Measuring the effectiveness of non-state actors' climate goals

The level of effectiveness of non-state actors' cooperative initiatives, focussing on resilience, of the UN NAZCA Platform

Leonie Coppes



Name: Leonie Coppes Student number: 5777445 Contact details: <u>l.f.m.coppes@students.uu.nl</u> Supervisor: Prof. dr. Frank Biermann Second reader: dr. Sander Chan

Date: 23/03/2018



Utrecht University

Copernicus Institute of Sustainable Development Master of Science Sustainable Development Master Thesis (30 ECTS) Track: Environmental Governance

Copernicus Institute of Sustainable Development

Thesis Supervision and Evaluation

Supervisor:

Prof. dr. Frank Biermann Function: Professor Copernicus Institute of Sustainable Development Specializations: Environmental Governance, Global Sustainability Governance Faculty of Geosciences, Utrecht University Heidelberglaan 2, Utrecht f.biermann@uu.nl

Second Reader:

Dr. Sander Chan Function: Senior Researcher Deutsches Institut für Entwicklungspolitik Specializations: Environmental Governance and Environmental Policy Deutsches Institut für Entwicklungspolitik Tulpenfeld 6, Bonn sander.chan@die.gdi.de

Statement of Originality

This document is written by student Leonie Coppes who declares to take full responsibility for the contents of this document.

I declare that the text and the work presented in this document is original and that no sources other than those mentioned in the text and its references have been used in creating it.

The Faculty of Geosciences is responsible solely for the supervision of completion of the work, not for the contents.

Abstract

This study examines the level of effectiveness of non-state actors' cooperative initiatives connected to the Non-State Actor Zone of Climate Action (NAZCA) Platform, focussing on resilience.

Non-state actors show a great potential in transnational climate governance (Blok et al., 2012; Chan et al., 2015; Hsu et al., 2015; Michaelowa and Michaelowa, 2017). However, whether the potential of their climate actions will be realized remains uncertain. Systematic evidence of the effectiveness of non-state actors' initiatives, as well as cooperative initiatives, still remains scarce (Chan et al., 2015; Michaelowa and Michaelowa, 2017). Therefore, there is a need for better understanding the effectiveness of these relatively new initiatives, and whether they are likely to deliver on their promise of advancing global efforts to increase the resilience to climate change (Chan et al., 2015; Betsill et al., 2015). Consequently, this research contributes to this knowledge gap.

In order to execute this study, an analytical framework is developed and applied to measure the level of effectiveness of non-state actors' cooperative initiatives from the NAZCA Platform and resulted in some relevant findings and recommendations.

In sum, the research findings show that the overall level of effectiveness of the fourteen non-state actors' cooperative initiatives focussing on resilience, involved in the NAZCA Platform, is currently *moderate*. Clear goals are set by the initiatives, showing their will to enhance resilience to climate change, but due to various factors it is currently difficult to ensure the likelihood that the initiatives will achieve their goals. These factors include the consideration of budget, time frame and scope, the level of cooperation with other NAZCA initiatives, the level of transparency, incorporation of feedback mechanisms and direct impact measurements for resilience to climate change. When these factors will be taken into more careful consideration and increased by the initiatives, the overall level of effectiveness of the initiatives will be improved, showing a higher contribution to enhancing resilience to climate change.

Keywords: Non-state actors; Cooperative Initiatives; Effectiveness; Non-State Actor Zone of Climate Action (NAZCA Platform); Transnational climate governance; Resilience.

Word count: 24273

Table of Contents

1.	Foreword	p. 6
2.	Introduction	p. 7
3.	Theoretical Framework	p. 8
	2.1 Transnational Climate Governance	p. 8
	2.2 Non-State Actors	р. 10
	2.3 Non-State Actors' Cooperative Initiatives	p. 11
	2.4 Mitigation and Adaptation	p. 13
	2.4 Resilience	p. 14
	2.5 Problem Definition	р. 16
	2.6 Scientific and Societal Relevance	р. 16
3.	Analytical Framework	p. 17
	3.1 Research Objective and Questions	р. 17
	3.2 Research Scope	p. 17
	3.3 Research Strategy and Material	p. 19
	3.4 Research Perspective: Effectiveness	р. 19
	3.4.1 Indicators for Effectiveness	p. 20
	3.4.2 Suitability and Applicability of Indicators	p. 22
	3.5 Research Framework	р. 23
4.	Results	p. 27
	4.1 Research Process	р. 27
	4.2 Research Findings	p. 29
	4.3 Research Findings - Figures and Recommendations	p. 65
	4.3.1 Overall Effectiveness per Indicator	p. 68
	4.3.2 Overall Level of Effectiveness and Recommendations	p. 71
5.	Conclusion	p. 73
	5.1 Overall Conclusion	p. 73
	5.2 Scientific and Societal Contributions	p. 74
	5.3 Limitations and Future Research	p. 74
6.	References	p. 76
	6.1 References applied for Chapter 4. Results, listed per initiative	p. 79
7.	Appendices	p. 85
	7.1 Appendix A: Analytical Framework (Chapter 3)	p. 85
	7.2 Appendix B: Research Findings (Chapter 4)	p. 88
	7.3 Appendix C: Extra research findings (Chapter 4)	p. 92
	7.4 Appendix D: Set-up of data selection	p. 97

Foreword

Here I am, finalizing my MSc. Thesis. One year ago, I started brainstorming about research topics, I started writing my first research designs. However, when looking back at this year, I can say that this was not the most easy year for me, taken from the personal perspective. Many events within my family that needed my attention crossed my path, resulting in many emails towards my wonderful supervisor Frank Biermann, who must have lost his patience quite some times.

For this patience, I would like to thank Frank- without his support I would never have been able to finalize my thesis. I would also like to thank him for sharing his knowledge and experience, enabling me to rise up to a high level of academic education and skills. Even more, I would like to thank my second reader Sander Chan, who took my academic questions into consideration. Pieter Louwman also deserves all my best wishes, as he has been supporting me to get through all the personal difficulties that came up during the research and writing stages. My parents, of course, who were there both in their own way, have showed their unconditional support. Thank you Eliaan, for pushing me into the right direction. And last but not least, I cannot express how thankful I am to Emile, by brother, who has been reading my work from the beginning, asking me the right questions to steer me into the right direction. Emile, you were the best support I can ask for and thank you for all your patience!

It has been a moving but educative year, and I am proud to finalize my Masters' with this final research report. Hopefully it will lead to some inspiring insights and contribute to the scientific community as well as climate governance arena in a small but beneficial way. Enjoy reading!

1. Introduction

Non-state actors show a great potential in global climate governance (Blok et al., 2012; Chan et al., 2015; Hsu et al., 2015; Michaelowa and Michaelowa, 2017). However, systematic evidence of the effectiveness of non-state actors' initiatives, as well as cooperative initiatives, still remains scarce and the potential of achieving their climate actions remains uncertain (Chan et al., 2015; Michaelowa and Michaelowa, 2017). Therefore, there is a need for better understanding the effectiveness of these relatively new initiatives. Even more, it is relevant to research whether they are likely to deliver on their promise of advancing global efforts to increase the resilience to climate change (Chan et al., 2015; Betsill et al., 2015). Consequently, this research contributes to the scientific knowledge gap.

The present study builds on previous literature on transnational climate governance, non-state actors, resilience to climate change and non-state actors' cooperative initiatives. The aim of this study is to measure the level of effectiveness of non-state actors' cooperative initiatives, focussing on resilience to climate change. Hence, this research contributes to the improvement of effectiveness of non-state actors' cooperative initiatives. The aim of this study will be met by following the research question: *What is the level of effectiveness of non-state actors' cooperative initiatives on resilience in the NAZCA platform within transnational climate governance and what is needed for further improving the effectiveness*? The sub questions are listed in Chapter 3.

An analytical framework is developed in order to meet the research objective. This will give insights into the variation in effectiveness and how to increase the effectiveness of the initiatives.

The outline of the paper is as follows. The next section of this thesis, chapter 2, contains a literature overview and theoretical background. In chapter 3, the methodology, empirical setting, data collection process and measures are described. The empirical setting of this study is the cooperative initiatives focussing on resilience to climate change, connected to the NAZCA Platform. The study uses a qualitative research design, applying a document analysis with the developed framework to measure the level of effectiveness. Then, the findings are presented and discussed in chapter 4, as well as recommendations for improving the overall effectiveness of the initiatives are made. At last, chapter 5 draws the final conclusions, lists several research limitations and proposes suggestions for further research.

2. Theoretical Framework

In this study, I build on previous definitions and findings and investigate the level of effectiveness of non-state actors cooperatively participating in the NAZCA Platform. This section provides an overview of the literature concerning the following concepts: transnational climate governance, non-state actors, mitigation, adaptation and resilience to climate change and non-state actors' cooperative initiatives. Each theory section is concluded by the definition applied in this research.

2.1 Transnational Climate Governance

To define the concept of transnational climate governance, each individual concept is first determined. Firstly, governance is a contested concept that needs further specification. Rosenau (2000) made a distinction between government and governance, in which government is enclosing the world of states, whereas *governance* is 'the coordination of states and the activities of a vast array of rule systems that exercise authority and function outside normal national jurisdictions to pursuit public goals' (Rosenau, 2000, p: 167). Andonova et al. (2009) state that 'governance is concerned with realising public goals through the process of steering a particular constituency of actors' (in: Bulkeley, et al. 2012, p. 594). Both thus state that governance involves several actors from different scales, exercising authority in order to realise public goals. The realisation of public goals is also mentioned by other authors, stating that governance incorporates a diversity of governing processes, in order to mobilise and organise collective action (Coafee and Kealy, 2003; Kooiman, 2003, in: Andonova et al., 2007). At last, according to O'Brien et al. (2000), governance should 'represent the sum of the many ways that individuals and institutions, public and private, manage their common affairs (O'Brien et al., 2000, p: 9). Hence, according to various scholars, governance encompasses several elements. It entails the representation of a variety of actors (both individuals and institutions, both public and private), acting within several governing processes outside normal national jurisdictions, managing and realising their common affairs or mobilising collective action. This description of the concept will be applied in this research.

Secondly, *transnational governance* also encompasses the representation of various actors managing commons affairs, like governance, but the transnational characteristics are added to the definition. It is considered to 'link governance systems from the global to the local, across the public and the private spheres', including 'transnational networks, aiming at governing directly, purposively steering constituent members of populations to act' (Andonova et al., 2007, p: 2). According to Risse-Kappen (1995), it involves 'regular interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an international organization' (p. 3, in:

Bulkeley et al., 2012). However, Backstrand (2008) argues that the involvement of non-state actors is not a necessary condition. According to the author, it is about 'a coalition of the willing' (ibid.). Nonetheless, as the majority of scholars implies the inclusion of non-state agents, this research applies the definition of transnational governance which includes interaction across national boundaries, involving at least one non-state agent as an actor. At last, Kolk et al. (2010) and Hoffman (2011) state that transnational governance interests are often considered to be about private regulation or public-private partnerships. However, the authors argue that several initiatives fall outside these categorisations, such as addressing environmental issues (ibid, in: Bulkeley et al., 2012). This brings us to the concept of *transnational climate governance*.

In order to understand the transnational character of climate governance, we need to have some historical understanding of climate governance. The issue of climate change has been on the global scientific and political agenda since 1979, when it became a topic of discussion at the first World Climate Conference (Gupta, 2010). After several Conferences, the International Panel on Climate Change (IPCC) was established in 1988 and through the years several political Summits were organized bringing together world leaders to cover the issue. All these historical events have resulted in the emergence of scientific research findings on climate change as well as the appearance of important political steps towards climate change policy and cooperation between nation states (ibid.). This dynamic continued in the 1990s by the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and the Conference of the Parties (COP) meetings as a part of the UNFCCC procedures. Between the 1970s and the 1990s, climate change governance was marked by policy negotiations between nation states. Non-state actors only appeared as non governmental organizations (NGOs) in this stage of climate governance. The appearance of NGOs did increase dramatically, however other types of non-state actors were not playing a role in climate governance yet (ibid.).

However, the process of climate governance set up by the UNFCCC has been highly criticised since the 2000s, as the United States withdrew from the Kyoto Protocol in 2001, enabling scholars and politicians to call the governance procedures too much focussed on intergovernmental arrangements, being monocentric and too simplistic, therefore depending too much on decisions of nation states (Jordan et al., 2015). This resulted in the appearance of new modes of climate governance as it was needed to find new, more effective ways to govern climate change (ibid.). Transnational climate governance emerged as a form of governance, appearing in the scientific literature for some decades now and growing in its importance. Within transnational climate governance, new varieties appeared, including transgovernmental networks, cross border governance, linking several actors varying from cities to private sector actors. The new mode of governance created a transformation in how governance is applied

at the global level, complementing traditional governance arrangements by intergovernmental institutions with a diversity of transnational arrangements. Therefore, the multilateral and transnational character of the climate governance arena resulted in the complementation and interconnectedness of national policies and transnational governance (Roger et al., 2017).

The concept of transnational climate governance thus captures the transnational character of climate governance arrangements, also including non-state actors. The presence of an increasing number and diverse set of transnational actors playing a role in the transnational governance arena as described above has been bringing complementation and interconnectedness (Michaelowa and Michaelowa, 2017). However, it also shows to be creating a certain level of complexity (ibid.). The increase is causing diffusions in authority, making the transnational cooperation more fragmented (Andonova et al., 2007). Even more, the complexity and diversity of initiatives involved in the transnational governance arena continues to grow (Bulkeley et al., 2012). Hence, the question arises whether transnational climate governance is properly functioning and most effectively dealing with climate change (Zelli and Van Asselt, 2013).

2.2 Non-State Actors

As previously explained, transnational climate governance involves interactions taking place across boundaries, between actors of which at least one agent is a non-state actor. The study as well as practice of the politics of climate change revolves primarily around the actions of governments. These are called *state actors*. According to Reinicke (1998), governing international politics and the global economy is impossible without governments. However, as explained above, governments will also have to and are more and more enlisting the active cooperation of non-state actors (ibid).

A non-state actor is an actor that is not a governmental agent. According to Luterbacher and Sprinz (2011), the term *non-state actor* generally refers to 'any organization that does not have a formal or legal status as a state or agent of a state, or as a constituent subunit of a state such as a province or municipality' (p. 97). Several kinds of non-state actors are identified by Luterbacher and Sprinz (2011):

- Non-governmental organizations; (NGOs);
- Epistemic communities;
- Private sector corporate actors;
- Religious organizations and consumer groups;
- Cities and provinces, also called subnational governments (Added to the list by Hsu et al., 2015; Michaelowa and Michaelowa, 2017; NAZCA, 2017).

Since the last few Conferences of the Parties (COP) and the COP21 in Paris in particular, non-state actors have become more relevant in climate governance and also scientific scholars pledge for their high potential in contributing to climate change action (Falkner, 2013; Hsu et al., 2015; Chan, Brandi and Bauer, 2016). Some scholars argue for the complementing role of non-state actors to state actors as well as to be a means of implementation for national pledges. Due to the increasing demands of national governments to affirm to their intended nationally determined contributions (DCMs) developed at the COP21 in Paris, the role of non-state actors becomes more relevant (Chan et al., 2015). Other scholars point to the role of non-state actors as a way to make up for lost ground and missed opportunities by state actors, therefore filling the gap created by state actors (Hsu et al., 2015). Thus, several arguments appear for the relevance of non-state actors within the transnational climate governance arena.

However, the question arises whether effective climate action will result from the multiple types and goals of existing initiatives. As mentioned in the section on transnational climate governance, disadvantages also appear. Chan, Brandi and Bauer (2016) state that the emerging space of interactions between several types of actors could be beneficial as they could all mutually reinforce each other. However, they also observe side effects of the emergence of transnational climate initiatives, such as the increasing level of inefficiency and transaction costs. Also Michaelowa and Michaelowa (2017) argue that the initiatives show the potential of contributing to the targets set in Paris, but they also observe several difficulties. Their research focusing on measuring the effectiveness of 109 initiatives based on four design criteria, gives a sobering result. Their research shows that the initiatives will not provide any significant contributions to the global climate goals set in Paris. This is caused by the lack of financial incentives that are in proportion to the severity of the challenges of climate change mitigation, as well as the lack of internal dynamics that drive non-state actors to a higher level of effectiveness (ibid.). Even more, Chan et al. (2015) question the ability of non-state initiatives to achieve what they pledge. At last, others also question whether non-state actors are currently capable of reaching their fullest potential. All non-state actors have different goals, act on various scopes, making the landscape diverse and difficult to track (Bulkeley et al. 2014, in: Chan et al., 2015). The lack of proper coordination is not helping, neither does the existence of major imbalances (ibid.). Thus, several scholars acknowledge the high potential and the importance of non-state actors in transnational climate governance, but do also criticize the current level of effectiveness of the actors.

2.3 Non-State Actors' Cooperative Initiatives

Due to the lack of effectiveness of non-state actors, authors propose several recommendations in order to ensure better interactions, cooperation and integration as well as to mobilize, support and increase the

impact of actions (Chan et al., 2015; Chan and Pauw, 2014; Hsu et al., 2015; Widerberg and Pattberg, 2015). The next section defines cooperative initiatives by non-state actors, explains their role and goals within the transnational governance arena and argues the need for more research.

The activities of non-state actors in the transnational climate governance arena are called non-state actors actions or *initiatives*. These initiatives are activities by non-state actors aiming at mitigation of greenhouse gas emissions, at adapting to the impacts of climate change, or contributing to the resilience to climate change. According to Roger et al. (2017), a transnational climate governance initiative is transnational in nature, is addressing climate change and is an instance of governance. As mentioned, an initiative can focus on either climate change mitigation, adaptation of resilience measurements, or a mix of the three. Some examples are emissions reductions, changing infrastructure, promoting renewables, developing the green economy and revolutionizing IT infrastructure. Transformation is considered to be the collective goal of transnational governance initiatives (Falkner, 2013; Chan et al., 2015).

When these actions by several individual non-state actors are closely integrated, their actions are called *cooperative initiatives*. The enhancement of cooperation was developed in 2014 at the COP20 in Lima, where the Lima-Paris Action Agenda was created in order to enhance large multi-stakeholder initiatives to augment and encourage climate action. This agenda and action plan is still enforced, as it was again agreed in 2015 at the COP21 in Paris that cooperation between state and non-state actors, as well as between non-state actors is urgently required. Even more, non-state actors were acknowledged to be able to make major contributions to climate change governance (NAZCA, 2018). Consequently, the concept of *cooperative initiatives* was developed, meaning: 'commitments to action that are being undertaken collectively by a variety of companies, subnational regions, investors and civil society organizations, often in partnership with countries' (ibid.). In order to support and catalyze this concept, the Non-State Actor Zone for Climate Action (NAZCA) was created after the COP20. This online platform shows commitments to climate action by companies, cities, regions and investors, including several themes for climate action. It enables cooperation by a variety of stakeholders to achieve common goals (UNFCCC, 2018). Therefore, the platform is considered to play an important role in the realization of the climate goals set at COP21 in Paris. Even more, non-state actors are still supported to register to the platform (Chan et al., 2015). One of the themes for climate action within the platform is resilience, being the main focus of this research. It currently includes fourteen projects of cooperative initiatives by non-state actors, being a main theme within the NAZCA platform (NAZCA, 2018).

The following figure shows an overview of the discussed concepts. It clarifies the differences and relations between the concepts.



Figure 2.1 Overview of the concepts and their relations. (a) Types of Non-State Actors. (b) Transnational Climate Governance.

2.4 Mitigation and Adaptation

Within the transnational climate governance arena, there are several ways to govern climate change. These methods are discussed in the following two sections. Climate change mitigation and adaptation are commonly applied in both scientific research as well as governance systems. These concepts are explained in the context of this research, because an understanding of the difference between these concepts and the definition of resilience to climate change is needed.

Firstly, mitigation of greenhouse gases has been the main focus of political climate oriented activities (Michaelowa, 2001). This strategy involves precautious policy in order to prevent climate changes to happen. As an example, it implies reducing CO2 emissions through more efficient conversion of fossil fuels, in order to reduce the possibility for sea levels to rise. Mitigation policies only have minor and long-term influence on warming rates, which only give them a relatively limited scale of influence (ibid; Kane et al., 2000).

Secondly, adaptation involves policy implementations focussing on already existing climate changes in society. Adaptation measures can reduce impacts of climate change on human societies. Adger et al. (2005a) define adaptation as 'an adjustment in ecological, social or economic system in response to observed or expected changes in climatic stimuli and their effects and impacts in order to alleviate adverse impacts of change or take advantage of new opportunities' (p. 78). An example could be

increasing the height of dikes in order to reduce the probability of the rosen sea levels to reach land (Pittock and Jones, 2000).

Whereas mitigation strategies are precautious policy measures, adaptation strategies are often reactive measures, as the adaptation strategies are responses to spatial and temporal variations in the weather conditions (ibid.; Pittock and Jones, 2000).

