speak over each other. Second, if someone wanted to speak or react to someone, they needed to raise their hand and I would tell them that it would be their turn to speak. Third, if someone had a question, they could raise their finger and I would let them ask their question.
 - All data would be treated confidentially & anonymized.
 - The session would be open, and everyone's views were important to hear.
 - The amount of time that would be taken up by the online focus group session (approx. 1,5-2 hours).
- I outlined the format of the focus group session:
 - In the first part, the participants would give their views (definitions/opinions) on certain concepts such as pride, water safety, water safety initiatives and citizen involvement.
 - In the second part, I would provide some examples of water safety initiatives in Rotterdam and I would then let them respond to these.

- I ended the introduction by encouraging the participants to introduce themselves by telling the other participants their first names.

Part 1: concepts and topics

Sense of Place: pride of Rotterdam

- **Could you name things about Rotterdam that you are proud of** (e.g. what you miss the most when you are out of town)? **Why?**
- **And what about things about Rotterdam that you are less or not proud of** (e.g. what you miss the least when you are out of town)? **Why?**
- Could you tell about yourself whether you feel proud of Rotterdam? Why (not)?
- **Do you feel like you are a Rotterdammer? Why (not)?**

Water safety & water management

- **What is water safety in general according to you/for you?** If you think of water safety, what do you think of?
- **Who do you think is/are responsible for water safety/water management in the Netherlands?**
- **Could you tell more about what you know about water management in Rotterdam? And in your own neighbourhood?**
 - **Who do you think is/are responsible for it?**
 - Do you think it is important to know more about water management in Rotterdam? Why (not)?
- **Do you think citizens are responsible for the water management in the area where they live? Why (not)?**
- **How do you personally feel about your safety regarding water (and its possible threats for you)?**

Water nuisance

- **What is water nuisance according to you/for you?** If you think of water nuisance, what do you think of?
- **Could you tell us about your personal experiences with water nuisances?** For example, what kind of water nuisances, how often, or how severe?
- **Could you tell something about the water nuisance in your area?** E.g. in your neighbourhood, experienced by friends/family who are also living in Rotterdam, etc.

Water safety initiatives (& citizen involvement)

- **What do you know about water safety initiatives in Rotterdam?** Can you describe some you know? [Can you describe what you think of when you think of water safety initiatives?]

- **Could you tell me whether you currently are participating or have participated (in the past) in water safety initiatives in Rotterdam? And why?**
- **Could you describe the consideration(s) you have about taking part in such initiatives?**
 - What would be reasons/considerations for you to participate in water safety initiatives?
 - And what would be reasons/considerations for you to not participate in water safety initiatives?

Part 2: Water safety initiatives in Rotterdam

Examples of water safety initiatives in Rotterdam

- **I will show three videos on water safety initiative examples of Rotterdam. Before I do so, I will ask the participants for each video to think about what they think about the initiative, whether they know it already, whether they would participate in it and why (not):**
 - Water Sensitive Rotterdam (WSR)
 - ‘Geveltuinjes tegen wateroverlast’ (‘facade gardens against water nuisance’) by the municipality of Rotterdam
 - Rotterdams WeerWoord (‘Rotterdam Weather Wise’)
- **[After each video:] What did you think about the initiative(s) in this video? Were you familiar with it? Would you be willing to take part in it? Why (not)?**

[Second time asking the same questions as from before the examples of water safety initiatives:]

- **Could you describe the consideration(s) you have about taking part in such initiatives?**
 - What would be reasons/considerations for you to participate in water safety initiatives?
 - And what would be reasons/considerations for you to not participate in water safety initiatives?

End of the session

- I asked whether someone wanted to add something that had not been mentioned before, but which still might be useful for my research. Furthermore, I asked if they had other remarks or additions and whether there were any questions. Afterwards I asked what they thought of the session. Finally, I would thank them for their participation and mention that they could send me a message on Facebook or send an email to my mail address if they had additional remarks or questions that popped up after the session.

