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**MSc Thesis Chair Disaster Studies (SDC)**

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**An analysis of natural hazard and disaster management structures and cross-border collaboration between The Netherlands and the overseas public entities of Bonaire, St. Eustatius and Saba (BES)**

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# **An analysis of natural hazard and disaster management structures and cross-border collaboration between The Netherlands and the overseas public entities of Bonaire, St. Eustatius and Saba (BES)**

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Master thesis in International Development Studies

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## Abstract

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The Kingdom of the Netherlands consists of six autonomous countries which are partly located in Europe and partly in the Caribbean region. As such, the special municipalities of The Netherlands, namely Bonaire, St. Eustatius and Saba, face the risk of the occurrence of natural hazards. Such natural hazards require proper disaster management and disaster governance aimed at increasing the resilience of the islands and reducing disaster risk. In this regard, the special municipalities (Public Bodies) have to cooperate with The Netherlands, as they are integrated in the Dutch constitutional and legal framework. The central topic in this thesis relates to how the administrative governance relations in relation to natural hazard and disaster management is perceived by those involved in the modalities of cooperation, on both sides of the Atlantic Ocean. It does so by looking into the effectivity of cooperation from a multiplicity of actors. Conducting the research took place through literature study and fieldwork interviews. Results show that little steps are taken at a time but cooperation between the administrative actors tends to be perceived positive and successful. However, pitfalls and complications exist and acting upon these is needed to create a system of disaster governance that is well prepared for natural hazards, now and in the future. It is argued that the ideal framework of network governance and the reality of laws and legislation in place do not align. Therefore, in reality, a hybrid model of disaster governance is in place for the modalities of cooperation between the islands and European Netherlands. The thesis lastly brings to the fore recommendations for awareness, discussion and possible ways forward in this complex governance arrangement between the European Netherlands and its overseas special municipalities of Bonaire, St. Eustatius and Saba.

## Acknowledgements

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As an intern and later as an employee at the crisis department of the Ministry of Infrastructure and Water Management (DCC-IenW), I was keen on finding a thesis topic that combines my background in disaster studies and personal interest in international development. As such, a thesis topic about the Caribbean overseas municipalities in relation to natural hazards came to mind quickly.

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Furthermore, I would like to express my deep gratitude towards the interviewees from The European Netherlands, Bonaire, St. Eustatius and Saba who have taken part in the research and shared their experiences on natural hazard and disaster management. Conducting fieldwork on the Caribbean part of the Kingdom of the Netherlands has been a truly unique experience that I would not want to have missed. I have left the islands with unique memories and nothing but good feelings.

- As Bonaire puts it: *once a visitor, always a friend*. Masha danki Bonaire, for this newly developed friendship.
- As Saba puts it: *the unspoiled queen of the Kingdom*. Every word is true about that phrase, it is truly a small but such a fascinating island.
- As St. Eustatius puts it: *the golden rock, a large open-air museum*. Again, it could not be better described, simply a wonderful place to be.

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## List of boxes, figures and tables

---

### Text boxes throughout the document

Box 1: Key terms central in the report.....	7
Box 2: Definitions of the phases of the disaster cycle (Coppola, 2011).....	9
Box 3: Criteria for evaluation (OECD DAC, 2019) .....	14
Box 4: Definition of natural hazard and disaster management .....	15
Box 5: The provinces, municipalities and water authorities in the Netherlands .....	28
Box 6: The Caribbean Netherlands Fire Department .....	31
Box 7: Main tasks of the Kingdom Representative (Inspectorate of Justice and Security, 2019) ..	33
Box 8: Weather Impact Team-CN (DCC-IenW, 2019) .....	37

### Figures throughout the document

Figure 1: The Disaster Management Cycle (Coppola, 2011) .....	8
Figure 2: Location of the BES islands in the Caribbean Region (Rijksdienst CN, 2019b).....	22
Figure 3: Precipitation charts for Kralendijk, Oranjestad and Windwardside (Weather and Climate, 2019) .....	23
Figure 4: Volcanoes Mount Scenery on Saba and The Quill on St. Eustatius (KNMI, 2019).....	24
Figure 5: Damage after Hurricane Irma on Saba (NOS, 2017) .....	26
Figure 6: Damage after Hurricane Irma on St. Eustatius (BN de Stem, 2017) .....	26
Figure 7: The Kingdom of the Netherlands (Wikipedia, 2019) .....	27
Figure 8: Visualization of public administration on the Public Bodies .....	99
Figure 9: Multi-island coordination of disaster response in the Netherlands (RCN, 2019d) .....	102

### Tables throughout the document

Table 1: Coordination levels for regional disaster management (Rijksdienst CN, 2019d) .....	34
Table 2: Results of the SWOT-analysis.....	69
Table 3: List of interviewees for data retrieval .....	95
Table 4: Intended research participants from the Public Bodies.....	95