2.5 Resilience

The concept resilience was first applied by Holling (1973), focussing on the resilience of ecological systems. According to Holling (ibid.), an ecosystem with a high level of resilience has the capacity to respond to disturbances, is able to resist damage and has the ability to recover fastly. Even more, Folke et al. (2002) state that it is about the capacity to buffer change, learn and develop and it is 'related to the magnitude of shock that the system can absorb and remain within a given state' (p. 437).

The concept of resilience can also be applied in the context of social-ecological systems. This is properly explained by the Stockholm Resilience Centre (SRC). According to the SRC, social-ecological systems are 'systems that are shaped by the interactions between people and ecosystems' (SRC, 2017). Resilience of social-ecological systems is defined by the capacity of a system to deal with change and is able to continue to develop. According to Adger (2005b), resilience of social-ecological systems entails 'the capacity to absorb recurrent disturbances such as hurricanes and floods, as to retain essential structures, processes and feedbacks (p. 1036). Thus, social-ecological systems that show a high level of resilience have incorporated diverse mechanisms that enable the system to deal with and learn from change and unexpected tendencies (ibid.).

The latter two definitions by SRC (2018) and Adger (2005b) of social-ecological resilience show a great overlap with the previously developed definition of ecological resilience by Holling (1973). However, the newer definitions are more inclusive and applicable to this research because they link ecological systems to human societal systems. This is relevant as human actions can render ecosystems with consequences for human livelihoods, vulnerability and security. Dealing with this possibly negative interaction is therefore relevant. According to Folke et al. (2002), it is important to direct policy towards highlighting interrelationships between the ecological systems and the context of human society. Several requirements for properly dealing with resilience for social-ecological systems are mentioned in the literature and listed below.

Building resilience in social-ecological systems could be provided through the implementation of several factors. Firstly, structured scenarios and active adaptive management are relevant. Even more, facilitating flexible and open institutions, creating multi-level governance systems that allow for learning,

as well as increasing adaptive capacity is needed (Folke et al, 2002; Adger, 2005b). Through policy implementation, these factors will be realized. It will strengthen the perception of humanity and nature as interdependent, create flexible collaboration through open institutions that build adaptive capacity and enhance learning. These factors will increase the range of surprise with which a socioeconomic system can cope (Folke et al. 2002). Another way to create this high level of resilience is to expose the system to its boundaries. This is often generated through the presence of self-organization of a system. When the system is capable of buffering and dealing with unexpected changes itself, it becomes prone to its boundaries, therefore it is more easily capable of buffering changes that are crossing its boundaries. Besides the presence of self-organization and the capability of dealing with changes, a social-ecological system is also highly resilient when it is able to build capacity for development, learning and adaptation (SRC, 2018).

Resilience shows great similarities with the concept of adaptation. However, the difference between adaptation and resilience lays in the following. Resilience encompasses the ability of a whole system to deal with changes, whereas adaptation is covering responsive strategies on a smaller scale. One of the requirements for a system to be highly resilient is the adaptive capacity level of that system. Thus, adaptation is a requirement for a system as a whole to be resilient.

In this research, the focus lays at the concept of resilience, more specifically at social-ecological resilience. The definition of resilience applied in this study is therefore combining the above mentioned definitions on social-ecological resilience (Folke et al., 2002; Adger et al., 2005a; de Vries, 2013; SRC, 2017). However, it needs to take the effectiveness of initiatives into consideration. Does an initiative has the capability to contribute to the increase the resilience of a social-ecological system? Thus, resilience is defined as the following: resilience is determined by the capability of an initiative to create higher levels of resilience, that is, the capability of a system to buffer change as well as continues to learn, innovate and develop in response to climate changes. It may either be considering a system such as a society or a forest, as long as it shows to be capable of dealing with change as well as continues to be able to develop, it is considered to be resilient. These requirements are applied in the resilience oriented effectiveness indicator of this research, explained in Chapter 3.

Due to the already occurring climate changes, systems are supposed to adapt to the observed changes. Therefore, the capacity to deal with climate changes that are already occurring appear to be of high importance (UNFCCC, 2016). This shows the relevance of systems to become resilient to climate changes. Therefore, how and to what level of effectiveness initiatives are capable of enhancing the level of resilience of systems is a more and more pressing question. Hence, this research studies non-state actors' cooperative initiatives focussing on resilience in climate change.

2.6 Problem definition

As mentioned above, several problems are identified that show the need for further research.

Firstly, the increasing number and diverse set of transnational actors in the transnational climate governance arena is causing higher levels of complexity, diffusions in authority and fragmentation (Michaelowa and Michaelowa, 2017; Andonova et al., 2007; Bulkeley et al., 2012).

Secondly, many scholars show the high potential of non-state actors' initiatives, as well as cooperation between these non-state initiatives in the transnational climate governance arena. However, while cooperation between non-state actors is recognized for its importance, it is questioned whether the initiatives achieve what they pledge and whether they are currently reaching their fullest potential (Chan et al., 2015; Chan and Pauw, 2014; Hsu et al., 2015; Widerberg and Pattberg, 2015).

Hence, as the potential of non-state actors is acknowledged to be relevant within the transnational climate governance arena. However, their current level of effectiveness is questioned as well as not researched yet, showing the need for research on the level of effectiveness of non-state actors' cooperative initiatives within transnational climate governance.

2.7 Scientific and Societal Relevance

The body of literature shows a knowledge gap in the measurement of effectiveness of non-state actors' cooperative initiatives (Jordan et al., 2015; Chan et al. 2016). Consequently, this research contributes to the existing scientific knowledge gap.

The societal relevance of this research is explained by several arguments. Firstly, the unit of analysis, that is the cooperative initiatives focussing on climate change resilience, plays a significant role in the transnational climate governance arena (Chan et al., 2015; Hsu, et al., 2015). Secondly, measuring the level of effectiveness gives insights in how to improve the activities of non-state actors, how to more properly create integration and cooperation. Thirdly, by measuring the level of effectiveness, not only the cooperative initiatives themselves could revise or improve their set goals in order to become more effective, also policy-makers will gain a better understanding in the shortcomings and needs of the cooperative initiatives for further improvement of the governance arena as a whole (Arts, 2000; Reinicke and Copeland, 1998). At last, one of the pillars of the COP21 in Paris is the adaptation of the business models of non-state actors to a 1.5 or 2 degrees Celsius, which implies taking swift actions by non-state actors. This research contributes to achieve this goal.

Thus, the research findings will consequently contribute, may it be in a small manner, to the level of resilience of social-ecological systems to climate change.

3. Analytical framework

3.1 Research Objective and Questions

The aim of this research is to contribute to the improvement of effectiveness of non-state actors' cooperative initiatives by measuring the level of effectiveness of the NAZCA Global Climate Action platform. Further details on the research scope and the research methodology can be found in this chapter.

The following research questions are formulated in order to meet the research objective: What is the level of effectiveness of non-state actors' cooperative initiatives on resilience in the NAZCA platform within transnational climate governance and what is needed for further improving the effectiveness?

The sub questions are meant to support the central question and are as follows:

- 1. What non-state actors' cooperative initiatives currently exist?
- 2. What are the indicators for effectiveness applied in this research?
- 3. What indicators of effectiveness appear to be falling short, according to the analysis?
- 4. What recommendations can be drawn to increase the level of effectiveness of non-state actors' climate initiatives?

An analytical framework is developed in order to meet the research objective. The analytical framework enables measuring the level of effectiveness of non-state actors' cooperative initiatives from the NAZCA Global Climate Action Platform. Consequently, it gives insights into the variation in effectiveness and how to increase effectiveness of the initiatives.

The results of this research do not constitute new theories on effectiveness, nor will they solve the theoretical or practical problem entirely. They will contribute towards the theoretical discussion on this subject and consequently towards the further development of the scientific body of knowledge. Even more, it will give more insights in the practical dilemmas regarding cooperative initiatives on climate change resilience and how they could enhance the likelihood to deliver on their promise of advancing global efforts to increase the resilience to climate change.

3.2 Research Scope

In order to delimit the scope, this research focusses on measuring effectiveness of (a) non-state actors' cooperative initiatives involved in the NAZCA Platform, (b) aiming at increasing resilience of social-ecological systems to climate change. The following figure sets out the focus points of the study:



Figure 3.1 Research Scope: (a) Cooperative Initiatives, (b) Resilience.

The figure is already portrayed in the theoretical framework to illustrate the differences between the concepts. Figure 3.1 shows the scope of this research in particular. Several arguments justify the scope of this research.

Firstly, the concept of cooperative initiatives is chosen as the focus group of non-state actors for the scope of this research. The concept has been relatively newly created, resulting into the NAZCA Platform after the COP21 in 2015. As the Platform is so new it has not been researched yet, which shows the need for analyzing their current level of effectiveness. Even more, the Platform is considered to play an important role in transnational climate governance, showing the need for optimizing their activities for optimal results.

Secondly, the concept of resilience is chosen within transnational climate governance as the scope for this research. As described in the Chapter 2, the capacity to deal with climate change is considered to be of high importance, showing the relevance of systems to become resilient to climate changes (UNFCCC, 2016). Hence, this study focuses on cooperative initiatives, aiming at increasing social-ecological systems' resilience to climate change.

The selection of these concepts will influence the results of this research. Due to the specific focus onto these sections within the NAZCA Platform, the research findings draw conclusions onto these sections only, possibly disabling making strong general conclusions onto the overall NAZCA Platform. Even more, research findings on the NAZCA Platform will not provide us with conclusions about the

general activities of non-state actors in transnational climate governance. Due to the chosen scope and time limitations, this research is only giving research results about a niche within transnational climate governance. However, this is also contributing to the scientific knowledge as well as providing societal benefits, as the specific niche enables robust and detailed research findings. Even more, the developed analytical framework can be applied to other sections of the NAZCA Platform, as well as other research scopes in future research (some minor adjustments might be needed).

3.3 Research Strategy and Material

The strategy of this research is tailored to achieve the objective, by executing a multiple case study on the NAZCA Platform. This entails studying multiple cases or initiatives in an in-depth manner (..). The methodology suits the objective of the research, because it will provide in-depth knowledge on the several initiatives, as well as it will provide study results that could be generalized to other climate initiatives involved in the NAZCA Platform.

The unit of analysis is cooperative initiatives, more specifically the NAZCA cooperative initiatives focussing on resilience of social-ecological systems to climate change. The NAZCA was launched at the UN climate change conference in Lima (COP20) and registers commitments to action by companies, cities, subnational regions and investors to address climate change (UNFCCC, 2017). The initiative was drawn from the Climate Initiatives Platform Database, developed by the United Nations Environment department and the UNEP DTU Partnership, funded by the Dutch Ministry of Infrastructure and the Environment. The organization provides a list of previously endorsed initiatives by the Lima-Paris Action Agenda (LPAA), separated per theme. This research focuses on the cooperative initiatives aiming at improving resilience to climate change, which currently entail fourteen initiatives. This is the answer to the first sub research question: *What non-state actors' cooperative initiatives currently exist*? These fourteen initiatives are individually explained in more detail in Chapter 4.

This research is executed through a document analysis. The studied documents entail the websites, reports and other materials provided by the initiatives, third party information (eg. UNFCCC or newspaper articles), the Climate Initiatives Platform (more information about the database in Chapter 4). Even more, several interviews (executed through Skype) allow for more in-depth study results and substantiate the outcomes. Hence, the data collection eventually enables answering the research question.

3.4 Research Perspective: Effectiveness

In order to measure the level of effectiveness of non-state actors' cooperative initiatives focussing on climate change resilience, *effectiveness* first needs further clarification. Effectiveness is a contested

concept, which is difficult to measure. Distinguishing effective from ineffective initiatives is a challenging task (Chan and Pauw, 2014; Pinkse and Kolk; 2009). Even more, the subjectivity of the concept generates various interpretations to the concept (Bulkeley et al. 2014; Widerberg and Pattberg, 2015; Chan et al., 2015; Hsu et al., 2015; Michaelowa and Michaelowa, 2017). Therefore, the following section gives an overview of the concept effectiveness within transnational climate governance and how several scholars suggest that effectiveness should be measured. This theoretical basis is used for the development of the analytical framework of this research.

Several scholars have defined effectiveness differently, as well as argued for several ways to measure effectiveness. For example, Bulkeley et al. (2014) describe effectiveness of transnational climate governance as the ability of particular actors to meet their own interests, while also contributing to the public good. Even more, Widerberg and Pattberg (2015) define effectiveness by 'the performance of an arrangement vis-a-vis a policy goal' (p. 47). They have created proxies to measure effectiveness. The first proxy focuses on actors: does the cooperative initiative reflect the actors that it is aiming to influence? The second proxy looks at the availability of the necessary resources to deal with the problem (ibid.). These definitions thus consider the performances of particular actors, while also accounting for the policy goals. Hsu et al. (2015) focus mainly on the integration with other actors dealing with the same issues is reached for the effectiveness to be high. Even more, other scholars mainly focus on the practical requirements for enhancing effectiveness of initiatives. Chan et al. (2015) suggest high levels of structure, progress, cooperation, transparency and evaluation.

3.4.1 Indicators for Effectiveness

Based on the theoretical findings on effectiveness mentioned above, the definition of effectiveness applied in this research is the following: a cooperative initiative is considered to be effective, when it both meets its particular interests, as well as the public goal of enhancing resilience of social-ecological systems to climate change. Three indicators for measuring effectiveness are developed and applied in this research. They are developed based on the theoretical findings from the literature on policy effectiveness, listed in Chapter 2 and in the above. These are the following: realistic goals, procedural effectiveness, resilience oriented effectiveness (Chan et al., 2015; Chan, Bauer and Brandi, 2016; Widerberg and Pattberg, 2015; Adger et al., 2005; Morecroft et al., 2011; SRC, 2017; Michaelowa and Michaelowa, 2017). Hence, the following second sub question is answered: *What are the indicators for effectiveness applied in this research?* The indicators are listed and justified in this section. In section 3.4.2, the analytical framework and the yardsticks for measuring the indicators are listed in the figures. Section 3.4.3 justifies the feasibility and suitability of these indicators for the study.

Indicator I: Realistic goals

This indicator researches the presence of set goals, as well as it explains the likelihood that these set goals can be delivered on, taking its limitations (budget, resources, scope and time frame) into consideration (Chan et al., 2015; Widerberg and Pattberg, 2015). When the initiative scores low on the presence of (realistic) goals, this means that the final output of the initiative will not be likely to correspond to its previously set goals.

It is a relevant indicator in case of measuring the effectiveness of non-state actors' cooperative initiatives because it questions whether their main goal, delivering onto their set goals, is likely to be reached.

Indicator II: Procedural effectiveness

This indicator measures the presence of a proper procedural framework which will enable the initiative to progress towards its set goals. The indicator measures four factors.

Firstly, it checks whether first output results are present and whether these results are complementing with the objectives of the initiative (Michaelowa and Michaelowa, (2017). Secondly, the procedural effectiveness is checked by measuring the level of cooperation by the initiative. This includes cooperation within the initiative with other parties, but more important the level of cooperation with other NAZCA initiatives (Chan, Brandi and Bauer, 2016). Thirdly, the level of transparency of the activities and goals of the initiative is researched by checking the presence of public documents (Chan et al., 2015). Lastly, the implementation of monitoring, reporting and feedback mechanisms is checked (Chan et al., 2015).

Procedural effectiveness is applied in this research because it takes relevant factors leading to realizing the set goals of the initiative into consideration. Because all initiatives are still in progress, the final level of effectiveness cannot be measured yet. Even more, most of the initiatives have only started in the last years (see Figure 4.3) and will continue to operate in the upcoming years, meaning that the initiatives cannot be measured for their final level of effectiveness yet. This means that the initiatives have their goals set, but are currently operating and implementing their goals. Hence, measuring their progress and the first output results in complementation with their set objectives is considered to be more relevant than only their set goals or their orientation to resilience. Hence, the procedural effectiveness indicator is preponderating than the first and third indicator.

Indicator III: Resilience to climate change

The third indicator specifically measures the effectiveness of the topic of the goals of the cooperative initiatives, that is increasing *resilience to climate change*. Whereas the first two indicators are mostly focussing on the effectiveness of the policy and procedural effectiveness of the initiatives, the third indicator is focussing on the topic of their goal. This captures the definition of Bulkeley et al (2014) and Widerberg and Pattberg (2015), stating that effectiveness of an initiative is both meeting the individually set objectives as well as public goals, which is in this case resilience of social-ecological systems to climate change.

The definition of the concept resilience is based on the findings described in the theoretical framework. Requirements for a high level of resilience entail the following. The initiative should be able to create the capability of dealing with environmental uncertainties in a system (SRC, 2017). Even more, the initiative should be able to create the capability of increasing flexibility and recovery levels in the particular system (Adger, 2005b). At last, the capacity of the initiative to continue developing, learning and adapting is considered to be a requirement for a system to be resilient (Morecroft et al., 2012). It is relevant to measure the topic of the goal, because the research should also take the topic of their goal setting specifically, into consideration.

3.4.2 Suitability and Applicability of Indicators

The selection of indicators is made based on the suitability and applicability for this specific study. Firstly, these indicators are considered to be relevant by several scholars (Widerberg and Pattberg, 2015; Chan et al., 2015; Hsu et al., 2015; Morecroft et al., 2011; Adger et al., 2005; Michaelowa and Michaelowa, 2017). Secondly, the measurement of these indicators within this research project of fourteen initiatives show a high feasibility, considering both the unit of analysis as well as the time limitation of the research project.

Difficulties may arise in the measurement of initiatives that have only started in the last few years. How could these initiatives be analyzed when no final results exist yet? This problem is tackled through the application of several indicators. The 'realistic goals' indicator measures whether the set goals could realistically be reached, within the scope and set time frame of the cooperative initiative. One of the yardsticks of the 'procedural effectiveness' indicator is the complementation between the first output results and the objective of the initiative. Hence, it is taking the fact that the initiatives are not finished yet into consideration, and only bases the measurement on the currently available data (Michaelowa and Michaelowa, 2017). Even more, the indicator measures aspects of the ongoing process, such as the progress made, towards reaching the set goals. Thus, these indicators include the continuity and

unfinalized characteristic of the initiatives. Findings of these indicators can thus be retrieved while the final results are not available yet.

3.5 Research framework

The framework below shows the overall list of indicators applied to measure the level of effectiveness. As each indicator is measured separately, it shows what indicators per initiative could be improved. Even more, the total level of effectiveness of every individual initiative is retrieved from these findings. The framework also enables listing the initiatives that show the highest score of the overall level of effectiveness with the resilience section of the NAZCA Platform.

The first row of the table shows the three indicators for effectiveness. The middle row of the table illustrates how these indicators are divided into the yardsticks in this study. The third row of the table shows the operationalisation of yardsticks for measuring the indicators of effectiveness. These yardsticks enable the concrete measurement of the level of effectiveness.

Indicators for effectiveness	Operationalisation of indicators for effectiveness	Yardsticks for measuring indicators	
I. Realistic Goals	 Presence of short/long term goals (Chan et al., 2015): does the initiative have set goals? Presence of goals within scope of non-state actor (Widerberg and Pattberg, 2015): does the initiative have set goals that can be reached within its limitations (budget, sources, scope and time frame)? 	 Presence of short/long term goals; Presence of framework; fits the objective based on: Budget of the initiative; Timeframe of goal realisation; Needed tools for goal realisation; Scope of goal realisation. 	
II. Procedural Effectiveness*	 Progress. Comparing the initiatives' output/design with its objective (Michaelowa and Michaelowa, 2017): <i>does the</i> <i>initiatives' objective</i> <i>complement with the first</i> <i>output results?</i> Cooperation (Chan, Brandi and Bauer, 2016): <i>does the initiative</i> <i>manage to have proper</i> <i>cooperation between the</i> 	 First output results show complementation with objective. Amount of cooperation within initiative; amount of cooperation with other NAZCA initiatives; Sharing of policy documents with wider public; Monitoring on a regular basis; reporting and 	

	 joining actors as well as NAZCA initiatives? 3. Transparency (Chan et al., 2015): does the initiative have transparent and clear documents? 4. Monitoring, reporting, feedback (Chan et al., 2015): does the initiative implement MRF in order to enhance their level of effectiveness in the future? 	feedback on its own policy framework on regular basis.
III. Resilience Oriented Effectiveness	 Dealing with uncertainties and buffering change (SRC, 2017): does the initiative create the capability of dealing with environmental uncertainties in the system? Flexibility and recovery skills (Morecroft et al., 2012): does the initiative create the capability of increasing flexibility and recovery levels in the system? Continuation of development, learning and adaptation (SRC, 2017): does the initiative create the capability of the continuation of development, learning and adaptation in the system? 	 Creation of adaptation mechanisms; Flexibility and recovery: the goal is including flexibility to necessary changes; Development, learning and adaptation is visible in the system through the implementation of the initiatives' policy.