Appendix B: Interview guide (Dutch and English)

B1: Dutch version of the interview guide

Een **dikgedrukte vraag/dikgedrukt onderwerp** was een belangrijke vraag of belangrijk onderwerp in verband met de dataverzameling en de beantwoording van de onderzoeksvragen; deze vragen of onderwerpen moesten dus sowieso gesteld worden. De niet-dikgedrukte vragen werden gesteld als er onduidelijkheid was of weinig response op de dikgedrukte vraag.

Introductie

- Ik wil u bedanken voor uw deelname aan mijn onderzoek. Allereerst wil ik u erop wijzen dat dit interview opgenomen wordt: dit wordt gedaan zodat ik dit gesprek achteraf kan uitschrijven en deze data kan verwerken voor mijn onderzoek. Ik zal beginnen door mezelf kort voorstellen. Ik doe de masteropleiding Culturele Geografie waarbij dit interview onderdeel is van het onderzoek voor mijn scriptie.
- Over mijn onderzoek: dit onderzoek gaat over 'resilience' (of veerkracht in het Nederlands) in de stad Rotterdam, waterveiligheid en projecten die deze waterveiligheid in Rotterdam willen verbeteren. Hierbij richt het onderzoek zich vooral op de manier waarop inwoners van Rotterdam naar deze onderwerpen kijken, wie ze hiervoor verantwoordelijk vinden en welke rol ze voor zichzelf in deze onderwerpen zien. Het doel van dit onderzoek is om meer inzicht te krijgen in hoeverre inwoners zelf bereid zijn om mee te doen in Rotterdamse initiatieven die de waterveiligheid willen verbeteren.
- Omgang met de data: Deelname aan dit onderzoek is vrijwillig en als u wilt stoppen kan dit op ieder moment, ook achteraf. Alle data wordt vertrouwelijk behandeld en de data wordt geanonimiseerd, wat betekent dat de data niet terug te herleiden is tot uzelf. Daarom zal ik bijvoorbeeld alleen bepaalde basisgegevens zoals geslacht en leeftijd gebruiken in mijn onderzoek. De data uit deze sessie wordt alleen gebruikt voor dit onderzoek en zal niet gedeeld worden met anderen buiten mijn onderzoek.
- Dan zal ik nu een kort overzicht geven van deze sessie:
 - In het eerste deel wordt u gevraagd naar definities, meningen en gedachten over bepaalde concepten zoals trots, waterveiligheid en burgerparticipatie.
 - In het tweede deel zullen we verschillende voorbeelden van waterveiligheidsinitiatieven in Rotterdam bespreken.
- Tot zover mijn kant van de introductie, heeft u/heb je nog vragen? Mochten bepaalde onderdelen wat onduidelijk zijn, dit zullen we juist in het interview gaan bespreken. Dan gaan we nu beginnen!

Deel 1: de onderwerpen en concepten

'Sense of Place': trots op Rotterdam

- **Kunt u dingen noemen van Rotterdam waar u trots op bent** (bijv.: wat mist u het meeste als u uit de stad bent)? **Waarom?**

- **En dingen van Rotterdam waar u minder of niet trots op bent** (bijv.: wat mist u het meeste als u uit de stad bent?)? **Waarom?**
- Zou u over uzelf kunnen vertellen of u zich trots op Rotterdam voelt? **Waarom (niet)?**
- **Voelt u zich een Rotterdammer? Waarom (niet)?**

Waterveiligheid & waterbeheer

- **Wat is waterveiligheid volgens u/voor u?** Als u aan waterveiligheid denkt, waar denkt u dan aan?
- **Wie is/zijn er denkt u verantwoordelijk voor waterveiligheid in Nederland?**
- **Zou u kunnen vertellen wat u weet over het waterbeheer in Rotterdam? En over dat in uw eigen wijk of buurt?**
 - **Wie zijn er volgens u verantwoordelijk voor?**
 - Vindt u dat u genoeg weet over het waterbeheer in Rotterdam? **Waarom wel/niet?**
- **Vindt u dat inwoners zelf verantwoordelijk zijn voor waterbeheer in de omgeving waar ze wonen? En waarom (niet)?**
- **Hoe zit het met uw eigen gevoel over uw veiligheid wat betreft water (en de mogelijke gevaren hiervan voor u)?**

