The Influence of City Networks on Local Policy-Making: A Case Study of 100 Resilient Cities in Rotterdam and Singapore

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Part 1. Introduction

According to the U.N. Secretary-General Ban Ki-moon "[Climate] Adaptation is a global challenge; it requires coordination across boundaries and government levels" (Rowling, 2018). This statement was presented during a UN Habitat Summit, in reaction to the growing criticism by the media of national governments for failing to reach agreements regarding climate change and the necessary measures to be implemented. A perfect example is the most recent Paris Agreement in 2015, which can be considered as the first agreement produced by national governments on an international scale. It establishes clear objectives that nations need to adhere to if they want to prevent a two-degree Celsius increase of the temperature, however, there were little to no binding commitments established. This left enough room for nations to circumvent the agreement, thereby creating uncertainty whether or not the goals will be reached.

Growing Importance of City Networks

For this reason, there is a growing need to examine other methods of collaboration that centres on the local level where stakes can more easily be managed, and the impact of collaboration is more visible. Over the years, there is a consensus that there needs to be improved coordination across government levels (local/regional/national/international) to deal with issues on the global agenda, ranging from resilience, poverty to mass migration. Building on this understanding, and underlined by the statement of Ban Ki-moon, it is crucial to examine local level policy-making addressing worldwide issues through the exchange of knowledge, funds and best practices, between municipalities dealing with them on a daily basis.

As national governments lack the knowledge, implementation capacity and the political will to reach agreements, increasingly more attention is paid to municipalities, as flagbearers for implementation and innovative practices to address global issues. City-to-city cooperation (C2C) can be traced back to the thirteenth century and has made considerable leaps from the 20th century, when local municipalities were on the forefront of collaborations in order to gain new regulatory knowledge and skills (Clark 2009). From the twentieth century onwards, there has been a growth in cooperation between municipalities to identify best practices in combatting global challenges through mechanisms such as 'town twinning,' whereby networks connect distant localities through formalised agreements, projects and exchange for knowledge sharing and increased resources (Zelinsky 1991; Healey, 1997).

Cities have become the new centres for attracting capital, fostering competitiveness, tackling migration and climate change related issues, while simultaneously accepting their newly acquired responsibilities. One important feature of transnational municipal networks (TMN) is that agreements are signed between cities, without the involvement of national agencies (Zelinsky 1991). In the last decade, collaborations have become more common and has resulted in new types of institutions with various forms and shared

characteristics, such as flexibility, networking and distributional intelligence. There is a consensus among authors that modern city networks are defined by practices that sustain continued interaction, adaption and learning (Healey, 1997; Kern and Bulkeley, 2009; Feldman 2012).

Problem Definition:

Before the research can be discussed further, it is important to provide a brief description of the problem. As is widely known, the world is becoming more interconnected and urban challenges are shared through global networks. 100RC promotes cooperation through Municipal International Cooperation (MIC), which offers local policy-makers the ability to work together and collaborate on shared challenges.

A widely-cited article written by Keiner and Kim finds that since the 1990's, cities started to address their sustainability issues through network activities. Their research reveals that networks mainstreamed dynamic knowledge-exchange and offered municipalities the opportunity to fill the gaps between national governments and international organisations by increasing their ability to set the agenda and direct resources towards most promising issues and solutions (2007).

Transnational Municipal Network: 100RC

One of the networks often cited as being exemplary of efficiency and success is 100 Resilient Cities (100RC). This network was established in 2013 and aims to assist cities in becoming more resilient to the "physical social and economic challenges that are a growing part of the 21st century" (100 RC, Website). Since its inception, there have been more than 330 applications, from which the first hundred cities were selected in 2016. After the selection, these cities became part of a widespread international network, whereby regular information exchange is facilitated, and collaborative projects are promoted. It has been applauded for its clear structure, its results in achieving increasingly more resilience and its global outreach to non-participating cities and organisations. Yet currently there is an ongoing discussion regarding the future of the network, due to structural reorganisations (Flavelle, 2019).

The Role of Ideas and their Impact

The network places high importance on spreading ideas to its members, with the aspiration they will be implemented in local policies. For 100RC, ideas regarding a specific resilience mindset are spread through delegation visits, seminars and festivals to promote this view among members. Already, there have been countless academic discussions on the incentives for cities to participate in TMN's, but little to none of these works have centred on the question why certain ideas get implemented or the long-term impact of network participation on cities and local policy-makers.

Interestingly, there have been similar studies conducted in the field of comparative political economy, with a focus on why economic ideas were implemented in certain countries, whereas in other

(comparable) countries similar ideas where rejected (Hall, 1989; Sikkink 1991). The work in this thesis draws inspiration from this field and study why ideas of the 100RC are successfully implemented and how they are perceived by local decision-makers. It is assumed that the reason why cities join a particular network is comparable to adoption of network-promoted policy ideas in a municipality. Hereby, increased participation ensures that promoted network ideas are further implemented. In addition, the focus will be on high-middle income countries, with similar population sizes, which has not been the subject of study earlier.

Research Question

For this reason, the following research question will be addressed through the analysis in this thesis:

What impact does 100RC participation have on urban resilience policies of Singapore and Rotterdam and which theory explains this the best?

Sub questions that need to be addressed are:

What influence does participation have on the exchange of knowledge?

What influence does participation have on the formation of political coalitions?

What influence does participation have on the framing and re-framing strategies of policy-makers?

Thesis Structure

The aim of this thesis is to examine which theory offers the best insight into the impact of 100RC participation on local urban resilience policy planning and the projects of member cities. In order to have a satisfactory analysis, it is necessary to take a holistic approach. The approach divides the thesis into three parts that build on each other. The first part will provide an overview on the written literature, followed by the research design, where the appropriate framework and methodology will be discussed.

The second part of the thesis provides a background chapter summarising key information regarding the network, different cities/municipalities and other relevant components. The impact of the network on cities is then discussed and afterwards analysed with the tools provided in the theoretical framework. Lastly, the findings and understanding gained from the previous chapters/sections are utilised to answer the main research question and to discover which of the theories offers the best insights and how future research can build on the presented findings.

Part 2. Literature Review

Introduction

As mentioned, Transnational Municipal Networks (TMN) play an important role in influencing the policy-making of cities. However, since local policy-making covers a variety of topics, it is necessary to conduct a literature review on important concepts. Therefore, the goal is to provide an overview of existing research and identify gaps in the literature. This is a prerequisite to writing a thesis that adds to the current discussion about the impact of network organisations on local policy projects. No attempt will be made to outline the entire debate, rather the focus will be on key literary works.

This review is divided into five subcategories, in order to have a clear and comprehensible structure for the reader, namely: a) Ideas and their Influence on Policies, b) City Networks and Governance Strategies, c) City Networks and its Impact, d) Cities and Environmental and Resilience Policies, e) The Missing Links in City Networks. Finally, on the basis of the abovementioned findings, a conclusion will be drawn that identifies the existing gaps and in which direction this thesis shall proceed.

Ideas and their Influence on Policies

In early works regarding the role of ideas on the adoption of policy proposals, important questions were related to the debate about ideas versus interests. In this debate, one side questions the nature of ideas and whether they are utilised to justify actions taken for one's own benefit, which is often manifested by a clash of interests being referred to as a clash of principles. An opposing view is that ideas can be considered as autonomous and have an objective impact on political outcomes regardless of underlying intentions (Sikkink, 1991; Schafer 1982; Odell, 1982; Geertz 1964; Goldstein and Keohane, 1993).

A study by Kathryn Sikkink argues that the study of policy-making is overshadowed by alternative approaches that "deemphasize the role of ideas and institutions in the adoption of economic models"(1991, p.6). According to her, ideas can capture a broad segment of the population, yet the degree to which they are approved are dependent on ideological conditions and the institutional support provided. An important actor herein are head policy-makers, who are responsible for responding to international and domestic impulses (Sikkink 1991). This finding is supported by other prominent authors, who consider the connection between ideas and individuals, as a relationship between ideas and political entrepreneurs interested in establishing a political coalition, whereby ideas are crucial in establishing political alliances (Friedberg 1991, Goldstein 1989; Haas 1990). Judith Goldstein, a leading author of this perspective, takes the notion further and argues that ideas only influence policy-making when they are carried by individuals or groups that hold a certain type of power, ranging from political to social/cultural influence (1989).

Yet there are other perspectives on the influence of ideas and factors crucial to the successful adoption of ideas. Friedberg argues that ideas can best be considered as intervening between changes in the

structure of the international system and the actions taken to respond to these changes (1988). Therefore, important consideration should be given to the role of institutions in guiding the adoption of ideas in local policy-making. Peter Hall and Emanuel Adler have underlined the importance of institutions for lending credit to ideas and spreading them among a wider audience (Hall, 1989). Sikkink argues that the degree to which ideas have become embedded in policy-making is dependent on the following factors, namely: 1. the institutional structure that facilitate continued interactions; 2. the congruence between particular institutions and ideas; and 3. the role of institutional leaders that shape discussions and guides policy-makers towards desired outcomes (1991; Hall 1989).

City Networks and Governance Strategies

Institutions can have different shapes and regulations depending on their specific purpose or goals. According to Aggarwal and Dupont, international institutions can be characterised based on their membership, stringency of rules, scope, and the power given to them by participating members (2017; Ravenhill 2017). Similarly, one can also compare these characteristics to workings of international city networks, such as 100RC and the C40 network. A decision has been made to focus on the different ways city networks are governed. There is a consensus among authors that city networks have a considerable impact on the internal workings of municipalities. In many cases, one can identify how participation in a city network has led to significant changes to policy proposals and planning (Kern and Bulkely, 2009; Glaeser, Ponzetto and Zou, 2015; Taylor, Hoyler and Verbuggen 2010).

According to Kern and Bulkely there are three types of internal governing strategies. The first strategy is labelled as information and communication and refers to the facilitation of best practices and the utilisation of technical support and services to members of city networks. They find that knowledge exchange is considered as key motivation for city participation; however, cities do not replicate these best practices, rather they use them as source of inspiration in decision-making and problem-solving (2009). The second strategy is project funding and cooperation. Members join together to gain project funding or utilise network services to jointly bid for certain projects or funds. This type of strategy is mostly reserved for established members of city networks, since it is resource intensive and requires continued effort (Kern & Bulkely, 2009). Lastly, the third strategy has been defined as recognition, benchmarking and certification that acts as a form of peer pressure. In essence, cities gain recognition for their performance and are utilised as examples to follow for other cities. Benchmarking offers cities insights into their own performance in comparison to efforts made by other cities, with the (hidden) intention to inspire cities to outperform other members. City networks only make limited use of this instrument because they lack the authority to force member participation and to impose sanctions if a city does not comply with predetermined objectives (Kern & Bulkely, 2009; Glaeser, Ponzetto and Zou, 2015).

Lee and van de Meene have identified three stages through which network participation has resulted in policy learning: information seeking, adoption and policy change. The first stage of information seeking is visible when policy-makers utilise their network or connections to gain access to information from cities. The second stage results in adoption, whereby ideas that have been learned are implemented and modified to the local context. Lastly, the final stage is related to policy change, whereby local objectives and instruments are adjusted through the information gained from the first learning stage (2012). Learning is strengthened where the following factors are present: comparable language, similar risks and geography and expertise on successful initiatives (Lee and van de Meene, 2012; Schlegel and Agyeman, 2017).

City Networks and its Impact

The previous section focused on the role of ideas in relation to policy-making and the different strategies utilised by networks. Network participation has provided cities the opportunity to make independent decisions and assume more responsibility towards their citizens. This section will continue by examining the impact of city networks on local policy-making. Active participation leads to increased visibility, more informed decision-making, higher economic investments and encouragement for innovative practices (Allemeier, 2018; Derruder, and Parnreiter, 2014; Mahroum et al, 2008; Johnson et al, 2008; Van Hamme et al, 2016). An often-taken approach to studying the impact of city networks is by examining cooperation through the lens of Municipal International Cooperation (MIC). According to the work of Ewijk et al, the past decade can be characterised by a changing role for local governments, who are increasingly tasked with solving complex urban issues, instead of being providers of basic services (2014). MIC builds capacity and develops knowledge about underdeveloped topics, such as resilience and climate change mitigation. They conclude that governance networks strengthen knowledge creation, promote innovation through shared practices and eventually enhance local (administrative) capabilities to deal with the confronted challenges (van Ewijk et al., 2014).

In a similar study, Keiner and Kim find that the differences between networks in terms of size, influence, participation and sponsorships have to be taken into consideration. They argue that municipality and city networks have filled the gap between national governments and international organisations by increasing their own ability and directing resources towards the most promising issues and solutions. (Keiner and Kim, 2007). However, these findings raise important questions about the actual achievements brought about by city-network cooperation. A statistical study by Koski and Lee explores whether or not formal membership in transnational environmental networks contribute to achieving climate-related objectives (2014). Their study examines fifty-seven members of the C40 network and reveals that participating cities are more likely to adhere to the climate change objectives. Most importantly, participation is seen as a critical component motivating policy-making and as an instrument to promote implemented policy actions among fellow members of the network (Koski and Lee, 2014).

City network also impose limitations on members. Participation can result in policy 'lock-ins', where the network through paid partnerships, check-ins and resource allocation have 'forced' the adoption of solutions that promote a certain path (path dependency). This widens the divide between participating cities and those that are not part of the network and therefore do not have access to similar resources (Schlegel and Agyeman, 2017). Additionally, many networks involve private partners as well, which can result in a different type of lock-in where members are obligated to work with particular companies during their participation (Gordon 2013; Schlegel and Agyeman, 2017).

Cities and Environmental & Resilience Policies

The impact of city networks on policy-making can be across a variety of fields, ranging from increased autonomy to improved innovation capabilities. One often studied aspect is its relation to climate-change policies, since cities are considered as the climate leaders of the world and the main actors capable of implementing meaningful change. This is because 75% of the largest cities are near coastal areas, which makes them vulnerable to climate shocks and water-level rising. Cities are also the main consumers of energy resources and seventy percent of all greenhouse emissions are located in urban areas (Acuto, 2016). Additionally, cities have direct control over emissions, land and energy usage and development plans, as compared to national governments, which positions them to more strongly for the implementation of climate policies (Toly 2008).

Porter et al. argues that despite international agreements attracting the most media attention, decision-making should be focused on local policy areas. Decision-making needs to be steered away from national-level to inclusive governance that relies on local actors working together across different levels towards a common goal (2014). This shift from global agreements to local policy-making has been supported by several researchers in the field (Bulkeley 2013; Hamin and Gurran 2009; Fisher 2003). Research on environmental politics has shown that although the extreme challenges that cities face is heavily dependent on geography, local municipalities have increasingly started to build capacity, share knowledge and tackle their challenges together (Bulkeley 2013; Hamin and Gurran 2009; Fisher 2003).

Many cities have indicated that network participation has allowed for more equal horizontal collaboration through inter-city collaboration based on mutual interests (Acuto, 2016, Mejia-Dugand, Kanda and Hjelm, 2016). This finding is supported by the growing consensus among authors regarding the need for a rescaling of environmental politics, whereby horizontal links between municipalities become more important than the 'standard' national processes influencing policy-making regarding climate change (Hakelberg 2013; Argawal & Lemos 2003; Andonova & Mitchell 2010).

The Missing Links in City Networks

Policymakers have focused primarily on climate mitigation, but little research has been conducted on the newer generation of city networks that focus on multiple dimensions of climate policy together, such

as climate adaptation in relation to resilience. This has resulted in a more qualitative approach to the effect of city networks on municipalities. One manner to address this is through the concept of urban resilience, which has become an often-discussed strategy to combat climate-related issues for cities through a multi-sectoral, holistic lens. Leichenko identifies several common linkages regarding urban resilience that warrant further attention. According to his work, there are two main discourses on urban resilience: 1) ecological resilience, which focuses on maintaining key functions, while accepting that it is not always possible to return to previous conditions; and 2) socio-technical engineering resilience, which is about resisting change and returning to a prior state of steadiness following a disturbance (2011).

The discourse on urban resilience highlights the important distinction between shocks and stresses, where shocks are defined as singular, short-term events, such as natural disasters and terrorist attacks. Stresses, on the other hand, refer to chronic problems that become increasingly exacerbated if unattended, which include aging infrastructure, sea-level rise, and economic inequality (Bahadur & Tanner 2014; Tyler & Moench 2012; Meerow et al. 2016). Despite these commonalities, there is no universally accepted definition of urban resilience. In this thesis, I will use the definition provided by 100RC, namely: "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." (2019b).