## Table of contents

---

<b>Abstract .....</b>	<b>iii</b>
<b>Acknowledgements .....</b>	<b>iv</b>
<b>List of boxes, figures and tables .....</b>	<b>v</b>
<b>Table of contents .....</b>	<b>vi</b>
<b>Abbreviations.....</b>	<b>ix</b>
<b>1. Introduction .....</b>	<b>1</b>
<b>1.1 Problem statement.....</b>	<b>2</b>
<b>1.2 Relevance of the study .....</b>	<b>3</b>
<b>1.3 Research questions .....</b>	<b>4</b>
<b>1.4 Document reading guide .....</b>	<b>5</b>
<b>2. Theoretical framework.....</b>	<b>6</b>
<b>2.1 Defining disaster and natural hazards.....</b>	<b>6</b>
<b>2.2 Disaster management, risk reduction and governance .....</b>	<b>8</b>
<b>2.3 Cooperation in relation to disaster response .....</b>	<b>12</b>
<b>2.4 The OECD criteria for evaluation .....</b>	<b>14</b>
<b>2.5 Conclusion.....</b>	<b>15</b>
<b>3. Research methodology .....</b>	<b>16</b>
<b>3.1 Research methods.....</b>	<b>16</b>
Qualitative research: literature review .....	16
Qualitative research: interviews .....	17
<b>3.2 Fieldwork on Bonaire, St. Eustatius and Saba.....</b>	<b>19</b>
<b>3.3 Data management, positionality and research ethics .....</b>	<b>20</b>
<b>4. Research background .....</b>	<b>22</b>
<b>5. Research results .....</b>	<b>27</b>

<b>5.1</b>	<b>The institutional relationship between The Netherlands and the islands .....</b>	<b>27</b>
	Public administration in The Kingdom of the Netherlands .....	27
	Public administration and disaster management on the Caribbean islands.....	29
	Conclusion .....	31
<b>5.2</b>	<b>National and regional natural hazard and disaster management policies .....</b>	<b>32</b>
	Wet Veiligheidsregio's and Veiligheidswet BES.....	32
	Multi-island coordination plan.....	32
	Regional disaster management plans .....	34
	The international aspect of disaster management .....	35
	Conclusion .....	35
<b>5.3</b>	<b>Administrative governance actors in the disaster domain .....</b>	<b>36</b>
	From notification to impact .....	36
	Conclusion .....	39
<b>5.4</b>	<b>The functioning of the administrative governance cooperation .....</b>	<b>41</b>
	Criterion 1: The relevance of cooperation .....	41
	Criterion 2: Efficiency of cooperation.....	43
	Criterion 3: Effectivity of cooperation .....	46
	Criterion 4: Impact of cooperation .....	48
	Criterion 5: Sustainability of cooperation .....	50
	To conclude: the criteria taken together .....	52
<b>5.5</b>	<b>The functioning of the disaster response.....</b>	<b>54</b>
	Diversity in disaster response .....	54
	Hierarchy and power relations in disaster response .....	58
	Positive working relationships and trust in disaster response.....	61
	Conclusion .....	64
<b>5.6</b>	<b>SWOT-analysis .....</b>	<b>67</b>
	Strengths .....	67
	Weaknesses.....	67



Opportunities.....	68
Threats .....	68
Contribution to effective disaster management.....	71
<b>6. Discussion .....</b>	<b>72</b>
<b>6.1 Research results.....</b>	<b>72</b>
<b>6.2 Ideal versus reality on the islands.....</b>	<b>76</b>
The ideal model and not so ideal reality: disaster network governance.....	76
The hybrid model of Dutch international disaster governance.....	77
<b>6.3 Research findings placed in a wider context.....</b>	<b>80</b>
<b>6.4 Evaluation and recommendations.....</b>	<b>82</b>
<b>7. Conclusion .....</b>	<b>84</b>
<b>7.1 Summary of the chapters .....</b>	<b>84</b>
<b>7.2 Main research question answered .....</b>	<b>86</b>
<b>7.3 A way forward .....</b>	<b>87</b>
<b>References .....</b>	<b>88</b>
<b>References to literature .....</b>	<b>88</b>
<b>References to figures .....</b>	<b>93</b>
<b>Annex 1: Interviewees and intended research participants from the Public Bodies .....</b>	<b>95</b>
<b>Annex 2: Hurricane tracking charts 2017-2019.....</b>	<b>96</b>
<b>Annex 3: Visualization of public administration (Figure 8) .....</b>	<b>99</b>
<b>Annex 4: The Kingdom Representative .....</b>	<b>100</b>
<b>Annex 5: Multi-island coordination (Figure 9).....</b>	<b>102</b>
<b>Annex 6: KNMI Warning System and Tropical Cyclone Bulletin .....</b>	<b>103</b>