Wateroverlast

- **Wat is wateroverlast volgens u/voor u?** Als u aan wateroverlast denkt, waar denkt u dan aan?
- **Zou u elk kunnen vertellen over uw persoonlijke ervaringen met wateroverlast?** Bijvoorbeeld over wat voor wateroverlast u heeft gehad, hoe vaak, of hoe erg de schade was?
- **Zou u iets kunnen vertellen over wateroverlast in uw omgeving?** Bijv. in uw wijk, of bij vrienden/familie die ook in Rotterdam wonen?

Waterveiligheidsinitiatieven (& Burgerparticipatie)

- **Wat weet u van waterveiligheidsinitiatieven in Rotterdam?** Kunt u enkele omschrijven?
- **Zou u wat meer kunnen vertellen over of u zelf meedoet of mee heeft gedaan in waterveiligheidsinitiatieven in Rotterdam? En waarom?**
- **Zou u kunnen beschrijven wat voor u de afweging(en) zou(den) zijn om mee te doen aan zulke initiatieven?**
 - Wat zouden voor u redenen/overwegingen zijn om mee te doen aan initiatieven voor waterveiligheid?
 - En wat zouden redenen/overwegingen voor u zijn om niet mee te doen aan zulke initiatieven?

Deel 2: Waterveiligheidsinitiatieven in Rotterdam

Voorbeelden waterveiligheidsinitiatieven Rotterdam

Ik laat u zo drie voorbeelden zien van waterveiligheidsinitiatieven in Rotterdam. Ik wil u vragen om bij elke video te bedenken wat u van het genoemde initiatief vindt, of u het al kent, en of u eraan zou meedoen en waarom wel/niet.

- De eerste video gaat over Water Sensitive Rotterdam (WSR)
 - Video 'Wat is Water Sensitive Rotterdam? (Animatie met ondertiteling)' (1:33 min):
<https://www.youtube.com/watch?v=d9ZF7rVMQpM>
- De tweede video is van de gemeente Rotterdam en gaat over geveltuintjes die worden gemaakt in de stad tegen wateroverlast. Het is onderdeel van de 'Tegel Eruit, Plant Erin' campagne van Operatie Steenbreek.
 - Video 'Geveltuintjes tegen wateroverlast' waarin in Rotterdam tegels in de straat eruit worden gehaald en geveltuintjes worden gemaakt (1:35):
<https://www.youtube.com/watch?v=-MhRy1DtwSk>
- De derde video gaat over het Rotterdams Weerwoord.
 - Video 'Terugblik 2019' met Weerwoord-initiatieven in 2019 (3:47 min):
<https://youtu.be/5z4lhjoXwqg>
- **[Na elke video] Wat vindt u van het initiatief/de initiatieven in deze video? Kende u het? Zou u eraan meedoen? Waarom wel/niet?**

(Zelfde 3 vragen als voor de waterveiligheidsinitiatieven voorbeelden:)

- **Zou u kunnen beschrijven wat voor u de afweging zou zijn om mee te doen aan zulke initiatieven?**
 - Wat zouden voor u redenen/overwegingen zijn om mee te doen aan initiatieven voor waterveiligheid?
 - En wat zouden redenen/overwegingen voor u zijn om niet mee te doen aan zulke initiatieven?

Einde van het interview

- **Is er nog iets niet gezegd vandaag, waarvan u denkt dat het nuttig is voor mijn onderzoek om te weten?**
- **Heeft u nog opmerkingen of toevoegingen aan dit gesprek? Of vragen?**
- **Wat vond u van dit interview? Heeft u nog tips voor verbeteringen?**
- Ik wil u bedanken voor uw deelname aan dit onderzoek. Zoals ik aan het begin heb gemeld, zal ik zorgvuldig met de gegevens uit dit interview omgaan. **Als u op een later moment na dit gesprek nog vragen of toevoegingen heeft, kunt u mij een bericht sturen via Facebook of Whatsapp, of mijn mailadres s.akhamy@student.rug.nl.**

B2: English version of the interview guide

A **bold question or topic** was an important question/topic in relation to the data collection and the answering of the research question(s); these questions or topics were discussed in any case. The non-bold questions would be asked if there was unclarity about the bold question or not enough response.