*Figure 3.2 Analytical Framework: indicators and yardstick operationalisation.*Indicator II weighs double as much as Indicator I and III*

The following table shows the scoring methodology of the research project. Every indicator measuring effectiveness is attributed to a score of *Very Low* (--), *Low* (-), *Moderate* (+/-), *High* (+), or *Very High* (++). The table explains on what basis these outcomes are attributed to the indicator.

	Very Low ()	Low (-)	Moderate (+/-)	High (+)	Very High (++)
Realistic Goals	No goals present No set time frame No realistic budget for set time frame No realistic tools No consideration of scope	No consideration of 4 of 5	Consideration of 2/3 of 5	Consideration of 4 of 5	Consideration of 5 of 5
Procedural Effectiveness*	No complementa tion observed No cooperation No transparency No MRF	No consideration of 3 of 4	No consideration of 2 of 4	Consideration of 3 of 4	Consideration of 4 of 4
Resilience Oriented Effectiveness	No incorporation of adaptation measurement No incorporation of flexibility measured No incorporation of development and learning mechanisms measured	No consideration of 1 of 3	No consideration of 2 of 3	Consideration of 2 of 3	Consideration of 3 of 3

Figure 3.3 Scoring Card I: justification of score attribution. *Indicator II weighs double as much as Indicator I and III.

Based on the assigned measurements, each indicator is assigned with a mark of Very Low (--), Low (-), Moderate (+/-), High (+) or Very High (++) level of effectiveness. The total of the evaluated indicators and thus the overall cooperative initiative can be evaluated afterwords. This looks like the following:

NAZCA Cooperative Initiative	Indicator I: Realistic Goals	Indicator II: Procedural Effectiveness*	Indicator III: Resilience Oriented Effectiveness	Total level of effectiveness
Initiative I	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)
Initiative II	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)
Initiative III				
Initiative XIV				

*Figure 3.4 Scoring Card II: the total score per indicator of effectiveness per initiative, including the total level of effectiveness.***Indicator II weighs double as much as Indicator I and III.*

In the following chapter, the research framework and scoring cards are applied onto the unit of analysis of this study.

4. Results

4.1 Research Process

This chapter shows the results of the measurement of effectiveness of the cooperative initiatives involved in the NAZCA Platform focussing on resilience. The fourteen initiatives currently connected to the NAZCA Platform resilience section are described and analyzed in section 4.2.

All initiatives have their own focus and expertise. For example, the Climate Risk and Early Warning Systems initiative focuses on risk information and impact-based early warning systems, whereas the initiative Food Security Climate Resilience Facility is focussing on funding and supporting community-centred action in regions facing post-disaster recovery. Hence, the initiatives have their own specific focus, but they are all asked to be dealing with resilience in a certain manner.

For this research, policy documents of the several initiatives were gathered in order to find relevant information on the three indicators for measuring the overall effectiveness. However, not all fourteen initiatives provide the same amount of openly accessible information, which makes it more difficult to attribute a score of effectiveness to each initiative properly. For example, the last four initiatives in the results section do not provide any information on the NAZCA Platform. This could be the case due to the fact that the initiatives are still in an early stage of policy development and implementation (3 out of the 4 only started in 2015 after the Paris Convention) or because the initiative is a small organization, lacking tools to properly implement, proceed and feedback their policy regulations. This lack of information does not necessarily mean that the initiative is not effective: a causal claim does not suffice. However, the lack of information does influence the measurement of the level of effectiveness at this stage in this research. The scores of effectiveness of these initiatives should therefore be observed with a certain level of consideration. Even more, the lack of proper results for these initiatives is unbeneficial for the robustness and generalization of the overall results of this research. These factors are taken as a critical point of discussion (see section: Discussion). However, useful findings were gathered and are listed in the following section.

The sources applied to measure the level of effectiveness are listed in the introduction section of each initiative. These are mostly sources provided by the initiative itself, but also the Climate Initiatives Platform is often applied. This Platform is useful for this research, because this Platform developed by the United Nations Environment and the UN Environmental Program (UNEP) has gathered all accessible data on international cooperative climate initiatives driven by non-state actors. Currently, the online portal consists of more than 200 initiatives, also providing data on the NAZCA cooperative initiative focussing on resilience (Climate Initiatives Platform, 2018). Hence, the portal is enabling this study to apply robust

data of the initiatives. This study is adding onto the Climate Initiatives Platform in the sense that it is measuring the level of effectiveness rather than only gathering data. Even more, some initiatives provide more policy information than other initiatives (and some initiatives even gave more detailed insights in Skype conversations or forwarded more information after email contact- notes of the interviews are listed in the Appendix), which led to more detailed research analyses than the analyses of initiatives that do not provide all relevant information for this research. This may have resulted in lower scores of effectiveness, or influenced the scores of effectiveness in a particular manner. However, whether there is a causal relation between the amount of relevant information and the scores of effectiveness cannot be claimed. At last, for each initiative, information provided by third parties was gathered in order to enhance the amount of independent, objective knowledge about the initiatives. However, it was not always possible to find proper sources giving relevant information that could be useful for this research. This is taken as a point of discussion in Chapter 5.

Overly, an initiative is considered to be effective when it is meeting particular interests, as well as the public goal of enhancing resilience of social-ecological systems to climate change. In order to measure the level of effectiveness, the indicators explained in Chapter 3 are applied. The indicators will not be described again in the results section, hence whenever necessary, Chapter 3 or the Appendix section could be reexamined. This is also the case for the attribution of the scores of *very low* (--), *low* (-), *moderate* (+/-), *high* (+), or *very high* (++). As explained in Chapter 3, the procedural effectiveness indicator is preponderating than the first and third indicator because it is more relevant to achieve the set goals than only setting goals.

The research findings section is structured as the following. Each initiative is analyzed according to the indicators of effectiveness (Chapter 3 or Appendix). Firstly, the initiative will be introduced, listing the starting year, the name(s) of the lead organization(s), the main objective(s) and the sources applied for this study. Secondly, the three indicators will be applied onto the initiative, all ranked with a mark of *very low* (--), *low* (-), *moderate* (+/-), *high* (+), or *very high* (++). At last, the overall measured level of effectiveness is assigned to the initiative. Afterwords, the level of effectiveness is explained, as well as recommendations for improvement are given. This structure is applied to all fourteen initiatives. At last, section 4.3 shows various figures, including the overall findings of the research categorized into different subjects (overall score of effectiveness per initiative, focus points and starting year per initiative).

4.2 Research Findings

Initiative I: The Global Covenant of Mayors for Climate and Energy

The importance of local action as a means of combating climate change was already mentioned in the 1987 Brundtland Report. Since then it is considered that local authorities exercise a high degree of influence together with national governments achieving internationally agreed targets (Bulkeley and Betsill, 2005). The Global Covenant of Mayors for Climate and Energy initiative describes itself as 'an international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society' (Compact of Mayors, 2018). The Global Covenant of Mayors (starting year: 2008) brings together the European Union's Covenant of Mayors and the Compact of Mayors, which are globally the two most primary initiatives of cities and local governments (European Commission, 2016). The initiative is the broadest global alliance of the NAZCA Platform, with currently 7400 cities and local governments from six continents and 121 countries being involved. Hence, it demonstrates global impact of local action (Compact of Mayors, 2018).

After email contact with the Global Covenant of Mayors for Climate and Energy initiative, it appears that the initiative does not have more policy documents available than are openly stated at their website at this stage. Hence, more data provided by other parties is applied to measure the level of effectiveness, namely information provided by the European Commission (2016), C40 Cities website (2018), the World Bank (2017) and the Climate Initiatives Platform (2018).

Indicator I: Realistic Goals

Firstly, the website shows the initiatives' vision and mission. Their goal is threefold: reduce local greenhouse gas emissions, enhance resilience to climate change and track the progress of cities publicly. It is an agreement by city networks to fight climate change in a consistent and complementary manner to national efforts (Compact of Mayors, 2015; European Commission, 2016). These goals are presented in a very detailed manner on the C40 Cities website (C40 Cities, 2018). Hence, the initiative lists their set goals, therefore scoring *very high* (++) on the first yardstick of the first indicator for effectiveness.

Secondly, the initiative explains how to reach their set goals: this is listed in the policy document as well as on the Climate Initiatives Platform (2018). The Global Covenant collects the significant climate action data that cities are already reporting in a consistent, transparent manner and makes data available in a single place. Even more, it builds on existing cooperative efforts, partnering with other initiatives to better measure and communicate the impact of city action (ibid.) (+). Also, the World Bank has

announced to sponsor the initiative with \$4.5 billion USD, providing technical and financial assistance to the cities involved (World Bank, 2017). This news was published in December 2017, stimulating the Global Covenant with a major financial resource and securing the initiative to live up to their set policy aims (++). However, the set goals do not take all its limitations (resources, scope and time frame) into consideration (--). Thus, the initiative scores *moderate* (+/-) on the second yardstick.

According to the findings focussing on the first indicator, it is assumed that the initiative has proper goals and objectives (++). However, as the limitations are not fully taken into consideration (+/-), the Global Covenant of Mayors initiative is scoring *high* (+) on realistic goal setting.

Indicator II: Procedural Effectiveness

Firstly, the progress of the initiative should be measured based on the first output results in comparison to its main objective. Every city should monitor its results and report back to the Global Covenant annually. As the initiative has started in the EU in 2014, several results are already been measured and reported back to the Global Covenant (Covenant of Mayors, 2018) (+).

Secondly, the level of cooperation is measured according to an available policy document showing a list of partners of the initiative (ibid). One of these partners is the C40 Cities Climate Leadership Group, also part of the NAZCA Platform. Even more, it reports back to the NAZCA Platform. Cooperation thus exists, but how this cooperation takes place is not stated, therefore it is unclear whether cooperation between the joining actors and with other NAZCA initiatives is properly achieved (+/-).

Thirdly, transparency levels are checked; some policy documents are available online (Compact of Mayors, 2015; 2017). However, as not all relevant information can be found in these documents (time frame, scope and sources of initiative), the initiative is considered to be moderately transparent to the public (+/-).

Fourthly, as the initiative is receiving annual reports of the cities involved, it is possible to properly monitor its progress. However, this progress is not publicly available online, therefore we cannot have insights in these results (+/-). Even more, feedback on its own policy framework is not available either, therefore the fourth yardstick of the second indicator is scoring *low (-)*.

To conclude, the four yardsticks have different scores respectively (+, +/-, +/-, -). The second indicator, procedural effectiveness applied onto The Global Covenant of Mayors initiative, thus shows a *moderate* (+/-) score.

Indicator III: Resilience Oriented Effectiveness

Firstly, the initiative demands the involved cities to focus either on mitigation or adaptation of climate change. Their actions should involve the cities' adjustment to actual or expected climate change impacts. Hence, it takes dealing with uncertainties and buffering change into consideration (+). From these policy documents, the output of this yardstick does not become clear. However, as this is the main objective of the initiative, it is still scoring *high* (+).

Secondly, flexibility and recovery levels in the system should be present. This yardstick is overarching with the goal of being adaptive to actual or expected climate change impacts, explained in detail in the policy documents of the Covenant of Mayors (2018). Hence, it is scoring *high* (+).

Thirdly, the continuation of development, learning and adaptation should be visible through the implementation of the initiatives' policy. This yardstick cannot be found in the Covenant's information available, nor the other sources applied. Even though causal claims between the available information and the level of effectiveness cannot be made, the absence of data on this matter do result in concluding that the continuation of development is not taken into consideration. Therefore this yardstick is scoring *low* (-).

Thus, the third indicator focussing on resilience, is overly scoring *high* (+).

Overall effectiveness

When taking the three indicators into consideration, The Global Covenant of Mayors initiative is scoring *moderate* (+/-) on its total level of effectiveness (measuring the second indicator twice). It is missing effectiveness on several yardsticks: complementation between objective and first output results, monitoring and feedback, continuation of development, learning and adaptation. This could be improved in order to enhance the overall level of effectiveness in the near future.

Initiative II: Cities Climate Finance Leadership Alliance

Over the last couple of decades, the importance of multilateral funds assisting cities to meet the costs of becoming more resilient to climate change, has grown (Barnard, 2015). Similar to the Global Covenant of Mayors for Climate and Energy, this initiative recognizes the growing challenges for cities due to growing populations and the increasing impacts of climate change. The Alliance started in 2014 as a UN-led initiative of 16 organizations that share a common goal of accelerating investment in low-carbon and climate-resilient urban infrastructure to address these dual challenges. Therefore, it aims at catalyzing and accelerating additional capital flows to cities, as well as the maximization of investments in low-carbon and climate-resilient infrastructure and closing the investment gap in urban areas by 2030 (UN Headquarters, 2014). Their work is overseen and supported by the FMDV, R20, UNDP and UNEP (Climate Initiatives Platform, 2018).

The information applied for this research was retrieved from the Cities Climate Finance Leadership Alliance itself, Climate Initiatives Platform Database, the NAZCA Platform (2018), Climate KIC (2018) and the UN Headquarters and Convention to Combat Climate Change websites (2018). Even more, in-depth information was gathered during a Skype Conversation with Charlotte Boulanger (Climate Finance and CCFLA Program Officer) on 19/1/2018.

Indicator I: Realistic Goals

The Alliance showcases several objectives, aiming to be reached by 2020. These are listed both on the NAZCA website as well as in the action statement document developed after the Climate Summit of 2014 in New York (Cities Climate Finance Leadership Alliance, 2018). Hence, the initiative scores *very high* (++) on the first yardstick.

Secondly, the initiative lists the several activities of the members of the Alliance, as well as the advocacy and policy statements (eg. support increased investments in capacity building and in the strengthening of existing regional and national entities) (ibid.) (+). However, a structured framework showing to what time frame, financial resources and scope these actions should be delivered on is missing in the available documents. Hence, the second yardstick is considered to be *low* (-).

Hence, the first indicator is scoring *moderate* (+/-).

Indicator II: Procedural Effectiveness

Firstly, the initiative started in 2014, which means that several annual reports should have appeared. However, these reports are not available to the public. Ms. Boulanger replied as a reaction to the question about these missing reports that annual reports exists and meetings with members of the alliance are scheduled regularly (Skype conversation, 19/01/2018). Even more, a scoping report dating from November 2016 is providing us with some detailed information on the process made (CCFLA, 2016). Even though this is not updated information, we can assume that process is being measured. Hence, based on this knowledge, we attribute a *moderate* (+/-) score to this yardstick.

Secondly, the available policy documents show that the activities of the initiative are focussing on the enhancement of cooperation, as well as already explaining that cooperation is already existing. The Alliance works with several other NAZCA initiatives, such as C40 Cities and Covenant of Mayors (Cities Climate Finance Leadership Alliance, 2018). Hence, the amount of cooperation at this stage is sufficient (+).

Thirdly, the several policy documents available share a great deal of relevant information. Even more, the possibility to Skype with Ms. Boulanger created the opportunity to draw conclusions on the missing information to answer all the yardsticks on effectiveness (Skype conversation, 19/01/18). This results in a *high* (+) score on the transparency yardstick.

Fourthly, even though Ms. Boulanger explained the existence of feedback mechanisms, she could not further elaborate on if and how the RMF mechanisms are present within the policy framework. Hence, we assume that the RMF mechanisms are lacking effectiveness (-).

To conclude, the four yardsticks have different scores respectively (+/-, +, +, -). The second indicator, procedural effectiveness, thus shows a *high* (+) score.

Indicator III: Resilience Oriented Effectiveness

Firstly, the initiative should create the capability of dealing with environmental uncertainties and buffering change by the creation of adaptation mechanisms. Increasing climate-resilient infrastructure in urban areas is considered to be one of the main objectives (CCFLA, 2016) (+).

Secondly, transformation of the financing landscape in order to create these climate-resilient infrastructure in urban areas is another objective of the initiative. As transformation is considered to be a way to enhance recovery, this yardstick is also scoring *high* (ibid.) (+).

Thirdly, the continuation of development, learning and adaptation are visible as research and knowledge management is the final main objective of the initiative, including multi-stakeholder knowledge-sharing platforms and the conduction of further research to understand the landscape more thoroughly (ibid.) (+).

Thus, the third indicator focussing on resilience, is scoring *high* (+).

Overall Effectiveness

Based on the scores per indicator (+/-, +, +) respectively, the overall effectiveness of the Cities Climate Finance Leadership Alliance is scoring *high* (+). Several recommendations can be made, including improving the cooperation with NAZCA initiatives and developing better RMF mechanisms. However, the overall effectiveness is showing a sufficient level of effectiveness based on the available information and on the duration length of the policy implementation of the initiative.

Initiative III: Business Alliance for Water and Climate

Water stress is seen as one of the main factors playing an important role in damaging environmental, social and economic value. Hence, dealing with water stress is necessary to mitigate climate change and is recognized to be one of the defining challenges of the 21st century (Vorosmarty et al., 2000). Even more, it is crucial to develop water services in order to deal with the rising numbers of megacities facing various vulnerabilities and complex water challenges (UNESCO, 2018). In the run up to the Paris Conference, the BAFWAC was created (2015) in order to put water issues on the Paris Agenda, aiming to bring together private actors committing to drive corporate action (Skype conversation, 18/0118). The alliance is led by the UN Global Compact's CEO Water Mandate, CDP Water, WBCSD Water and SUEZ (Climate Initiatives Platform, 2018; SUEZ, 2018).

In order to measure the level of effectiveness, the information available at the NAZCA website, the Climate Initiatives Platform Database, UNESCO, SUEZ, BAFWAC reports and the BAFWAC and AMEC-GAfWAc websites were used and to substantiate the measurement in-depth knowledge was retrieved during a Skype conversation with Orlaith Delargy, Manager Water Security BAFWAC, on 18/01/2018 (see Appendix).

Indicator I: Realistic Goals

Firstly, the Alliance showcases several objectives, aiming to be reached this year. The Alliance asks private sector companies to commit to these objectives (eg. reducing impacts on water in operations and throughout the value chain). The target of the Alliance is to reach 100 signatories with representing one trillion dollar in revenues by 2018 (BAFWAC, 2018). Even more, during the in-depth interview via Skype, ms. Delargy added the importance of the creation of the case study section on the website, which shows the individual results of the companies involved. These lead to achieving more companies to become involved in the initiative. Based on these findings, the initiative scores *very high* (++) on the first yardstick.

Secondly, the target of the BAFWAC is specific, naming both the dollar revenues, the date of the deadline and the amount of signatories that should be involved. However, it does not state any limitations and also does not show a structured framework of deadlines. Ms. Delargy explained that BAFWAC is in an interim period, rearranging their goals and objectives. Hence, BAFWAC acknowledges the importance of realistic goals, only the timing of this research is inconvenient for this yardstick to be properly measured. Hence, the second yardstick is considered to be *moderate* (+/-).

Thus, the first indicator is scoring *moderate to high* (+/- - +).
Indicator II: Procedural Effectiveness

Firstly, on the BAFWAC website, case studies can be found which tell us more about actions taken by several private sector actors such as Unilever and Coca Cola. After Skype contact with the initiative, it appears that annual reports do not exist and the initiative only subscribes these case studies to its objective and output results. The initiative states on the NAZCA website to report back on their objectives by 2020, thus no results on this yardstick exist yet (-).

Secondly, does the initiative manage to have proper cooperation between the joining actors? Ms. Delargy explained that no cooperation with other NAZCA initiatives is existing at the moment (--). Even more, possibilities to cooperate between joining private actors do exist, but this is not a commonly appearing characteristic (-). However, BAFWAC is the business section of the Global Alliance For Water And Climate (GAFWAC), which is the overarching alliance to cooperate for the run up to the next COP (AMEC-GAFWAC, 2018). This Global Alliance is bringing together four alliances, one of them being the BAFWAC, stimulating cooperation and increasing the opportunity to implement the Paris Agreement (ibid). Hence, cooperation exists for reporting towards the UNFCCC and the COP as well as with other alliances to implement Paris climate action goals (+), however cooperation within the BAFWAC and between the BAFWAC and NAZCA do not exist, leading us to assign this yardstick with a *moderate* (+/-) score.

Thirdly, the website of the BAFWAC provides us with some relevant policy information. Mostly, the case studies section as well as signatories section lists the different private actors and their initiatives. However, as some relevant information on their progress (eg. listed in annual reports) is missing, the initiative is scoring *moderately* (+/-) on the transparency yardstick.

Fourthly, as the website of the initiative does not provide any reports on previous policy activities and results, but only states the activities of individual private sector actors, it lacks to transparently report and feedback its own policy. However, the NAZCA website shows progress that has been made since the Conference in Paris (2015), and Ms. Delargy added that they have strict feedback meetings at the COP, resulting in a *high* score (+) for MRF mechanisms.

To conclude, the five yardsticks have different scores respectively (-, +, +/-, +). The second indicator, procedural effectiveness, overly shows a *high* (+) score.