Conclusion

This literature review has provided a brief overview on what has been written on city networks, their relation to ideas, and the impact of their governance strategies on local climate/resilience policies. The phenomenon was divided into five different subcategories.

First, the role of ideas in relation to policy proposals was discussed, where there is an ongoing debate regarding the nature of ideas and whether or not they carry self-interests or can be considered as autonomous. The degree to which they are accepted is dependent upon the institutional structure and the support/interactions that it offers, the congruence between ideas and national institutions, the role of institutional leaders and their guidance of local policy-makers. Second, the different types of internal governing strategies for city networks also play a significant role on the impact participation has on policy planning. The commonly found strategies range from the facilitation of best practices and technical support, to project funding and 'friendly' benchmarking. Third, by examining the impact on cities, it was discovered that participation increases visibility, results in more informed decision-making, strengthens economic investments and encourages innovative practices. However, participation can result in exclusion or a 'lock-in' effect with regard to solutions implemented and financial resources committed. Fourth, authors have identified the need to rescale environmental politics and decision-making along horizontal lines, which allows cities to share knowledge and tackle challenges together. Finally, the impact of city networks has been analysed mostly from one perceptive, instead of a

combination of multiple dimensions, such as climate adaptation in relation to resilience policies. The method to address this gap is to examine a network that centres around the concept of urban resilience, as is the case in the 100 Resilient Cities network.

Taken together, it is clear there is little discussion about modern city networks, its benefits, influence and the role ideas play among local policy-makers. Thus, future research should fill this gap by providing a qualitative examination of modern networks, in order to write a thesis that adds to the existing literature and understanding through new insights on the abovementioned discussions.

Part 3. Theoretical Framework

Introduction

The previous section highlighted the existing gap on the impact of network participation on policy-making. It is for this reason vital to provide a theoretical framework that makes it possible to address this gap and discuss the influence of city networks. This section will serve as a foundation for analysing and discussing in a comprehensive manner 100RC, the ideas it generates, and other benefits provided to cities.

The impact of city networks and the role that network-generated ideas play can be analysed from the three main theories commonly utilised in the field of comparative public policy: rationalism, the political (pluralist) perspective and constructivism. These theories work in a complementary manner and offer insights into why certain decisions have been made.

Hereby, a conscious decision was made to omit the institutional approach, since it is more centred on the institutional structures and their leverage on policy-making, which for TMN's is less relevant then the above-mentioned theories. In essence, this approach is about the formal and informal rules that affect or guide the behaviours of actors, which is best visible through the concepts of 'path dependency' and 'critical juncture' (Bekkers et al, 2018). These elements will be considered, but due to the word limit, prioritisation was given to having a clearer focus on other more relevant fields. Similarly, special attention also will be paid to the role of ideas and casual mechanisms that may lead to policy diffusion.

Casual Mechanisms for Policy Diffusion

One of the main objectives of a city network is policy diffusion. Obinger et al. have presented four mechanisms that should be taken into consideration when discussing the impact of city networks: learning, emulation (or imitation), competition and coercion (2013). The first mechanism fits the rational perspective, since it works on the assumption that rational policy-makers actively make use of policy learning to improve decision-making. The second mechanism is connected to the constructivist approach, since the manner in which certain concepts are framed guide the choices of cities. The third and fourth mechanisms are related to the political perspective, since they are concerned with the manner in which power is utilised to achieve strategic interests.

Congruent Theories

The selected theories are rationalism, the political perspective and constructivism, which will be elaborated upon below:

Rationalism

In the field of comparative public policy, the rationalist perspective is considered the most classical approach to policy analysis and it considers policy-making an effective means of solving problems faced

by municipalities and nations (Bekkers et al., 2018). The amount of available knowledge is an important factor, since this perspective believes that heightened knowledge will lead to better policies and decision-making. Building on this assumption, rationalist scholars argue that policy problems are measurable and can provide almost perfect solutions in most steps associated with the policy cycle. This is strengthened by the idea of single and double- loop learning - accommodating shifts in policy-making by adjusting goals, objectives and instruments according to the most recent developments (Bekkers, et al., 2018; Howlett, et al., 2009). The quality of decision-making is limited by 'bounded rationality', namely information, time and (administrative) capacity (Simon, 1961).

An important component of the rationalist perspective is the phenomenon of policy transfer. For cities, this aspect is extremely important, since it involves the transfer of knowledge from one city to another in need of such knowledge. In numerous cases, policy transfers are utilised by national/local policy-makers to import new ideas and policies from elsewhere to a different context in the hope that they achieve similar success (Mcann 2011). These 'transferred policies' are adjusted to the local context to account for conflicting requirements and interests, instead of standardised practices being transferred as a whole, without considering the relevant background. (Mcann 2011; van Ewijk et al., 2014).

In addition, the transfer of knowledge is dependent on lessons learned from previous experiences and failures. This is often referred to as policy learning, whereby new information leads to an update on prior beliefs and ideas, with the expectation that implemented ideas are expected to have the highest efficiency (Takao et al., 2014). In relation to city networks, membership should provide cities information about best practices that can be utilised in a local context. This transferred information can result in the implementation of new solutions not considered before and lead to policy change in a municipality (Sabatier 2007).

In short, this perspective is considered as traditional and addresses policy making processes as an effective means of problem solving. The rational human mind utilises cost-benefit analyses to match the policy instruments with the drafted goals. This happens within the limits of knowledge, time and capacity, called 'bounded rationality'. In order to determine whether the rational perspective offers a comprehensive explanation for the complementary congruent analysis, a focus will be on the rational exchange of information and how it can be used to determine when certain network ideas are adopted. Policy learning and knowledge transfer also play an important role, since these are one of the biggest advantages that participation in such a network offers.

Political Perspective

The political approach is grounded in the struggle for power between (interdependent) stakeholders. These stakeholders are often concerned about achieving their own interests, while being dependent on each other, due to the unequal distribution of available resources. To advance these interests,

stakeholders engage with each other in strategic interactions, which take place in different settings, such as policy meetings or brainstorming sessions (Bekkers et al., 2018). A method to analyse a situation is through the Advocacy Coalition Framework, which argues that there are numerous actors across different government levels, who need to work together to implement certain policies (Sabatier, 1998). As a result, a coalition of actors collaborate in order to have power and achieve political stability. Policy change can be slow, since it requires converging interests among diverse coalition partners (Sabatier, 1998).

In addition, city network participation can involve an element of coercion. As mentioned, city networks are not governed by law or legislation, but they can utilise informal coercion to impact policy-making. There are city networks that have strict guidelines for membership, and when cities fail to adhere to them, participation can be suspended or even revoked. Cities can also view network participation as a method to compete with other cities and discover which are doing better. Herein, policy-makers can become more influential and earn prestige through their engagement that in turn is helpful for government officials wanting to leave a mark during their working career. The result can be analysed as a two-level game between the international arena and domestic politics.

In brief, this paper uses the Advocacy Coalition Framework (ACF), which provides insights into the numerous factors across government levels coming together to implement certain policies. The focus is on the coalition of actors that collaborate in order to have a set of policies implemented. In this approach, the role of converging interests plays an important part and the arguments utilised to forge a coalition of willing supporters. Similarly, Robert Putnam's work on the relationship between international diplomacy and domestic policy offers valuable insights from a 'two-level game' perspective. This provides an understanding of how international considerations can be utilised to promote the implementation of certain policies domestically and the role that domestic support plays in the implementation of propagated international ideas, norms and values. Taken together, both theoretical components in a complementary manner assist the research into the impact of city networks and what type of advantages they provide participants.

Constructivism

A different manner by which policy impact can be examined is constructivism. One key assumption is that challenges are socially constructed and influenced by our way of thinking. On the basis of similar reasoning, social constructivists argue that individuals create social realities through their interactions, language usage, symbols and other (verbal and non-verbal) means of communication. Important strategies are the processes of framing and re-framing, which creates shared understandings between individuals that influences one's actions and strengthens the constructed social reality (Bekkers, et al., 2018). In order to analyse the frames provided by networks, this paper will utilize the work of Rein and Schön, which centres on the discourse surrounding policy ideas and the frames utilized by actors to

promote certain dialogues or objectives. According to both authors, the idea of framing refers to a conscious interpretation of reality in order to achieve certain goals (Rein and Schön, 1993).

Framing has a considerable influence on our perception of possible actions to address existing challenges. As such, it can be argued that frames are perspectives from where situations can be analysed and therefore play a vital role in building the complex social reality that policy-makers live in and through which they formulate their decisions. The success of different frames is dependent on several criteria, which ranges from having interesting imagery, dramatization to compelling societal values (Rein and Schön, 1993).

The phenomenon of emulation is closely related to constructivism. According to Obinger et al., emulation is when policy-makers are conforming to international trends or associate themselves with international organisations based on shared norms (2013). Policies are not guided by cost-benefit analyses, but rather by the associated narrative assigned to policy alternatives. Therefore, ideas and policies propagated by the network can be symbolic, since implementation is closely related to the network reputation, promoted ideas and associated frames.

To summarize, a key insight of constructivism is that actors create a social reality through interactions, language usage, symbols and other means of communication. This is strengthened through the process of framing, which creates shared understandings and interpretations influencing one's behaviour and actions. This paper will draw on Rein and Schön's work centring on policy discourse and the utilization of frames to achieve objectives. According to them, a frame is a perspective from where situations can be analysed, which plays an important role in decision-making and has considerable influence on societal perceptions (1993). In relation to city networks, this theory offers valuable insights into when certain ideas are implemented in decision-making processes or official guiding documents. Hereby, it is clear that the diffusion aspects of emulation and imitation play an important part in finding complementary insights into the research question.

Approaches to Ideas and Decision-making

An important part of network influence on municipalities is dependent on the ideas propagated by such a network. To assess its influence, a comprehensive understanding of why certain ideas are implemented, whereas others are discarded is important. The work of Peter Hall is, therefore, crucial for our framework. Similar to the above-described comparative public policies theories, Hall argues that there are three broad approaches to the implementation of ideas, though in order to do a comprehensive analysis, it is necessary to move beyond the described ideal-types.

The economist-centred approach explains the acceptance of Keynesian policies through the strength and influence present among members with an economic background (1984). A second approach is centred on the role of the state and how it influences the degree to which new ideas are successfully implemented. The openness of policy-making institutions affects the speed and effectiveness of implementation. The third and last perspective is focused on the broader political system and the types of coalitions created behind particular ideas.

The work of Robert Putnam on the relationship between diplomacy and domestic politics, which he considered as a 'two-level game', builds upon this. According to Putnam, governments can adopt different policies from those that they would have pursued in the absence of international negotiations. At the same time, a domestic policy may only be accepted because powerful actors within the government favour it, since it is being demanded internationally (1988). International commitments, such as 100 RC membership, can thereby strengthen the hand of domestic actors. International pressure is sometimes necessary to implement a certain policy, but without domestic support that pressure would not be enough for implementation (Putnam, 1988).

These theories and insights provide the basis for a comprehensive analysis of the network's impact on different cities. Before proceeding to the analyses part of this thesis, however, the methodology needs to be specified further and important background information needs to be provided, which follows in the next chapter.

Part. 4 Research Design

The following chapter will explain the selected research design. In order to answer the research question in a meaningful manner, a coherent research design is necessary. This chapter builds on the provided information and will illustrate how the research is going to be conducted. According to Gschwend and Schmmelfennig, a coherent research design ensures the validity of the analysis and assists in outlining the manner in which data is utilised to support the claims made (2007). Consequently, the focus will be on the reliability and validity of data collection and the methodology that explains how these will be combined to answer the main question of the thesis.

Qualitative Research

To explain the impact of city networks and why certain resilience ideas are implemented by participants, whereas other are not, it is most suitable to conduct qualitative research. A quantitative approach would provide more insight into the impact of such networks on CO2 reduction or the total amount of measures implemented. However, a qualitative approach offers the ability to research a subject more extensively, which allows for a more complex and contextual understanding (Bryman, 2016). As became clear in the theoretical framework, the influence of city networks can best be considered through the different mechanisms ranging from policy transfer, competition, and coercion to emulation and imitation, which are difficult to measure quantitatively. For these reasons, qualitative research offers the best insight into the impact on decision-making process, its benefits and why certain ideas are implemented.

Comparative Congruent Case Study

According to Blatter and Haverland, qualitative (explanatory) research can consist of three different case study designs, namely causal-process tracing, congruence analysis and co-variational analysis (2014). Causal-process tracing aims to identify implications of causal mechanisms and the factors that contribute to a certain outcome. This has a more concrete focus and is particularly useful when examining a specific case study and identifying key variables that combine to achieve a certain result. However, conducting a specific case-study on one municipality can be criticised for offering limited insights and generalisability (Bryman, 2016). In order to provide meaningful insights, it is necessary to study multiple municipalities and consider the impact of one network on these cities.

One method to provide such an analysis is through a co-variational analysis of the subject. This approach provides evidence of exiting co-variation between an independent variable, *x*, and dependant variable *y* to infer causality. However, a conscious decision has been made to not opt for this direction, because it requires consistency in the type of control and independent variables presented. As the objective of the thesis is to figure out why certain 100RC ideas become implemented and what impact there is in more general terms, this approach offers limited insights and is not generalisable to 100RC cases with different contextual factors (Blatter and Haverland, 2014).

In my research, it makes most sense to conduct a congruence analysis, which focusses on whether or not there is congruence between theoretical formulated expectations of social reality and empirical observations. Theories are considered to provide insights into our reality, by highlighting certain essential aspects crucial for our understanding. In this case, these theories can best be considered complementary and together provide the best insight into answering the main research question and assist in discussing the sub-questions:

What impact does 100RC participation have on urban resilience policies of Singapore and Rotterdam and which theory explains this the best?

Sub questions that need to be addressed are:

What influence does participation have on the exchange of knowledge?

What influence does participation have on the formation of political coalitions?

What influence does participation have on the framing and re-framing strategies of policy-makers?

Conducting surveys and questionnaires among a larger number of cities in the network can be overwhelming and lack the focus needed to understand the complexity of international networks and its influence on local policy making. As such, qualitative research with a focus on a complementary congruent analysis offers the best toolset to examine the topic further and reveal new insights. My research will consist of a comparative study of two prominent 100RC members, Singapore and Rotterdam. This enables a comparison between two cities that have similar government structures, population sizes and development levels, so that the results provide an meaningful answer to my research question.

To elaborate, a congruent approach is a small-N research design, in which the researcher uses case studies to provide evidence of relevance or strength for one or multiple theoretical approaches. Herein, observable implications are deduced from abstract theories and compared with broad empirical observations. A high degree of congruence between implications deduced from one or multiple theories and the observed evidence within the case, in comparison to the congruence levels of other theories is utilised to argue in favour for the explanatory power of one or multiple theories (Blatter and Haverland, 2014).

The case study selection should be selected with reference to the chosen theories and not according to (dis-)similarities or variances in the independent variable. According to Harry Eckstein, for an meaningful congruent analysis, it is necessary to consider ‘most-likely’ cases that go beyond different variables and considers more then only the relationship between theories and selected cases. In many cases, these ‘most-likely’ cases are selected because they are likely to respect dominant theories and offers new insights to the existing discussion (1975; Blatter and Haverland, 2014). This is why the

selection of the similar case-studies is relevant, since Singapore and Rotterdam are examples of leading cities in the network from where the most-likely impact can best be analysed through multiple theoretical approaches.

In addition, the congruent approach is further strengthened through a complementary approach, whereby theories are utilised to add dimensions to the main findings. Blatter and Haverland argue that the complementary approach aims to provide theoretical innovation and not theoretical dominance to a subject matter (2014). In essence, they complement the findings of each theory and the final judgement for whether or not case-studies are essential, is left for the scholarly community that can discard the innovative insights or adopt them (Blatter and Haverland, 2014).

Operationalisation

In order to utilise the concepts presented in the theoretical framework, they need to be operationalised in a practical manner. The document and interview analysis will be based on the operationalisation of the earlier described concepts. As mentioned, the rationalist theory can best be considered through examining the cost-benefit analysis build on rational information exchange and the assumption that more knowledge leads to better policies. In order to test this approach, the following concrete indicators have been developed, namely the amount of knowledge intensifying activities, the measurability of the policy problem and the amount and type of indictors developed.