## Abbreviations

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<b>A</b>	<b>ACS</b>	<b>Aruba, Curaçao and Sint Maarten</b>
<b>B</b>	<b>BES</b>	<b>Bonaire, St. Eustatius and Saba</b>
	<b>BZ</b>	<b>Ministerie van Buitenlandse Zaken</b> <i>Ministry of Foreign Affairs</i>
	<b>BZK</b>	<b>Ministerie van Binnenlandse Zaken en Koninkrijksrelaties</b> <i>Ministry of the Interior and Kingdom Relations</i>
<b>C</b>	<b>CAS</b>	<b>Curaçao, Aruba and Sint Maarten</b>
	<b>CDEMA</b>	<b>Caribbean Disaster Emergency Management Agency</b>
	<b>CoPI</b>	<b>Commando Plaats Incident</b> <i>Command on Place of Incident</i>
	<b>CZMCARIB</b>	<b>Commandant der Zeemacht in het Caribisch Gebied</b> <i>Commander of Naval Forces for the Caribbean</i>
<b>D</b>	<b>DCC</b>	<b>Departementaal Coordinatiecentrum Crisisbeheersing</b> <i>Departmental Crisis Coordination Centre</i>
	<b>DRR</b>	<b>Disaster Risk Reduction</b>
<b>E</b>	<b>EBT</b>	<b>Eilandelijk Beleidsteam</b> <i>Insular Policy Team</i>
<b>G</b>	<b>GRIP</b>	<b>Gecoördineerde Regionale Incidenten Procedure</b> <i>Coordinated Regional Incidents Procedure</i>
<b>I</b>	<b>IAO</b>	<b>Interdepartementaal Afstemmingsoverleg</b> <i>Interdepartmental Coordination Group</i>
	<b>ICCB</b>	<b>Interdepartementale Commissie Crisisbeheersing</b> <i>Interdepartmental Crisis Management Committee</i>
	<b>I J&amp;V</b>	<b>Inspectie Justitie en Veiligheid</b> <i>Inspectorate of Justice and Security</i>
	<b>ILT</b>	<b>Inspectie Leefomgeving en Transport</b> <i>Human Environment and Transport Inspectorate</i>
<b>J</b>	<b>JenV</b>	<b>Ministerie van Justitie en Veiligheid</b> <i>Ministry of Justice and Security</i>
<b>K</b>	<b>KNMI</b>	<b>Koninklijk Nederlands Meteorologisch Instituut</b> <i>The Royal Netherlands Meteorological Institute</i>
<b>L</b>	<b>LOCC</b>	<b>Landelijk Operationeel Coördinatie Centrum</b>

N	LCMS	<b>Landelijk Crisismanagement Systeem</b>
	NCC	<b>Nationaal Crisiscentrum</b>
	NGO	<b>Niet-gouvernementele Organisatie</b> <i>Non-governmental organisation</i>
R	NOAA	<b>National Oceanic and Atmospheric Administration</b>
	RCN	<b>Rijksdienst Caribisch Nederland</b> <i>National Office for the Caribbean Netherlands</i>
	RV	<b>Rijksvertegenwoordiger</b> <i>Kingdom Representative</i>
S	SSS	<b>Sint Maarten, Saba and St. Eustatius</b>
T	TCB	<b>Tropical Cyclone Bulletin</b>
V	VWBES	<b>Veiligheidswet Bonaire, St. Eustatius en Saba</b>
W	Wvr	<b>Wet Veiligheidsregio's</b>
	WIT CN	<b>Weer Impact Team Caribisch Nederland</b> <i>Weather Impact Team Caribbean Netherlands</i>

## 1. Introduction

---

As early as in the sixteenth century the Dutch have attempted to expand their overseas territory by undertaking extensive commercial exchange projects. By the year 1650, the Dutch West India Company gained firm control over the Caribbean islands of Sint Maarten, Curacao, Aruba and Bonaire. Resulting in a period characterized by an extensive exchange of goods to the Netherlands. The period of Dutch decolonization started after the Second World War, causing fragmentation of the Kingdom and different political statuses of the overseas territories. This fragmentation was taken even further on the 10<sup>th</sup> of October in 2010. On that day the Netherlands Antilles were separated, thereby causing Curacao and Sint Maarten to gain the same status that Aruba already had. The three islands of Bonaire, St. Eustatius and Saba were granted a status comparable to the Dutch municipalities (Officiële Bekendmakingen, 2010). The three islands are so called public bodies (*openbare lichamen*) of the Netherlands. They function in practice similarly to Dutch municipalities. Nowadays, the Kingdom of the Netherlands consists of four autonomous countries: the Netherlands, Aruba, Curacao and Sint Maarten (Veenendaal, 2015). Compared to the Netherlands the overseas municipalities are completely different in geography and demography and therefore its societies are characterized differently (Henke & Reno, 2003). Partly based on its geographical traits, the Caribbean countries face different risks and natural hazards are prone to the area. During the Atlantic hurricane season the area is prone to hurricanes, tropical storms and tropical depressions. Natural hazards such as the occurrence of extreme weather, landslides and earthquakes are in many cases a cause for loss of lives, damage and economic losses. Societies under threat of disasters rely on their capacities to cope and deal with external stresses and shocks. In many countries, it is amongst the tasks of the national government to implement disaster management to reduce citizens' and communities' vulnerabilities (Coppola, 2011). However, in many cases other local initiatives, municipalities, NGOs and many other stakeholders are involved in disaster governance. Thus, measures are taken within the field of disaster governance and cross-border cooperation to serve the common goal of reducing risks and impacts. In the Dutch Caribbean case, this cross-border cooperation is particularly important for two reasons, first: disasters do not stop at international borders and secondly, The Netherlands on the European continent faces different natural hazard threats than its islands on the Caribbean. Therefore, disaster management policies and plans should be based on two different geographical locations and not just on the settings in the European Netherlands. Consequently, local Caribbean governments have to cooperate with policy makers in The Hague. According to Veenendaal (2015), the Dutch laws and administrative practices implemented on the islands have a tremendous impact on the societies and inevitably generates tensions and controversies. Such tensions and controversies are to be found in different domains and furthermore differ between the countries, as is for example visible in the response to the global COVID-19 outbreak, which has a large impact on modes and intensity of cooperation between the diverse autonomous countries, special municipalities and The Netherlands (Broere, 2020).