Introduction

- I thanked the participant for their participation to my research and reminded them that the interview would be recorded for the data processing. I then introduced myself shortly.
- About the research: I first described what my research was about: resilience in the city of Rotterdam, water safety and initiatives that want to improve this water safety. Second, I explained that the research was aimed at the ways that citizens of Rotterdam view these topics, who they think are responsible and what role they saw for themselves. Third, I explained that the goal of the research was to gain insight about to what extent residents are willing to participate in initiatives in Rotterdam which would improve water safety.
- with data: I explained that participation in the research is , that they could withdraw at any moment, that data would be treated confidentially and anonymised, and that only the basic data (e.g. age and gender) would be used, which would not be shared outside my research.
- I outlined the format of the interview:
 - In the first part, the respondent would give their view (definitions/opinions) on certain concepts such as pride, water safety, water safety initiatives and citizen involvement.
 - In the second part, I would provide some examples of water safety initiatives in Rotterdam and I would then let them respond to these.
- I ended the introduction by asking if there were any questions. If not, we would start with the first question.

Part 1: concepts and topics

Sense of Place: pride of Rotterdam

- **Could you name things about Rotterdam that you are proud of** (e.g. what you miss the most when you are out of town?)? **Why?**
- **And what about things about Rotterdam that you are less or not proud of** (e.g. what you miss the least when you are out of town?)? **Why?**
- Could you tell about yourself whether you feel proud of Rotterdam? Why (not)?
- **Do you feel like you are a Rotterdammer? Why (not)?**

Water safety & water management

- **What is water safety in general according to you/for you?** If you think of water safety, what do you think of?

- **Who do you think is/are responsible for water safety/water management in the Netherlands?**
- **Could you tell more about what you know about water management in Rotterdam? And in your own neighbourhood?**
 - **Who do you think is/are responsible for it?**
 - Do you think it is important to know more about water management in Rotterdam? Why (not)?
- **Do you think citizens are responsible for the water management in the area where they live? Why (not)?**
- **How do you personally feel about your safety regarding water (and its possible threats for you)?**

Water nuisance

- **What is water nuisance according to you/for you?** If you think of water nuisance, what do you think of?
- **Could you tell us about your personal experiences with water nuisances?** For example, what kind of water nuisances, how often, or how severe?
- **Could you tell something about the water nuisance in your area?** E.g. in your neighbourhood, experienced by friends/family who are also living in Rotterdam, etc.

Water safety initiatives (& citizen involvement)

- **What do you know about water safety initiatives in Rotterdam?** Can you describe some you know? [Can you describe what you think of when you think of water safety initiatives?]
- **Could you tell me whether you currently are participating or have participated (in the past) in water safety initiatives in Rotterdam? And why?**
- **Could you describe the consideration(s) you have about taking part in such initiatives?**
 - What would be reasons/considerations for you to participate in water safety initiatives?
 - And what would be reasons/considerations for you to not participate in water safety initiatives?

Part 2: Water safety initiatives in Rotterdam

Examples of water safety initiatives in Rotterdam

- **I will show three videos on water safety initiative examples of Rotterdam. Before I do so, I will ask the participants for each video to think about what they think about the initiative, whether they know it already, whether they would participate in it and why (not):**
 - Water Sensitive Rotterdam (WSR)
 - ‘Geveltuinjes tegen wateroverlast’ (‘facade gardens against water nuisance’) by the municipality of Rotterdam

- Rotterdams WeerWoord ('Rotterdam Weather Wise')
- *[After each video:]* **What did you think about the initiative(s) in this video? Were you familiar with it? Would you be willing to take part in it? Why (not)?**

[Second time asking the same questions as from before the examples of water safety initiatives:]

- **Could you describe the consideration(s) you have about taking part in such initiatives?**
 - What would be reasons/considerations for you to participate in water safety initiatives?
 - And what would be reasons/considerations for you to not participate in water safety initiatives?