Alternatively, the political (pluralist) perspective can best be viewed through the advocacy coalition framework and Putnam's description of two-level games, whereby policy tools and knowledge are considered as sources of power that justify certain decisions and identify shared interests. In order to have an assessment of this approach, the following indicators were developed: the amount of (resilience) initiatives available, the amount of wicked problems mentioned, the different coalitions supporting resilience policies, the interest shown in coalition groups, the perceptions regarding a 'lock-in' effect and the types of justification utilised to forward a certain resilience agenda.

Lastly, the constructivist perspective can best be viewed through theoretical components that incorporates aspects related to shared values and believes, such as framing and symbolisms. This approach is built on the assumption that specific narratives and lexicon are utilised to achieve desired goals and initiatives. On the basis of this assumption, the following indicators were developed: the amount of key words (from 100RC) utilised and the framing utilised in describing policy instruments. The following table will summarise the information on how each concept will be applied and what indicators will be utilised for its examination in a not too overt manner.

Table: Operationalisation of the Comparative Public Policy Theories

Theory	Practical Components & Concepts	Policy instruments	Assumptions	Indicators	Diffusion Aspects
Rationalism	Cost Benefit Analysis	Rational information exchange, programming and planning	More knowledge leads to better policies	The amount of knowledge intensifying activities Measurability of the policy problem The objectives and indicators developed The impact on policy alternatives, strategy and specificity	Policy transfer Policy learning
Political Perspective	Advocacy Coalition Framework Putnam's two-level game	Policy tools as sources of power	Knowledge and information are sources of power, justify political decisions and identify shared interests	The amount of initiatives available The often mentioned (wicked) problems The coalition formed to support policy initiatives or	Competition Coercion

				network participation Interests of coalition groups Lock-in effect Justification for pursuing certain policies	
Constructivism	Framing and re-framing Symbolisms Shared values and beliefs	Persuasive rhetorical and visual strategies in order to create appealing frames	Utilization of a specific narrative to achieve certain goals	The amount of key/hype words utilised The framing utilised in describing a policy issue/instrument	Emulation and Imitation

The above-mentioned table adds important indicators to the overview provided in the theoretical framework. This paper has chosen to add indicators to the main theories in order to test which of those are present in each case-study. In the last column, the earlier described policy diffusion aspects are linked to each theoretical approach. Building on this, the individual concepts of diffusion are further defined. Policy learning/transfer is linked to the rationalist approach and is specified as learning from the network or from the interconnected cities. This concept can best be measured through the indicators: usage of tools, training facilities and standardised formats, the implementation of network ideas, participation in network events, contact with other cities and the amount of documents shared.

The second concept, policy emulation/imitation is linked to the constructivist perspective and can be defined as using other cities as reference points or having the desire to achieve similar results, which fosters a push for reliance policies. This concept can best be measured through the following indicators: the referencing of membership, referencing other cities undertaking similar initiatives, the necessity to establish once importance within the network, increased visibility within the network, high performance review scores and the reference to an established reputation.

Finally, the last concepts, policy competition and coercion, are linked to the political perspective and can best be explained as competition to be the best in a certain field or the experience of pressure to follow certain procedures or regulations. These concepts can best be measured through the following indicators: how often a price or award is referenced, the described ambition in official documents, frequent comparisons with other cities, the mentioning of membership rules and regulations and the potential threat of punishment by the network if uncooperative. The next table provides a summarised overview of these aspects and adds needed indicators.

Table: Overview on operationalisation of the Policy Diffusion construct

Construct	Concept	Specification	Indicators
Policy Diffusion	Policy Learning/ Policy Transfer	Learning from the network	Usage of tools, services, training facilities and standardised formats for reporting to the network; Implementing network advise and strategic documents
		Learning from cities connected through the network	Participating in network events/conferences/lectures; Examples of contact with other cities and the amount of documents shared
	Emulation and Imitation	Using other cities as reference point	Referencing membership of other cities; Referring to other cities undertaking similar initiatives; Establishing importance within the network
		Achieving similar status to other cities	The increase of visibility of the city within and outside the network; scoring high on performance reviews; the mentioning of a certain reputation; Awareness about the responsibility of a particular city in addressing the issue.
	Competition	Competing to be the best in a certain field	Referencing ranking within the network and amount of awards won; The ambition of the municipality mentioned in official documents;

		Considering participation as competition between fellow members	Frequent comparison on different indicators between different cities Benchmarks, prestige and awards received
	Coercion	Forced to follow certain procedures or regulations (monitoring, reporting or implantation of policies)	The mentioning of membership rules and regulations; Potential threat of punishment by the network if uncooperative

As a result of this chapter, the various concepts and theories have been made operational and can now be applied to the three selected municipalities. However, before the thesis proceeds in this direction, contextual information needs to be provided in order to fully understand the policy and interview analysis. The next chapter is such a background chapter, which will pave the way for the actual analysis.

Hypotheses

On the basis of the above-described theories, several theoretical expectations can be formulated. The work conducted in this research project will analyses whether or not the hypotheses are correct and which option offers the best answer to the formulated research question.

- H1: *The main impact from network participation is improved cost-benefit analysis, which is achieved through policy transfer and exchange that improve knowledge, measurability and funding opportunities.*

  The network advantages can best be considered through the diffusion aspects of policy learning and transfer.

- H2: *The main impact from network participation is the formation of stronger and inspired political coalitions with an associated agenda, which is achieved through policy coercion and competition that improve knowledge, power and support.*

  The benefit from participating in an international network can best be considered from the diffusion aspect of coercion and competition that the network encourages

- H3: *The main impact from network participation is mainly the framing and re-framing possibilities provided by network participation, which is achieved through policy emulation and imitation that can foster symbolisms, new frames and appealing narratives.*

The advantages of participating in the network can best be viewed from the emulation and imitation aspects of policy diffusion.

The following table provides an overview of the above-described expectations.

Table: Overview on Main Theories and their Theoretical Expectations

Theory	Rationalism	Political Perspective	Constructivism
Hypotheses	Network participation mainly improves cost-benefit analysis through policy transfer and exchange	Network participation mainly strengthens the formation of coalitions with a related agenda through policy coercion and competition	Network participation mainly improves framing and re-framing possibilities through policy emulation and imitation

Area of Focus

In order to do a comprehensive analysis of city network influence, it is useful to demarcate logical boundaries to the subject matter. My thesis will centre on the well-known 100 Resilient Cities (100RC) network that connects cities on the basis of strengths and weaknesses. This network has been selected due to its scope, member cities and clear focus areas. One of its core assumptions is that international cooperation is essential for enhancing resilience capacity and opportunities. Resilience is conceptualised as a manner of thinking to assist cities in dealing with the shocks (short-term) and stresses (long-term) of the modern world (100 Resilient Cities, 2018).

One of the core ideas of the 100RC network is the exchange of best practices and key issues among flagship member cities, such as Rotterdam and Singapore. Solutions and problems will be mainstreamed and become accessible to policy-makers. Similarly, the idea of Transnational Municipal Networks (TMNs) is mostly concerned with the interactions between public and private actors on an international level. As a result of the shared knowledge, more efficient and appropriate policies can be introduced, yet although cities share similarities in both opportunities and challenges, their policy options and capacities differ enormously.

In this regard, the 100RC network has fulfilled a unique role as a global city network in comparison to similar networks. The program assists cities worldwide to prepare for climate change and its associated impact. Under the guidance of the network, more than eighty cities have hired Chief Resilience Officers (CRO's) and most have established clear resilience strategies for the coming years. In total, more than 2.600 projects have been initiated and over three billion dollars have been utilised to implement these projects. It is considered one of the biggest climate adaptation initiatives and its scope and influence are expected to grow, due to the constant influx of new member cities and increasingly more coverage through various media channels (Rappaport, 2019).

Case Selection

The qualitative research design through a complementary congruent analysis is the most suitable for my research and skillset. In order to gain the most insights into the influence of city-networks, it is better to make a smaller selection of cities and examine the varying degrees of influences on these cases and the manner in which the municipalities benefitted. The different theories from the comparative public policy perspective, namely, rationalism, constructivism and the political perspective, should offer complementary insights into the subject manner and together assist in creating a better image of network participation and the influence of propagated ideas on policy-makers.

As mentioned, my research will centre on comparing cities involved in the network to varying degrees and with different levels of success. According to 100RC, participation in the network follows a three-part life-cycle structure. In the first stage, the city is assisted with orientation and hires an CRO officer, which continues into phase 2 whereby the resilience strategy is produced and published. In the third and final stage this plan is implemented and supported by strategic initiatives. In the life-cycle document distinctions between countries are made on the bases of life-cycle phase national development level (from low to high) and population size (from small to large) (Martin and McTarnaghan, 2018).

For my analysis, I have selected two municipalities that have a similar income level, population size and are in similar stages of their 100RC life cycle. The cities that I have selected are Rotterdam and Singapore. These cities are classified in the same category by 100RC, since they have similar national development levels (high), population size (medium) and are in the final stage of implementation (third phase). In addition, they are in constant interaction through the activities of the regional hub in Singapore, which ensures continued dialogue between the policy-makers on a monthly basis (Martin and McTarnaghan, 2018).

Table: **Overview on cases and comparable variables of cities (**Martin and McTarnaghan, 2018)

City	**Region**	**100RC cohort**	**Years of participation**	**Population size**	**Development level**	**100 RC life-cycle**	**Resilience Ranking**

Rotterdam	Europe	1	5 years (2019)	Medium	High income country	Phase 3	13th place
Singapore	Southeast Asia	1	5 years (2019)	Medium	High income country	Phase 3	30th place

As becomes clear from the table, the cities are selected on the basis of comparable variables and will therefore be the perfect case study to analyse when certain propagated ideas are implemented and which of the pathways is the most important in explaining the impact. In addition, the last column indicates the ranking calculated by Grosvenor, a leading organisation in the field of resilience, which independently of 100RC, has evaluated cities and compared their resilience-related policies with each other (Barkham, et al., 2016). This supports the selected cases and makes it interesting to discover why the rankings differ and if one of the selected theories can explain the phenomenon.

Aims and Relevance

The goal of a research project and its demarcated research question is to address a phenomenon not only relevant scientifically, but also from a societal perspective. In terms of scientific relevance, this thesis contributes by providing a novel analysis of 100RC members. As mentioned, the current debate on the impact, usefulness and benefits of city-networks on policy-making has centred on quantitative analyses. Most of the attention has focused on comparisons between multiple international networks, such as C40 cities, ICLEI and Eurostar network. In order to have a meaningful contribution, clear boundaries have been defined and cities not studied before have been selected. The case study will provide new data and present original findings and thus contribute to the ongoing academic discussion in a unique manner. The findings can be utilised as the basis for future research into 100RC or other comparable networks in order to discover how academic research can approach the impact of global knowledge networks and provide qualitative insights into the field. Similarly, an analysis of TMN's offers a better understanding of the international influence on local policies, how policies are formulated and what mechanisms are the most influential in policy or project planning. Through a closer examination of 100RC's impact on the policies of Rotterdam and Singapore, it becomes clear through which avenues TMN's influence local-decision makers and where there is room for improvement.

In addition, the research is considered socially relevant, as it addresses social problems and helps understand a certain societal issue better. A different method of assessing the social relevance of a research topic is to consider its impact on people and societal behaviours. It is exactly for this reason that the thesis produced by my research is highly relevant, since more than half of the world's population resides in cities and a more globalized response is needed that makes use of existent transnational networks to unite global disparate actors in order to combat both short- and long-term challenges (Lee and Koski, 2014).

City networks have the ability to influence the behaviours of policy-makers on local levels. As a result of knowledge exchange, practitioners gain the ability to implement policies not taken under consideration before. By examining what the influence is on local policies, policy-makers can more clearly coordinate their projects, improve efficiency, utilise existing opportunities and learn when it should be considered as an additional supplement to existing methods. Moreover, participation in a city network does not come without costs, which can range from financial contribution or being locked-in to certain network associated organisations and decision-maker patterns. This underlines its societal importance, since the work of municipalities are affected, which in turn is built on the votes and funding of citizens.

Reliability

An important component of the research is ensuring the reliability of the analysis. The findings are considered reliable when the results are repeatable and the measurements are internally consistent (Bryman, 2012). In this instance, the difficulty is to guarantee that similar research into the subject would result in comparable results. This can be problematic since the findings of this study are related to implemented policies, the thinking of local policy-makers, and the importance of local contextual factors, all of which can change over time. In order to address this potential problem, a conscious decision is made to utilise interviews with policy-makers and supplement them with long-term strategic documents that increase the reliability and endeavour to provide a foundation for further research in the field.

Validity

A different but equally important component of the thesis is related to the validity of the committed research, which ranges from its measurement to its internal and external validity. Measurement validity is achieved if the concept measured is actually reflected in the variable or criteria selected. This is especially important in the case of qualitative research, where it is necessary to explain why certain concepts are utilised and how the findings relate to the concepts mentioned earlier (Bryman, 2012).

Internal validity is related more to the causality of the research, which entails answering the question if X happens does Y always occur or are there alternate explanations available (Bryman, 2012). In this thesis, it is important to ensure that other alternative explanations are not possible. For this reason, the literature review and theoretical framework have discussed other possible influences and questions regarding alternative explanations are incorporated in the interviews.

Lastly, there is an external dimension of validity, which is concerned with whether or not results are generalisable or only applicable to a specific context (Bryman, 2012). As mentioned before, a research project built on case studies can be problematic, due to the relative low N numbers that make it difficult to generalise the findings. The results of this study provide a contextual analysis of the networks

influence on two selected municipalities. The findings could be applied to other cities or similar networks, but would still need to be empirically tested in future research.

Data Collection

In order to present insightful findings, it is necessary to utilise data from a variety of sources and levels within the organisation. An additional requirement is the necessity to have primary sources of data, as essential components of the analysis. For these reasons, membership documents, strategic plans for the network and resilience strategies of selected cities will be utilised to provide an in-depth analysis. Building on the document analysis and semi-structured interviews with key policy officers will provide an additional dimension to the data and findings. These interviews should provide reliable insights into the workings of city-networks on local-level policies.

Since the cities are different in their implementation phases, the data will range from 2013 until the most recent available publication. In the literature, such an approach is often referred to as triangulation, whereby more than one method or source of data is utilised to study a phenomenon in a more credible and comprehensive manner (Bryman, 2012). As a result, collecting data from both document and interview analysis will increase the reliability and validity of the findings and data utilised.

Table: Overview of policy-makers interviewed

City	Interviewee	Official Designation
Rotterdam	Corjan Gebraad	Senior Sustainability Advisor
	Arnoud Molenaar	Chief Resilience Officer
	Naomi Zonneveld	Rotterdam Contact Officer
Singapore	Saurabh Gaidhani	Associate Director 100RC Singapore

Data Analysis

The focus of this study is on the local resilience policies of municipalities and how these are influenced by participation in the 100RC network. As mentioned above, policy and strategic documents will be utilised for the analysis, since these documents provide insights into what municipalities are planning in the field of resilience and how the network might have played a role in the planning and implementation phases. For each city, several key documents were selected, namely resilience strategies, reporting documents, policy-maker proposals and policy documents on the international strategy of the city.

However, these documents should not be taken as a direct representation of the organisational reality. The published documents are written with a specific objective and therefore alter reality in such a manner to achieve this objective (Bryman 2012). It cannot be concluded that participation resulted in an

actual exchange between cities, since the document validates the city's participation in the network. To understand why certain ideas become implemented and what the benefits are, documents need to be critically examined and complemented by interviews.

The second half of the analysed data consists of interviews with local policy-makers. This provides the opportunity to go beyond official documents on city network participation and shed light on the actual decision-making process regarding membership, adoption of network ideas and concrete examples of implemented projects/ideas. A semi-structured interviews allows participants to answer the questions, explain their perspectives and transfer knowledge about the subject, according to their own wishes (Bryman, 2012). In this case, there will be a specific set of topics that need to be covered, but there will also be flexibility for personal reflection. This ensures that similar topics will be covered, but also allows for an emphasis on different aspects of the phenomenon, so as to understand the contextual differences, while simultaneously allowing for gathering varied perspectives on the network's impact.