## 1.1 Problem statement

*"To the degree that they are able, governments pass legislation and take action to prepare for and mitigate the effects of natural, technological and intentional hazards. Despite even the best efforts, however, the fury of nature and the folly of man regularly results in disastrous events that overwhelm not only local response capacities but also the response capacities of entire nations or even entire regions. When this happens, the full range of players from the international community is called on to intervene, requiring international disaster management."*

Damon P. Coppola, 2011: xvii

The above quote draws attention to the complex-ness of international cooperation in the field of disaster management and governance. The need to act fast, possible blurry power divisions, coordination difficulties and deciding on a shared goal are amongst the multiple difficulties in disaster response (Moynihan, 2009). Therefore, one of the main objectives of this study is to give insights in the international cooperation within disaster governance on natural hazards between the Dutch central government and its counterparts in the Caribbean, thereby focussing on administrative governance. Part of the study will be an analysis of who is involved in disaster governance on both sides of the Atlantic Ocean. Moreover, the study dives deeper into the way disaster governance is shaped in this trans-Atlantic cooperation. Possible difficulties within this cooperation might arise and will thus be identified. As the countries of Aruba, Curacao and Sint Maarten are independent from the Netherlands and have their own governments, they will be excluded from the study. The main focus is therefore on the Dutch municipalities: Bonaire, St. Eustatius and Saba. The study aims to analyse natural hazard and disaster management structures of the Netherlands and the three municipalities as well as the current state of this cross-border cooperation within the field of disaster governance and natural hazards, thereby focussing on administrative governance stakeholders. It moreover presents strengths, weaknesses, opportunities and threats (SWOT) in relation to the modalities of cooperation, as perceived by those who are involved. A problem assessment is therefore part of the results and possible recommendations to tackle these points of attention are given.

## **1.2 Relevance of the study**

The academic relevance is to be found in the lack of academic studies conducted in the field of international cooperation on disaster management between the Netherlands and the Caribbean local governments. This thesis aims at contributing to filling this research gap. Many researchers have looked into the concept of natural hazards. What makes this research unique is that it aims to investigate the administrative cooperation on disaster governance in relation to natural hazards in a unique setting in which The Hague is responsible for disaster governance on the other side of the Atlantic Ocean. The social relevance is to be found in the fact that successful and effective policy, which is designed in the Hague, is relevant for the Caribbean communities to reduce its vulnerability to external threats and shocks, thereby minimizing the possibility of fatalities and economic losses. Added value is to be found in finding possible bottlenecks in the modalities of cooperation that can be a cause for ineffective governance. Once these possible bottlenecks have been identified, attention can be given to identifying solutions to these problems and thereby contributing to the academic debate. Further, this thesis' focus is unique in the sense that it researches an unusual governance setting: the Dutch central government in The Hague is responsible for disaster management and related disaster risk reduction practices on its overseas territory where different natural hazards occur. Furthermore, as mentioned in the situation description, there are cultural, geographical and demographical differences between the regions. This leads to the assumption that these differences could be a cause for making the international cooperation more complex and difficult. Finding out whether this assumption is correct will also be part of the study.

### **1.3 Research questions**

The following main research question and corresponding sub-research questions are central in this thesis research.

#### **Main research question**

Given the fact that the Caribbean Netherlands face the risk of natural hazards occurring and their special institutional relationship, how and how effectively do the islands of Bonaire, St. Eustatius and Saba and the Netherlands cooperate in natural hazard and disaster management?

#### **Sub-research questions**

1. What is the special institutional relationship that the islands of Bonaire, St. Eustatius and Saba and the Netherlands are involved in?
2. What national and regional natural hazard and disaster management policies are in place on Bonaire, St. Eustatius and Saba, what is the main intention of such policy and who has what responsibility?
3. Which administrative governance actors are to be identified in Caribbean natural hazard and disaster management in the Netherlands and on Bonaire, St. Eustatius and Saba?
4. Based on the five OECD criteria for evaluation and Moynihan's complications (2009), to what extent is the cooperative governance relation between the administrative governance stakeholders involved in natural hazard and disaster management effective, in a sense that it stimulates disaster risk reduction?
5. In relation to the five OECD criteria for evaluation and Moynihan's complications (2009), what are the strengths, weaknesses, opportunities and threats (SWOT) to be identified in the administrative cooperation between the Netherlands and Bonaire, St. Eustatius and Saba and how can these contribute to effective disaster management?