Indicator III: Resilience Oriented Effectiveness

Firstly, adaptation is not considered to be a main goal of the initiative, as it focuses on increasing resilience of private actors rather than resilience to socio-ecological systems (-). However, after speaking with Ms. Delardy, the importance of resilience was better explained: the companies take action to make

environment they rely on more resilient. Thus, they do aim at improving socio-ecological resilience, benefitting both the environment as well as their own business targets (Skype conversation, 18/01/18). The first yardstick is therefore ranked with a *high* (+) score.

Secondly, no information on aiming to stimulate, increase or enhance flexibility or recovery levels can be found on the website, neither was Ms. Boulanger able to explain the priority or requirement of the initiative to enhance this yardstick (--).

Thirdly, nothing is found on the development and learning yardstick or mentioned by Ms. Boulanger (--). Thus, the third indicator focussing on resilience, is scoring *very low* (--).

The overall score of the third indicator is *low* (-).

Overall Effectiveness

Based on the abovementioned scores for the three indicators (+, +, -), the Business Alliance for Water and Climate is showing a diverse pattern in its effectiveness. The overall effectiveness is considered to be *high* (+). The low level of effectiveness of the last indicator on resilience can be explained by the private characteristics of enhancing resilience of the initiative, rather than a focus on socio-ecological resilience. The initiative does show high scores on its realistic goal settings and its progress. Cooperation levels could be improved.

Initiative IV: Climate Risk and Early Warning Systems

Climate change is causing increases in natural climate variability, natural disasters and weather extremes (Van Aalst, 2006; Basher, 2006). Heatwaves, floods and other weather extremes are already occurring and will appear more frequently and heavily as climate change is continuing to appear, hence warning systems are needed to prepare communities for extreme weather events (ibid.). Climate Risk and Early Warning Systems (CREWS) started in 2015 and is aiming to significantly increase 'the capacity to generate and communicate effective impact-based early warnings, and risk information for hazardous hydro-meteorological and climate events (NAZCA, 2018). Global Facility for Disaster Reduction and Recovery (GFDRR), in partnership with France, the World Bank, WMO, and UNISDR, has launched the CREWS Initiative. By financing weather stations, radar facilities, and early warning systems in poor and vulnerable countries where weather data is unreliable or lacking, lives, livelihoods and property of least developed countries as well as small island developing states can be protected (GFDRR, 2018). The organisational structure of CREWS consists of a Steering Committee, led by the French government and also includes Germany, the Netherlands, Australia and Luxembourg. Further details on the organisational structure can be found on the Climate Initiatives Platform database (2018).

All information is gathered from the NAZCA website, World Meteorological Organization website, the UNFCCC newsroom of the Lima Paris Action Agenda (2018), the Climate Initiatives Platform and the information flyer provided by CREWS (2018). Independent sources providing information about this initiative are not published online.

Indicator I: Realistic Goals

Firstly, several operational goals are listed on the NAZCA website, such as hazard and risk information to guide early warning systems (NAZCA, 2018). As goals are present, the initiative scores *very high* (++) on the presence of goals yardstick.

Secondly, both the NAZCA website as well as the CREWS information flyer (the only information available on the CREWS initiative) do explain in what time frame and with what financial support the initiative is operating (mobilize US\$ 100 million by 2020) (CREWS, 2018). However, whether this is realistic and feasible, is not taken into consideration and cannot be analyzed in this study due to time constraints, nor an output design is present comparing the objective to its time and financial frame (+/-).

Thus, the first indicator is scoring *high* (+), meaning that the possibility exists that final output of the initiative is likely to correspond to its previously set goals.

Indicator II: Procedural Effectiveness

Firstly, does the initiatives' objective complement with the first output results? The initiative states their goals clearly, but does not give insights in the progress made (--).

Secondly, the initiative is created by the collaboration between several organizations: the World Meteorological Organization (WMO), the United Nations Office for Disaster Risk Reduction and Disaster (UNISDR) and World Bank (GFDRR). Hence, cooperation within the initiative exists (++). However, the initiative does not cooperate with other NAZCA initiatives (-). Thus, this yardstick is showing a *moderate* (+/-) score.

Thirdly, the website of Lima Paris Action Agenda (LPAA) provides us with some relevant policy information on CREWS (2018). However, as some relevant information on their progress (eg. listed in annual reports) is missing, the initiative is scoring *moderately* (+/-) on the third yardstick.

Fourthly, as the website does not provide any reports on previous policy activities and results, we have to make the assumption that RMF mechanisms are not present, hence we assign this yardstick with a *very low* score (--).

To conclude, the five yardsticks have different scores respectively (--, +/-, +/-, --). The second indicator, procedural effectiveness, overly shows a *low* (-) score.

Indicator III: Resilience Oriented Effectiveness

The initiative is mainly focussing on risk reduction through warning systems (ibid.). The initiative is thus scoring *very high* (++) on enhancing the capacity to deal with uncertainties and buffering change.

The second and third yardstick do not appear in the policy documents on the websites, which leads us to assume that flexibility and recovery levels, as well as development, learning and adaptation are not considered to be relevant for the initiative *very low* (--).

The third indicator is thus scoring *moderate* (+/-).

Overall Effectiveness

Considering the three indicators (+, - ,+/-) respectively, the overall effectiveness of the CREWS initiative is attributed with a *low* (-) score on effectiveness. Every indicator could be improved (output results, progress, create flexibility and recovery levels, creating development, learning and adaptation). The overall effectiveness of the CREWS initiative is considered to be insufficient at this stage.

Initiative V: Food Security Climate Resilience Facility

Research shows the potential impacts of climate change on food security, mostly appearing in four elements: variability, accessibility, stability and utilization (Schmidhuber and Tubiello, 2007). These factors will influence the quality and quantity of food, as well as the level of equal distribution (Myers et al., 2017). The Food Security Climate Resilience (FoodSECuRE) Facility's aim is to deal with these challenges. The initiative is a multilateral, multi-year, replenishable fund being developed by the World Food Programme (WFP) in 2015 'to financially and programmatically support community-centred action to reinforce and build climate resilience' (World Food Programme, 2018). Based on climate forecasts, the initiative aims to trigger action. This should reinforce community resilience before shocks occur, as well as should complement early response mechanisms. The initiative also aims to provide long term financing to deliver high-quality resilience-building activities, which could be undertaken during post-disaster recovery operations.

The information for the study is retrieved from the NAZCA website as well as the FSCRF website (2018), Committee on Food Security (2015) and the WPF Facility Document (2016).

Indicator I: Realistic Goals

Firstly, the support of community-centred action in financial terms in order to build climate resilience is the central focus of the Food Security Climate Resilience Facility (FSCRF). The initiatives' aim is to increasingly address loss and damage and improve resilience building in post-disaster recovery (NAZCA, 2018). Hence, set goals are present (++).

The initiative is stating the objectives in sections separated in long term, medium term and short term goals (NAZCA, 2018). This means that the initiative is taking the second yardstick (limitations: time frame and scope) into consideration (+). The budget section deserves more attention, as only an amount of needed budget is stated (+/-).

Thus, the FooDSECuRE initiative is scoring *moderate to high* (+/- - +) on their realistic goal setting, meaning that it is possible that the final output of the initiative will be likely to correspond to its previously set goals.

Indicator II: Procedural Effectiveness

Firstly, the initiatives' first output results should be complementing with its intentional objective. The FoodSECuRE initiative has listed several developments, showing the progress of the initiatives' objective. These developments are shown to be in line with their objective mentioned above (++).

Secondly, cooperation between the joining actors should be appearing, as well as cooperation with other NAZCA initiatives. These factors are not mentioned nor traced in the policy documents. Looking at the objectives of the initiative, this does not seem to be a focus point (--).

Thirdly, transparent policy documents are needed. The initiative has published several all inclusive documents online. However, annual reports are not published (+/-).

Fourthly, the initiative is aware of its ongoing nature and states the link between the start-up phase and the next steps that need to be taken. Hence, reporting and feedback on its own policy is present (FSCRF, 2018) (+).

To conclude, the initiative is scoring *high* (+) on its procedural effectiveness.

Indicator III: Resilience Oriented Effectiveness

National- and community level resilience is the main long term objective of FoodSECuRE. Even more, climate forecasts and reinforcing community resilience is one of the main short term objectives. The initiative is thus scoring very high (++) on enhancing the capacity to deal with uncertainties and buffering change in order to enhance resilience.

The second and third yardstick do not appear in the policy documents on the websites, which leads us to assume that flexibility and recovery levels, as well as development, learning and adaptation are not considered to be relevant for the initiative (--).

The third indicator is thus scoring *moderate* (+/-).

Overall Effectiveness

The overall effectiveness of the FoodSECuRE initiative is attributed with a *moderate* (+/-) score on effectiveness, considering the three indicators (+/- - +, +, +/-) respectively. Several indicators could be improved (cooperation, create flexibility and recovery levels, creating development, learning and adaptation). This could be the case due to lacking information or the duration of the initiative.

Initiative VI: Global Resilience Partnership

Climate change is already occurring to have major impacts on the African continent (eg. agricultural losses due to draughts), making African communities prone to socio-economic risks and losses (Maddison, 2007; Toulmin, Huq, Rockstrom, 2005). Hence, new projects and policies need to build in climate change resilience (ibid). Global Resilience Partnership was founded in 2014 and is aiming to help vulnerable communities, specifically in three regions in Africa and Asia (Sahel, the Horn of Africa, South and Southeast Asia) to better adapt to shocks and chronic stresses. Hence, they aim to invest in a more resilient future. The founding sponsors are the Rockefeller Foundation, USAID and Sida, which are collectively investing \$150 million USD (Climate Initiatives Platform, 2018).

The information on this initiative is retrieved from the website of the initiative (Global Resilience Partnership, 2018), the UNEP Finance Initiative, a Guardian article about the initiative (12/10/2015) and the Climate Initiatives Platform (2018). The page of the initiative on the NAZCA website is still left fairly blank, thus not providing us with any useful information.

Indicator I: Realistic Goals

The objective is present on the website (helping vulnerable communities to increase resilience). An approach for this objective is clarified (diagnosing problems, motivating collaboration, developing solutions, learning and sharing). The initiative states that they are focussing on building resilience rather than focussing on repairing (Global Resilience Partnership, 2018) (++). However, as no specifics are provided, we assign this yardstick with a *high* score (+).

Secondly, the available budget (\$150 million USD) is known, as well as how this budget is currently spend (Global Resilience Challenge). However, to what time frame this budget is needed and whether this is feasible, is not clear (-). Even more, the scope is mentioned: three regions urgently in need for higher levels of resilience (+). However, within what time frame this will occur remains unclear. The website seems to be incomplete, not considering these limitations to be relevant and not very precise in their goal setting (+/-).

Hence, the first indicator is currently scoring *moderate* (+/-), meaning that it is possible that the initiative is likely to achieve its previously set goals in the future.

Indicator II: Procedural Effectiveness

Does the initiatives' objective complement with the first output results? The initiative has listed their progress onto their website, showing us that the initiatives' objective is complementing with the first output results (Global Resilience Partnership, 2018) (+).

42

Cooperation between the joining actors is not existing, neither is cooperation with the NAZCA Platform as the initiative has not listed any information on the NAZCA website, we are assuming that the initiative is not involved in cooperating in the NAZCA Platform (--).

The website of the Global Resilience Partnership seems to be clear and all-inclusive at first. However, a lot of relevant information is missing (goals, annual reports, action plans, financial plans). Even more, after several attempts, no contact with contact persons was possible. Hence, the level of transparency is attributed with a *very low* (--) score.

At last, the monitoring, reporting and feedback yardstick is scoring *moderate* (+/-), because the initiative is monitoring and reporting (the Global Resilience Challenge section is giving clear information on the progress made by the initiative). However, no feedback is published on their own activities which will enhance their effectiveness in the future.

Thus, the second indicator on procedural effectiveness is assigned to a low (-) score.

Indicator III: Resilience Oriented Effectiveness

The initiatives' main objective is to increase resilience, hence it is aiming at creating the capability to deal with environmental uncertainties (Global Resilience Partnership, 2018). However, whether this is actually occurring cannot be found. Hence, even though the initiative is giving the assumption that it is creating the capability of dealing with uncertainties, this cannot be confirmed. This is also the case for the second yardstick (+/-, +/-).

The third yardstick, creating the capability of continuing development, learning and adaptation is scoring *high* (+) as the initiative is focussing on the development of networks and systems in order to amplify resilience solutions beyond the initiative itself (ibid) (+).

Hence, the third indicator is scoring *moderate* (+/-).

Overall Effectiveness

The Global Resilience Partnership is scoring *moderate to low* (+/- -) on its overall effectiveness. It is showing high scores only on the development, learning and adaptation yardstick. Other yardsticks show needs for further improvement (output results, progress, transparency). At this stage the initiative should be improved in order to meet the requirements for effectiveness.

Initiative VII: The 1-in-100 initiative

Several scientific papers argue for the relevance of climate insurance programmes and public private partnerships to protect countries or communities from losses due to climate variability and extreme weather events (Burton and Yohe, 2013; Crichton, 2005). These losses will continue to increase and therefore mitigation and adaptation implementations should be complemented with such risk management (ibid.). The 1-in-100 initiative, started in 2014 as an alliance of public and private sector organizations is focussing on integrating natural disaster and climate risk into financial regulation on a global scale. Actors from the financial sector (eg. banks, insurers), play an important role in building resilience. This is possible through risk management into business practices and financial decision making (United Nations Climate Summit Action Plan, 2014). The initiative is named after the 1 in 100 year 'stress test'. This concept is developed by the insurance sector (developed by Willis Towers and Watson), enabling the assessment of its own ability to manage risk. This method can help organisations to truly understand their risk and manage it in an economically rational way (Willers Towers Watson, 2014; Skype conversation, 26/1/2018).

The sources applied to measure the effectiveness of the 1-in-100 initiative are the Willis Towers and Watson blog page (main private actor involved in the initiative) (2018), the Climate Initiatives Platform (2018), the United Nations' Climate Summit action statement (2014), and several documents on catastrophe modelling provided by Jonathan Gascoigne, Senior Risk Advisor at Willis Towers Watson and who provided more detailed information in a Skype call on 26/1/2018.

Indicator I: Realistic Goals

Firstly, the initiative seeks to stimulate and reward climate resilient investments and recognize the sound business models, strategies and plans that generate societal and commercial co-benefits. 'It will develop, test and apply incentives in the financial system. It also seeks to strengthen the support to the science and data required for analyses of risk that underpins these changes to the financial system' (UN Action Plan, 2014). Clear objectives are stated (++).

Secondly, in the UN Action Plan section on the initiatives' objectives, the goals are further specified considering their limitations. The initiative takes their time frame into consideration in the following: 'Liaise further with the relevant regulatory authorities and stakeholders through to the end of 2015 to determine how this approach can be applied and implemented within processes and protocols with an aspiration for climate and disaster risk and resilience to be incorporated within the financial system by 2020' (ibid.). Even more, the resources and budget are also mentioned: 'Coordinate at least \$100 million USD annual investment into public science research by the global insurance industry from

2016 onwards and that this can support aligned funding and shared programs and facilities with public agencies' (ibid.) (++). However, how many years \$100 million USD will be spent is not clear and whether this is feasible is thus questioned (-). At last, the scope is taken into consideration, as the initiative focuses on private actors of the financial sector, mostly insurance companies (+).

To conclude, the 1-in-100 initiative is scoring high to very high (+ - ++) on the first indicator.

Indicator II: Procedural Effectiveness

Firstly, the level of progress was checked during the Skype conversation with Sir Gascoigne (26/01/18). Since 2014, many developments have been made. The 1-in-100 metrics system is being implemented in various public and private sector organizations, showing how the metrics system is useful for several industries and sectors. The metrics is therefore playing a major part in financial resilience and in dealing with disasters. Hence, the output results are not made quantifiable, but the objective of spreading the 1-in-100 initiative to other organizations and sectors has been achieved through the years (+).

Secondly, the focus of the activities lays at developing, testing and applying incentives in the financial system. Strengthening science and data analysis of risk is a main mode to achieve this objective. Hence, not much attention goes to cooperation between the different public and private actors. Even more, in the Skype conversation it became clear that the 1-in-100 initiative was developed in order to show other organizations or businesses how they could implement the metrics system into their own policy framework (ibid.). Cooperation in this implementation is not considered to be necessary. The initiative states the importance of continuing to learn, sharing new insights and applying these insights across the wider economy, but detailed modes to achieves these needs are not listed. Even more, the initiative is only present onto the NAZCA Platform, to enable other initiatives to take over the 1-in-100 method to their policy framework (ibid.). Hence, learning from each other is considered to be relevant, but is appearing only as a way to mobilize mitigation and as a door opener in public policy, capabilities and requirements, according to sir Gascoigne (ibid.) (+/-).

Thirdly, the UN Action Statement is published online, as well as the information achieved from the Willis Towers Watson blog. However, all the documents privately sent after inviting the initiative for a Skype conversation give a lot of insights, but these are not published publicly. Hence, the transparency of the initiative could be improved (+/-).

At last, no updated information can be found on the monitoring, reporting and feedback mechanisms of the initiative. However, in 2014 the initiative stated that the 1-in-100 year stress test was only implemented in the insurance industry and that the test should be integrating standards into a broader range of the financial sector. It is thus aware of the achieved policy implementations and needed changes

over time. But as this information is not up to date, the monitoring, reporting and feedback mechanisms of the initiative are scoring *low* (-).

Thus, based on the above mentioned results, the procedural effectiveness of the 1-in-100 initiative is assigned with a *moderate* (+/-) score.

Indicator III: Resilience Oriented Effectiveness

The first yardstick, creating the capability to increase properly dealing with uncertainties and buffering change, is a main objective of the initiative. However, increasing resilience is a main objective of the initiative, to both increase the resilience of companies applying the 1-in-100 initiative, as well as to increase socio-ecological resilience (ibid.). It thus scores *very high* (++) as it does create the capability to takes properly dealing with uncertainties into consideration.

The yardstick focussing on creating the capability of increasing recovery and flexibility levels as well as the yardstick focussing on development and learning, are taken as a priority by the initiative as they do focus on resilience of several systems (++).

Hence, the third indicator focussing on resilience oriented effectiveness, is attributed with a *very high* (++) score.

Overall Effectiveness

According to the results respectively (+ - ++, +/-, ++), the average score of the level of effectiveness of the 1-in-100 initiative is *high* (+). Recommendations for the initiative are based on the improvement of their cooperation with NAZCA initiatives, transparent documents, MRF mechanisms. The initiative is showing remarkable ways of implementing private sector policy regulations into both private and public sector organizations. A lot is to learn from their policy and it would be beneficial to the NAZCA Platform and the involved initiatives if cooperation and dialogue would be promoted and developed with the initiative.

Initiative VIII: The Great Green Wall Initiative

The impacts of climate change, drought and desertification are closely interlinked. These effects are most acutely experienced by populations depending principally on natural resources (Lindsay et al., 2009). One of the policy interventions implemented by the United Nations to deal with these impacts, is the Great Green Wall Initiative. This initiative was launched in 2008 by the UN Convention to Combat Desertification (UNCCD) and the African Union (AU). It aims to restore Africa's degraded landscapes and transform millions of lives in one of the poorest regions on earth, the Sahel. The Wall is now being implemented in more than 20 countries across Africa's Sahel region and once the project is complete, the Wall will be the largest living structure on the planet (8000km). Hence, it is combating desertification, boosting food security and resilience to climate change (UNCCD, 2018; Climate Initiatives Platform, 2018).

The information to measure the effectiveness of this initiative is retrieved from the Climate Initiatives Platform (2018), the United Nation Convention to Combat Desertification website on the Great Green Wall Initiative (the UNCCD is supporting the initiative under a flagship initiative called FLEUVE, financed by the European Commission), CNN and the Guardian news articles (22/09/2016; 19/07/17) and the Great Green Wall Initiative blog (2018).

Indicator I: Realistic Goals

Firstly, the information gathered on the UNCCD is precisely explaining the goals and objectives of the initiative, that is, creating the Great Green Wall (started in 2007, so the current goal is to finalize the Wall). In 2030, the ambition is to restore 100 million hectares of currently degraded land, create a minimum of 350,000 jobs in rural areas and sequester 250 million tonnes of carbon (UNCCD, 2018). Hence, the initiative has set clear and realistic goals (++).

Secondly, the budget to implement the activities so far has been published (\$8 billion USD) (+). However, the budget for the upcoming years cannot be found anywhere (--). The time frame (2007-2030) and the scope (all countries of the Sahel region) are taken into consideration, resulting in a *high* (+) score on the second yardstick, resulting in an overall *moderate* (+/-) score for the second yardstick and a *high* (+) score for the realistic goals indicator.

Indicator II: Procedural Effectiveness

Firstly, how is the initiative progressing? As the initiative already started ten years ago, there should be a lot of information on the progress made available. These results can be compared to its set objectives in order to measure the progress of the initiative. The UNCCD website explains how the Great Green Wall

has already been implemented in more than 20 countries, bringing together African countries and international partners, creating jobs in many communities, boosting food security and empowering local people (Great Green Wall, 2018). These results are not set in numbers and whether there is a causal relation between the Great Green Wall development and eg. food security increases is not guaranteed. However, the development of the Great Green Wall in 20 countries is taken as a *high* (+) level of progress.