Part. 5 Background Chapter

Introduction

The purpose of this chapter is to provide a short overview of the essential background information regarding the 100RC network and the selected municipalities in terms of government structure and main resilience challenges. The chapter will proceed as follows: First, the working of 100RC will be examined and attention will be paid to network-wide policy documents. Then, a closer look will be taken at the different municipalities, their network affiliation and main challenges in the field of resilience. Finally, this chapter will discuss important components of the cases and what points attention should be given towards.

100RC Strategic Initiatives

The 100 Resilient Cities program was initiated with a group of thirty-two initial member cities in December 2013. Within the network, there is strong focus on fostering urban resilience. The organisation hopes to "*catalyse an urban resilience movement",* among cities all over the world (100 Resilient Cities, 2018a, p.79). In order to apply, each city first has to present their biggest challenges, how they are planning to decrease these vulnerabilities and what type of partnership they expect with 100RC. Afterwards, a group of judges examines the candidates and decides based on the city's innovative initiatives, catalysts for change or the ability to work with varied stakeholders (100 Resilient Cities, 2018a).

Upon acceptance, members gain access to four strategic resources that can be utilised according to their discretion. The first is a two-year grant to cover the finances related to appointing a Chief Resilience Officer, who on a senior policy level works closely with the Mayor's office and is able to influence the implementation of policies. The CRO oversees the resilience initiatives of the municipality, which means working across different departments and improving internal coordination regarding resilience processes and the wider network. The CRO is a pivotal actor in connecting the network with local policy-makers. Its appointment is decided by the local municipality, in order to ensure that the right person, with the appropriate level of support, is selected (Spaans and Waterhout, 2017; 100 Resilient Cities, 2018a).

The second resource relates to the methodology that 100RC provides to its member cities. Its City Resilience framework provides an important instrument for the development of resilience strategies and is often referenced in local resilience-related policy documents and strategic outlines (Spaans and Waterhout, 2017; 100 Resilient Cities, 2018a). The third resource is the platform partners program, which provides member-states preferential treatment when contacting a selected group of non-governmental and private organisations. In the first four years of the network's existence, more than $230 million dollar in pro-bono services were given to member cities and members have indicated that

network partners provide essential tools and services related to the development and implementation of resilience strategies (Spaans and Waterhout, 2017; 100 Resilient Cities, 2017). Cities have the ability to learn from each other, but "resilient cities can only be built with collaboration from the private sector" (100 Resilient Cities, 2017). Platform partners play an important role, since they offer the opportunity to develop innovative solutions and tools at little to no cost.

The final resource provided by the network are knowledge exchange platforms and peer learning opportunities, which aim to actively connect members through festivals, delegation visits and one-on-one sessions (Spaans and Waterhout, 2017).

Overview: The four strategic resources and achieved goals (Friedman et al., 2017)

As becomes clear from the overview, the network has established thirty resilience strategies and selected over eighty chief resilience officers. In total, $535 million dollars have been secured from public and private actors. In addition, there are more than 138 collaborative initiatives and over 13.000 members working on the challenge of developing urban resilience (Friedman et al., 2017). Yet, this raises questions regarding what has been done and how the network influenced decision-making. The following sections will address the questions and provide more context on the network's operation.

City Discussions

Rotterdam

Historically, Rotterdam has perceived water as both a major climate vulnerability and as an indispensable resource, since the city is built upon reclaimed polders and is one of the world's busiest commercial ports. The city is located in a major delta area downstream of the Rhine river basins and

near the North Sea coastline, which increases its exposure to potential sea-level rise. Earlier research established that climate change will intensify the city's vulnerabilities to high water levels, heavy downpours and long periods of drought. In addition, the international advisory board of the city in October 2017 advised that a leading water expertise centre should be established in the field of climate adaptation, (Spaans and Waterhout, 2017). For this reason, the municipality has devoted signicant attention to ensuring adequate water management capacities and emphasised a holistic multisectoral policy approach regarding the issue.

Table: Overview on general facts about Rotterdam (Arcadis, 2018)

General Facts	Social	Economic	Environmental
Land Area: 206.44 sq. km. **Population:** 644.527 **Ethnicity:** 48.5% Dutch 8.2% Surinamese; Turkish 7.4% and other 36.9 % **Population Density:** 2920 per sq. km **Life Expectancy:** 79.5 years	**Literacy rate:** 99% **Home ownership rate:** 90.7% **Volunteerism:** 30% **Crimes per 10.000 population:** 116	**Unemployment rate**: 11.3% **Tourists**: 1,3 mil **Year on year growth:** 1.4% S$79.697	**Green electricity as percentage of total energy consumption:** 5.6% **Green space as percentage:** 6% **Access to clean water**: 100% **Investment into sustainability program:** 25.5 million euros

In 2013, the Rotterdam Adaptation Strategy was published. It emphasised improved decision-making regarding climate vulnerabilities and greater attention to climate adaptation, such as green roofs, urban water plaza and community involvement. It also ensured that topics related to 'futureproofing' Rotterdam would be discussed in the earliest phase of each development project (Spaans and Waterhout, 2017). This enhanced Rotterdam's stature and resulted in the city being invited to be a founding member of the newly initiated 100RC network. As mentioned above, a CRO was appointed, whose first task was establishing a steering committee that brings together different government departments, influential

organisations and locals into one decision-making body that governs resilience-related issues and opportunities.

Afterwards, under the guidance of 100RC, the city started work on a resilience strategy, which was influenced by peer exchanges, network workshops and knowledge events. In the strategy, there are numerous co-beneficial programs tackling multiple issues simultaneously and addressing the concerns of relevant stakeholders. The co-beneficial programs refer to the policy programs that are advantageous for multiple stakeholders by targeting multiple policy areas at once. Hereby, the city made significant progress in establishing a clear cyber-resilience strategy that included collaborations with private organisations and the definition of clear milestones for achieving stronger cyber-defence systems (Spaans and Waterhout, 2017).

In comparison to other networks, participation within the 100RC resulted in policy learning from other cities about resilience and the creation of innovative frameworks. This is in stark contrast to other networks, whereby Rotterdam could only be considered as a knowledge distributers and does not gain much for themselves. Networks such as C40 and ICLEI have provided Rotterdam the opportunity to share their knowledge with other cities through seminars and exchange programs. Yet, 100RC membership resulted in a better understanding of urban challenges, such as cyber-resilience and new areas needing more attention. The following table will provide an overview on the main resilience challenges faced by Rotterdam

Table Overview on resilience related issues before and after 100RC participation (Spaans and Waterhout, 2017).

Before 100RC resilience planning	Main Urban Challenge	After 100RC participation
	Social resilience and education	Inclusion of socially weak groups Raising awareness about resilience initiatives and projects Encouragement of individual actions and involvement with local projects

Focus on water management and flooding prevention	Climate change resilience	A wider focus on water safety (flooding) Ensuring the availability of clean air and ecological qualities The installation of green roofs and urban water plazas to deal with natural disasters
	Critical infrastructure	Monitoring the robustness of critical infrastructure (highways, metro lines etc.)
	Cyber resilience	Ensuring cyber security and robustness
Collaboration with private sector on joint initiatives related to flooding and safety	Change governance	Resilience as integrative challenge CRO as connection between different departments and public-private organisations
	Energy and harbour resilience	Safeguarding access to energy

Singapore

In 1947, the British Housing Committee claimed that the world's worst slums were located in Singapore and that it was a disgrace for the 'civilised world'. At the time, the country was still a British colony with a population of less than one million people mostly living in the poorest slums. There were significant urban challenges and the country lacked basic infrastructure, which meant poor drainage and sanitation, polluted rivers and no access to clean water (Resilient Singapore, 2018; Islam and Ri An, 2014). Seventy years later, the country has addressed these issues and transformed completely. Nowadays, the country is ranked 25th in the Mercer Liveability Index, has the third highest GDP per capita and one of the lowest unemployment rates in the world (Resilient Singapore, 2018).

Table: Overview of general facts about Singapore (Resilient Singapore, 2018)

General Facts	Social	Economic	Environmental
Land Area: 719.9 sq. km. **Population:** 5.612.300 **Ethnicity:** 74.3% Chinese; Malay 13.4% and other 12.3% **Population Density:** 7796 per sq. km **Life Expectancy:** 83.1 years	**Literacy rate:** 97% **Home ownership rate:** 90.7% **Volunteerism:** 35% **Crimes per 10.000 population:** 584 **Doctors per 10.000 population:** 24	**Unemployment rate**: 2.1% **Tourists**: 17.4 mil **External debts**: $0 **GDP per capita:** S$79.697	**Flood prone area:** 30.5ha **Fuel mix**: 95.2% natural gas **Access to clean water**: 100% **Area of greenery**: 100ha **Days with good air quality:** 99%

Singapore was one of the first cities to be selected for the 100RC program and also assigned the special role as regional coordinator. Its geographical location and economic importance established it, as the hub from where 100RC coordinates their activities in the South and Southeast Asia region. After joining the network in 2014, most resources were spent on improving cross-department coordination. Close cooperation was sought with local organisations, such as the Centre for Liveable Cities, in order to identify the most pressing issues and areas of improvement (Resilient Singapore, 2018). Similar to Rotterdam, there needed to be improved collaboration between departments and various societal groups ranging from citizens to private organisations. Yet, it has to be noted that Singapore is not a democracy, but instead is governed by a powerful political party that has dominated since its independence. This has implications for the necessity to form political-coalitions to gather support for the achievement of policy objectives, such as greater resilience in the country. In essence, if the ruling party approves a certain policy agenda and direction, then it becomes easier to gain approval, funding and implement corresponding measures.

As a result, in 2016, the city's CRO organised an agenda-setting workshop to build long-lasting collaboration between people from different levels of society and government departments. Later that same year, the network's instruments, such as the City Resilience Framework, were utilised to diagnose existing gaps and opportunities in order to make the city more resilient (Resilient Singapore, 2018). Similar to the process in Rotterdam, the next phase consisted of establishing a committee that encourages

stakeholder engagement, interviews and discussions regarding actions that should be taken to address the gaps. In the most recent phase, the government of Singapore published documents regarding the most pressing resilience challenges and opportunities up until that point. (Resilient Singapore, 2018).

In the policy paper, *Resilient Singapore,* the municipality identifies two key challenges in the field of resilience. The first and foremost challenge comes from the impact of climate change, whereas the second is centred on the changing demographics of the nation (Resilient Singapore, 2018; Islam and Ri An, 2014). As a consequence of its geographic location, Singapore has avoided the direct impact of natural disasters, but remains vulnerable to climate change-related issues. The rising sea level, if left unaddressed, could result in severe flooding and the permanent submerging of lesser developed areas. Similarly, the rise in temperature can bring the return of disease, crop failures and massive fish-kills, all of which have plagued the nation and caused massive disturbances (Resilient Singapore, 2018; Islam and Ri An, 2014).

The second challenge relates to the changing demographics of the nation. After racial riots in 1964, the necessity of building a socially cohesive society became clear. Over the years, a constant influx of migrant workers from all parts of the world has arrived. The working-age population has also aged rapidly. The expectation is that before 2040, there will be 900.000 citizens above sixty-five years of age and this will significantly impact the economy and societal structures (Resilient Singapore, 2018; Islam and Ri An, 2014).

Table Overview on resilience-related issues before and after 100RC participation (Resilient Singapore, 2018).

Before 100RC resilience planning	**Main Urban Challenge**	**After 100RC participation**
Creating solutions for the changing demographics (e.g. organisation of social festivals and extra funds for elderly)	Social resilience	Construction of spaces and platforms to foster social cohesion and community interactions Raise awareness about the importance of social resilience Provide opportunities for lifelong learning and the creation of community-

		based support system for seniors.
Government's responsibility to deal with climate-change related issues	Climate change resilience	Establish water safety (flooding) Ensure the availability of clean air and ecological qualities Raise awareness about individual actions that can be taken against climate change
	Critical infrastructure	Monitor the robustness of critical infrastructure (e.g. water supply and flood control) Establish flexible and inclusive infrastructure systems

In short, this chapter has outlined important information regarding the 100 Resilient Cities network and the municipalities featured in the case studies. A focus was on the workings of the network, how the relationship between 100RC and these cities developed, and what the remaining challenges for each cities are. The next chapter builds on this foundation and applies the tools from the theoretical framework for a concrete analysis.

Part 6. Findings Chapter

This chapter presents the review of policy documents and interview findings for each case study. To ensure a structured presentation of the empirical data, the information will be organised in a clear and logical manner. The findings on Rotterdam will be presented first, followed by those on Singapore.

When discussing the cities, the following factors will be described: (1) Why did the city decide to join the 100RC network? (2) What is the impact of participation in the network? and (3) What is the perception on 100RC and how could it be improved? These follow the format of the interview guide (Appendix 1), which contains questions that address the main research question in a holistic manner.

The subsections are based on the sub-questions introduced in earlier chapters and allows for a more organised overview of the findings. My interviews for the Rotterdam case study were with the Chief Resilience Officer, Arnoud Molenaar, the city sustainability guidance counsellor, Corjan Gebraad, and Naomi Sonneveld who plays an important role in the cities involvement with 100 Resilient Cities. For the Singapore Case study, Saurabh Gaidhani, the 100RC regional head of South and Southeast Asia has done multiple interviews and a colleague that does not want to be mentioned by name has provided more information on the integration of 100RC among Singaporean government officials.

Rotterdam

As mentioned in the background chapter, the municipality climate strategy started in 2007, with the Rotterdam Climate Initiative. Its objective was to promote knowledge exchange through international city networks and collaborate on the organisation of seminars (Investing in Sustainable Growth, 2010). Since identifying the importance of participation in international networks, the following networks have been joined or initiated:

- Connecting Delta Cities: Collaboration between cities on topics surrounding climate change
- ICLEI, C40, Eurocities, the Covenant of Mayors and 100 Resilient Cities (Investing in Sustainable Growth, 2010).
- The UN funded Global Centre on Adaptation to spread adaptation practices and harvest innovative practices (Global Centre on Adaptation, 2019).

<u>Joining the 100 RC Network</u>

One of the first and most crucial steps for joining the 100 Resilient Cities is the development of an extensive resilience strategy that outlines the main objectives, challenges and opportunities for policymaking. In the background chapter, the development from Rotterdam's climate strategy into the wider resilience strategy was briefly summarised. One of the first phases herein was the selection of a CRO and the development of a wider resilience strategy that incorporated the already ongoing initiatives according to relevant resilience themes.

After the CRO (Arnoud Molenaar) was selected, collaboration with the regional organisations was sought and a focus was placed on developing a strategy that connects different departments and strengthens the ties between the governments and local-level organisations. Molenaar underlines that the resilience strategy builds relationships with regional companies and spread the idea of resilience throughout the city. To achieve this objective, resilience is not described as an issue for the municipality, but also as something that impacts every stakeholder in the city, even if they have different economic and political interests. However, in my interviews, the CRO (Arnoud Molenaar) and city sustainability guidance counsellor (Corjan Gebraad) state that they had difficulties with the concept of resilience, as the city's initial definition was too narrow and did not consider other relevant aspects.

Understanding of Resilience

In the process of joining, their understanding of resilience and its implications began to broaden, which is best exemplified by the inclusion of cyber resilience, as a concrete goal that the city has to work towards. The network provided the 'resilience scan', which is an instrument that assists in identifying risks and vulnerabilities in a region. This scan underlined the long-term challenge of flooding, as a result of expected sea-level rises and the electronic vulnerability of flood defence systems. The city's flood management controls were dependent on vulnerable internet-based software, making it relatively easy for hackers to gain access to anti-flood systems. As a result, both interviewees acknowledge that Rotterdam had a lot to learn and (cyber) resilience programs would need to be improved.

After asking more information about resilience and how its interpretation differed from the 100RC network, both policy-makers stated that the definition of resilience was narrow and unclear, because it is not a natural Dutch word that builds on one's own language. Through the development of the strategy, the city did not only learn about resilience, but also shared the definition throughout the municipality and with the other regional actors involved. The CRO, Arnoud Molenaar, indicates that at first almost no one could explain what resilience meant. In the years since joining the organisation, it is used everywhere and considered a topic that can be integrated anywhere, regardless of specific work area. One possible explanation for its successful integration that Molenaar and Gebraad provide is that joining 100RC allowed the policy-makers to develop a wider narrative that links Rotterdam's historical development from the WWII bombing into the network's resilience story. This natural integration is considered as one of the main reasons why 100RC's idea of resilience is strongly present among local actors.