#### **1.4 Document reading guide**

The content of this document is as follows: in Chapter 2, the theoretical framework is presented and gives insights in the definitions and key concepts for the research. Thereafter, in Chapter 3, the research methodology is discussed, presenting the qualitative research methods which include conducting interviews to retrieve data. It also includes sections on doing fieldwork on the Caribbean islands and a section on data management, positionality and research ethics. In Chapter 4, the backdrop for the research is presented and discusses the research background. Attention is given to natural hazards, geography and climatic conditions of the three islands. In the Chapter 5, the research results, the outcomes of the sub-research questions are presented by answering them one by one. Thereafter, in Chapter 6, the discussion, the results are linked to the wider scientific debate and social relevance of the study. It furthermore presents the strengths and weaknesses of the research as well as recommendations for further research. In the discussion, it is argued that a third hybrid model of disaster governance is in place for the modalities of cooperation for the Caribbean islands and The Netherlands. In Chapter 7, the conclusion is presented in which the chapters and results are summarized, an answer is formulated to the main research question and discusses possible ways forward.



## 2. Theoretical framework

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This chapter presents the theoretical framework in which the research is grounded. First, an elaboration and definitions of the concepts that are central for the research are explored and elaborated upon. This is followed by an extensive look into the concepts of disaster management, disaster risk reduction and disaster governance and how these concepts are interlinked. Thereafter, cooperation in relation to disaster response is given attention to. That is followed by introducing the OECD criteria for evaluation.

### 2.1 Defining disaster and natural hazards

Twigg (2015) argues that the impact of disasters depends on a combination of factors. This includes the nature of a particular hazard, the extent to which people and their possessions are exposed, the vulnerability of those people and their assets and lastly the capacity to reduce or cope with the potential harm. The terms are defined in Box 1. Furthermore, also argued by Twigg (2015), the commonly used combination of terms “natural disaster”, is misleading. A natural disaster as such does not exist, as it is human behaviour that turns hazard into disaster; however, natural hazards do (Twigg, 2015; Ras, 2017). The differentiation between a hazard and disaster is thus of importance. A disaster takes place when actors are affected and overwhelmed by a certain hazard. The impact of the disaster is thus influenced by the vulnerability to the hazard. Vulnerability is not natural and is the human dimension of disasters (Twigg, 2015).

<b>Natural hazard</b>	A natural process or phenomenon (floods, storms, droughts, earthquakes) with adverse effects on life, limb of property. Hazards differ in severity, scale and frequency and are often classified by cause (for example hydro-meteorological or geological). (United Nations, 2010: 25). In addition, it is a potential process or phenomenon, and as such a not-yet realised threat
<b>Exposure</b>	The presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social or cultural assets in place that could be adversely affected (IPCC, 2012: 3)
<b>Vulnerability</b>	The propensity or predisposition to be adversely affected (IPCC, 2012: 3)

<b>Disaster</b>	The hazard's effect on society as a result of the combination of exposure and vulnerability. Strictly, disasters, not hazards, cause deaths and damage (United Nations, 2010: 25)
<b>Disaster risk</b>	Often calculated as a multiplicative function of hazard, exposure and vulnerability. It is multiplicative because for disaster risk to exist, all three – hazard, exposure and vulnerability – have to be present (United Nations, 2010: 25)
<b>DRR</b>	Disaster risk reduction (DRR) entails the development and application of policies, strategies and practices to reduce vulnerability and disaster risk throughout societies (Twigg, 2015: 006)
<b>Hazard</b>	A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be natural, anthropogenic or socio natural in origin (UNISDR, 2017)

*Box 1: Key terms central in the report*

This can be specified even further within the domain of natural hazards, which are mainly associated with natural processes and phenomena. For this study, the focus is on geophysical and hydro meteorological hazards. The first category originates from internal earth processes and include earthquakes, volcanic activity and related processes such as landslides and mud flows. The second, hydro-meteorological factors, can contribute to some of these processes. Such hydro-meteorological hazards can be atmospheric, hydrological or oceanographic. These include tropical cyclones (typhoons and hurricanes), floods and coastal storm surges. Tsunamis are triggered by undersea earthquakes and geological events. Ultimately, tsunamis become an oceanic process that manifests as a coastal water-related hazard (UNISDR, 2017). It is argued that anthropogenic processes influence and may negatively affect natural hazards. These anthropogenic processes are intentional and non-malicious human activities and can include groundwater abstraction, mining, land use change and infrastructure planning (Gill and Malamud, 2017).