Secondly, cooperation within the initiative is present as the initiative has several partners such as the Food and Agriculture Organization of the United Nations (FAO), the World Bank Group (WBG), the European Union (EU) and the Sahara and Sahel Observatory (OSS) (ibid.). The quality of this cooperation cannot be checked, nor does the level of cooperation between the Great Green Wall Initiative and the NAZCA Platform (+/-).

Thirdly, the initiative is required to have transparent and clear policy documents. The Great Green Wall Initiative website itself is also a useful website providing information about the project, as well as the Climate Initiatives Platform (2018). The information retrieved for this measurement of effectiveness is also gathered from the UNCCD website, a UN body that is not the main responsible actor for this initiative but still providing relevant and detailed information (2018) (+).

Fourthly, no information is found on this yardstick, which leaves us to assume that the initiative has not implemented any monitoring, reporting or feedback mechanisms into their policy framework or seems to see the relevance of this factor (--).

To conclude, the initiative is scoring high(+), based on the four yardsticks respectively (+, +/-, +, --).

Indicator III: Resilience Oriented Effectiveness

Does the initiative create the capability of dealing with environmental uncertainties in the system? The Wall is creating a green zone of plants and trees all across the Sahel region in order to decrease the desertification of the region, hence creating the capability to deal with environmental uncertainties (+).

Secondly, the initiative explains how planting the trees and plants is creating the capability of recovering the damaged ecosystem of the Sahel region (Great Green Wall Initiative, 2018; CNN, 2016). How this is happening and if it is actually being measured, is not properly explained. Hence, the initiative will be marked with a *moderate* (+/-) score.

The third yardstick is showing similarities with the second: adaptation seems to appear through the development of the Great Green Wall, as well as the development and learning mechanisms that are

48

giving more opportunities to the local communities (the Guardian, 2017). However, whether this is actually appearing as a result of the policy implementations of the initiative, remains uncertain (+/-).

Thus, the third indicator is attributed with a *moderate* (+/-) score.

Overall Effectiveness

The Great Green Wall Initiative is scoring *moderate to high* (+/- - +), *high* (+) and *moderate* (+/-) for the three indicators respectively. This means that the overall effectiveness of the initiative is *high* (+). The initiative could improve its cooperation with the NAZCA initiatives, MRF mechanisms, flexibility and recovery levels and development and learning policy implementations.

Initiative VIIII: Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers

Management of transboundary waters such as rivers and lakes has always been relevant. Due to the increasing challenges caused by climate change the need for efficient water management is becoming more important as well as a challenge in the coming decades (Varis et al., 2008). One initiative that is trying to deal with these issues is the Paris Pact on Water and Adaptation, led by the International Network of Basins Organizations (INBO/RIOB) and started in 2015. It 'is a declaration of representatives consisting of governments, national and international donors, national and transboundary basin organizations or rivers, lakes or aquifers, in different parts of the world' (Climate Initiatives Platform, 2018).

In order to measure their level of effectiveness, the Climate Initiatives Platform and the LPAA website provides information on the initiative (2018), as well as the INBO website (2018), a Times of India news article (02/12/2015) and the Paris Pact itself are applied (Partnerships for the SDGs, 2018; Paris Pact, 2018).

Indicator I: Realistic Goals

The initiative aims at strengthening adaptation to climate change in basins of rivers, lakes and aquifers. Integrated and sustainable water resources management is applied in order to achieve this objective. Hence, the initiative sets clear goals and objectives (++).

Whether the goals are realistic in terms of time frame, budget, scope and sources, is measured in the second yardstick. These are listed in the quantified short and long term goals on the Climate Initiatives Platform database, eg.: reaching more than 350 Paris Pact signatories and presenting 10 new flagship projects at COP22 (2018). As the COP22 has already passed, this can be checked. This goal has been set and delivered on (++). Even more, the Times of India presented the available budget in one of their news articles (2015)(+). However, no details on the current time frame, scope or sources are given (--), resulting in a *moderate* (+/-) score.

Hence, the effectiveness of the Paris Pact on Water and Adaptation is averagely scoring high(+) on the realistic goal setting.

Indicator II: Procedural Effectiveness

As mentioned above, the first output results show overlap with the main objectives of the initiative. Even more, reporting of the progress made in the implementation of the voluntary actions is requested. At last,

a work plan with important milestones is provided to explain that the Paris Pact is ensured from new signatories and projects (2018) (++).

At this point, 350 water basin organizations are engaged under the Paris Pact on Water and Climate Change Adaptation. Through cooperation and exchange, an increase of experience and know-how on best practices in basin management and adaptation to climate change is ensured according to the initiative (2018). Hence, the Paris Pact promises cooperation between the different signatories, the different institutions involved. However, how this cooperation would be triggered or how it is manifested at this point, does not become clear from the documents. Even more, cooperation with other NAZCA initiatives is not mentioned which leaves us to assume it is not appearing at this stage (+/-).

Clear documents are available online, both from the Climate Initiatives Platform, as well as on the INBO website which also consists of reports with best practices or lessons learned and Handbooks, eg.for management and restoration of aquatic ecosystems in river and lake basins (INBO, 2018) (++).

The INBO provides success stories and lessons learned documents, showing that the initiative is holding onto monitoring, reporting and feedback mechanisms (+). However, whether the policy is adjusted according to the lessons learned, is not visible (+/-).

To conclude, taking the four yardsticks respectively, the procedural effectiveness is assigned with a *high* (+) score.

Indicator III: Resilience Oriented Effectiveness

All objectives of the Paris Pact are covering adaptation measurements in order to deal with uncertainties on a socio-ecological level, eg. the adaptation of basin management planning to climate change. The capability should thus be increased, creating a higher likelihood to contribute to resilience to climate (taking the fact that we would not know how the resilience levels would be without these policy implementations, into consideration) (++).

Flexibility and recovery skills are not mentioned in any of the policy documents, therefore we assume that this is not part of the initiatives' policy (--).

The Paris Pact enlists the following objectives: 'reinforcing capacity development and knowledge (networks for monitoring and data exchange, water information systems)' (Climate Initiatives Platform, 2018). It can thus be assumed that the initiative is creating the capability of continuation of development, learning and adaptation (++).

To conclude, the resilience oriented effectiveness of the Paris Pact on Water and Adaptation is scoring high(+).

Overall Effectiveness

The Paris Pact on Water and Adaptation is scoring *very high* (++), *high* (+) and *high* (+) respectively. This leads us to draw the conclusion that the Paris Pact is assigned with a *high* overall effectiveness, with only some minor improvements on flexibility and recovery skill implementation and cooperation with NAZCA initiatives recommended.

Initiative X: The R4 Rural Resilience Initiative

According to Tompkins and Adger (2004), climate change is likely to manifest in four main ways. These are increased interannual and seasonal variability, increased frequency of extreme events, slow changes in mean climate conditions and rapid climate changes causing catastrophic shifts in ecosystems. This will cause increased vulnerability to societies that are already marginalized (ibid.). Hence, the R4 Rural Resilience Initiative is focussing on increasing food security for these marginalized livelihoods. The World Food Programme (WFP) and Oxfam America launched this initiative in 2011. It is focussing on food security: vulnerability to climate-related shocks is considered to be a constant threat to the ability of livelihoods to secure enough nutritious food throughout the year (WFP, 2018). By developing innovative tools and strategies, risk can be reduced and mitigated, which helps overcoming hunger, achieving food security and enhancing resilience (ibid).

The information that is used to measure the effectiveness of the initiative is retrieved from the R4 webpage on the WFP website, including fact sheets and reports (2018). Even more, an evaluation report focussing on the implementation of the initiative in Senegal by Oxfam Novib is applied (2016). Other third parties sources were not found.

Indicator I: Realistic Goals

Firstly, the initiative is stating that it is developing innovative tools and strategies to reduce and mitigate risks in order to overcome hunger, achieve food security and enhance resilience (WFP, 2018) (++).

Secondly, the goals should be realistic: do they take limitations such as budget and scope into consideration? It aims to insure 500,000 farmers in 2020, hence it is aware of the limited time frame (ibid.) (+). However, the feasibility of this time frame in combination with the scope is not taken into consideration (+/-). Even more, the initiative does not give any information on the scope they work in. The table in the R4 document, the available budget over the years gives insights in the previous spendings (--). It does not provide information about the future budgets (-).

Hence, the first indicator on realistic goals is scoring a *moderate* (+/-) effectivity.

Indicator II: Procedural Effectiveness

The first yardstick of the second indicator is scoring *very high* (++), because the first output results are clearly listed in the policy documents and show overlap with its objective (eg. risk management strategies should enhance resilience to climate variability and shocks. In 2016, 42,000 farmers became insured, saved more than twice than those without insurance). Even more, the evaluation report published by

Oxfam Novib is giving relevant insights in the methods of measuring and evaluating the project effectiveness in Senegal (2016).

There is no information available on possible cooperation between joining actors within the initiative. Even more, no cooperation with other NAZCA initiatives is mentioned nor visible, leaving us to assume that this is not a focus point of the initiative (--).

The transparency level of the initiative is scoring *moderate* (+/-), because various published documents are available giving clear insights in the policy implementations and developments but relevant information on annual results and progress is missing.

At last, the MRF mechanisms of the R4 initiative are scoring *very high* (++), because the policy reports are sharing the results and developments achieved since 2013, showing how this is in line with their current objective which helps the initiative to continue their development and level of effectiveness in the future. Even more, various impact evaluations documents (eg. Oxfam, 2016) are listed online (++).

Hence, the second indicator is scoring *high* (+) on the procedural effectiveness.

Indicator III: Resilience Oriented Effectiveness

As the main goal of the initiative is to make communities more prone to climate variability and uncertainties, we are concluding that the initiative is creating the capability of dealing with environmental uncertainties (+).

The risk management and insurance installments for farmers is creating proper recovery skills for farmers, but not so much for the socio-ecological system (Oxfam, 2018) (+/-).

The impact assessments and evaluations are shown to be applied for future research as well, hence scoring *high* (ibid.) (+).

Hence, the third indicator measuring the effectiveness of contributing to increased resilience, is scoring high (+).

Overall Effectiveness

The R4 Rural Resilience Initiative is scoring high (+) on every individual indicator, meaning that the overall effectiveness of the initiative is high as well. Only some minor improvements are welcome, these are mainly the cooperation with joining actors as well as with other NAZCA initiatives.

The following four initiatives do not provide any information on the NAZCA Platform. The information applied to measure their level of effectiveness is retrieved via various other sources. Due to the lack of information on the NAZCA Platform, these initiatives score lower onto the transparency yardstick, as well as their level of cooperation with the NAZCA initiatives, due to their missing information on the NAZCA Platform. Hence, this influences their overall level of effectiveness.

XI. West Africa Coastal Areas Management Program (WACA)

The protection of coastal and marine areas is considered to be relevant as these areas are vulnerable to natural resource development as well as exploitation, eg. water pollution and overfishing. Therefore, management of coastal and marine areas is needed (Cicin-Sain and Belfiore, 2005). This initiative aims to help countries access both finance and expertise to sustainably manage their coastal areas. By providing coordination and collaboration at both the policy and technical levels, supranational management can be provided to contain erosion and flooding (World Bank, 2018). The initiative started in 2015 and focusses on providing and implementing multi-sectoral solutions, eg. land management, spatial planning and infrastructure (Climate Initiatives Program, 2018).

The information applied to measure its effectiveness is retrieved from the Climate Initiatives Program database (2018), the World Bank website (2018) and the UN Framework Convention on Climate Change website (2018).

Indicator I: Realistic Goals

The first yardstick of this indicator is showing a *very high* (++) score, because the goals of the WACA initiative are present at the Climate Initiative Program database. Their goals are threefold, eg. the first goal is 'the reduction of coastal erosion hotspots by 30% by 2020 and by 70% in 2025' (Climate Initiative Program, 2018).

The second yardstick takes the goal setting of the initiative, with respect to four factors (resources, timeframe, budget and scope) into consideration. The WACA initiative states their goals within a set timeframe (++), it focusses on West African coastal regions and lists all countries involved (scope, ++), the tools applied to achieve their goals are based on the condition of technical analyses to inform country-specific investment plans (+), and the initiative is part of the Africa Climate Business Plan which includes \$1 billion USD of investments in coastal zone resilience (++). However, how much of this budget is available for the WACA initiative is not clear (+/-). Hence, the overall score of the second indicator is *high* (+).

Indicator II: Procedural Effectiveness

Firstly, the progress of the WACA initiatives cannot be checked or measured because no information is available about the first output results. Hence, comparing the first output results with the initiatives' objective is not possible, leading us to assume that no first output results are present (--).

Secondly, the level of cooperation within the initiative is mentioned in the long-term expectations on the initiatives: it is aiming to work with involved countries to develop multi-year, multi-country

investment plans (UNFCCC, 2018) (+). However, whether this is currently appearing is not clear (+/-). Even more, cooperation with other NAZCA initiatives is not mentioned, hence we assume that there is no cooperation appearing at this stage (--). The second yardstick is thus scoring *low* (-).

Thirdly, transparent information about the initiative is available on the World Bank website as well as the UNFCCC website. These websites give us some relevant and detailed information, but does not provide insights into the first output results and level of cooperation (-). The Climate Initiative Program is also providing some relevant details about the WACA initiative (+). However, information is missing on the NAZCA Platform (-). Hence, the third indicator is scoring *moderate* (+/-).

At last, MRF mechanisms are not mentioned on any of the websites, which leads us to assume that there are no mechanisms implemented in order to enhance the level of effectiveness of the initiative in the future (--).

Thus, the procedural effectiveness of the WACA initiative is scoring moderate to low (+/- - -).

Indicator III: Resilience Oriented Effectiveness

As the WACA initiative is focussing on investing in West African coastal areas in order to increase the level of resilience in this region, the initiative creates the capability of dealing with environmental uncertainties (+).

However, flexibility and recovery levels are not mentioned as a relevant factor to the initiative. We can therefore assume that this yardstick is missing and therefore considered to be ineffective (-). This is the same for the final yardstick about the continuation of development, learning and adaptation (-).

Hence, the WACA initiative is scoring moderate (+/-) on its resilience oriented effectiveness.

Overall Effectiveness

The WACA initiative is scoring +, +/- - -, +/- respectively. The overall effectiveness of the initiative is thus *moderate* (+/-). Whereas the initiative is scoring high on its goal setting, it is lacking to provide all relevant information which leads us to assume it is not dealing with these yardsticks. The initiative is recommended to improve its process mapping, its level of cooperation with other NAZCA initiatives and the implementation of MRF mechanisms in order to improve its procedural effectiveness.

XII. G7 Initiative on Climate Risk Insurance

The effects climate change on flood risks need proper innovative adaptation policies in order to deal with rising risks. One of the policy implementations to deal with these risks entails the role of insurance. Increasingly, insurance is seen as a key player in mitigating damage. By providing incentives to policyholders, damage reducing measurements are undertaken more often (Botzen, Aerts and van den Bergh, 2009).

The G7 Initiative on Climate Risk Insurance aims 'to increase access to direct or indirect insurance coverage against the impacts of climate change for up to 400 million of the most vulnerable people in developing countries by 2020' (UNFCCC, 2018). The initiative was adapted after the G7 Summit in 2015. By the cooperation in close partnership between the G7 states, developing countries and emerging states, the creation and smart use of effective climate risk insurance is stimulated (Climate Initiatives Platform, 2018).

The G7 Initiative on Climate Risk Insurance does not provide any information about the initiative on the NAZCA Platform, hence all available information is retrieved from the Climate Initiatives Platform (2018), the UNFCCC website (2018) and the German Federal Ministry for Economic Cooperation and Development website, about the German Presidency of the G7 (2014-2018).

Indicator I: Realistic Goals

The initiative has set a clear goal, which is 'the stimulation of creating effective climate risk insurance markets and the smart use of insurance-related schemes for people and risk-prone assets in developing countries' (Climate Initiatives Platform, 2018) (++).

The four factors for realistic goal setting (scope, budget, resources and time frame) should be taken into consideration. Firstly, the information about the scope of the initiative is very vague, namely only stating 'in developing countries'. Which developing countries are involved? (-). Secondly, the budget of the initiative is not listed (--). Even more, the application of tools is also not listed or explained (--). The time frame applied by the initiative is given (2020, +). Hence, the first indicator is overly scoring *moderate to low* (+/- - -) for its realistic goal setting.

Indicator II: Procedural Effectiveness

Firstly, the first output results should be complementing with the objective of the initiative. However, as this information is not provided on any of the before mentioned websites, it is assumed that no first output results are available yet, hence no complementation can be measured (--).

Secondly, the level of cooperation can only be measured based on the knowledge that the initiative is based on cooperation between the G7 countries (+). However, whether this cooperation is functioning properly, is not stated (-). Even more, as there is no information about the initiative on the NAZCA Platform website, we assume that there is no cooperation with other NAZCA initiatives present at this stage (-). Hence, this yardstick is scoring *moderate to low* (+/- - -).

Thirdly, transparent documents should be available. The information about the initiative is retrieved from various public websites, however a lot of relevant information is currently missing (-).

Fourthly, MRF mechanisms are also not stated online, leaving us to assume that this is not existing (--).

Hence, the procedural effectiveness indicator is showing a *very low* (--) score, mostly due to the lacking information about the yardsticks.

Indicator III: Resilience Oriented Effectiveness

No information is available about the resilience orientation of the initiative. Hence, we have to attribute this indicator with a *very low* (--) score, due to the missing information.

Overall Effectiveness

This initiative is assigned with a *low to very low* (- - --) score, mostly because it is not providing enough relevant information to properly measure its level of effectiveness. Even though a causal claim does nt suffice, we have to assume that the initiative is not considering all the relevant factors for a high level of effectiveness. Hence, it is recommended to publish more information about the initiative online, as well as measure the progress made and enhance the level of cooperation with other initiatives.

XIII. Maritime Regions in Action against Climate Change

The effects of climate change will be felt at a regional and local level, which makes regional and local governments important actors for policy action (Galarraga et al., 2011). Launched already in 1973, the Maritime Regions in Action against Climate Change initiative was created as a collaboration platform, insisting on multilevel governance and bottom-up approaches. The platform is led by the Conference of Peripheral Maritime Regions of Europe (CPMR), which aims to implement policies and initiatives that fight against climate change (Climate Initiatives Platform, 2018).

The initiative is not sharing any information on the NAZCA Platform website and extra sources from third parties were not found, hence all information applied to measure its level of effectiveness is retrieved from the Climate Initiatives Platform (2018), the CPMR website (2018) and the UNFCCC website (2018).

Indicator I: Realistic Goals

The initiative states its objectives on the UNFCCC and CIP websites, including the reduction of greenhouse gas emissions, development of more sustainable energy solutions and the adaptation to climate change in continuation of the Mexico Pact (UNFCCC, 2018). The first yardstick about the presence of set goals is thus scoring *very high* (++).

The second yardstick (taking budget, resources, scope and timeframe into consideration) is showing the following scores. No budget is published, nor is a set time frame and a scope and applied resources. The objective of the initiative cannot be checked for its degree of realism, hence scoring *very low* (--). The initiative is thus showing a *moderate* (+/-) score on realistic goal setting.

Indicator II: Procedural Effectiveness

In order to measure the second indicator, information is needed about the first output results, level of cooperation, transparency and MRF mechanisms. All this information is not publicly published, meaning that this indicator cannot be properly measured. The lack of information could be interpreted as the initiative still being relatively new, or the initiative is very small therefore lacks the tools and skills to share all information online. As the initiative was already launched in 1973, the first argument does not stand. Whether the initiative is small and lacking possibilities to share relevant information online, also seems not to be the case as the organization is in extensive contact with EU institutions and national governments (CPMR, 2018). Several attempts were made to be in personal contact with a member of the CPMR, however these attempts all failed to succeed. Hence, we could only assume that the information is not available, leading us to attribute a *very low* (--) score on the second indicator.

60

Indicator III: Resilience Oriented Effectiveness

Does the initiative create the capability of dealing with environmental uncertainties in the system? The initiative focusses on the mitigation of and adaptation to climate change risks for coastal areas. Hence, the initiative does deal with environmental uncertainties in the socio-ecological system (+).

The enhancement of flexibility and recovery skills is not mentioned anywhere on the available websites, hence we have to assume that this is not a key factor for the initiative (--).

At last, the continuation of development, learning and adaptation is considered to be a main factor to the initiative, as the initiative is already existing since 1973 meaning that it is able to continue their activities based on new developments in the maritime regions where they are active. However, as this is an assumption that cannot be proved based on the knowledge available online, this yardstick is showing a *moderate* score (+/-).