Participation in the Network

As mentioned earlier, Rotterdam is internationally renowned for its innovative climate initiatives and its assistance to other cities with their climate-related related challenges. Important questions about

participation were asked to discover what the concrete impact of 100 RC participation has been on the city.

In Rotterdam's official program on sustainability for the period 2015-2018, attention is paid to network participation facilitated between Rotterdam and other internationally oriented cities. To have sustainability and resilience values embedded in municipal thinking and actions, it states, the city's participation in national and international collaboration programs are essential since this creates the opportunity for mutual learning and the export of Dutch expertise and Rotterdam-based companies to participating cities (Programma Duurzaamheid, 2015). The importance of 100RC toward achieving a stronger reputation is specifically discussed, which is beneficial for organisations having their headquarters in Rotterdam. Molenaar and Gebraad elaborate that network participation allows Rotterdam to promote itself as a prominent 100RC member in the media, and there have been documentaries filmed with similar statements. It is clear that Rotterdam clearly utilises the network to share its expertise and regional organisations, but also to gain funding and attention for new innovative projects (Programma Duurzaamheid, 2015).

International Collaborations and Competition

Focusing on the international dimension of 100RC participation, both interviewees highlight that international recognition was an important motivation for joining the network. They believe that the various network reports, which mention Rotterdam as a flagship city, have increased international stature and attracted international delegations, investments and organisations. That the Global Centre of Adaptation decided to locate in Rotterdam underscores its achievements in the field of climate adaptation and resilience. Similarly, Gebraad argues that network participation and flagship reports allow cities to identify areas of improvement, explore policy alternatives and learn from others.

Interestingly, Gebraad highlights that the 100RC network started as an organisation focused on idea creation, fund raising and creating networking opportunities. The network and funding components are intended to assist with the realisation of ideas. He mentions specifically that if Rotterdam has an idea that is supported (or funded) by 100RC, it can be tested, and if it does not work, then other cities do not have try it themselves. This creates a catalogue of 'best practices' that can help local policy-makers in convincing the municipality to implement certain resilience qualities in local policies and to create flagships projects.

In addition, city officials found that participation in the 100RC network resulted in them working not only more closely together internally, but also with external actors to address problems in a more holistic manner. The encouragement and support of 100RC inspired the city's officials to collaborate on certain initiatives that otherwise would not have been implemented. A specific example provided is the sixty-eight initiatives outlined in the Rotterdam Energy Infrastructure Plan. Support was gathered by forming

coalitions that persuaded high-level decision makers of the importance of the resilience-centred plan. Both Gebraad and Molenaar recall that they worked closely together with 100RC to host seminars, assessments, and acquire financial support for the implementation of the strategy. Gebraad specifically mentions there has been a considerable growth in interests and questions about resilience since joining the network.

Political and Financial Support

One specific benefit that the city has gotten is the change in its internal government structure and communication methods. When Molenaar was hired as CRO, his position was elevated, and he was given direct access to the mayor and the employees working at the mayor's office. This change has resulted in closer working ties between Molenaar and the mayor of Rotterdam. Molenaar explains that when there is uncertainty regarding certain initiatives or when there are doubts about the implementation of resilience projects, he can contact the mayor directly for support. Of course, Molenaar underlines that it is not something utilised often, but it still plays a role in the implementation of local resilience initiatives. Because of the connection between Molenaar and the mayor's office, the resilience team is better able to gain approval for certain projects. The mayor is also more aware and connected to the resilience program, which leads to an increase of financial resources and political support.

According to Molenaar and Gebraad, the benefits network participation became clear in the process of their joining. After assisting with the organisation of the steering committee and associated workshops, 100RC pledged to fund a considerable number of local organisations, initiatives and projects as sign of ongoing support. A specific example in the resilience strategy, is the improvement of the street conditions to make them more compatible with flexible underground utilities and to allow room for alternate modes of transport, such as cycling and walking. 100RC provided the initial funding for the hiring of local designers and planning firms that could create street designs that addressed the expected resilience challenges.

Additionally, Rotterdam-based companies, such as Deltares, Arcadis and TNO, have been able to become 100RC platform partners, participating in network activities in countries from China to the United States. Rotterdam also has been able to gain access to more expert organisations in certain fields. Molenaar explains that Rotterdam was extremely vulnerable to the combination of a natural disaster with a cyber-attack, as described earlier. The network helped connect Rotterdam with Microsoft, a platform partner, to collaborate on the development of technology that protects vulnerable systems from cyber-attacks. Both Molenaar and Gebraad mention that the network has allowed promotion of regional companies on an international level, but also increased involvement from external organisations in local policy-making.

Evaluation Regarding the 100RC Network

The 100RC network clearly offered Rotterdam and its local policy-makers advantages. However, Rotterdam has also allocated significant resources toward maintaining its presence in the network and integrating resiliency into local decision-making. This section will focus on the disadvantages of participation and the perception of local policy-makers on 100RC participation.

In the literature there is an ongoing debate whether network participation results in transformational changes or merely the result of purposeful branding efforts. Rotterdam has become expert at utilising its image to attract foreign interest. This is best seen with the government-affiliated organisations labelled 'Rotterdam Partners', whose purpose is to attract foreign businesses to Rotterdam and participate in activities to promote the city among an international audience, ranging from hosting festivals to publishing research reports.

In addition, the policy document *Programma Duurzaamheid,* clearly states that the city should work with the private sector to develop new policies and market these to other international cities. Is Rotterdam's purpose in participating to explore new ideas related to resilience or to promote the city's local organisations. When asked about this, Molenaar and Gebraad explained that the network allows for both to occur simultaneously. On one hand, network participation allows for the promotion of the city through international channels and conferences, while, on the other, participation allows for new ways of thinking to be incorporated in local decision-making. This is best exemplified by the 100RC framework and scan being implemented in local decision-making.

Local Perception of 100RC Participation

What is the local perception of 100RC and where is there room for improvement? According to both Molenaar and Gebraad, the city has benefitted enormously from its participation. After starting the 100RC process, they quickly realised that their perception of the challenges faced was too narrow and one- dimensional. The network helped identify wicked problems and provided a framework to develop a long-term strategy to address them. Molenaar indicates that a lot of the lexicon from 100RC has become standard practice within the municipality. The Department of Urban Development and the resilience team interact frequently to ensure that resilience is engrained in policy proposals and considered in the planning stages of projects.

More specifically, participation in 100RC resulted in the aforementioned development of a local resilience scan, which is heavily inspired by 100RC terminology. This scan is an instrument that provides that municipality the ability to examine initiatives and test whether the different dimensions of resilience are taken into consideration and where there is room for improvement. After multiple discussions with 100RC colleagues, clear criteria and measurements for each resilience component could be formulated in order to assess if projects are resilient or not. When asked about the resilience

scan, Gebraad mentions that 100RC assistance was needed to make it practical and more effective for the municipality. The network was instrumental in creating concrete questions that can be asked and measurement values for individual resilience components of projects. After countless tests, the tool was launched internally in late 2018 and is expected to be circulated around the network somewhere in late 2019.

As a result, Molenaar and Gebraad are both in agreement that the decision to join 100 Resilient Cities has been extremely positive. Not only has the city received increasing attention and funding, it has also allowed for the implementation of more resilience initiatives and fostered a climate of political support for the resilience team.

Singapore

As mentioned in the background chapter, Singapore's road to becoming a resilient city has been a decades-long project. After gaining independence, the country had to rebuild its economy, solve unemployment-related issues and improve social cohesion among the different ethnic groups (Richardson and Lee, 2012). In order to achieve these goals, the country has prioritised social cohesion, education and public housing.

Singapore is internationally renowned for its integrated long-term approach to urban planning. This is mostly done through the Urban Redevelopment Authority Concept plan, which outlines the broad strategies for the next forty to fifty years. These strategies are translated into a master plan, which details development for each ministry (Towards a Sustainable and Resilient, 2018). In the most recent plan, there was a section dedicated to strengthening the established network with international collaborations in order to exchange knowledge. Importantly, Singapore assumed the chairmanship of ASEAN in 2018 under the theme of 'Resilience and Innovation', which united countries against geopolitical challenges and sought to ensure forward-looking economic policies, while enhancing the development of strong social cohesion policies (Towards a Sustainable and Resilient, 2018; Public Sector Sustainability Plan, 2017).

Joining the 100 RC network

Similar to Rotterdam, one of the first steps for joining the network was the development of a resilience strategy that outlines relevant challenges and opportunities for short and long-term policymaking. This process was briefly described in the background chapter and the current status of Singapore, as an 100RC member was mentioned.

The selection of the governmental Centre for Liveable Cities (CLC) as representative of 100RC was one of the key decisions made in the initial stages. Saurabh describes the governmental organisation as a perfect partner for 100RC, due to its close relationship with the different ministries and the amount of research, training and local initiatives organised by the centre. However, he clearly notes that funding and the long-term expectations provided by the network played an important part in convincing the Singaporean government to delegate such a pivotal role to the centre.

The *Resilient Singapore* policy document mentions that one of the essential steps that CLC could undertake, with the funding of 100RC, was the organisation of several stakeholder interviews, stock-taking sessions and analytical exercises in order to capture Singapore's past and current efforts in building resilience, while simultaneously highlighting areas needing improvement and more detailed discussion (2018). The 100RC representatives started the process by organising an agenda-setting workshop that featured discussions between stakeholders from key government agencies and the general population. The conclusion was that more needs to be done to increase stakeholder involvement and

foster stronger communities. The policy document states that directly as a result of this workshop, two improvement areas were identified: climate adaptation and changing demographics (Resilient Singapore 2018; Da and Hong, 2018).

Saurabh states that 100RC assistance was crucial in getting different stakeholders on board and having an open discussion about problem areas and what can be done to address them collectively. He indicates that when inviting the different organisations, comparisons could be drawn to other successful cities, whose example could be replicated. In addition, the stakeholder discussions and the created resilience measures against the short-term shocks and long-term stresses could now be placed in the broader context of 100RC, whereby there is an international movement to build more resilient cities. This made participation more appealing and resulted in wider interests in the newly organised activities. Saurabh also explains that a clear connection was established between Singapore's historic resilience to the wider narrative about resilience presented by 100RC. As a result of this approach, the collaboration with the network was viewed as continuity with past actions and this was further strengthened through the usage of similar terminology in policy papers.

Stakeholder Participation and Government Approach

When asked how the implementation of resilience has changed, Saurabh mentions that the manner in which 100RC approaches the subject was already present among Singaporean policy-makers, as the Singaporean government is well-known for its 'whole of government' approach to systemic problems. On government projects, this entails taking aboard the interests of important stakeholders that might not seem relevant at first. He cites as an example the flood management instruments designed by the public utilities board after consultation with the redevelopment authority, building and construction authority, land transport authority and housing and development board (Climate Action Plan, 2016; Public Sector Sustainability Plan, 2017).

The network provided advice on how the improve the 'whole of government' approach by building on the existing institutional structures and implementing more information and resource exchange between departments and ministries. Saurabh explains that the knowledge gained from other cities experiences was utilised to improve coordination and have more effective communication among government officials. The network also highlighted the need to increase community participation in building resilience and to foster a resilience mentality among the population. Specifically, the work done by the public utilities board lacked the involvement of local communities, despite being one of the groups most directly affected by their activities. For this reason, the network recommended Singapore to open dialogues with other cities that have strong community involvement, such as Rotterdam, Melbourne, and Bangkok (A Resilient Singapore, 2019).

Participation in the Network

Participation in international networks and working together with other cities was not a new phenomenon for Singapore. As mentioned, Singapore served as chairman of ASEAN and utilised the position to discuss how collaborations can be fostered to improve collective resistance to short- and long-term shocks and stresses. But what impact did participation in 100RC network concretely have for local policy-makers and what new perspectives did it add to already existing policies?

In the official strategic resilience policy published in 2018, government officials mention that 100 Resilient Cities played a crucial role in developing the NCCS resilience framework based on the interrelation between physical infrastructure, government institutions and local communities (Climate Action Plan, 2016; Public Sector Sustainability Plan, 2017). More specifically, the document states that the action inventory tool and perception assessment tool were crucial in reviewing existing initiatives and identifying areas of strength (Resilient Singapore 2018; Da and Hong 2018). Saurabh specifically states that through 100RC, contact could be made with platform partners for relatively low costs. One example is the role of Rebuild by Design (RBD), which taught important skills to government employees regarding collaboration and the design of holistic policies that consider various policy processes and actor interests. He firmly believes that the benefit of joining 100RC is not only the strengthening of the 'whole of government' approach, but also the spread of its wider resilience narrative around the world.

The Singaporean government officials through 100RC organised discussions with the Chief Resilience Officers of both Bangkok and Melbourne, which helped in developing the climate adaptation plans. Singapore identified that its challenges were comparable to the experience of Bangkok in fostering social cohesion and similar to Melbourne in the climate adaptation measures implemented (Resilient Singapore 2018; Da and Hong 2018; Public Sector Sustainability Plan, 2017). Saurabh explains that the delegation visits allowed Singaporean policy-makers to improve upon existing initiatives. The 'Active, Beautiful, Clean Waters (ABC) program was launched in 2006, which aimed to transform water drains and canals into clean rivers with integrated green spaces for the community, is one example. The CRO's of Bangkok and Melbourne assisted with the development of a corresponding 3P network consisting of stakeholders from the people, public and private sectors that provided direct involvement in project planning. In addition, the network's involvement resulted in clear objectives and metrics being formulated (e.g., % access to clean water and sanitation; the increase of desalination plants and new water plants; the number of ABC certifications provided).

Shared Experiences and International Comparisons

Another example regards the aging demographic and the necessity to foster social cohesion among ethnic and cultural groups. In collaboration with the Ministry of Health, 100RC mapped out key initiatives and targets that needed to be achieved in the coming years. In total, seventy initiatives in

twelve areas have been identified, which range from wellness and learning, to social inclusion and volunteerism. Building on the processes in Melbourne and Bangkok, Singaporean policy-makers established clear milestones. For example, the learning programs aim to target hundreds of schools and offer over 30.000 learning places to seniors to pursue their own interests. With regard to community building, the shared experiences resulted in inter-generational harmony through fifty neighbourhood programs and the recruitment of over 50.000 volunteers from different ethnic groups (Resilient Singapore 2018; Da and Hong 2018).

Saurabh says that comparisons with other cities have a two-fold impact on policy. On the one hand, it results in local policy-makers being motivated to implement resilience-related elements into their projects. These resilience components are incorporated to make Singapore more appealing and to increase their visibility within and outside the network. An example is the Marina Barrage that alleviates flooding and provides recreational community space for people of all ages. Saurabh mentions that implementing recreational components was costly, but also relatively easy, because 100RC representatives provided countless examples of similar projects and the associated benefits that occurred.

As a result of adding a recreational component, Marina Barrage has been displayed prominently on the 100RC website as innovative work and has motivated other cities to approach Singapore for advice. Saurabh mentions that the decision to become involved with 100RC and utilise their platform partners made it necessary to 'reshape' existing initiatives into the urban resilience framework by 100RC, which demonstrates commitment to network principles. He indicates that there is pressure to incorporate resilience components into the projects and that this is mostly displayed in subtle ways, such as weekly status-update calls with regional organisations or the publishing of quarterly status reports. Yet, Saurabh believes that Singapore's involvement with the network increased the importance of resilience among local policy-makers and made it possible for more initiatives to be supported than in the past.

Evaluation and Recommendations the 100RC Network

The network has clearly offered Singaporean policy-makers benefits. However, as was the case in Rotterdam, there are costs as well. Singapore expends a lot of resources (e.g. time and financial commitments) to implementing network ideas and utilising relevant network instruments. To illustrate, Saurabh finds that government officials have to follow training and seminars organised by 100RC to utilise network instruments, such as the resilience scan and framework. Additionally, in order to make use of the benefits offered by 100RC, policy problems need to be framed according to the criteria of 100RC, after which policy-makers can organise CRO discussions or ask for financial and technical support. Therefore, this section will discuss how participation in general has been received and where improvements to the existing system can be made.