## 2.2 Disaster management, risk reduction and governance

According to Coppola (2011), disasters have adversely affected humans since the dawn of our existence. There have been many attempts at decreasing exposure to the consequences of such disasters, developing measures and policy to address impact, post-disaster response and recovery needs. Such practices all serve the same goal: disaster management. Broadly speaking, disaster management is about the reduction of harm to life, property and the environment and is taken up similarly around the globe, whether preparing for a tsunami on the Caribbean, droughts in sub-Saharan Africa or volcanic eruptions around the Ring of Fire. The capacity to do so differs throughout the world. Differences exist for political, cultural, economic or other reasons and in practice, some countries and regions are more capable of addressing natural hazards. The emergence of global problems makes it more challenging to properly address disaster management (Coppola, 2011). Such undertakings have also emerged on a global scale, for example in 1987 when the United Nations General Assembly declared the 1990s as the “International Decade for Natural Disaster Reduction” (IDNDR), having one of the main goals to improve each country’s capacity to mitigate the effects of natural disasters, mainly aiming at national governments would implement national disaster-mitigation programs and encourage local administration to take appropriate steps in order to reduce risk and vulnerability. Many actions have been undertaken since then, resulting in what is nowadays called modern disaster management, which consists of a four-phase approach (Coppola, 2011; Twigg, 2015). These four different phases (mitigation, preparedness, response and recovery) are visualised in what is became to be known as the *Disaster Management Cycle* (Figure 1 and Box 2).

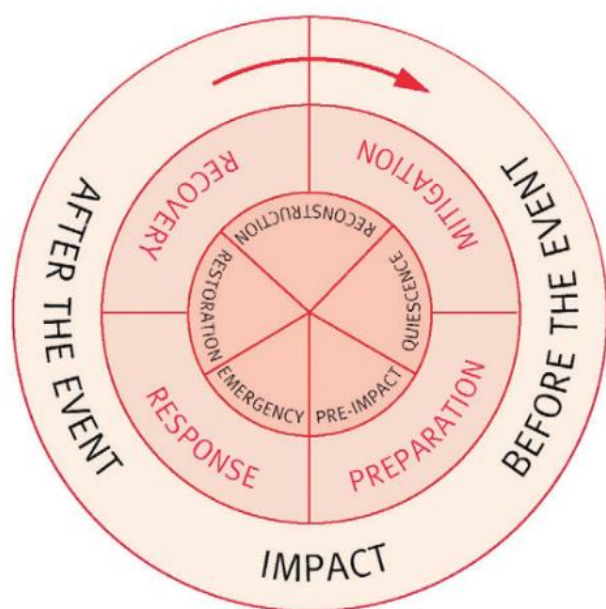


Figure 1: The Disaster Management Cycle (Coppola, 2011)

Such illustration of disasters as cycles or processes exist to several degrees. However, it must be noted that many exceptions can be identified in each phase. What seems to be the case in many disasters, all these factors are intermixed and are to some extent performed before, during and after disasters. As such, it is not uncommon for the actual response to start before a disaster actually happens (Coppola, 2011).

<b>Mitigation</b>	Involves reducing or eliminating the likelihood or the consequences of a hazard or both. Mitigation seeks to 'treat' the hazard such that it impacts society to a lesser degree
<b>Preparedness</b>	Involves equipping people who may be impacted by a disaster or who may be able to help those impacted with the tools to increase their chance of survival and to minimize their financial and other losses
<b>Response</b>	Involves taking action to reduce or eliminate the impact of disasters that have occurred or are currently occurring, in order to prevent further suffering, financial loss or a combination of both. Relief, a term commonly used in international disaster management, is one component of response
<b>Recovery</b>	Involves returning victims' lives back to a normal state following the impact of disaster consequences. The recovery phase generally begins after the immediate response has ended and can persist for months or years thereafter

*Box 2: Definitions of the phases of the disaster cycle (Coppola, 2011)*

Disaster risk reduction (DRR) can be one of the objectives of disaster governance practices and can be part of all phases of the disaster cycle. Broadly, disaster risk reduction entails the development and application of policies, strategies and practices to reduce vulnerability and disaster risk throughout societies. The term of disaster risk management (DRM), is often used within the same context but refers to a systematic approach to identifying, assessing and reducing risks. DRM is thus focused on the practical implementation of initiatives that are set up to reach DRR goals. But both the terms overlap and in practice the tendency prevails to use both flexibly and loosely (Twigg, 2015). DRR and related forms of risk management are not just defensive measures, they are also facilitators of change. Improved security and safety can provide vital support and opportunities to people. Such effective DRR practices can provide benefits in the short term, whilst at the same time contributing to the reduction of vulnerability in the long term. In practice, there may also be trade-offs between short- and long-term goals (Twigg, 2015).