Thus, the resilience oriented effectiveness of the Maritime Regions in Action against Climate Change is assigned with a *moderate* (+/-) score.

Overall Effectiveness

Based on the findings, the initiative is scoring low (-) on its overall effectiveness. This is mostly caused by the fact that no relevant information is published publicly, nor was it made possible to be in personal contact with a member of the initiative. Due to the missing information, we have to assume that the level of effectiveness of the initiative could be improved.

XIIII. Alliance of Megacities for Water and Climate (MAWaC)

By 2030, 60 percent of the world's population will live in urban areas. Megacities are already appearing worldwide and it is projected that population growth will continue to increase in urban centers (UNESCO, 2018). As these areas are covering diverse geographical areas, the impacts of climate change are already faced by megacities today. The Alliance of Megacities for Water and Climate (MAWaC) aims to 'help megacities adapt to and mitigate the effects of climate change' (MAWaC, 2018). Launched in 2015, the Alliance focusses on international cooperation, providing forums for dialogue on water. It brings together all stakeholders in the water sector, as well as civil society representatives and national and local governments (ibid).

Information is retrieved from the UNESCO website (2018), the Climate Initiatives Platform (2018) and the website of the Megacities Alliance itself (2018). Third party information is missing online. Even more, a Skype call was executed on 13/03/18 with Bruno Nguyen of the UNESCO (see Appendix).

Indicator I: Realistic Goals

Clear goals are stated on the website of the initiatives, one of their goals is the collection and dissemination of information at a worldwide scale on strategies and operational plans. These are developed by local authorities and their water operators (Water, Megacities and Global Change, 2018). Hence, goals are set (++).

Secondly, the set goals should be realistic within the limitations of the initiative (budget, time frame, tools and scope). No information on this yardstick is available on the websites. This question was thus asked during a Skype conversation with Bruno Nguyen of the UNESCO on 13/03/18. Mr. Nguyen replied that the Alliance is still relatively new and therefore has not set out any of the four factors. Mr. explained how the Alliance is mostly focussing on bringing together the different stakeholders involved in megacities challenges and that they want to leave options for future policy and conferences open to these stakeholders (Skype conversation, 13/03/18). Hence, the initiative is missing relevant policy considerations that would enhance the possibility of reaching their set goals in the future (--).

Hence, the realistic goal setting of the Megacities Alliance is overly showing a *moderate* score (+/-).

Indicator II: Procedural Effectiveness

Due to the missing information that Mr. Nguyen explained is not available yet since it is not their main focus in this early stage of the initiative, first output results do not exist (--).

Secondly, cooperation with other actors involved is the main focus of the initiative. The Alliance's main objective is to bring together all stakeholders relevant in the field of dealing with megacities' challenges. Mr. Nguyen gave the example of a UNESCO Conference (OMEGA 2019) that will be held next year in order to promote the start of the alliance, use all connections and networks that are currently existing and increase these networks for future cooperation. Hence, cooperation is appearing (++). However, Mr. Nguyen explained that no cooperation with other NAZCA initiatives is currently appearing as the initiative wants to leave the decision to cooperate with involved NAZCA initiatives to the stakeholders that the Alliance is cooperating with (--). Hence, the level of cooperation is assigned with a *moderate* (+/-) score.

Thirdly, the level of transparency is assigned with a *moderate* (+/-) score as well, because the website of the UNESCO and the Alliance are explaining the objectives and partners properly (2018). However, a lot of relevant information to measure the level of effectiveness is missing. The initiative does not seem to agree on the importance of dealing with factors such as first output results. However, as the effectiveness framework states the importance procedural effectiveness yardsticks, the lacking information is considered to lower the level of effectiveness of the initiative (-).

Fourthly, Mr. Nguyen explained that also MRF mechanisms do no exist. Whether this is relevant to the Alliance to include in the near future is not clear, so this yardstick is assigned with a *very low* (--) score.

Thus, the procedural effectiveness of the Alliance of Megacities for Water and Climate is overly scoring *low to very low* (- - --).

Indicator III: Resilience Oriented Effectiveness

At last, the third indicator focussing on the capability of the initiative to increase the level of resilience is assigned with a *moderate* (+/-) score, as the initiative is only aiming to bring together various stakeholders and does not deal with adaptation mechanisms in a direct manner, nor does it focus on flexibility and recovery skills (ibid.). However, Mr. Nguyen explained how the initiative is open to learning and development (+), because it focusses on the implementation of new ideas by stakeholders and they are willing to change policy ideas when this is considered to be necessary (13/03/18).

Overall Effectiveness

The overall effectiveness of the Alliance of Megacities for Water and Climate is showing a *moderate to* low (+/- - -) score. This is mostly caused by the relatively new character of the initiative. The initiative does not seem to realize the necessity of setting up clear policy goals within policy framework and by

taking their limitations into consideration. However, the level of cooperation as well as learning and development mechanisms are showing high scores on effectiveness. In order to increase the overall effectiveness of the initiative, the Alliance should be more precise and realistic in their goal setting in order to steer their objectives into the highest likelihood of achieving their goals.

4.3 Research Findings - Figures and Recommendations

In this section, the research findings are listed and explained. In section 4.3.1, the third sub question is answered: *What indicators of effectiveness appear to be falling short, according to the analysis?* In section 4.3.2, the final sub question is explained: *What recommendations can be drawn to increase the level of effectiveness of non-state actors' climate initiatives?* The main research question is answered in the section 4.3.2. In the following figure (Figure 4.1), the scores per indicator per initiative are listed, including the total level of effectiveness per initiative. Figure 4.2 shows the main focus point per initiative, Figure 4.3 shows the starting year per initiative. These are further elaborated in this section. Appendix C shows the research findings listed in Figure 4.1 in more detail (results per yardstick).

NAZCA Cooperative Initiative	I: Realistic Goals (2)	II: Procedural Effectiveness * (4)	III: Resilience Oriented Effectiveness (3)	Total level of effectiveness
The Global Covenant of Mayors	Moderate (+/-)	Moderate (+/-)	High (+)	Moderate (+/-)
Cities Climate Finance Leadership Alliance	Moderate (+/-)	High (+)	High (+)	High (+)
Business Alliance for Water and Climate	High (+)	High (+)	Low (-)	High (+/-)
Climate Risk and Early Warning Systems	High (+)	Low (-)	Moderate (+/-)	Low (-)
FoodSECuRE	Moderate to High (+/ +)	Moderate (+/-)	Moderate (+/-)	Moderate (+/-)
Global Resilience Partnership	Moderate (+/-)	Low (-)	Moderate (+/-)	Moderate to Low (+/)
The 1-in-100 Initiative	High to Very High (+ - ++)	Moderate (+/-)	Very High (++)	High (+)

The Great Green Wall Initiative	High (+)	High (+)	Moderate (+/-)	Moderate to High (+/ +)
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	High (+)	High (+)	Moderate (+/-)	High (+)
R4 Rural Resilience Initiative	Moderate (+/-)	High (+)	High (+)	High (+)
West Africa Coastal Areas Management Program	High (+)	Moderate to Low (+/)	Moderate (+/-)	Moderate (+/-)
G7 Initiative on Climate Risk Insurance	Moderate to Low (+/)	Very Low ()	Very Low ()	Very Low ()
Maritime Regions in Action against Climate Change	Moderate (+/-)	Very Low ()	Moderate (+/-)	Low (-)
Alliance of Megacities for Water and Climate	Moderate (+/-)	Low to Very Low ()	Moderate (+/-)	Moderate to Low (+/)
Overall level of effectiveness	Moderate to High (+/ +)	Moderate (+/-)	Moderate (+/-)	Moderate (+/-)

Figure 4.1 Overall scoring table per indicator, per initiative. *the second indicator weighs twice as much as the first and third indicator.

NAZCA Cooperative Initiative	Main focus point of initiative		
The Global Covenant of Mayors	Cities and local governments		
Cities Climate Finance Leadership Alliance	Cities, urban infrastructure, investments		
Business Alliance for Water and Climate	Private actors, water stress		
Climate Risk and Early Warning Systems	Developing countries, risk management, early weather warning systems		
FoodSECuRE	Developing countries, community-centred action, post disaster recovery		
Global Resilience Partnership	Africa and Asia, adaptation to climate shocks		
The 1-in-100 Initiative	Public and private sector, risk management, financial regulation of climate risks		
The Great Green Wall Initiative	Africa, land restoration, food security		
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	Transboundary management, adaptation to climate change in rivers, lakes and aquifers		
R4 Rural Resilience Initiative	Developing countries, food security		
West Africa Coastal Areas Management Program	Africa, adaptation in coastal areas, sea level rise		
G7 Initiative on Climate Risk Insurance	Risk management, insurance		
Maritime Regions in Action against Climate Change	Maritime regions, adaptation		
Alliance of Megacities for Water and Climate	Megacities, stakeholder cooperation and collaboration		

Figure 4.2 Main focus point per initiative

NAZCA Cooperative Initiative	Starting Year	
The Global Covenant of Mayors	2008	
Cities Climate Finance Leadership Alliance	2014	
Business Alliance for Water and Climate	2015	
Climate Risk and Early Warning Systems	2015	
FoodSECuRE	2015	
Global Resilience Partnership	2014	
The 1-in-100 Initiative	2014	
The Great Green Wall Initiative	2008	
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	2015	
R4 Rural Resilience Initiative	2011	
West Africa Coastal Areas Management Program	2015	
G7 Initiative on Climate Risk Insurance	2015	
Maritime Regions in Action against Climate Change	1973	
Alliance of Megacities for Water and Climate	2015	

Figure 4.3 Starting year per initiative

4.3.1 Overall Effectiveness per Indicator

By analyzing each cooperative initiative according to the effectiveness framework explained in Chapter 3, the scores per indicator per initiative are found. The indicators show a *moderate to high, moderate to high, moderate to high, and moderate* (+/- - +, +/- - +, +/-) score respectively. Observing the results from the research in an

overall manner, one can conclude that the levels of effectiveness show wide variations. Based on this observation, we can already conclude that the variation in effectiveness is inconsistent and could be improved. The scores of the separate indicators are elaborated here.

Firstly, the realistic goals indicator was measured according to two yardsticks (presence of set goals and set goals within present limitations). For the fourteen initiatives that were analyzed, the scores were either *moderate* (+/-), *moderate to high* (+/- - +) or *high* (+), showing that goals are present and also often considering the four limitations (scope, resources, budget, time frame) that could influence the set goals. However, in the research phase the financial limitations (budget) faced by various initiatives became clear. Various initiatives struggle with setting realistic goals according to the budget available, or even lack to clearly state the budget of the initiative (nine out of the fourteen initiatives, see Figure 7.1). Hence, the first indicator is overly scoring *moderate to high* (+/- - +), meaning that initiatives have created the likelihood that the final output results will be likely to correspond with its previously set goals. However, for various initiatives (nine out of fourteen measured initiatives) attention is needed to the financial limitations.

Secondly, the procedural effectiveness indicator was measured according to four yardsticks (progress, cooperation, transparency and monitoring, reporting and feedback mechanisms). This indicator is weighing twice as much as the first and third indicator. The overall level of effectiveness of this indicator is *moderate* (+/-), meaning that the relevant factors leading to realizing the set goals of the initiative are moderately taken into consideration and thus moderately increasing the likelihood of realizing the set goals. With regards to the first yardstick, covering the first output results complementing with the objective, an important observation was made based on the measured findings. Seven of the fourteen initiatives do not have first output results that complement with their objective (See Appendix Figure 7.2 of separate scores per yardstick). This could be explained by the young characteristic of the initiative: as can be observed in Figure 4.3, eight of the fourteen initiatives only started in 2015 and three initiative in 2014. It shows that the initiatives are relatively young, which could explain why there are no first output results available yet. This is an important finding that should be taken into consideration by the initiatives: attention should be paid to collecting first output results and checking whether these results complement with their objectives.

With regards to the second yardstick, a *moderate* (+/-) score is assigned to seven of the fourteen initiatives and *low to very low* score to five of the fourteen initiatives. This can be explained by the low scores on cooperation within the initiative, as well as with other NAZCA initiatives. Whereas various initiatives focussed to a certain extent on cooperation with all relevant stakeholders within the initiative, the lack of cooperation with other NAZCA initiatives was strongly observed. This is relevant as

69

cooperation within other NAZCA initiatives could enhance the overall effectiveness of the NAZCA Platform, which will enhance the global effort to reduce climate change and increase climate change resilience (Chan et al., 2015). Even more, as becomes clear in Figure 4.2, five initiatives focus on developing countries and food security, three initiatives focus on cities and three other initiatives focus on climate variability and risk management. This leads us to conclude that overlap between the initiatives exists and joining forces on sharing knowledge and experience could be beneficial. Thus, improving the level of cooperation between the cooperative initiatives is needed.

With regards to the third yardstick, seven initiatives appear to show *moderate* levels of transparency, explaining the objectives of the initiative, sharing their set time frame and scope. However, the remaining seven initiatives are scoring *low* or *very low* (- --) on their level of transparency, often caused by the lack of publicly available documents sharing relevant, more detailed information about the progress made and feedback reports. It is relevant to openly share policy documents because this will enable analyzing the level of effectiveness and giving recommendations for further improvements (Chan et al., 2015).

At last, the fourth yardstick that measured the monitoring, feedback and reporting mechanisms per initiative, is overly scoring *low to very low* (- - --). This means that more than half of the initiatives has not properly implemented monitoring, feedback and reporting mechanisms, therefore they are missing out on keeping track of points for improvements to enhance their level of effectiveness in the future.

Thirdly, the resilience oriented effectiveness indicator is overly scoring *moderate* (+/-) (see Appendix or Figure 7.3). This is explained by the fact that not all initiatives focus on social-ecological resilience, but eg. on increasing the level of resilience for the private sector in facing climate changes (eg. Business Alliance for Water and Climate). However, this is not the case for all initiatives focussing on the private sector. For example, the 1-in-100 initiative shows the possibility of dealing with resilience within the private sector by working together with the public sector, in order to enhance the level of resilience for the whole socio-ecological system (Skype conversation Jonathan Gascoigne, 26/1/2018). In order to score high on the resilience oriented effectiveness, the initiative should meet both the individually set objectives as well as public goals, which is not the case for several of the initiatives. More specifically, various initiatives (eight out of fourteen initiatives) could improve creating the capability of increasing flexibility and recovery levels, as well as the continuation of developing, learning and adapting to changes in the system could in many cases be improved (eight of the fourteen initiatives).

The effectiveness per indicator per initiative thus show high variations. The above mentioned results give the answer to the third sub question: *What indicators of effectiveness appear to be falling*

short, according to the analysis? Conclusions and recommendations on these variations are listed in the next section.

4.3.2 Overall Level of Effectiveness and Recommendations

The overall level of effectiveness of non-state actors' cooperative initiatives on resilience in the NAZCA Platform is calculated at a current score of *moderate* (+/-). This finding enables answering the research question: *What is the level of effectiveness of non-state actors' cooperative initiatives on resilience in the NAZCA platform within transnational climate governance and what is needed for further improving the effectiveness?* In order to further improve the level of effectiveness, several recommendations are made here based on the above mentioned findings.

Firstly, the findings of this research show that the first indicator dealing with the goal setting of the initiatives is scoring *high* on the presence of objectives. However, some improvements could be made considering both the financial limitations (budget) and the time frame in which the initiative want to achieve their set goals. These factors need more specific consideration for the initiatives scoring *moderate* (+/-) on the first yardstick (eg. The Global Covenant of Mayors). Whereas the initiatives are scoring *high* (+) on setting clear goals, the initiatives should be more specific and realistic in the limitations of their set time frame. This is considered to be relevant because it increases the likelihood of achieving the set goals (Widerberg and Pattberg, 2015; Chan et al., 2015). For example, the Cities Climate Finance Leadership Alliance is scoring *very high* (++) on the first yardstick, thus objectives are present, but the Alliance scores *low* (-) on the realistic characteristic of these set objectives. This should be taken into more careful consideration by six of the fourteen initiatives (see Figure 4.1).

With regards to the second yardstick, the overall score of the first yardstick is *moderate* (+/-), meaning that the first output results of the objectives are not present on an average basis. This is relevant in order to check whether the set goals are realistic and also possible to achieve, as well as to check whether the set goals are already showing positive outcomes (ibid.). Even more, the level of cooperation with other NAZCA initiatives is found to be *very low* (--) and by enhancing the level of cooperation, relevant information can be shared, forces can be joined and overarching objectives could be more easily reached. The level of transparency also shows possibilities for further improvement. In order to more properly measure and analyze initiatives on their effectiveness, transparency is needed. At last, improving reporting, monitoring and feedback mechanisms will benefit initiatives as it will give them more insights in how they could improve their policy framework in the near future.

With regards to the third indicator, the overall resilience oriented effectiveness is already showing a *moderate* (+/-) effectivity. Various initiatives are holding onto their goal of increasing resilience to

71
climate change in a certain manner, may it be through increasing food security or adapting to sea level rises. Often, the initiatives cover both dealing with uncertainties as well as flexibility levels and development and learning systems. More specifically, various initiatives could improve creating the capability of increasing flexibility and recovery levels, as well as the continuation of developing, learning and adapting to changes in the system could in many cases be improved.

5. Conclusion

5.1 Overall Conclusion

In this research, the level of effectiveness of the non-state actors' cooperative initiatives focussing on resilience involved in the NAZCA Platform, was analyzed and measured. The application of the developed framework for the measurement of the level of effectiveness, resulted in some relevant findings and recommendations.

First of all, the majority of the initiatives has set clear objectives, but these objectives still lack to take limitations such as budget, time frame and scope, into consideration. In order to ensure the execution of the objectives, it is necessary that these factors will be taken into more careful consideration by a majority of the initiatives.

Secondly, the procedural effectiveness of the fourteen initiatives is overly scoring *moderate* (+/-), which is caused by several factors. Firstly, the first output results of the objectives are not present on an average basis, making it difficult to check whether the set goals are realistic and already showing positive results. This is also the case for the current level of transparency of the majority of the initiatives. Even more, the level of cooperation with other NAZCA initiatives is found to be *very low* (--) and by enhancing the level of cooperation, relevant information can be shared, forces can be joined and overarching objectives could be more easily reached. At last, the improvement of reporting, monitoring and feedback mechanisms will benefit initiatives because it will lead to more knowledge in how they could improve their policy framework in the near future.

Thirdly, the initiatives cover both dealing with uncertainties as well as flexibility levels, development and learning systems. More specifically, various initiatives could improve creating the capability of increasing flexibility and recovery levels, as well as the continuation of developing, learning and adapting to changes in the system could in many cases be improved.

To conclude, the level of effectiveness of non-state actors' cooperative initiatives involved in the NAZCA Platform is currently *moderate* (+/-). Clear goals are set by the initiatives, showing their will to enhance resilience to climate change, but due to the abovementioned factors it is currently difficult to ensure the likelihood that the initiatives will achieve their goals. The research findings are thus confirming results from previous scientific research about the lacking their fullest potential (Chan et al., 2015; Michaelowa and Michaelowa, 2017). When the above mentioned factors will be taken into more careful consideration by the initiatives, the overall level of effectiveness of the initiatives, hence the cooperative initiatives focussing on resilience within the NAZCA Platform will be improved.

5.2 Scientific and Societal Contributions

This research contributes to the scientific literature in various ways.

As explained in Chapter 2, non-state actors are likely to have a high potential to increase resilience to climate change (Blok et al., 2012; Chan et al., 2015; Hsu et al., 2015; Michaelowa and Michaelowa, 2017). However, systematic evidence of the effectiveness of non-state actors' cooperative initiatives has not been researched yet (Chan et al., 2015; Michaelowa and Michaelowa, 2017). This research is contributing to this knowledge gap as the research findings give insights in this relatively new unit of analysis. It enables the scientific community to build onto the knowledge about non-state actors' policy implementations to increase resilience to climate change.

Even more, this research contributes to the scientific knowledge about the functioning of the transnational climate governance arena, because it researches the current level of effectiveness of non-state actors in the arena, being relatively new and unstudied within the arena literature (Zelli and Van Asselt, 2013).

At last, this research focuses on resilience to climate change, sharing more knowledge about this mode of climate governance in particular. Future research could also apply the same analytical framework onto other initiatives within the NAZCA Platform. Hence, the analytical framework enables generalizing the research methodology onto other units of analysis.

This research shows to contribute to the societal need for enhancing resilience to climate change as it seeks to improve the effectiveness of a new main player in the field of transnational climate governance. The results enable improving the level of effectiveness of these actors, hence contributing to climate change resilience in socio-ecological systems in society.

5.3 Limitations and Future Research

However, several limitations to this research should be mentioned in order to improve future research on this topic.