As mentioned in the previous section, Saurabh indicates that the network has provided significant benefits to local policy-makers. Yet, when asked his opinion on 100RC and its concrete impact, he states that resilience was already part of the Singaporean culture and played an important part in the long-term planning of the city. The network has played a key role in facilitating the position of the CRO and the ratification of the resilience strategy in the municipality. For the CRO position, 100RC has provided a two-year grant, but Saurabh states that it is unclear if the function will exist after the funding subsides. In the previous master plan, each ministry indicated that they would increase their resilience focus in the coming years, which makes it difficult to attribute the increasing presence of resilience to the network and not the wider trend within the country.

Perceptions on 100RC Participation

Yet, local policy-makers positively evaluated the development of the resilience strategy. Saurabh indicates that more than 1.000 individual stakeholders were involved in the organised workshops and seminars at its inception. This type of community-based project planning was already present in Singapore, but the amount and depth of public input received was something new. Decision-makers especially valued meeting with other 100RC member cities that shared similar challenges. During delegation visits practical information was gained with regard to essential policy components that need to be included, such as community involvement and public-private partnership opportunities, and how to develop concrete objectives in order to monitor progress.

In addition, the local decision-makers strongly believe that the international support has assisted in the implementation of local resilience projects, thanks to support from other municipalities and the international 100RC network. A specific example is the work of Resilient by Design, which has developed a resilience toolbox based on their experience with other 100RC members. The toolbox has helped Singapore in identifying best practices and sharing problem areas with other cities. To create the toolbox, weekly meetings had to be organised with platform partners and city CRO's to share relevant lessons learned with Singapore. Saurabh indicates that the relationship between cities had remained strong since and there is a friendly type of competition between them through the usage of the toolbox in a comparative manner. Similarly, Singaporean policy-makers could use the knowledge and experiences of other CRO's to gain support for initiatives and to create awareness about resilience-related issues.

Finally, Saurabh is very positive about the manner in which the network has improved inclusivity by using key words and phrases that foster participation. Building on the shared experiences of Melbourne and Bangkok, Saurabh indicates that specific phrases were utilised to encourage a resilient method of thinking among local communities most often struck by short-term shocks and long-term stresses. One example is the provision of household emergency kits, which are to be shared among local vulnerable communities. To raise support for the initiative, dialogues and flyers were distributed to the target

audience that narrated the resilience story with key words utilised in other cities. According to Saurabh, this proved quite effective and helped in gathering local input regarding proper distribution chains, which ensures supplies ended up in the right community at the right time. Saurabh concludes that the general consensus within the municipality is overwhelmingly positive, due to its impact in getting policies approved, securing funding and establishing stronger inter-departmental and external relationships.

Conclusion

In short, this chapter has provided an overview of the findings from the interviews and policy documents regarding both Rotterdam and Singapore. These findings have been structured according to their sub-sections. The next chapter will build on these findings and apply the theoretical framework to the results and discuss whether the earlier described hypotheses are valid or not entirely accurate. This thesis will then proceed to an analysis of the data and formulate an answer to the main research question.

Part 7. Analysis

The purpose of this chapter is to analyse the data presented in order to provide a conclusion that answers the main research question in a satisfactory manner. Building on the research conducted, the theoretical framework will be applied to the case studies of Rotterdam and Singapore.

The chapter proceeds as follows: The analysis for both countries will be presented, where each of the main hypotheses will be discussed and evaluated. The chapter then summarises the main findings and explain which of the theories offers the best insights into network participation. When discussing the case studies, the following structure will be applied: (1) the main theories and hypotheses will be reviewed; (2) the data will be compared to the initial hypotheses and evaluated; and (3) the main and sub questions will be answered for each city. The result will be a comprehensive analysis that addresses the main questions raised.

Case Studies: Rotterdam and Singapore

Rationalism

The rationalist perspective emphasises that the impact of the network on local decision-making is mainly visible through improved cost-benefit analyses. These analyses are the basis upon which certain policies are implemented, whereas others are discarded by policy-makers. Hereby, the exchange of information between rational actors, as well as other financial or technical support received, are regarded as the main methods through which membership can impact a municipality. From the literature, it becomes clear that there is an assumption that more knowledge will lead to 'better' policies, which is most visible in the policy transfer and policy learning facilitated by network participation. On the basis of the above-described components, the following rationalist hypotheses can be formulated regarding the 100 Resilient Cities network:

- H1: *The main impact from network participation is improved cost-benefit analysis, which is achieved through policy transfer and exchange that improve knowledge, measurability and funding opportunities.*

The impact can be found in the policy transfer and policy learning components that enhance a city's cost-benefit analysis in favour of more resilient policies. To exemplify, the types of cost-benefit analysis can improve through organised training sessions, usage of tools, services and standardised formatting, in combination with lessons learned from network events, lectures, contacts with other cities, CRO's and document sharing (best practices or main challenges) among policy-makers.

Rotterdam

The policy documents and interview findings revealed that Rotterdam has improved its cost-benefits analyses, which is best visible in the increased information exchange and funding possibilities. In contrast to the other networks, such as C40 and ICLEI, Rotterdam does not have a teaching role, but rather actively learns from the network. These lessons are useful in creating more comprehensive and detailed overviews on the resilience challenges faced by the city and the costs to address them, which essentially improves the cost-benefits analysis of policy-makers. Participation offers benefits ranging from identifying 'wicked problems', developing measurements and indicators, to the provision of funding for certain resilience initiatives.

Before joining the network, Molenaar and Gebraad indicated that there was no adequate overview of the different resilience-related problems faced by the city, since they were already considered one of the leading cities and local policy-makers felt satisfied with the progress being made. However, as a result of participation, the city could apply the resilience scan to assess its preparedness, not only to climate-related challenges, but also to a wider array of shocks and stresses ranging from cyber-attacks to infrastructural challenges.

It became clear there are critical areas that the municipality should improve upon, such as the possibility of cyber-attacks on critical anti-flood systems. As a result of participation, local policy-makers became more aware of resilience aspects, and subsequently created new strategies to address these components. The resilience framework and discussions with other cities are utilised to analyse the issues from different perspectives and create a long-term strategy. More specifically, in the resilience strategy, there are special sections dedicated to cyber-resilience and the types of initiatives that could improve the city's defences. The partnership with Microsoft exemplifies how collaboration with network partners has improved the knowledge that local policy-makers possess and the strategies that have been created based on the acquired knowledge.

An important part to the improved cost-benefit analysis is related to the funds and expenses of resilience initiatives supported by the municipality. Gebraad pointed out that the network offers funds for delegation visits and the testing of new ideas in order to discover what works and what is not replicable for other members. One of the benefits for Rotterdam was that it did not have to invest resources in testing new policies or gain funding to try original ideas that might spread to other cities. A concrete example provided by Molenaar and Gebraad is 100RC pledging funds to improve the condition of streets and to hire local organisations to assist its development and implementation. 100RC offered Rotterdam additional resources ranging from financial to service-based assistance in the form of delegation visits and the hosting of relevant seminars for local policy-makers.

One last benefit found is the development of the city's own resilience scan, which is utilised frequently to assess its initiatives and discover which resilience-related components need to be improved upon. The network offered local-policy makers expertise in determining the measurements and indicators to evaluate municipal initiatives with. Gebraad indicated that without the network, it would have been difficult to consider the development of such an instrument and that their involvement was crucial in its implementation. This locally developed scan allowed resilience initiatives to be more closely monitored and evaluated according to context-dependent indicators, which has a clear impact on the cost-benefit analysis of local policy-makers. In total, the impact of 100RC participation is clear, since it has resulted in more insightful cost-benefit analyses that favour resilient policies on the basis of better insights, more funding options and fewer costs.

Singapore

Singapore's participation is motivated by similar benefits from a rationalist perspective. From the policy and interview analysis, it is clear Singaporean policy-makers are able to provide better cost-benefit analyses. These analyses benefit from the allocation of financial and other resources, CRO discussions and the creation of metrics and indicators for resilience initiatives. Most recently, the country's detailed master plan called for a focus on international collaborations to increase knowledge and identify new opportunities for the nation. 100RC participation offered strategic possibilities to work closely together with network partners, acquire international insights and participate in delegation exchanges.

The network has provided significant funds to the municipality in order to facilitate the position of the CRO and implement the resilience strategy across city departments. This funding was utilised to train people from different departments to integrate resilience ideas into their policy planning. Saurabh states that the amount of knowledge present locally has increased significantly since joining the network. At the time Singapore joined the network, the Centre for Liveable Cities (CLC) was selected as representative of 100RC and played an important part in developing the Singaporean Resilience Strategy. Saurabh indicated that without funding and support of 100RC, it would not have been possible to form a close relationship with CLC and other network partners.

This has proven crucial, as CLC helped the municipality gain knowledge as to how to evaluate existing efforts in the field of resilience. The organisation assisted in organizing the workshops, discussions with stakeholders who otherwise would not have been involved in the process and the creation of a resilience framework to identify which initiatives need to be worked upon. A similar partnership was formed with the network partner, Rebuild by Design, which taught important analytical skills to government employees and assisted in developing holistic and measurable policies that take the local context into account. Singapore already has urban resilience as a goal in its masterplan. However, thanks to the network, the concept could be fleshed out more and concrete indicators established. This is exemplified by the adjustment of the NCCS resilience framework into the official municipality-wide resilience framework more commonly used by 100RC members. The documentation regarding this shift indicates that the action inventory tool and perception assessment tool were crucial in making amendments, reviewing existing initiatives and identifying which policy initiatives needed additional focus.

Similar to the Rotterdam experience, 100RC facilitated policy transfer and exchange with other cities through the encouragement of delegation visits and discussions with CRO's that have experienced similar challenges. In the case of Singapore, Saurabh mentioned that the CROs of Melbourne and Bangkok were crucial for gaining an better understanding of policies that inspire community participation. More specifically, the delegation visits allowed for lessons to be learned and for open discussions regarding how to foster community involvement. The Active, Beautiful, Clean Waters program, which aims to transform water drains into clean rivers with community-oriented green spaces,

exemplifies this. The Singaporean policy-makers learned directly from the CRO's of Bangkok and Melbourne which policy instruments are effective and how to formulate sound indicators with which to measure progress toward them. In practise, the CRO's of both nations advised the Singaporean officials to implement a 3P network that through continued interactions worked towards achieving 'active, beautiful and clean waters'. On the bases of past experiences, concrete indicators were developed, such as the amount of desalination plants created, and the amount government certificates received by these plants.

In total, it is clear that similar to the Rotterdam case, the impact of 100RC participation is visible in the improved the cost-benefits analysis done by the Singaporean officials. More knowledge and insights can be utilised when setting up the analyses and due to training, seminars and identified funding opportunities, the costs of resilience initiatives has decreased. This makes it clear that from a rationalist perspective, the impact of participation is best visible in the stronger cost-benefit analyses that favour resilience policies on the basis of better insights, increased funding opportunities and lowered expenses.

Political Perspective

The political perspective focuses on the struggle between stakeholders, who are often concerned about achieving their own interests, while being dependent on each other, due to the unequal distribution of available resources. This perspective can best be analysed through a combination of the Advocacy Coalition Framework (ACF) and Putnam's work on the relationship between the international arena and domestic politics. According to ACF, different government levels come together to implement certain policies, which results in coalitions needing each other for power and to achieve political stability. More specifically, the framework considers policy and its associated components as instruments of power for political actors. This is supported by the literature, which assumes that an increase of knowledge will lead to more power and assist in the identification of shared interests to gain support for certain political decisions.

In addition, the work of Putnam on the relationship between the international negotiations and domestic policies reveals that there often is an ongoing two-level game present, whereby international commitments are undertaken to implement domestic policies and domestic support is mobilized for international undertakings. Combining the ACF and Putnam's work, it becomes clear that one needs to consider policy competition and coercion practices the most when examining the impact of network participation. On the basis of the above-described components, the following political perspective-based hypotheses can be formulated with regard to the participation in the 100 Resilient Cities network:

- H2: *The main impact from network participation is the formation of stronger and inspired political coalitions with an associated agenda, which is achieved through policy coercion and competition that improve knowledge, power and support.*

As described-above, the impact of 100RC participation for municipalities can best be considered through the diffusion aspects of coercion and competition that result in stronger coalitions advocating for more resilient policies. On one hand, network participation can result in coercion where a city is 'locked-in' to certain policy initiatives and ideas. One the other, participation can foster competition that increases the formation of coalitions, furthers their interests, brings together unlikely partners and acts as justification for pursuing certain policies.

<u>Rotterdam</u>

The political approach offers an interesting perspective into how Rotterdam's network participation has impacted local decision-making through the creation of political coalitions. After examining the findings from the policy briefings and interviews, it becomes clear how participation gathered support or formed collaborations not possible earlier.

According to Molenaar and Gebraad, the main impact of 100RC participation is the establishment of the city as a leader in the field of climate adaptation and the centre for flagship ideas replicable over the world. They strongly believe that the competition fostered through network participation has incentivised policy-makers to collaborate and push a more ambitious resilience agenda in the municipality. One example that showcases this was the creation of urban water squares all across Rotterdam. Molenaar and Gebraad mention that before participation (political) support for the project was considered low, due to financial costs and other special challenges. However, after gaining membership, there was a real incentive to implement the initiative, since it would be an unique resilience project that looks favourable in comparative reports, improve the attractiveness of the city and be partially be funded by 100RC, which appeals to the shared interests of stakeholders.

More specifically, Molenaar and Gebraad explain that the (intermediate) reports of 100RC have helped tremendously in gaining international recognition and securing more support, ranging from funds to political influence. Since the Rotterdam resilience strategy was created, it has received endorsements by other member cities and forms one of the main discussion points for delegations visiting the city. The city has often presented itself in international media coverage as one of 100RC leading members and as having the most innovative resilience projects, which is visible with its green roofs and urban water squares. In order to capitalise on the competitive aspects of 100RC participation, the awards, prizes and recognition that Rotterdam has received were utilised to convince the United Nations to locate the headquarters for the Global Centre of Adaptation and associated organisations in the city.

Molenaar and Gebraad indicate that 100RC was often used as a method to start dialogue between different stakeholders and discover where the commonalities between the seemingly different groups were. Similar to what Putnam described in his ‘two-level game’, supporters of resilience ideas, took advantage of 100RC membership and the international publicity that accompanied it to push forward a local resilience agenda. Initiatives considered too expensive or not practical for various reasons could be re-evaluated, and coalitions to support these resilience ideas could be forged. Gebraad indicates that knowledge about what works through a sort of ‘best practices’ catalogue has been useful in gaining support for resilience policies. Hereby, stakeholders could be convinced to collaborate and find common ground on the basis of the potential benefits that participation result in, as can be seen from the experiences of other municipalities.

More specially, the network has created and funded the CRO in different municipalities. In general, their job description is to promote resilient thinking across different departments, which aligns with the broader assumption of the political perspective. As Rotterdam’s CRO indicates, the city has made this their own by fostering a resilience mentality among local policy-makers, which is integrated early into project planning. One of his first steps was to improve the relationship between the resilience team and the mayor’s office. This has proven crucial, since the Mayor has been a main proponent of resilience

and has assisted in getting the political and financial support for 100RC initiatives. As a result, Molenaar and Gebraad indicate that there has been a lot of interest in resilience across municipality projects and initiatives. Countless stakeholders have approached the city with, or become more interested in, projects because they know resilience initiatives have strong political support from both the international network and the local Mayor's office.

In sum, Rotterdam's participation matched the constructed hypothesis. Network participation resulted in the creation of strong political coalitions that support the implementation of resilience initiatives. The network offered knowledge, incentives, and competition that could be utilised as instruments of power for political actors to justify their policy decisions and acts as foundation to collaborate and push a resilience agenda.

Singapore

In comparison, 100RC participation has mostly impacted the political support from a wide-range of stakeholders and reinforced the necessity of implementing resilience practices, as a way of showcasing commitment to their participation in the network. The policy and interview data demonstrate the manner in which political actors have utilised knowledge, information and competition to promote their desired resilience initiatives above other projects.

Saurabh mentions in his interview that international comparisons resulted in policy-makers becoming motivated to implement resilience projects. According to him, there is a friendly competition among members, in which they inspire each other to become more resilient or to improve knowledge about common challenges. The specific example of the Marina Barrage has been discussed, which normally would have consisted of a water reservoir and flood alleviation mechanisms, but now incorporates communal recreation. For this project, close collaboration was sought in organizing workshop sessions to identify common interests between stakeholders and policy-makers. The project was regarded as costly, but still worth implementing, due to the visibility received in the (inter)national media.