End of the session

- I asked whether they wanted to add something that had not been mentioned before which still might be useful for my research. Furthermore, I asked if they had other remarks or additions and whether there were any questions. Afterwards I asked what they thought of the interview. Finally, I would thank them for their participation and mention that they could send me a message on Facebook or send an email to my mail address if they had additional remarks or questions that popped up after the interview.

Appendix C: Forms for participants about informed consent and basic data

C1: Informed consent (focus group)

GEÏNFORMEERDE TOESTEMMING

Ik (Naam participant)

stem toe mee te doen aan een onderzoek dat uitgevoerd wordt door

Sarah Akhamy (telefoonnummer: 06-..., email: s.akhamy@student.rug.nl)

Ik ben me ervan bewust dat deelname aan dit onderzoek met als titel (in het Engels)

'Willingness to participate': How citizens of Rotterdam perceive water safety and how willing they are to participate in the city's resilience initiatives regarding water safety.

geheel vrijwillig is. Ik kan mijn medewerking op elk tijdstip stopzetten en de gegevens die verkregen zijn uit dit onderzoek terugkrijgen, laten verwijderen uit de database, of laten vernietigen. De onderzoeker draagt zorg voor een veilige dataopslag. Voor vragen over privacybescherming kunt u zich wenden tot de RUG-functionaris gegevensbescherming mr. A.R. Deenen (privacy@rug.nl).

1. Het doel van dit onderzoek is

Om via focusgroepen te onderzoeken wat de visie van inwoners van Rotterdam is op waterveiligheid, wie ze hiervoor verantwoordelijk vinden, welke rol ze voor zichzelf hierin zien en wat overwegingen zijn om mee te doen aan waterveiligheidsinitiatieven.

Deelname aan dit onderzoek zal meer inzicht geven omtrent

Perspectieven die inwoners van Rotterdam hebben op waterveiligheid, wie ze hiervoor verantwoordelijk vinden en hun eigen rol hierin. Daarnaast zal het ook meer inzicht geven over motieven en redenen met betrekking tot de bereidheid van Rotterdammers om mee te doen aan waterveiligheidsinitiatieven in hun stad.

2. Er zal mij gevraagd worden

Actief mee te doen in de online focusgroepsessie. Niet alleen door gedachten, meningen en ervaringen te delen, maar ook door te luisteren en te reageren op andere deelnemers.

3. De focusgroep zal ongeveer **1,5-2 uur** duren. Aan het einde van de focusgroep zal de onderzoeker in meer detail uitleggen waar het onderzoek over gaat (bijv. waarom bepaalde vragen zijn gesteld of waarom bepaalde onderwerpen zijn besproken).

4. De gegevens die verkregen zijn uit deze focusgroep zullen vertrouwelijk worden behandeld en kunnen daarom niet bekend gemaakt worden op een individuele identificeerbare manier. De gegevens worden anoniem gerapporteerd en zijn alleen voor de onderzoeker beschikbaar.

5. De onderzoeker zal alle verdere vragen over dit onderzoek beantwoorden, nu of gedurende het verdere verloop van het onderzoek.

Datum:

Handtekening onderzoeker:

Datum:

Handtekening participant:

C2: Informed consent (interview)

GEÏNFORMEERDE TOESTEMMING

Ik (Naam participant)

stem toe mee te doen aan een onderzoek dat uitgevoerd wordt door

Sarah Akhamy (telefoonnummer: 06-..., email: s.akhamy@student.rug.nl)

Ik ben me ervan bewust dat deelname aan dit onderzoek met als titel (in het Engels)

'Willingness to participate': How citizens of Rotterdam perceive water safety and how willing they are to participate in the city's resilience initiatives regarding water safety.

geheel vrijwillig is. Ik kan mijn medewerking op elk tijdstip stopzetten en de gegevens die verkregen zijn uit dit onderzoek terugkrijgen, laten verwijderen uit de database, of laten vernietigen. De onderzoeker draagt zorg voor een veilige dataopslag. Voor vragen over privacybescherming kunt u zich wenden tot de RUG-functionaris gegevensbescherming mr. A.R. Deenen (privacy@rug.nl).