Firstly, the research project was designed to measure all fourteen cooperative initiatives of the NAZCA Platform on resilience. However, during the research phase it became clear that not all initiatives share the same or all relevant information to measure their level of effectiveness. Four of the fourteen initiatives do not provide any information on their policy framework or implementations on the NAZCA Platform. In order to tackle this limitation, the initiatives were contacted by email, creating the possibility to share more detailed information. However, only six of the ten initiatives have agreed with a Skype meeting. Other sources were also applied as a basis for measuring effectiveness, not only to increase the objective measurement of effectiveness, but also because relevant was sometimes missing. This may have

influenced the research findings in its robustness as well as the generalizability of the research findings. For example, several Skype conversations enabled sharing relevant information on missing details for various yardsticks, hence influencing the research findings. Also, without any relevant information available, it was assumed that the initiative was not considering various factors that are relevant or lacking the presence of these factors. As stated before, it is not possible to causally claim the presence of information to effectiveness, but based on the absence of these factors, it often led to assuming so after all. Future research should be more aware of avoiding the creation of a causal relation between the amount of information and the level of effectiveness, by ensuring the availability of all needed information. Even more, the NAZCA Platform itself was contacted in order to cooperate in this research, but the Platform board and committee did not respond to any contact attempts. It is recommended to include detailed information provided by the NAZCA Platform in future research.

Secondly, difficulties appeared in the measurements of initiatives that have only started in the last few years. Figure 4.3 was designed in order to show how relatively new most initiatives are. This influences the measurement of effectiveness as not many initiatives could have implemented their set goals yet, let alone the overall level of effectiveness could be measured. As explained in Chapter 3, this issue is being tackled in this research project by implementing several yardsticks that take the continuity and unfinalized characteristics of the initiatives into consideration (time frame yardstick, first output results). This enabled to execute this research, showing research findings that could measure the current level of effectiveness and improve the effectiveness while the initiatives are still in their executive phase. However, this limitation shows the need for measuring the final level of effectiveness of the cooperative initiatives in the future.

At last, the analytical framework enabled measuring the level of effectiveness and justifications for the applied indicators were given in Chapter 3. However, difficulties arose in measuring the effectiveness according to several of the applied yardsticks. For example, measuring the impact of the initiatives was shown to be difficult according to the created yardsticks, as well as the measurement of the presence of the level of realistic limitations with regards to the objectives of the initiative. These yardsticks are relevant and should therefore be part of the analytical framework, but in future research the yardsticks should have more precise measurement possibilities. This will enhance the feasibility of the indicators and therefore provide more precise research findings.

75

6. References

Abbott, K. W. (2012). The transnational regime complex for climate change. Environment and Planning C: Government and Policy, 30(4), 571-590.

Adger, W. N., Arnell, N. W., and Tompkins, E. L. (2005a). Successful adaptation to climate change across scales. Global Environmental Change, 15(2), 77-86.

Adger, W. N., Hughes, T. P., Folke, C., Carpenter, S. R., & Rockström, J. (2005b). Social-ecological resilience to coastal disasters. *Science*, *309*(5737), 1036-1039.

Andonova, L., Betsill, M. M., Bulkeley, H. (2007). Transnational Climate Governance. Paper prepared for the Amsterdam Conference on the Human Dimensions of Global Environmental Change, 24-26 May 2007. Retrieved on 08-10-2017, via:

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.664.2190&rep=rep1&type=pdf

Arts, B. (2000). Regimes, Non-State Actors and the State System: A Structurational Regime Model. European Journal of International Relations, 6(4), 513-542.

Bäckstrand, K. (2008). Accountability of networked climate governance: The rise of transnational climate partnerships. *Global Environmental Politics*, *8*(3), 74-102.

Betsill, M., Dubash, N. K., Paterson, M., van Asselt, H., Vihma, A., & Winkler, H. (2015). Building Productive Links between the UNFCCC and the Broader Global Climate Governance Landscape. *Global Environmental Politics*.

Bulkeley, H., Andonova, L., Bäckstrand, K., Betsill, M., Compagnon, D., Duffy, R., Milledge, T. (2012). Governing climate change transnationally: assessing the evidence from a database of sixty initiatives. *Environment and Planning C: Government and Policy*, *30*(4), 591-612.

Chan, S., S. Bauer, C. Brandi (2016) Aligning Transnational Action with International Climate Governance: The Road from Paris. Review of European Comparative International Environmental Law (RECIEL). 25 (2): 238-247.

Chan, S., Asselt, H., Hale, T., Abbott, K. W., Beisheim, M., Hoffmann, M., Pauw, P. (2015). Reinvigorating international climate policy: a comprehensive framework for effective nonstate action. *Global Policy*, *6*(4), 466-473. Chan, M., & Pauw, W. P. (2014). A Global Framework for Climate Action (GFCA)-Orchestrating Non-State and Subnational Initiatives for More Effective Global Climate Governance. *German Development Institute Discussion Paper*, (34).

De Vries, B. J. (2012). Sustainability science. Cambridge University Press.

Falkner, R. (2013). *The handbook of global climate and environment policy*. John Wiley & Sons. Folke, C., Carpenter, S., Elmqvist, T., Gunderson, L., Holling, C. S., Walker, B. (2002). Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. AMBIO: A Journal of the Human Environment, 31(5):437-440.

Gerring, J. (2007). Is there a (viable) crucial-case method?. *Comparative Political Studies*, 40(3), 231-253.

Gupta, J. (2010). A history of international climate change policy. *Wiley Interdisciplinary Reviews: Climate Change*, *1*(5), 636-653.

Hoffmann M, 2011 Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto (Oxford University Press, Oxford).

Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual review of ecology and systematics*, *4*(1), 1-23.

Hsu, A., Moffat, A. S., Weinfurter, A. J., & Schwartz, J. D. (2015). Towards a new climate diplomacy. *Nature Climate Change*, *5*(6), 501-503.

Jordan, A. J., Huitema, D., Hilden, M., Van Asselt, H., Rayner, T. J., Schoenefeld, J. J., Boasson, E. L. (2015). Emergence of polycentric climate governance and its future prospects. *Nature Climate Change*, 5(11), 977-982.

Kane, S. and Shogren, J. F. (2000). Linking adaptation and mitigation in climate change policy. *Climatic Change*, 45(1), 75-102.

Klein, R. J., Schipper, E. L. F., & Dessai, S. (2005). Integrating mitigation and adaptation into climate and development policy: three research questions. *Environmental science & policy*, *8*(6), 579-588

Luterbacher, U., & Sprinz, D. F. (2001). International relations and global climate change. MIT Press.

Michaelowa, K., & Michaelowa, A. (2017). Transnational climate governance initiatives: designed for effective climate change mitigation?. *International Interactions*, *43*(1), 129-155.

Michaelowa, A. (2001). *Mitigation versus adaptation: the political economy of competition between climate policy strategies and the consequences for developing countries* (No. 153). HWWA discussion paper.

Morecroft, M. D., Crick, H. Q., Duffield, S. J., & Macgregor, N. A. (2012). Resilience to climate change: translating principles into practice. *Journal of Applied Ecology*, *49*(3), 547-551.

Non State Actor Zone of Climate Action (2017). NAZCA: Cooperative Initiatives. Retrieved on 08-10-2017, via: <u>http://climateaction.unfccc.int/</u>

O'Brien, R., A.M. Goetz, J.A. Scholte, and M. Williams. 2000. Contesting Global Governance: Multilateral economic institutions and global social movements. Cambridge: Cambridge University Press

Pinkse, J., & Kolk, A. (2009). International business and global climate change. Routledge.

Pittock, A. B., & Jones, R. N. (2000). Adaptation to what and why?. *Environmental monitoring and assessment*, *61*(1), 9-35.

Stockholm Resilience Centre (2017). Understand Social-Ecological Systems and Resilience. Retrieved on 08-10-2017, via: <u>http://www.stockholmresilience.org/</u>.

Reinicke, W. H., & Copeland, D. (1998). Global public policy: governing without government?. *International Journal*, *53*(3), 597.

Reinicke, W. H., & Copeland, D. (1998). Global public policy: governing without government?. *International Journal*, *53*(3), 597.

Roger, C., Hale, T., & Andonova, L. (2017). The comparative politics of transnational climate governance. *International Interactions*, *43*(1), 1-25.

Rosenau J, 2000, "Change, complexity and governance in a globalizing space", in Debating Governance Ed. J Pierre (Oxford University Press, Oxford) pp 167–200.

United Nations Framework Convention on Climate Change (2016). Climate Action Now. Summary for Policymakers 2016. United Nations Climate Change Secretariat. Retrieved on 08-10-2017, via: http://unfccc.int/resource/climateaction2020/media/1281/unfccc spm 2016.pdf

Verschuren, P., Doorewaard, H., & Mellion, M. J. (2010). *Designing a research project* (Vol. 2). The Hague: Eleven International publishing house.

Widerberg, O., & Pattberg, P. (2015). International cooperative initiatives in global climate governance: Raising the ambition level or delegitimizing the UNFCCC?. *Global Policy*, *6*(1), 45-56.

Zelli, F., & Van Asselt, H. (2013). Introduction: The institutional fragmentation of global environmental governance: Causes, consequences, and responses. *Global Environmental Politics*, *13*(3), 1-13.

6.1 References applied for Chapter 4. Results, listed per initiative

I. Global Covenant of Mayors Initiative

Bulkeley, H., & Betsill, M. M. (2005). *Cities and climate change: urban sustainability and global environmental governance* (Vol. 4). Psychology Press. https://www.globalcovenantofmayors.org/about/vision-and-mission/ https://data.bloomberglp.com/mayors/sites/14/2015/07/Compact-of-Mayors-Full-Guide_July2015.pdf https://www.bbhub.io/mayors/sites/14/2016/06/Global-Covenant-of-Mayors-for-Climate-Energy-Fact-Sh eet-FINAL.pdf http://climateinitiativesplatform.org/index.php/Covenant_of_Mayors_for_Climate_%26_Energy http://www.worldbank.org/en/news/press-release/2017/12/12/global-covenant-of-mayors-and-world-bank -announce-partnership-for-climate-action http://europa.eu/rapid/press-release_IP-16-2247_en.htm

unces-its-global-impact

II. Cities Climate Finance Leadership Alliance

https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9660.pdf http://climateaction.unfccc.int/cooperative-initiative/cities-climate-finance-leadership-alliance/resilience

http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/09/CITIES-Cities-Climate-Fin ance-Leadership-Alliance.pdf

http://climateinitiativesplatform.org/index.php/Cities_Climate_Finance_Leadership_Alliance_(CCFLA) Skype conversation with Charlotte Boulanger, Climate Finance and CCFLA Program Officer, on 19/1/2018.

http://www.citiesclimatefinance.org/wp-content/uploads/2016/11/161025_CCFLA_Flyer_LR_Web.pdf http://newsroom.unfccc.int/lpaa/cities-subnationals/the-cities-climate-finance-leadership-alliance-ccfla/ http://www.climate-kic.org/press-releases/cities-climate-finance-leadership-alliance-lays-cities-sub-nation al-bodies-can-finance-solutions-climate-change/

http://wedocs.unep.org/bitstream/handle/20.500.11822/7523/-The_State_of_City_Climate_Finance-2015 CCFLA_State-of-City-Climate-Finance_2015.pdf.pdf?sequence=3&isAllowed=

III. Business Alliance for Water and Climate

http://climateaction.unfccc.int/cooperative-initiative/business-alliance-for-water-and-climate/resilience https://bafwac.org/about/

http://climateinitiativesplatform.org/index.php/Business_Alliance_for_Water_and_Climate

Skype conversation with Orlaith Delargy, Manager Water Security BAFWAC, on 18/1/2018.

https://wateractionhub.org/cop21-declaration/

http://newsroom.unfccc.int/lpaa/resilience/business-alliance-for-water-and-climate/

https://ceowatermandate.org/files/Jason_Morrison_Stockholm_2016_Sunday.pdf

http://www.water-climate-alliances.org/

https://www.suez.com/en/News/Press-Releases/32-companies-launch-the-Business-Alliance-for-Water-an d-Climate-Change--to-ensure-sustainable-management-of-water-resources-in-the-face-of-climate-change https://en.unesco.org/news/water-action-cop22-address-climate-challenges

Vörösmarty, C. J., Green, P., Salisbury, J., & Lammers, R. B. (2000). Global water resources:

vulnerability from climate change and population growth. science, 289(5477), 284-288.

IV. Climate Risk and Early Warning Systems

http://climateaction.unfccc.int/cooperative-initiative/climate-risk-and-early-warning-systems-crews-/resili

http://newsroom.unfccc.int/lpaa/resilience/climate-risk-and-early-warning-systems-initiative-strengthenin g-the-systems-at-the-heart-of-resilience/

https://www.diplomatie.gouv.fr/IMG/pdf/crews-flyer_eng_cle0fa357.pdf

https://www.gfdrr.org/crews-climate-risk-early-warning-systems

https://public.wmo.int/en/media/press-release/climate-risk-and-early-warning-systems-initiative-expands

Basher, R. (2006). Global early warning systems for natural hazards: systematic and people-centred.

Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences, 364(1845), 2167-2182.

Van Aalst, M. K. (2006). The impacts of climate change on the risk of natural disasters. Disasters, 30(1), 5-18.

V. Food Security Climate Resilience Facility

http://climateaction.unfccc.int/cooperative-initiative/food-security-climate-resilience-facility-foodsecure-/ resilience

http://documents.wfp.org/stellent/groups/public/documents/communications/wfp279583.pdf?_ga=2.1241 65000.323088426.1516614487-1108426550.1513084842

http://climateinitiativesplatform.org/index.php/Food_Security_Climate_Resilience_Facility

http://ndcpartnership.org/funding-and-initiatives-navigator/food-security-climate-resilience-facility-foods ecure

http://www.fao.org/3/a-mo280e.pdf

Schmidhuber, J., & Tubiello, F. N. (2007). Global food security under climate change. *Proceedings of the National Academy of Sciences*, *104*(50), 19703-19708.

Myers, S. S., Smith, M. R., Guth, S., Golden, C. D., Vaitla, B., Mueller, N. D., ... & Huybers, P. (2017). Climate change and global food systems: potential impacts on food security and undernutrition. *Annual review of public health*, *38*, 259-277.

VI. Global Resilience Partnership

http://www.globalresiliencepartnership.org/aboutus/

http://climateinitiativesplatform.org/index.php/Global_Resilience_Partnership

https://www.usaid.gov/sites/default/files/documents/1866/USAID-Rockefeller%20GRP%20Brochure.pdf https://www.theguardian.com/global-development/2015/oct/12/global-resilience-partnership-challenge-wi nners-perennial-problems

http://www.unepfi.org/psi/global-resilience-project/

Toulmin, C., Huq, S., & Rockstrom, J. (2005). Africa and climate change. *International Institute for Environment and Development, Sustainable Development Opinion, London.*

Maddison, D. (2007). *The perception of and adaptation to climate change in Africa* (Vol. 4308). World Bank Publications.

VII. The 1-in-100 Initiative

https://blog.willis.com/2014/11/un-climate-summit-1-in-100-initiative/

http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/09/RESILIENCE-1-in-100-init iative.pdf

http://climateaction.unfccc.int/cooperative-initiatives/themes/resilience

https://wp.preventionweb.net/wcdrr/tag/1-in-100-initiative/

https://www.insurancejournal.com/news/international/2014/12/01/348526.htm

Crichton, D. (2005). Insurance and climate change. UN Department of Economic and Social Affairs.

VIII. The Great Green Wall Initiative

http://climateinitiativesplatform.org/index.php/Great_Green_Wall_for_Sahara_and_the_Sahel_Initiative_ (GGWSSI)

www.greatgreenwallinitiative.org

http://www2.unccd.int/actions/great-green-wall-initiative

http://theconversation.com/africas-got-plans-for-a-great-green-wall-why-the-idea-needs-a-rethink-78627

http://www.un.org/sustainabledevelopment/blog/2016/11/great-green-wall-initiative-offers-unique-opport unity-to-combat-climate-change-in-africa-un-agency/

https://edition.cnn.com/2016/09/22/africa/great-green-wall-sahara/index.html

https://www.theguardian.com/global-development-professionals-network/2017/jul/19/will-africas-great-g reen-wall-discourage-migration-to-europe

https://en.unesco.org/greencitizens/stories/great-green-wall-against-desertification

Stringer, L. C., Dyer, J. C., Reed, M. S., Dougill, A. J., Twyman, C., & Mkwambisi, D. (2009). Adaptations to climate change, drought and desertification: local insights to enhance policy in southern Africa. *Environmental Science & Policy*, *12*(7), 748-765.

VIIII. Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers

http://www.circleofblue.org/wp-content/uploads/2015/12/COP21_-Paris_Pact_ENG_-_INBO_V16.pdf

http://climateinitiativesplatform.org/index.php/Paris_Pact_on_Water_and_Adaptation

https://sustainabledevelopment.un.org/partnership/?p=9546

http://newsroom.unfccc.int/lpaa/resilience/paris-pact-on-water-and-adaptation-strengthening-adaptation-t o-climate-change-in-the-basins-of-rivers-lakes-and-aquifers/

https://timesofindia.indiatimes.com/home/environment/global-warming/Paris-pact-on-water-and-climatechange-adaptation-announced-India-is-part-of-the-coalition-to-save-water/articleshow/50013072.cms Meer bronnen niet echt te vinden: <u>http://www.water-climate-alliances.org/projects</u>

Varis, O., Tortajada, C., & Biswas, A. K. (2008). Management of transboundary rivers and lakes (p. 271). Berlin: Springer.

X. The R4 Rural Resilience Initiative <u>https://docs.wfp.org/api/documents/b9a3d33bd9974e5aaf01b11a3e3da410/download/?_ga=2.53226664.1</u> <u>647979957.1516967370-1108426550.1513084842</u> http://www1.wfp.org/r4-rural-resilience-initiative https://www.clintonfoundation.org/clinton-global-initiative/commitments/r4-rural-resilience-initiative-sen egal

https://policy-practice.oxfamamerica.org/work/rural-resilience/r4/

http://newsroom.unfccc.int/lpaa/resilience/r4-rural-resilience-initiative/

http://ndcpartnership.org/funding-and-initiatives-navigator/r4-rural-resilience-initiative

https://www.clintonfoundation.org/clinton-global-initiative/commitments/r4-rural-resilience-initiative-sen egal

https://collaboration.worldbank.org/docs/DOC-22672

http://www.droughtmanagement.info/literature/OXFAM_WFP_rural_resilience_initiative_apr12_jun12_2 012.pdf

https://www.oxfamamerica.org/static/media/files/WFP_Oxfam_R4_Final_Report_English_FINAL.pdf Tompkins, E., & Adger, W. N. (2004). Does adaptive management of natural resources enhance resilience to climate change?. *Ecology and society*, 9(2).

XI. West Africa Coastal Areas Management Program (WACA)

http://www.worldbank.org/en/programs/west-africa-coastal-areas-management-program

http://newsroom.unfccc.int/lpaa/resilience/adaptation-of-west-african-coastal-area-spurring-economic-gro wth-and-reducing-poverty/

Cicin-Sain, B., & Belfiore, S. (2005). Linking marine protected areas to integrated coastal and ocean management: a review of theory and practice. *Ocean & Coastal Management*, *48*(11-12), 847-868.