In addition, the friendly comparisons between cities and the necessity to work on ongoing challenges have created the foundation for Singaporean policy-makers to convince different stakeholders for more resilient policy-making and planning. Already before 100RC, Singapore was characterised by a whole-of-government approach that involves key actors from different organisations in the decision-making process. However, 100RC participation resulted in the formation of more resilience-orientated coalitions. Yet, as mentioned earlier, Singapore is not a democracy, so coalition-building is less critical, but still relevant since the network inspires more resilience supporters, who in turn push for a stronger resilient agenda. According to the ACF, actors from different government levels unite in order to have desired policies be implemented. The CRO's role in Singapore is to unite these actors for a single resilience objective, which according to Saurabh, he does by providing information to different actors to highlight their shared interests in resilience initiatives. The flood management instrument designed by the public utilities board is an example of how collaboration involving multiple stakeholders, ranging from the general population to different departments, can be facilitated and create strong coalitions.

These findings are also closely linked to the ideas of Putnam and the relationship between international and domestic (municipal) politics. On one hand, 100RC participation has allowed Singaporean policy-makers to push for more resilient practices, even if they are not the most practical or cost-beneficial. On the other hand, for the implementation of network propagated ideas, a strong domestic coalition was needed. Throughout the interview and in the *Resilient Singapore* briefing, it is indicated that the network fostered coalitions through the provision of knowledge or bonding exercises. However, Saurabh also describes a pressure from the network to create resilience initiatives and to utilise the resilience

framework when discussing relevant ideas and projects, which creates a lock-in effect to push continually for resilience projects in the municipality.

Taken together, from the political perspective, the benefits of network participation overlap strongly with the constructed hypothesis. Participation resulted in stronger political coalitions advocating a favour of an increased resilience agenda. Policy competition and coercion play an important role, since the network encourages international competition, promotes shared ideas and applies subtle forms of pressure on local decision-makers. 100RC led to stronger interest from a more diverse set of stakeholders and collaborations between unlikely partners. Yet, as Saurabh rightly points out, it is unclear whether 100RC caused this collaboration or whether Singapore was already headed in this direction and 100RC only helped accelerate it.

Constructivism

The constructivist perspectives centres around the importance of (re-)framing, symbolisms and the creation of shared values and beliefs to gather support for ideas and to implement certain policies. Actors often use persuasive rhetorical and visual strategies to create appealing frames (e.g. images or narratives) for a specific audience. In this particular case, the impact of 100RC participation is that network involvement can be used as a frame for the promotion of desired initiatives in the municipality.

The literature suggests that specific narratives can be utilised to achieve predetermined rules. This is most visible in the policy emulation and imitation facilitated by network participation. On the basis of the above-described components, the following hypotheses can be formulated regarding participation in the 100 Resilient Cities network:

- H3: *The main impact from network participation is mainly the framing and re-framing possibilities provided by network participation, which is achieved through policy emulation and imitation that can foster symbolisms, new frames and appealing narratives.*

In this case, the impact can best be viewed in terms of emulation and imitation, which helps provide framing strategies for policies and ideas. As a result of 100RC participation, cities are able to replicate a network narrative, utilise certain key words and describe issues in a more compelling manner. On one hand, cities can be considered the reference point from which similar polices can be 'imitated', whereas on the other hand, policies can be 'emulated' from other cities to achieve similar or better results. This can be done by establishing the importance of network ideas, raising awareness about certain international issues and indicating that the reputation of the municipality is at stake.

<u>Rotterdam</u>

The constructivist approach is strongly visible in the case of Rotterdam. Throughout the results, framing plays an important role in how initiatives are conveyed towards internal and external audiences. Molenaar and Gebraad specifically argue that the development of a wider narrative, which ties 100RC definition of resilience to the historical development of Rotterdam, was essential in making policy-makers feel responsible for implementing resilience-related components in their local initiatives. In the *Rotterdam Resilience Strategy*, the mayor of Rotterdam, Ahmed Aboutaleb, opens with the following quote:

Rotterdam's history is marked by its residents' resilience. Challenges were overcome, in water management, trade, […] and in literally re– constructing the city after a devastating bombardment at the start of the Second World War […]. Rotterdam has always faced difficult situations by looking to the future and finding opportunities for city improvement; 'stronger through struggle' is our motto. The people of Rotterdam are the key to the resiliency of their city (Resilient Rotterdam, 2016, p.6).

From this excerpt, it is clear how the city's historical development is framed in the wider resilience narrative. An element of emulation is present, where the city emulates narratives presented by 100RC to the local context. An appeal is made to the common values of locals who become 'stronger through struggle' and to improve defences against shocks and stresses. In the strategy, there are multiple references to resilience "being in the DNA" of Rotterdam, and therefore does not need to be introduced to the people and policy-makers of Rotterdam. Resilience is not introduced as a foreign idea, but as something very much present locally. In this manner, the ideas of the network are emulated and adjusted, while being projected onto decision-makers in Rotterdam (Resilient Rotterdam, 2016, p.6).

Similarly, the lexicon of 100RC is often used in policy projects, as a method to gain backing for resilience-related components. Molenaar indicates that over the years, symbolism and lexicon are utilised to describe issues and opportunities with regard to different municipal projects. To illustrate his point, the Department of Urban Development refers to the resilience framework or to particular problems with the same lexicon utilised in 100RC instruments. As a result, it gives the impression that they are addressing international issues that other cities are also struggling with and demonstrate that Rotterdam is a leader in the field of resilience.

In support, Molenaar and Gebraad mention that the idea of resilience was present among policy-makers, but that it was a relatively narrow one. Participation in the 100RC network assisted not only in widening their understanding of the concept, but also in creating more awareness regarding the different resilience components needing consideration in project planning, which underscores that the goal is not to have resilience as a separate objective, but as an idea that can be integrated in any area of work. This method of framing resilience, as a mentality comes from 100RC, which tries to propagate a resilience mindset among its members. Often CRO's are chosen based on their influential positions, connections and ability to convey ideas to others in the municipality. In Rotterdam, the local resilience team does not initiate projects on their own, rather they try to influence existing initiatives and departments through strategic seminars, dialogues and events. Often in these meetings, references are made to participation in the international network, the need to work on relevant issues cities to uphold the city's reputation, as a prominent and innovative member of 100RC.

To summarise, from the constructivist perspective, it is clear that network participation proceeded according to the hypotheses established beforehand. As a result of participation, local policy-makers were able to utilise 100RC frames, symbolism, narratives and lexicon to gather support for certain resilience ideas and initiatives. The development of Rotterdam's resilience strategy was connected to its wider history and policymakers were made familiar with the concept. Similarly, initiatives are framed as part of the wider international dimension that membership entails, as seen by local projects being connected to issues that other cities struggle with as well. In this way, we find that network participation had a significant impact on the strategies available to policy-makers and the type of ideas implemented.

Singapore

Similar to the Rotterdam findings, the interview and policy analysis of Singapore indicates participation had a significant impact on the framing and re-framing strategies available to local policy-makers. Certain narratives were created to encourage support for network participation and foster the establishment of resilient practices throughout the municipality. Saurabh specifically mentions that 100RC involvement was crucial developing a broader narrative that places the short-term shocks and long-term stresses in the context of the network. This was crucial not only in making local policy-makers more involved, but also in gaining the interest and support of a variety of stakeholders.

In *A Resilient Singapore*, the minister for national development, Lawrence Wong, offers the following explanation for the nation's participation in the 100RC program and work with its associated partners:

We built strong communities and overcame racial riots in the early years; fostered strong social cohesion […] and built multi-functional infrastructure such as the Marina Barrage. All these and the rest of the case studies […] are examples of how resilience is embodied in the Singapore journey. […] Even so, we are also continuously learning from other cities […] to further build our resilience, sustainability and liveability. This is why the Centre for Liveable Cities was inspired to join the 100 Resilient Cities Network to learn from other cities […], as well as share Singapore's experience (A Resilient Singapore, 2018, p. 6).

From this excerpt, Singapore's activities have been framed as natural ones that the nation has been involved with since its inception. Throughout the document, the challenges faced by Singapore are emulated in a similar method as 100RC, whereby Singapore's historical journey is linked to the network's idea of resilience and utilised as a method to convince both policy-makers and citizens to become more involved with resilient policy-planning and local initiatives.

In addition, the imitation of 100RC symbolism, lexicon and framing has resulted in greater inclusivity of citizens and encouraged the development of local resilience initiatives. According to Saurabh, Singaporean policy-makers have been able to emulate practices from other cities, while effectively adjusting them to the local context in order to gather interest and support. This is most visible in the household emergency kits example, which used targeted resilience stories and posters with effective key words to appeal to vulnerable communities in a successful manner.

Finally, participation in the network has given policy-makers the ability to frame resilience initiatives as being essential to their commitment to 100RC and to building an international reputation. One example that perfectly embodies this is the Marina Barrage that alleviates flooding, acts as a freshwater reservoir, and simultaneously serves as a communal space for people from all parts of society. Saurabh indicates that for the project to be approved, the work was framed, as a necessary innovative practice to underline Singapore's long-term commitment to the various dimensions of resilience propagated by

100RC. Marina Barrage became one of Singapore's unique flagship projects that is prominently displayed on the 100RC website as innovative practice and as a means to attract other member cities to visit Singapore.

Taken together, the findings from Singapore have confirmed the previously established hypothesis. As a result of participation, local policy-makers gained access to framing and re-framing strategies not available before joining. Similar to the Rotterdam case, the historical development of the nation-state after independence could be linked to the resilience narrative propagated by 100RC. This helped give wider appeal to the ideas, initiatives and projects associated with resilience not only among decision-makers, but also the local population, who were convinced using specific phrases imitated from other member cities. Likewise, support was gained for the implementation of projects, such as the Marina Barrage, by framing them as a necessity to demonstrate the country's commitment to the network, increase its reputation and demonstrate its innovative practices. Participation thus had a significant impact on framing strategies, terminology utilised, the manner in which ideas were presented and the implementation of certain ideas above others.

Comparative Discussion and Main Lessons

In short, both Singapore and Rotterdam have gained enormously from participating in the 100 Resilient Cities network. Although, both cities are in similar phases, the impact of the network on local policy-making differs considerably in each municipality. As of June 2019, Rotterdam is considered as one of the flagship cities, whereas Singapore has recently published their resilient briefing and is looking forward to collaborating with Melbourne and Bangkok.

The network has played an important part in the development of resilience-oriented policies. However, there are questions as to how big this impact is and what types of benefits are most strongly perceived by policy-makers. In order to answer these questions, this thesis established three complementary approaches, all with their own expectations and findings regarding the main benefits from participation.

From the rationalist perspective, it became clear that in Rotterdam participation has resulted in more insightful cost-benefit analyses build on the acquisition of more funding for local projects, fewer costs for trying out resilience ideas and assistance in the development of indicators to measure resilience initiatives and 'wicked problems'. For Singapore, similar benefits were found in the sense that network participation impacted the decision-making through strengthened cost-benefit analyses that utilises improved measurability for policies, identified funding opportunities and established close partnerships to promote more resilience initiatives.

The political perspective in Rotterdam demonstrated how participation impacted the creation of stronger political coalitions advocating for a greater implementation of resilience measures in the municipality. The network ignited competition between members that increased the interest of relevant stakeholders,

influential actors and reluctant partners. More specifically, it fostered political support, which has proven to be instrumental in gaining political power and influence for resilience advocates. In comparison, the Singaporean case revealed that policy competition and coercion facilitated by the network has resulted in the increase of resilient initiatives, stakeholder participation and political coalitions. More specifically, international commitment could be utilised to promote local policies, while simultaneously exerting subtle pressure from 100RC to push for an increasing amount of resilient initiatives.

Finally, the constructivist perspective underlined the impact that participation had on the different frames utilised by local policy-makers. For Rotterdam, the development of their resilient strategy was framed as being part of a wider historical development and associations with local values were used to embrace the concept of resilience in local initiatives. Lexicon and imagery from 100RC could be 'borrowed' to underline its international importance and to frame issues as a collective challenge. Similarly, in Singapore, the country's historical development was connected to the resilience narrative and the population's support was galvanized through certain key phrases, which was crucial in the implementation of resilience policies. Singaporean policy-makers have emulated concepts from other cities and key words propagated by 100RC. This has proven to be especially effective getting the approval for costly resilience projects and in creating local community involvement.

Table: Overview on Theoretical Expectations and Main Findings

Theory	Rationalism	Political Perspective	Constructivism
Hypotheses	Network participation mainly improves cost-benefit analysis through policy transfer and exchange	Network participation mainly supports the formation of coalitions with a related agenda through policy coercion and competition	Network participation mainly improves framing and re-framing possibilities through policy emulation and imitation
Main Findings Rotterdam	The findings have achieved similar results as expected Cost-benefit analyses promoted more resilient initiatives Policy-transfer resulted in there being	The findings have matched expectations There is an increase of coalitions based on shared interests, city competitions, and (coercive) incentives to promote a resilient agenda	The findings have achieved similar results as expected Participation impacts the frames and narratives (emulation and imitation) to gather support and

	knowledge increase, but also more funding, new resilience ideas and the development of indicators		spread a resilient way of thinking and involve diverse actors (stakeholders and decision-makers)
Main Findings Singapore	The findings have matched expectations Participation improved cost-benefit analysis that argues in favour of more resilient policy planning. Policy transfer has an impact on close collaborations, increased funding, more knowledge and improved indicators	The findings have achieved similar results as expected The impact of participation is that policy competition and coercion played an important part in formation of coalitions and stakeholders consensus	The findings have matched expectations Participation increased (re-framing) strategies, which were utilised to inspire stakeholders, communities and push for (innovative) resilient initiatives

Taken together, the analysis shows that the three theories are needed in a complementary manner, since they offer relevant insights into the bigger picture. Only by applying all three perspectives have we been able to examine the wide-ranging impact of 100RC participation on policy-making, while discussing both its benefits and disadvantages.

We have seen that the rational-constructivist approach allows not only for an examination of the concrete impacts, ranging from funding to knowledge increase, but also for the manner in which participation allows new framing strategies. Hereby, the political lens is needed to offer valuable insights into how 100RC participation impacts the formation of stronger coalitions by fostering competitions and coercion, which in turn have an influence on stakeholder consensus and collaborations promoting resilient initiatives.

Part. 8 Conclusion

As the U.N Secretary-General Ban Ki-moon mentioned during the UN Habitat Summit in 2018, there is a need for increased coordination across different government levels in order to successfully combat climate change and become a more climate adaptive world. Yet, the 2015 Paris Agreement illustrated that it is difficult to reach binding agreements on the national level. For this reason, municipalities are considered flagbearers for innovative practices and as independent actors capable of addressing global issues. One method discussed to achieve better coordination and more practical agreements is through local-level collaborations in the form of city networks.

On one hand, cities are home to over half of the world's population, which creates the necessity to quickly adapt to climate-related challenges. On the other hand, cities are considered the new centres for attracting capital, fostering competitiveness and testing new initiatives for their applicability and societal impact. Through city networks, municipalities can discuss their interests on the international stage and exchange knowledge on a wide-variety of issues. A particularly effective and successful network is the 100 Resilient Cities Network, which was established in 2013. This networks assists cities in becoming more resilient to the physical, social and economic challenges of the current century. Since its inception, more than 150 cities have become members and it has been lauded for its impact on resilience practices, fostering strong network connections and global outreach to cities and organisations. However, questions can be raised regarding its impact on local decision-makers, the benefits it offers to participating cities and why certain ideas were implemented, while others were discarded.

In order to answer these questions, this thesis has gathered and analysed the data of two member cities through extensive research and policy analysis. Rotterdam and Singapore were selected on the basis of both being high-middle income countries, similar population sizes, and in comparable stages of their 100RC life cycle. In addition, these two cities are closely connected through the guidance of the 100RC regional hub in Singapore, which facilitates interactions between the cities and ensures continued dialogue between policy-makers on a monthly basis.