1. Het doel van dit onderzoek is

Om te onderzoeken wat de visie van inwoners van Rotterdam is op waterveiligheid, wie ze hiervoor verantwoordelijk vinden, welke rol ze voor zichzelf hierin zien en wat overwegingen zijn om mee te doen aan waterveiligheidsinitiatieven.

Deelname aan dit onderzoek zal meer inzicht geven omtrent

Perspectieven die inwoners van Rotterdam hebben op waterveiligheid, wie ze hiervoor verantwoordelijk vinden en hun eigen rol hierin. Daarnaast zal het ook meer inzicht geven over motieven en redenen met betrekking tot de bereidheid van Rotterdammers om mee te doen aan waterveiligheidsinitiatieven in hun stad.

2. Er zal mij gevraagd worden

Zoveel mogelijk gedachten, meningen en ervaringen te delen over de onderwerpen, waarbij het ook belangrijk is dat u kritisch mag zijn.

3. Het interview zal ongeveer **1 uur** duren. Aan het einde van het interview zal de onderzoeker in meer detail uitleggen waar het onderzoek over gaat (bijv. waarom bepaalde vragen zijn gesteld of waarom bepaalde onderwerpen zijn besproken).

4. De gegevens die verkregen zijn uit dit interview zullen vertrouwelijk worden behandeld en kunnen daarom niet bekend gemaakt worden op een individuele identificeerbare manier. De gegevens worden anoniem gerapporteerd en zijn alleen voor de onderzoeker beschikbaar.

5. De onderzoeker zal alle verdere vragen over dit onderzoek beantwoorden, nu of gedurende het verdere verloop van het onderzoek.

Datum:

Handtekening onderzoeker:

--	--

Datum:

Handtekening participant:

--	--

C3: Basic data form

Basisgegevens

Deze gegevens zullen alleen gebruikt worden binnen het onderzoek en niet gedeeld worden met derden.

Naam (voor- en achternaam)	
Leeftijd	
Geslacht	
Buurt en wijk in Rotterdam (Bijvoorbeeld: Noordereiland, Feijenoord)	
Woont u in een koop- of in een huurwoning?	
Heeft u een tuin?	
Heeft u een kelder?	

3 initiatieven

- 3 initiatieven - motivatie door video
 - 3 INITIATIEVEN KRITIEKPUNT
 - 3 INITIATIEVEN PLUSPUNT
 - 3 INITIATIEVEN VERBETERPUNT
 - GTWO - kritiekpunt
 - GTWO - pluspunt
 - INITIATIEVEN VERBETERPUNT
 - RWW - kritiekpunt
 - RWW - pluspunt
 - Verbeterpunt - bij wie je moet zijn
 - Verbeterpunt - informatievoorziening
 - Verbeterpunt - makkelijk maken
 - Verbeterpunt - niet concreet
 - Verbeterpunt - wordt geregeld voor je
 - WSR - kritiekpunt
 - WSR - pluspunt
-

Afweging Participatie: Vooraf & Achteraf

- 3 INITIATIEVEN KRITIEKPUNT
- 3 INITIATIEVEN PLUSPUNT
- Afweging - achteraf
- Afweging - achteraf: niet meedoen
- Afweging - achteraf: wel meedoen
- Afweging - Locatie
- Afweging - vooraf
- Afweging - vooraf: bewustmaken rol
- Afweging - vooraf: niet meedoen
- Afweging - vooraf: wel meedoen