XII. G7 Initiative on Climate Risk Insurance

Botzen, W. J., Aerts, J. C., & van den Bergh, J. C. (2009). Willingness of homeowners to mitigate climate risk through insurance. Ecological Economics, 68(8-9), 2265-2277.

http://newsroom.unfccc.int/lpaa/resilience/g7-climate-risk-insurance-initiative-stepping-up-protection-forthe-most-vulnerable/

http://www.bmz.de/g7/en/Entwicklungspolitische_Schwerpunkte/Klimawandel/index.html http://climateinitiativesplatform.org/index.php/InsuResilience_Climate_Risk_Insurance_Initiative

XIII. Maritime Regions in Action against Climate Change

Galarraga, I., Gonzalez-Eguino, M., & Markandya, A. (2011). The role of regional governments in climate change policy. *Environmental Policy and Governance*, *21*(3), 164-182.

http://newsroom.unfccc.int/lpaa/resilience/maritime-regions-in-action-against-climate-change/ http://climateinitiativesplatform.org/index.php/Maritime_Regions_in_Action_against_Climate_Change http://cpmr.org/energy-climate/maritime-regions-think-ahead-on-climate-action/8924/

XV. Alliance of Megacities for Water and Climate

https://en.unesco.org/mawac

http://newsroom.unfccc.int/lpaa/resilience/megacities-alliance-for-water-and-climate/ http://climateinitiativesplatform.org/index.php/Megacities_Alliance_for_Water_and_Climate

7. Appendices

Appendix A: Analytical Framework (Chapter 3)

Indicators for effectiveness	Operationalisation of indicators for effectiveness	Yardsticks for measuring indicators
Realistic Goals	 Presence of short/long term goals (Chan et al., 2015): <i>does</i> <i>the initiative have set goals</i>? Presence of goals within scope of non state actor (Widerberg and Pattberg, 2015): <i>does the</i> <i>initiative have set goals that</i> <i>can be reached within its</i> <i>limitations (budget, sources,</i> <i>scope and time frame)</i>? 	 Presence of short/long term goals; Presence of framework; fits the objective based on: Budget of the initiative; Timeframe of goal realisation; Needed tools for goal realisation; Scope of goal realisation.
Procedural Effectiveness	 Progress. Comparing the initiatives' output/design with its objective (Michaelowa and Michaelowa, 2017): <i>does the</i> <i>initiatives' objective</i> <i>complement with the first</i> <i>output results?</i> Cooperation within the cooperative initiative (Chan, Bauer and Brandi, 2016): <i>does</i> <i>the initiative manage to have</i> <i>proper cooperation between the</i> <i>joining actors?</i> Transparency (Chan et al., 2015): <i>does the initiative have</i> <i>transparent and clear</i> <i>documents?</i> Monitoring, reporting, feedback (Chan et al., 2015): <i>does the</i> <i>initiative implement MRF in</i> <i>order to enhance their level of</i> <i>effectiveness in the future?</i> 	 First output results show complementation with objective. Intensity of cooperation (quality); Amount of cooperation (quantity); Sharing of policy documents with wider public; Monitoring on a regular basis; reporting and feedback on its own policy framework on regular basis.
Resilience Oriented Effectiveness	1. Dealing with uncertainties and buffering change (SRC, 2017):	 Creation of adaptation mechanisms;

2.	does the initiative create the capability of dealing with environmental uncertainties in the system? Flexibility and recovery skills (Morecroft et al., 2012): does the initiative create the capability of increasing flexibility and recovery levels in the system? Continuation of development, learning and adaptation (SRC, 2017): does the initiative create the capability of the continuation of development, learning and adaptation in the	2. 3.	Flexibility and recovery is measured through the implementation of the initiatives' policy: the goal is including flexibility to necessary changes; Development, learning and adaptation is visible in the system through the implementation of the initiatives' policy.
	learning and adaptation in the system?		

Figure 3.2 Analytical framework: indicators and operationalisation for effectiveness

Scores → Indicators:	Very Low ()	Low (-)	Moderate (+/-)	High (+)	Very High (++)
I. Realistic Goals	No goals set No set time frame No realistic budget for set time frame No realistic tools No consideration on scope	No consideration on 3 of 5	Consideration of 2/3 of 5	Consideration of 4 of 5	Consideration of 5 of 5
II. Procedural Effectiveness*	No structure and rules No progress No cooperation No transparency No MRF	No consideration on 3/4 of 5	No consideration on 2 of 5	Consideration on 3/4 of 5	Consideration on 5 of 5

III. Resilience Oriented Effectiveness	No incorporation of adaptation measurement s measured No incorporation of flexibility measured No incorporation of development and learning mechanicms	No consideration on 1 of 3	No consideration on 2 of 3	Consideration on 2 of 3	Consideration on 3 of 3
	and learning mechanisms measured				

Figure 3.3 Scoring Card I: yardsticks for the indicators of effectiveness. *Indicator II weighs double as much as Indicator I and III

NAZCA Cooperative Initiative	Indicator I: Realistic Goals	Indicator II: Procedural Effectiveness*	Indicator III: Resilience Oriented Effectiveness	Total level of effectiveness
Initiative I	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)
Initiative II	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)	Very Low (), Low (-), Medium (+/-), High (+) or Very High (++)
Initiative III				
Initiative XIV				

Figure 3.4 Scoring Card II: the total score per indicator of effectiveness per project.

Appendix B: Research Findings (Chapter 4)

NAZCA Cooperative Initiative	I: Realistic Goals (2)	II: Procedural Effectiveness * (4)	III: Resilience Oriented Effectiveness (3)	Total level of effectiveness
The Global Covenant of Mayors	Moderate (+/-)	Moderate (+/-)	High (+)	Moderate (+/-)
Cities Climate Finance Leadership Alliance	Moderate (+/-)	Moderate (+/-)	High (+)	Moderate (+/-)
Business Alliance for Water and Climate	High (+)	Moderate (+/-)	Low (-)	Moderate (+/-)
Climate Risk and Early Warning Systems	High (+)	Low (-)	Moderate (+/-)	Low (-)
FoodSECuRE	Moderate to High (+/ +)	Moderate (+/-)	Moderate (+/-)	Moderate (+/-)
Global Resilience Partnership	Moderate (+/-)	Low (-)	Moderate (+/-)	Moderate to Low (+/)
The 1-in-100 Initiative	High to Very High (+ - ++)	Moderate (+/-)	Very High (++)	High (+)
The Great Green Wall Initiative	High (+)	High (+)	Moderate (+/-)	Moderate to High (+/ +)

Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	High (+)	High (+)	Moderate (+/-)	High (+)
R4 Rural Resilience Initiative	Moderate (+/-)	High (+)	High (+)	High (+)
West Africa Coastal Areas Management Program	High (+)	Moderate to Low (+/)	Moderate (+/-)	Moderate (+/-)
G7 Initiative on Climate Risk Insurance	Moderate to Low (+/)	Very Low ()	Very Low ()	Low to Very Low ()
Maritime Regions in Action against Climate Change	Moderate (+/-)	Very Low ()	Moderate (+/-)	Low (-)
Alliance of Megacities for Water and Climate	Moderate (+/-)	Low to Very Low ()	Moderate (+/-)	Moderate to Low (+/)
Overall level of effectiveness	Moderate to High (+/ +)	Moderate to High (+/ +)	Moderate (+/-)	Moderate to High (+/ +)

Figure 4.1 Overall scoring table per indicator, per initiative. (..) is showing the amount of yardsticks applied for the indicator. *the second indicator weighs twice as much as the first and third indicator.

NAZCA Cooperative Initiative	Main focus point of initiative
The Global Covenant of Mayors	Cities and local governments - voluntary action on climate change
Cities Climate Finance Leadership Alliance	Cities - urban infrastructure investments
Business Alliance for Water and Climate	Private actors - water stress
Climate Risk and Early Warning Systems	Developing countries - risk management and early weather warning systems
FoodSECuRE	Developing countries - community-centred action, post disaster recovery and resilience building
Global Resilience Partnership	Africa and Asia - adaptation to climate shocks
The 1-in-100 Initiative	Public and private sector - risk management, financial regulation of climate risks
The Great Green Wall Initiative	Africa - land restoration, food security
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	Transboundary management - adaptation to climate change in rivers, lakes and aquifers
R4 Rural Resilience Initiative	Developing countries - food security
West Africa Coastal Areas Management Program	Africa - Adaptation in coastal areas - sea level rise
G7 Initiative on Climate Risk Insurance	Risk management and insurance
Maritime Regions in Action against Climate Change	Adaptation
Alliance of Megacities for Water and Climate	Megacities - cooperation and collaboration

Figure 4.2 Main focus point per initiative

NAZCA Cooperative Initiative	Starting Year
The Global Covenant of Mayors	2008
Cities Climate Finance Leadership Alliance	2014
Business Alliance for Water and Climate	2015
Climate Risk and Early Warning Systems	2015
FoodSECuRE	2015
Global Resilience Partnership	2014
The 1-in-100 Initiative	2014
The Great Green Wall Initiative	2008
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	2015
R4 Rural Resilience Initiative	2011
West Africa Coastal Areas Management Program	2015
G7 Initiative on Climate Risk Insurance	2015
Maritime Regions in Action against Climate Change	1973
Alliance of Megacities for Water and Climate	2015

Figure 4.3 Starting year per initiative

NAZCA Cooperative Initiative **Presence of short/long term** Presence of goals within scope of non state actor goals The Global Covenant of Very High (++) Moderate (+/-) Mayors **Cities Climate Finance** Very High (++) Low (-) Leadership Alliance **Business Alliance for Water** Very High (++) Moderate (+/-) and Climate **Climate Risk and Early** Very High (++) Moderate (+/-) Warning Systems FoodSECuRE Very High (++) Moderate (+/-) **Global Resilience Partnership** Low (-) High (+) The 1-in-100 Initiative Very High (++) High (+) The Great Green Wall Very High (++) High (+) Initiative Paris Pact on Water and Very High (++) Moderate (+/-) Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers **R4 Rural Resilience Initiative** Very High (++) Low (-) West Africa Coastal Areas Very High (++) High (+) Management Program **G7** Initiative on Climate Risk Very High (++) Very Low (--) Insurance

Appendix C: Extra research findings (Chapter 4)

Maritime Regions in Action against Climate Change	Very High (++)	Moderate (+/-)
Alliance of Megacities for Water and Climate	Very High (++)	Very Low ()

Figure 7.1 Showing the scores per yardstick of the first indicator (Realistic Goals) per initiative.

NAZCA Cooperative Initiative	Procedural Effectiveness: Progress. Comparing the initiatives' output/design with its objective	Procedural Effectiveness: Cooperation within the cooperative initiative	Procedural Effectiveness: Transparency	Procedural Effectiveness: Monitoring, reporting, feedback
The Global Covenant of Mayors	High (+)	Moderate (+/-)	Moderate (+/-)	Low (-)
Cities Climate Finance Leadership Alliance	Moderate (+/-)	Moderate (+/-)	High (+)	Low (-)
Business Alliance for Water and Climate	Low (-)	Moderate (+/-)	Moderate (+/-)	Moderate (+/-)
Climate Risk and Early Warning Systems	Very Low ()	High (+)	Moderate (+/-)	Very Low ()
FoodSECuRE	Very High (++)	Very Low ()	Moderate (+/-)	High (+)
Global Resilience Partnership	High (+)	Very Low ()	Very Low ()	Very Low ()

The 1-in-100 Initiative	High (+)	Moderate (+/-)	Moderate (+/-)	Low (-)
The Great Green Wall Initiative	High (+)	Moderate (+/-)	High (+)	Very Low ()
Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes, and Aquifers	Very High (++)	Moderate (+/-)	Very High (++)	Moderate (+/-)
R4 Rural Resilience Initiative	Very High (++)	Very Low ()	Moderate (+/-)	Very High (++)
West Africa Coastal Areas Management Program	Very Low ()	Low (-)	Moderate (+/-)	Very Low ()
G7 Initiative on Climate Risk Insurance	Very Low ()	Moderate to Low (+/)	Very Low ()	Very Low ()
Maritime Regions in Action against Climate Change	Very Low ()	Very Low ()	Very Low ()	Very Low ()
Alliance of Megacities for	Very Low ()	Moderate (+/-)	Low (-)	Very Low ()

Water and		
Climate		

Figure 7.2 Showing the scores per yardstick of the second indicator (Procedural Effectiveness) per initiative.

NAZCA Cooperative Initiative	Resilience Oriented Effectiveness: Dealing with uncertainties and buffering change	Resilience Oriented Effectiveness: Flexibility and recovery skills	Resilience Oriented Effectiveness: Continuation of development, learning and adaptation
The Global Covenant of Mayors	High (+)	High (+)	Low (-)
Cities Climate Finance Leadership Alliance	High (+)	High (+)	High (+)
Business Alliance for Water and Climate	High (+)	(Very Low ()	Very Low ()
Climate Risk and Early Warning Systems	Very High (++)	Very Low ()	Very Low ()
FoodSECuRE	Very High (++)	Very Low ()	Very Low ()
Global Resilience Partnership	Moderate (+/-)	Moderate (+/-)	High (+)
The 1-in-100 Initiative	Very High (++)	Very High (++)	Very High (++)
The Great Green Wall Initiative	High (+)	Moderate (+/-)	Moderate (+/-)
Paris Pact on Water and Adaptation to Climate Change in the	Very High (++)	Very Low ()	Very High (++)

Basins of Rivers, Lakes, and Aquifers			
R4 Rural Resilience Initiative	High (+)	Moderate (+/-)	High (+)
West Africa Coastal Areas Management Program	High (+)	Low (-)	Low (-)
G7 Initiative on Climate Risk Insurance	Very Low ()	Very Low ()	Very Low ()
Maritime Regions in Action against Climate Change	High (+)	Very Low ()	Moderate (+/-)
Alliance of Megacities for Water and Climate	Moderate (+/-)	Moderate (+/-)	High (+)

Figure 7.3 Showing the scores per yardstick of the third indicator (Resilience Oriented Effectiveness) per initiative.

Appendix D: Set-up of data selection

Structure for Skype conversations

- 1. Thank you for taking time to tell me more about your initiative
- 2. Introduction research. Study on effectiveness of cooperative initiatives in NAZCA platform on resilience.

Framework on effectiveness:

- Realistic Goals
- Procedural Effectiveness
- Resilience Oriented Effectiveness How is -initiative- scoring on these indicators?
- 3. How do you measure effectiveness as an initiative yourself? Check the framework on the initiative in advance: where is it scoring high/low, ask them about it. Always: NAZCA cooperation and benefits of being involved in NAZCA Recommendations, indicators missing?

Initiative	Information online	Extra information (Skype, send by email)
Business Alliance for Water and Climate	https://bafwac.org/ https://wateractionhub.org/cop2 1-declaration/ http://climateinitiativesplatform. org/index.php/Business_Allianc e_for_Water_and_Climate	Cate Lamb (cate.lamb@cdp.net)
Cities Climate Finance Leadership Alliance	http://climateaction.unfccc.int/co operative-initiative/cities-climat e-finance-leadership-alliance/res ilience	cboulanger@fmdv.net; cdefreitas@fmdv.net; <u>secretariat@citiesclimatefinance</u> .org
Climate Risk and Early Warning Systems	http://climateaction.unfccc.int/co operative-initiative/climate-risk- and-early-warning-systems-crew s-/resilience	michel.pre@diplomatie.gouv.fr; harding@un.org

Compact of Mayors	https://www.globalcovenantofm ayors.org/	info@compactofmayors.org
Food Security Climate Resilience Facility	http://climateaction.unfccc.int/co operative-initiative/food-security -climate-resilience-facility-foods ecure-/resilience	Fabio.Bedini@wfp.org
G7	http://newsroom.unfccc.int/lpaa/ resilience/g7-climate-risk-insura nce-initiative-stepping-up-protec tion-for-the-most-vulnerable/	-
Global Resilience Partnership	http://newsroom.unfccc.int/lpaa/ resilience/global-resilience-partn ership-strengthening-the-poorest -against-climate-impacts/	sspeck@globalresiliencepartners hip.org; hmcleod@kpmg.co.ke
Great green wall for the Sahara and Sahel Initiative	http://www.greatgreenwallinitiat ive.org/ http://www2.unccd.int/actions/gr eat-green-wall-initiative	<u>cnordheim@unccd.int</u>
Maritime Regions in Action against climate change .	http://newsroom.unfccc.int/lpaa/ resilience/maritime-regions-in-a ction-against-climate-change/ http://climateinitiativesplatform. org/index.php/Maritime_Region s_in_Action_against_Climate_C hange	alexis.chatzimpiros@crpm.org
Megacities Alliance for Water and Climate	https://eaumega2015.sciencesco nf.org/conference/eaumega2015/ 20151123_Megacities_alliance_ for_Water_binder.pdf	b.nguyen@unesco.org
Paris Act on Water basins and aquifiers	http://www.circleofblue.org/wp- content/uploads/2015/12/COP21	e.boinet@inbo-news.org

	<u>- Paris Pact ENG - INBO V</u> <u>16.pdf</u>	
R4. Rural Resilience Initiative	http://www1.wfp.org/r4-rural-re silience-initiative	fabio.bedini@wfp.org
The 1-in-100 initiative	http://www.un.org/climatechang e/summit/wp-content/uploads/sit es/2/2014/09/RESILIENCE-1-in -100-initiative.pdf http://blog.willis.com/2014/11/u n-climate-summit-1-in-100-initi ative/	douglasrm@willis.com
Adaptation of West African Coastal Areas (WorldBank)	http://www.worldbank.org/en/pr ograms/west-africa-coastal-areas -management-program http://newsroom.unfccc.int/lpaa/ resilience/adaptation-of-west-afr ican-coastal-area-spurring-econo mic-growth-and-reducing-povert y/	diana.beaulieu-milisavljevic@de veloppement-durable.gouv.fr
Business Alliance for Water and Climate	wateractionhub.org/cop21-decla ration	cate.lamb@cdp.net

Figure 7.4 Showing all the NAZCA cooperative initiatives on resilience, with several sources provided by the NAZCA Platform or retrieved by searching online. The third row shows the correspondence addressesses of the initiatives, contacted in order to provide more information.

Skype notes

Date: 18/1/2018 Spokesperson: Orlaith Delargy Initiative: Business Alliance For Water and Climate

Realistic goals:

Interim period of setting new goals for the upcoming years. No annual reports, no clear goals set at the moment.

Started in the run up to Paris, with the aim to get Water in the agreement.

Goals:

- 49 signatories now, 100 by next year. Create case studies from the 49 current, what they did and how to achieve further action.
- Get extra companies involved
- NGO's en research organizations as partners
- Knowledge platform
- Weaming business: science based targets. Involved.

Progress:

- Doing well.

Cooperation:

- Only local level. Apply case study. Water impact hub: possibilities there, not in reality.
- Meetings with stakeholders every two weeks.
- Globally spread
- GAFAC: business, megacities, French initiative, Paris Pact. Not NAZCA, but COP.

Reporting:

- UNFCCC and COP, reporting back to.

Funding!

- Poorly resourced initiatives: difficult to manage and organize

Overlap?

Private sector is always telling us that NGO and policy world is too complex and difficult to cooperate with. Just want their own goals to be achieved. Lot of overlap that could be tackled by joining forces.

Resilience:

- Company action to make environment they rely on more resilient (win-win)

Date: 19/1/2018 Spokesperson: Charlotte Boulanger Initiative: Cities Climate Finance Leadership Alliance

Specifically asked about the indicators and yardsticks that the initiative has been scoring low on so far.

Updated information is needed. Do you take limitations into consideration? Yes, annual reports available, meetings with members.

Cooperation within alliance exists. With NAZCA could be improved, missing climate finance.

NDC partnership. Partnership navigator. Strategy: align levels on climate finance. Map initiatives and connect them. Climate change initiative: global action. Reporting and feedback: yes.

NAZCA platform recommendations: updated info is relevant. Appropriate support to connect initiatives.

2014 created, 2 years sectratary coordination now. More funds needed. .Close investment gap for local infrastructure

50 members: banks, governments, city networks.

Steps: trust, project preparation, cooperation, commitment funds (more needed) action plans, voluntary work.

Cooperation is challenge and opportunity for every coalition.

Date: 26/1/2018 Spokesperson: Jonathan Gascoigne Senior Risk Adviser Capital, Science & Policy Practice Willis Towers Watson London Initiative: 1-in-100 Initiative

When started: in 2014. A lot more is possible now than it was five years ago. Why? Because of three milestones: Paris Convention, Sandine framework on risk '15, UNSDG's.

1-in-100 initiative is applied business perspective. Agile thinking and agile project development is needed. It is a evolutionary process, inevitably with trial and error.

In 80's the insurance sector realized that response to catastrophic events was needed. Analysing insurances. Analysis brought into industry through a compatible platform of metrics and analysis. EP work: engineering field, aquarial requirements.

1-in-100 year: what loss is bearable in a period of 100 year?

Measuring insurance companies to see how much loss you can withstand without going bankrupt.

Public and private sector perspective: other actors want to use insurance lessons for own risk assessments/climate change aspects.

High strategy to implementation on ground.

Regulatory authorities now use this yardstick as well, EU is 1-in-200.

Accedance probability approach: UN, DAR.

How quantify climate related risks?

1-in-100 initiative gives insights in how to implement voluntary requirements in financial system.

It is thus a seed for so many developments and actors.

Cooperation with UN and World Bank

Financial stability goals. TCFD (voluntary).

Developing world: can these metrics be applied to these situations as well?

- Africa Risk Capacity: draught risk
- Cyclone comparison: metrics as comparable mechanism on pricing and protection

1-in-100 thus is:

Thus, pre disaster planning and pre positioned finance: in case disaster occurs, money is available.

Need for:

- Arranging NGOs to be involved, they do not expect the usefulness of these tools.
- Metrics has a part to play in financial resilience in dealing with disasters.
- Implementation strategies, mobilizing initiatives.
- Measure vulnerabilities so you know value of losses, precautionary.
- Cooperation needed between public and private, as well as within private.

Difficulties:

- Difficult to measure performance to prevent/promote resilience. Many academics we work with have tried, but wrote papers on difficulties.
- Initiatives are vulnerable: financial and political pressures.
- Need for scales up.

With NAZCA cooperation?

Rowan Douglas is founder. He recognizes how the landscape of risk and society is changing. Networking and convening power in government, industry and academics.

Initiative opens doors in public sector. Quantify risk and trade in marketplace, cost benefits of resilience. Key in mobilizing mitigation.

Door opener in public policy, capabilities and requirements. Underpins approach task force.

Is that already happening?

UNISDR. Links

Horizon scanning: takes time. Political and institutional inertia. Cooperation happening (see three milestones above).

We all benefit in the pre competitive space and join forces.