Table: **Overview on cases and comparable variables of cities**

City	**Region**	**100RC cohort**	**Years of participation**	**Population size**	**Development level**	**100 RC life-cycle**	**Resilience Ranking**
Rotterdam	Europe	1	5 years (2019)	Medium	High income country	Phase 3	13th place
Singapore	Southeast Asia	1	5 years (2019)	Medium	High income country	Phase 3	30th place

As becomes clear from the table, despite the cities having comparable variables, they achieved slightly different results in the global resilient rankings. This justifies the selected cities and showcase why they are perfect for understanding the impact of network participation. Therefore, the main research question was as followed: *What impact does 100RC participation have on urban resilience policies of Singapore and Rotterdam and which theory explains this the best?*

Sub questions that need to be addressed are:

What influence does participation have on the exchange of knowledge?

What influence does participation have on the formation of political coalitions?

What influence does participation have on the framing and re-framing strategies of policy-makers?

A conscious choice was made to limit the study to two cities, as conducting interviews and policy analyses for more cities would have lacked the focus needed to comprehend relevant complexities and failed to provide an understanding of its influence on local policy-making. To identify the impact from different perspectives, a decision was made to conduct a congruence analysis on the basis of the rationalist, political and constructivist theories offering complementary insights into the subject manner.

Summary of the Main Findings

Theories and Diffusion

On the basis of the constructed theoretical framework, the three theoretical approaches could be organised according to corresponding areas of diffusion.

Firstly, the rationalist approach argues that the impact of city participation is best visible in the improved cost benefit analysis advocating in favour of better resilience policies. Hereby, city networks are essential in providing policy transfer and policy learning to municipalities and its associated policy-makers, which improves expertise about what works and what does not to achieve determined objectives.

Second, the political perspective believes that 100RC participation results in an increase of information, identification of common interests and justification of certain agendas. From this, the diffusion aspects of competition and coercion are critical in providing local policy-makers and municipalities with incentives and motivation to promote a desired political agenda.

Third and finally, the constructivist approach claims that network participation will assist in creating rhetorical and visual strategies that support desired policy directions or appeal to certain political actors. Herein, the diffusion aspect of imitation and emulation are significant in providing the municipality with tools and strategies to achieve anticipated goals.

Findings

In order to have a comprehensive answer to the research question, this paper formulated hypothesis based on the above-mentioned theories and tested their validity against the data gained from the interviews and policy document analysis.

The rationalist analysis agreed with the established hypothesis and provides insights into how network participation has improved not only the cost-benefit analysis, but also through policy transfer and exchange improved contact between cities, available knowledge, sources of funding and the development of indicators. For Rotterdam, the collaboration with Microsoft and the development of the local resilience scan were demonstrative of its wide-ranging impact, whereas for Singapore the impact was mostly visible in the 'Active, Beautiful, Clean Waters' program and the close collaborations with the CLC and RBD partners. Yet, this perspective fails to provide information on how participation influenced the chosen strategies by local decision-makers and how it impacted stakeholder involvement.

The political perspective matched the expectations in the hypothesis and revealed that network participation impacted the formation of political coalitions and wider push for favourable resilience initiatives. The competition and subtle coercion furthered the implementation of resilience in both municipalities. In Rotterdam, 100RC impacted the motivation of powerful stakeholders to advocate for more resilient initiatives, such as the construction of costly urban water squares to improve its competitiveness, whereas in Singapore participation resulted in a unification of stakeholders and in subtle pressures to approve more resilience initiatives. This was best visible in the implementation of common recreational components in the Marina Barrage and the flood management instrument designed by the public utilities board. Yet, it was unclear whether or not the municipalities were already moving towards a more resilient agenda or that the network resulted in the creation of more resilience-focused coalitions.

The constructivist analysis has achieved similar results as the formulated hypothesis and added an important dimension to the impact of network participation for its members. From this perspective, it became clear that 100RC participation impacted the persuasive rhetorical and visual strategies utilised to achieve predetermined goals. Policy imitation and emulation resulted in effective frames, narratives and phrases that inspired a resilience mentality among the local policy-makers and improved the involvement of stakeholders. For Rotterdam, the impact of 100RC can best be seen in the framing of resilience challenges, as being internationally important or the ability to emulate 100RC narratives, which fostered a resilient responsibility among local policy-makers. In Singapore, the constructivist impact is visible in local policy-makers being able to convince stakeholders through 100RC frames to consider resilience as a natural occurrence, in line with the nation-state's historical development. Initiatives such as the Marina Barrage emulated 100RC frames, symbols and lexicon to inspire stakeholders, achieve community involvement and push for more resilient initiatives.

All in all, the three theories provide complementary and relevant insights into the impact of 100RC participation on urban resilience policies of both cities. By combining the findings from the three perspectives, we can clearly state that not only did 100RC participation impact favourable cost-benefit analysis through improved information access, stronger funding sources, developed indicators and strengthened city-to-city collaborations, but also resulted in stronger and motivated political coalitions in favour for more resilient policy-making. Hereby local policy-makers gained persuasive visual and rhetorical strategies to unite stakeholders, acquire support from (powerful) political actors and frame resilient initiatives in a manner that encourages local community involvement.

Social and Scientific Contribution

From a scientific perspective, this thesis adds a novel analyses of the impact of 100RC on two high-income countries. Most research on city networks has centred on quantitative comparisons between networks or discussed the impact from a variety of cities. For this reason, the research focused on providing a unique qualitative focus, which had not been studied through the lens of 100RC and from the three theoretical perspectives. The case-studies have provided original findings that take the ongoing academic discussion further. These findings can be utilised as a foundation for future research into comparable networks and add qualitative insights into the field. In addition, the analysis of TMN's improves our understanding of the international influence on local policy-makers, how policies are constructed and the most influential components of the network in policy or project planning. Hereby, the examination of 100RC's impact on Rotterdam and Singapore, demonstrates through which avenues TMN's have influenced local-decision makers and where there is room for improvement.

From a societal perspective, the findings have provided insights into the impact of participation in international networks for municipalities. More than half of the world's population lives in cities and there is a need for local action building on existing international networks to unite seemingly separate actors in collective efforts against short- and long-term challenges. The results are important for policy-makers active in 100RC or similar city networks. By analysing the influence on urban resilience policies, there is a better understanding of how to efficiently utilise the network, its resources, identify opportunities and learn when a network is superfluous to existing options, which is crucial since the work of municipalities is built upon citizen funding and votes.

More specifically, when lobbying for initiatives, policy-makers could utilise lessons learned from the case studies to present more compelling cost-benefit analyses and become conscious of how policy initiatives can be framed to achieve desired policy outcomes. As a result, they become able to identify which frame or strategy would benefit their political agenda, assist in gaining support from relevant stakeholders, form political coalitions, resist subtle network pressures, while simultaneously profiting from the benefits such as indicator development, 'friendly' competition and the creation of narratives underscoring the (international) importance of certain policy initiatives.

Limitations

As mentioned, the research done in this thesis has made various decisions to provide a comprehensive answer to the main research question. For this reason, there are various limitations to the work presented above.

First, only two high-income cities were examined, which helps in understanding the impact of the network on the behaviour of similar cities, but it cannot be extrapolated to other municipality types. Network impact differs greatly between cities considered as frontrunners and cities that are lagging behind. On the one hand, forerunners are focused on spreading their knowledge and promoting partnerships and branding, whereas developing cities are more centred on absorbing the knowledge, partnerships and funding opportunities. These difference critically influence the impact that network participation has and to what extent resources from 100RC and similar networks will be applied in local decision-making.

Second, the findings were based on interviews with local policy-makers that are either directly affiliated with the network or in close contact with 100RC representatives. In order to combat potentially biased opinions, the official documentation of both countries regarding 100RC was also analysed. However, the analysed documents are all available online, which in combination with biased interviews, might result in only a certain desired image of the impact being discussed that leaves important findings unrecognised or underestimated.

Third and finally, to provide more qualitative depth to the analysis, certain approaches were omitted from the research. The most significant omissions are the lack of an institutional approach that might offered relevant insights into the influence of path dependency and the decision not to utilise the discourse coalition framework or Kingdon's multiple stream analysis, which would have given insights into the role of the three streams (political, problem and policy stream) and how focus events might be crucial to determine the impact of city networks.

Recommendation for Future Research

This thesis has provided significant insights into the impact of city network participation on urban resilience policies of two high-income countries. However, it has raised important questions and identified areas for future research. First, one point that briefly came up during the analysis centres on the question why certain ideas get implemented, whereas others are more easily discarded. This subject warrants further discussion building on the presented findings. As mentioned, through surveys and questionnaires, a closer examination should be taken into the role that institutions and bureaucratic capacity play for network integration.

Second, the distinction described between bigger and smaller cities or municipalities on the forefront and cities more on the background could utilise the presented findings to research how similar networks

impact the behaviour of these diverging municipalities in different manners. Similarly, a broadening of the sample size and epistemological foundation could provide more diverse insights and assist in making findings more applicable to the dissimilar municipalities and policy-makers participating in the network. Other well-known theories from the different policy perspectives could be applied to analyse the impact of network participation and add valuable findings, since the three applied theories and associated policy diffusion components are hardly enough to provide a full understanding of city network participation.

Third, network participation for municipalities is not limited to participation in one network only, rather cities are members of various networks that often overlap with each other. It is especially interesting to study how cross-network cooperation in a field such as resilience impacts the internal governing of participating municipalities. Likewise, future research can examine how the organisation of municipalities or its political structure influences the impact that a city network has on resilience policies. This study could potentially identify a relation between certain internal governance structures, the development of resilience strategies and the impact that networks have on policies and initiatives.

Finally, given that the current structure of 100RC is changing and decision-makers are examining methods to continue the international collaboration between cities through a different organisational structure, it might be useful to examine the benefits that city participation offered to the network itself. There is a growing literature that is concerned with how climate financing plays an important role, not only for the capacity of a network, but also for its internal governing structure, as financial management is crucial in maintaining and operationalising the network in an effective manner. This research can examine different funding opportunities and its relationship to internal governing and long-term network effectiveness. In total, the research would provide relevant insights not only for future organisational structure of 100RC, but also for other comparable networks struggling with similar challenges.

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Appendix: Interview Guide

The following document outlines the main questions and themes that will be analysed in the interview. It will act as guiding instrument to help ensure that all the important subjects are covered and that the interview does not veer too far off topic. The questions have been divided into the following subcategories: Joining the Network, Theories and Explanations, Policy & Outcomes and Implications for decision-making, Network interactions, Evaluation. However, as noted before, the questions are meant to guide the conversation and allow room for personal reflection. As such, there will be case where there is some divergence from the script.

Main Research Question*:*

What impact does 100RC participation have on urban resilience policies of Singapore and Rotterdam and which theory explains this the best?

Sub questions that need to be addressed are:

What influence does participation have on the exchange of knowledge?

What influence does participation have on the formation of political coalitions?

What influence does participation have on the framing and re-framing strategies of policy-makers?

Introduction

- Thank you for participating in this interview
- Discuss thesis overview if needed
- Is it possible to record this interview? (for transcription purposes)

Warm Up

Could you introduce yourself? (Role within the network and municipality)

Joining the Network

- Why did the city apply for the program?

  Climate adaptation plans and policy-making existed long-before. What inspired the need to join 100RC?

- Wat is the value of the program? (in the field of social inclusion, and climate challenges, competition, marketing?)

- Has there been significant challenges, in order to accommodate the network? (internally and externally (constructivism narrative))
- How influential was political leadership, such as the mayor, in setting the political climate that motivated joining and participating in 100RCs?

What external factors motivated your local government to join 100RC?

- ✓ Gaining recognition as an innovative city on climate change issues
- ✓ To build legitimacy for current and feature climate resilience projects
- ✓ Networking with other likeminded cities
- ✓ Better access to financial resources
- ✓ Specific events (flooding)
- ✓ Access to knowledge sharing and best-practice resources
- ✓ Gain support for network supported policies
- ✓ Encouragement from national government
- ✓ Encouragement from international politics (UN Rio Summit- Agenda 21, multilateral institutions such as EU, NATO, World Bank, OECD, etc.)
- ✓ Other?

Theories & Explanation

Rationalism

- How has participation influenced information exchange and planning?
- To what extend has participation resulted in improved policies in the field of water management and social inclusion (due to more knowledge being shared)
- Has the network added new criteria/objectives that can be utilised for measuring policies?
- Are policies shared between other cities and is there being learned from other cities?
- What instruments from the network are often used (services, training and standardised formats)?

Political perspective

- Has the network assisted in achieving certain objectives? Has it increased the amount of initiatives (policies) available?
- Does 100RC participation help in getting support for certain policies? (internally but also externally (interest groups))
- Are network achievements/awards frequently utilised?
- To what extend does network participation foster competition between cities?
- Is there a pressure from the network to implement certain initiatives or go a certain direction (if yes, when and in which manner)?

- Are comparisons with other cities often used? (Rotterdam biggest city etc.)
- Has the 100RC network enhanced the reputation of Rotterdam within and outside the network

Constructivism

- Are there specific narratives utilised by policy-makers that support the values and beliefs of 100RC? (emulation & imitations)
- Are certain symbolisms & words co-opted from the 100RC network ? (emulation & imitations)
- Are certain policies framed in a certain manner (appealing to 100 RC) to make them more appealing?
- Are examples of other cities utilised to strengthen support for similar initiatives (emulation & imitations)

Policy & Outcomes

How has policy-making been influenced in your department by participation in the network in regard to social and climate challenges?

What 100RC sponsored activities does your local government participate in? (check all that apply)

- ✓ Browsing of knowledge resources disseminated digitally
- ✓ Hosting 100RC representatives at events in your local government
- ✓ Participation in 100RC sponsored conferences or workshops
- ✓ Participation in 100RC issue-specific working group
- ✓ Networking events
- ✓ Other (please describe)

How have your department's interactions with non-governmental public organizations, private entities, NGOs and other groups changed since joining 100RC? (check all that

apply)

- ✓ Have gathered increased input during policy scoping, policy design, or policy evaluation stages
- ✓ Greater involvement of these outside groups/organizations to specifically develop innovative policy tools
- ✓ Have worked towards using outside organization or private entities to help fun projects
- ✓ Sought educational resources or assessment ca to inform the public on issues
- ✓ Have focused more on public outreach to build support around policies
- ✓ More public organizations have been brought into the policy implementation stage
- ✓ Increased focus in capturing full spectrum of public opinion during policy evaluations
- ✓ Other (please describe)

Implications for long-term decision-making/impacts

Since joining the network has your role and method of working as policy-maker changed?

- When do you feel like certain ideas in regard to social inclusion and climate challenges by the network are implemented?
- How has your local government been influenced by 100RCs in its long term climate resiliency goals and strategy?
- How is 100RC visible in the implementation of polices? Where do we see it in practices or project planning (policy learning, emulation, coercion/competition?)

How did participating in a 100RC influence your views as a decision-maker on planning and policy issues in regard to climate & social challenges?

- ✓ Provided new information leading to newly identified risks or vulnerabilities
- ✓ Became more aware of current scientific knowledge or where to find most current scientific knowledge
- ✓ Gave new insights into previously identified unsolved problems
- ✓ Gained in knowledge from learning of climate action in other local governments
- ✓ Spent more time trying to create solutions with co-benefits
- ✓ Became more aware of current shortfalls in your own local government
- ✓ Learned of new strategies or methods to create innovate policy tools
- ✓ Competing with other cities
- ✓ Became more aware of new information to help improve policies after an evaluation
- ✓ Imitating other cities

Network Interactions

- Have interactions with other cities changed through shared participation in the network? Different from before? (sharing of best practices or documents etc.)

How have best practices and other knowledge exchanged during 100RC activities been used in the decision-making process? Be concrete?

- ✓ To identify new problems that were previously undiagnosed
- ✓ As potential solutions to (potential) problems
- ✓ As opportunities to improve current policies
- ✓ To identify new arenas for policy
- ✓ Other (please describe)

How has your city's awareness of risks associated to climate change and social inclusion since participating in a 100RC?

- ✓ Gained access to existing scientific research
- ✓ Conducted more risk and vulnerability assessments
- ✓ Research partnerships with universities or research institutes
- ✓ More policymakers have been tasked with risk awareness research
- ✓ Research conducted through 100RC or 100RC related activities
- ✓ Working together with other cities
- ✓ Other (please describe)

Evaluation & Recommendations

- From your perspective how has being part of the 100RC program influenced planning practices of the municipalities (think of green roofs/ urban water plaza etc.)
- What is your opinion on the workings of the network?
- How do you think fellow colleagues view the network participation and influences?
- How do you think participation in the network could improve? What services should still be added to the network?