According to Tierney (2012), the concept of disaster governance is not yet commonly used in academic literature on disasters. A tendency prevails to focus on related concepts as disaster management and DRR. Compared to these related concepts, disaster governance is more inclusive. As argued by Tierney (2012), the concept of disaster governance arose from the trend that tasks formerly carried out by public entities are now shifting to a more diverse set of actors and thus include non-governmental institutions, private sector actors and civil society. Large-scale social changes have caused the shift from government to governance as new developments in the field of collaborations came to life. These include public-private partnerships and joint ventures. It is argued that hierarchic and bureaucratic systems are replaced by bureaucratic systems of control with more decentralized network forms of organization (Tierney, 2012). However, this rather simplified description has limitations. Therefore, a more comprehensive understanding of disaster governance is presented by Bakema (2019: 20), who argues that it refers to: "*The full and evolving spectrum of governance structures, arrangements, interaction, collaboration, conflict, negotiation and decision-making processes between a plurality of actors on different levels and their hybrid configurations*", and moreover argues that it is to be seen as a social process shaped by cultural, historical, emotional, political, economic and power dynamics and path-dependencies. In this sense, disaster governance acknowledges the necessity for social engagement and participation of a variety of state and non-state actors. As such, from the perspective of disasters, societies can prevent, mitigate and prepare for, and cope with and recover stronger after disasters through governance. It is therefore to be seen as a *double-edged sword*. On the one hand, governance influences the cause and exacerbation of a disaster. Mismatches and mistakes in the institutional set-up can thus negatively influence disasters. On the other, governance can facilitate multi-level interaction and post-disaster transitions that are to be seen as the engine of post-disaster transitions that enhance the resilience and sustainability (Bakema, 2019). Lastly, argued by the same author, disasters can possibly lead to the uncovering of inconvenient social realities, especially to those who wish to maintain the status quo of institutional arrangements (Bakema, 2019).

Bakema (2019) explains that based on the plurality of actors, governance refers to "*the question of 'who' takes part in governance processes, as well as the 'how', the 'what' and the 'for whom' questions.*" (Bakema, 2019: 21). Thereby, the different institutions have different roles in shaping, creating and influencing governance processes and are as such dynamic parts of these processes. As argued by the same author, formal and informal institutions become increasingly mixed and their differentiation increasingly blurred. Thus, actors and institutions could perform different roles when acting in different contexts and situations. In this sense it is implied that: "*Particularly in disaster governance processes, the distinction between formal and informal leads to an unrealistic and incomplete understanding of institutions. For instance, responsibilities that are subscribed to the state in 'normal times' might be fulfilled by the civil society or market in times of disaster, and vice versa.*" (Bakema, 2019: 21). This quote illustrates the flexibility of the involved actors and changing responsibilities in case the situation gives reason to. This shift in responsibilities is also to be illustrated within the Netherlands, for example when the former minister of Infrastructure, minister Schultz-Hagen, in 2015 argued that the Dutch citizens have to be self-reliant and that they could not blindly trust the government to rescue them in case of flooding (NOS, 2015).

Disaster governance is often presented as a form of collaborative governance that brings together a diversity of organizations to solve problems that reach beyond a single actor. In this regard, one of the commonly accepted views on collaborative governance is as follows: *"The processes and structures of public policy decision making and management that engage people constrictively across boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished."* (Tierney, 2012: 344). This relates to disaster governance in a sense that the public purpose is to be found in reducing the disaster-related risks. Henceforth, disaster governance consists of an interrelated set of norms, organizational and institutional actors and practices, that are designed to reduce impacts and losses that are associated with (natural and technological) disasters (Tierney, 2012). Also brought to the fore by Tierney (2012), a distinction can be made between horizontal and vertical governance arrangements. Aforementioned horizontal governance relationships are characterized by actor networks that mainly function in a local geographic context. This can be a community, flood plain or watershed. On the contrary, vertical relationships are characterized by local and supra-local entities such as the collaboration between states, provinces, regions and international and global actors. As such, vertical collaboration forms face the challenge of aligning the different levels of planning and management (Tierney, 2012).

### 2.3 Cooperation in relation to disaster response

Practices in disaster governance and disaster risk reduction result in several ways crisis response is implemented. To give more insight in the response phase, which can be argued as part of the disaster cycle, Moynihan (2009) highlights the Incident Command System (ICS). The ICS has been used to coordinate several response organizations under a temporary central authority with a clear hierarchical structure (Moynihan, 2009). The author claims that the ICS could be better understood as a means of network governance which is designed to coordinate several responders. According to Boin & 't Hart (2003), any large-scale crisis requires an inter-sectoral and cross-jurisdictional response as well as decentralization and flexibility are necessary to properly response to the ambiguity and turbulence of a crisis situation. As argued by Moynihan (2009), the central importance of collaboration in crisis response has long been observed and at last becomes increasingly prominent in the academic field. Two strands of thinking, the command and control model and the coordination and communication model are combined in what is called a network governance perspective (Moynihan, 2009). Bridging the two perspectives into a network governance perspective solves some of the limitations that both suffer from. Such a perspective draws attention to the fact that a network governance view reproduces the Incident Command System as a mechanism for coordinating a network whilst at the same time recognizing the complexities that are created by such a network setting (Moynihan, 2009). Argued in the same article, Provan & Kenis (2008) claim that: *"Shared governance networks are loosely affiliated and decentralized. When crises are not occurring, crisis response networks exist, but are smaller, more loosely affiliated and interacting less intensively. But when a crisis actually occurs, networks become highly centralized via the incident command"* (Moynihan, 2009:8). The quote shows that such network governance arrangements might be fluid and flexible over time and can respond in several ways to crises.