- Inhoudelijke afweging - rol burger
-

Afwegingssoort: inhoudelijk

- **INHOUDELIJKE AFWEGING**
 - Inhoudelijke afweging - doel/nut
 - Inhoudelijke afweging - informatie
 - Inhoudelijke afweging - lange/korte termijn
 - Inhoudelijke afweging - proces
 - Inhoudelijke afweging - rol burger
-

Afwegingssoort: persoonlijk

- **PERSOONLIJKE AFWEGING**
 - Persoonlijke afweging - lichamelijke gesteldheid
 - Persoonlijke afweging - sociaal
 - Persoonlijke afweging - tijd
-

Afwegingssoort: verantwoordelijkheid

- "ownership"
 - **VERANTW. AFWEGING**
 - Verantw. afweging - onderhoud
-

Afwegingssoort: woning

- "VvE – Vereniging van Eigenaars"
 - **WONINGAFWEGING**
 - Woningafweging - (geen) (eigen) dak
 - Woningafweging - (geen) tuin
 - Woningafweging - flat/appartement
 - Woningafweging - huurwoning
-

Afwegingssoorten

- "ownership"

- "VvE – Vereniging van Eigenaars"
 - **INHOUDELIJKE AFWEGING**
 - Inhoudelijke afweging - doel/nut
 - Inhoudelijke afweging - informatie
 - Inhoudelijke afweging - lange/korte termijn
 - Inhoudelijke afweging - proces
 - Inhoudelijke afweging - rol burger
 - **PERSOONLIJKE AFWEGING**
 - Persoonlijke afweging - lichamelijke gesteldheid
 - Persoonlijke afweging - sociaal
 - Persoonlijke afweging - tijd
 - **VERANTW. AFWEGING**
 - Verantw. afweging - onderhoud
 - **WONINGAFWEGING**
 - Woningafweging - (geen) (eigen) dak
 - Woningafweging - (geen) tuin
 - Woningafweging - flat/appartement
 - Woningafweging - huurwoning
-

In vivo codes

- "beperking van je vrijheid"
 - "droge voeten"
 - "inspraak"
 - "niet dagelijks mee bezig"
 - "niet lullen, maar poetsen"
 - "ownership"
 - "typisch Rotterdams"
 - "vertrouwen" [in waterbeheer]
 - "ver-van-je-bedshow"
 - "VvE – Vereniging van Eigenaars"
 - Initiatieven - "Opzoomeren"
-

Initiatieven

- "ownership"
- INITIATIEVEN
- Initiatieven - "Opzoomeren"
- Initiatieven - boomspiegels
- Initiatieven - geen kennen
- Initiatieven - gemeente
- Initiatieven - geveltuinjes
- Initiatieven - groen dak/daktuin
- Initiatieven - grote schaal
- Initiatieven - kleine schaal
- Initiatieven - regenton
- Initiatieven - schaalgrootte
- Initiatieven - tegel eruit, plant erin
- Initiatieven - toegankelijkheid
- Initiatieven - zelf ernaar gekeken
- Initiatieven - zelf meegedaan

Klimaatverandering

- KLIMAATVERANDERING
- Klimaatverandering - grote schaal
- Klimaatverandering - hogere temperaturen
- Klimaatverandering - stijgende zeespiegel

Place Attachment

- PLACE ATTACHMENT
- Place Attachment - de stad kennen
- Place Attachment - geen native
- Place Attachment - 'insider'
- Place Attachment - 'length of residence'
- Place Attachment - native
- Place Attachment - 'Rotterdam is van ons'
- Place Attachment - sociale contacten (familie/vrienden)

- Place Attachment - thuis
 - Place Attachment - verbondenheid
-

Place Identity

- PLACE IDENTITY
 - Place Identity - Familiegeschiedenis Rotterdam
 - Place Identity - 'insider knowledge'
 - Place Identity - Rotterdammer zijn/voelen
-

Rol

- ROL
 - Rol - burgers
 - Rol - gemeente
 - Rol - overheid
 - Rol - waterschappen
-

Sense of Place (SOP)

- PLACE ATTACHMENT
 - PLACE IDENTITY
-

Trots/Niet Trots

- "niet lullen, maar poetsen"
- "typisch Rotterdams"
- "wereldhaven"
- (Niet) Trots - haat-liefde
- NIET TROTS
- Niet trots - armoede
- Niet trots - burenoverlast
- Niet trots - criminaliteit
- Niet trots - infrastructuur
- Niet trots - overlast publieke ruimte

- Niet trots - sociale ongelijkheid
 - Niet trots - verlies diversiteit
 - TROTS
 - Trots - architectuur
 - Trots - diversiteit
 - Trots - één identiteit
 - Trots - infrastructuur
 - Trots - mentaliteit
 - Trots - open stad
 - Trots - organisatie activiteiten
 - Trots - 'Rotterdam is Rotterdam/één stad'
 - Trots - saamhorigheid
 - Trots - sociale participatie/organisatie
 - Trots - veelzijdigheid
 - Trots - watermanagement
 - Trots - wederopbouw/bombardement
 - Trots - wereldstad
 - Trots - zelf trots zijn
-

Verantwoordelijkheid

- "beperking van je vrijheid"
- "ver-van-je-bedshow"
- VERANTWOORDELIJKHEID
- Verantwoordelijkheid - burgers
- Verantwoordelijkheid - drinkwaterbedrijven
- Verantwoordelijkheid - expertise/experts
- Verantwoordelijkheid - extern
- Verantwoordelijkheid - gedwongen
- Verantwoordelijkheid - gemeente
- Verantwoordelijkheid - intern
- Verantwoordelijkheid - overheid
- Verantwoordelijkheid - veiligheidsregio's
- Verantwoordelijkheid - waterschappen

Verbeterpunten initiatieven

- INITIATIEVEN VERBETERPUNT
- Verbeterpunt - bij wie je moet zijn
- Verbeterpunt - informatievoorziening
- Verbeterpunt - makkelijk maken
- Verbeterpunt - niet concreet
- Verbeterpunt - wordt geregeld voor je

Wateroverlast

- WATEROVERLAST
- Wateroverlast - definitie
- Wateroverlast - droogte
- Wateroverlast - ervaring: woning
- Wateroverlast - frequentie: woning
- Wateroverlast - geen ervaring: omgeving
- Wateroverlast - geen ervaring: woning
- Wateroverlast - hoort bij buitendijks wonen
- Wateroverlast - Maaskades
- Wateroverlast - omgeving
- Wateroverlast - oorzaak
- Wateroverlast - oorzaak (woning): gesprongen leiding
- Wateroverlast - oorzaak (woning): harde regenbui
- Wateroverlast - woning: kelder

Waterveiligheid/Waterbeheer

- "droge voeten"
- "inspraak"
- "niet dagelijks mee bezig"
- "vanzelfsprekend"
- "vertrouwen" [in waterbeheer]
- "ver-van-je-bedshow"

- **Waterbeheer vs waterveiligheid**
 - **WATERVEILIGHEID**
 - **Waterveiligheid - (gebrek) kennis verantwoordelijken eigen omgeving**
 - **Waterveiligheid - definitie**
 - **Waterveiligheid - directe invloed**
 - **Waterveiligheid - drinkwater**
 - **Waterveiligheid - eigen gevoel**
 - **Waterveiligheid - indirect**
 - **Waterveiligheid - indirecte invloed**
 - **Waterveiligheid - niet mee bezig**
 - **Waterveiligheid - schaalgrootte**
 - **Waterveiligheid - veel partijen, weinig overzicht**
 - **Waterveiligheid - verantwoordelijken**
 - **Waterveiligheid - vervuiling voorkomen**
 - **Waterveiligheid - waterkwaliteit**
 - **Waterveiligheid - wie verantwoordelijk eigen omgeving?**
 - **Waterveiligheid - zelf niet genoeg weten**
-

Willingness to Participate

- **WILLINGNESS TO PARTICIPATE**
- **WTP - voordeel**
- **WTP - waterschapsbelasting**