Several case studies by Moynihan (2009) show a number of complications in relation to crisis response. One of the complications that is most challenging is the number and diversity of organizations and agents involved. In case a crisis evolves into something bigger and more complex, more capacity is needed. An increase in capacity requires an even larger and more diverse network of responders. This increases the diversity amongst those involved, resulting in a coordination burden much larger compared to small homogenous networks (Moynihan, 2009). Thus, the inclusion of multiple organizations and agents with different backgrounds, beliefs and cultures create uncertainty on how to interact with each other. A common goal and shared vision should thus be developed and put into practice. However, building such common framework is a challenge as all participants bring with them their perspectives. Another difficulty related to this diversity arises from the emergent nature of crisis response and the difficulty of including new members. Non-profit and private actors are nowadays more formally included in crisis response, as not just governmental actors are involved (Moynihan, 2009; Tierney, 2012). The second issue deals with shared authority. Failing to recognize the network elements of crisis response, the establishment and operation from one central command is underestimated. One underlying assumption is that there is equality amongst members. Nonetheless, this does not always seem to be the case as circumstances at times require fast decision making.

Anyone in the network has to negotiate terms and establish their legitimacy in order to assert authority. Shared authority is subject to ambiguity and disagreement. In such cases, a balance needs to be sought between the levels of authority. Hence, the legitimacy of one central authority is in many cases weakened in case there are competing and ambiguous claims about who is in charge. The last issue related to network governance discussed is the issue of working relationships and trust. As placed upfront by Brass et al. (2004) in Moynihan (2009), within network research trust seems to be a recurring theme, being a key mechanism to foster coordination. Stability and the functioning of a network puts the actors in the position to develop working relationships that foster trust and effectivity. A consistent group of responders allows for the development of mutual familiarity and trust. It is not possible to create such mutual familiarity and trust once a crisis occurs and should already be present in earlier phases (Brass et al. (2004) in Moynihan (2009).



## 2.4 The OECD criteria for evaluation

The Organisation for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) has been publishing evaluation criteria since 1991. Their five criteria aim to evaluate international development and humanitarian projects, programmes and policies. Even though the criteria were initially aimed at development cooperation, the criteria have been used in other domains of public policy (OECD DAC, 2019). The definitions of the OECD DAC evaluation criteria have been revised and published in 2019 and are used for this thesis. The purpose of using such evaluation criteria is to enable the merit, worth or significance of an intervention. The term intervention refers to the subject of the evaluation. Based on the OECD DAC guidelines, the intervention and criteria can be used to evaluate international co-operation activities (OECD DAC, 2019: 5). For this research, the intervention is the international cooperation between the Netherlands and the Caribbean islands.

<b>Relevance</b>	<i>"The extent to which the intervention objectives and design respond to beneficiaries', global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change."</i>
<b>Effectiveness</b>	<i>"The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups."</i>
<b>Efficiency</b>	<i>"The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way."</i>
<b>Impact</b>	<i>"The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects."</i>
<b>Sustainability</b>	<i>"The extent to which the net benefits of the intervention continue or are likely to continue."</i>

Box 3: Criteria for evaluation (OECD DAC, 2019)

## 2.5 Conclusion

Several theoretical concepts have been advanced that deal with how to manage disasters prescriptively. Bringing such concepts together, results in the following definition of the central concepts of this thesis:

**Natural hazard and disaster management** is about decreasing exposure to the consequences of natural processes or phenomena (such as floods, storms, droughts and earthquakes) by developing measures and policy to address the impact, implement post-disaster response and recovery needs to address adverse effects on life, limb or property. These hazards differ in severity, scale and frequency and are classified by either hydro-meteorological or geological components.

### *Box 4: Definition of natural hazard and disaster management*

The tendency to decentralize network forms of organizations seems to be a means of tackling complex social problems. Such networks of collaboration with heterogeneous entities are flexible, adaptable and capable of mobilizing resources. Disaster governance is often a form of collaborative governance to tackle issues that reach beyond one single actor. Such horizontal and vertical governance arrangements are created to address local geographic context issues, as well as supra-local entities addressing larger scale crises. However, the set of heterogeneous actors that are both horizontal and vertical need proper alignment to handle the crises. Moreover, the three complications in relation to crisis response, as argued by Moynihan (2009), show that even though network governance seems to solve problems, there are also points to be taken into consideration and possibly hinder successful disaster management. For this thesis, the interviews with respondents focused on how disaster management practices and cooperation are perceived by those involved. One method used to find an answer to this question is by using the five evaluation criteria by the OECD DAC previously mentioned. Also, the issues by Moynihan (2009) on disaster response have been taken up in a wider context of administrative governance relationships in natural hazard and disaster management in the Caribbean Netherlands and are used in the interviews as well. Both these methods are to be seen in the wider context of disaster management and disaster governance and include all the above theories and concepts.

### 3. Research methodology

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Literature review has been part of gaining a better understanding of the situation and mainly served as background information. Moreover, this research made use of qualitative data collection methods in order to formulate an answer to the research questions. The aim has been to collect data through interviews with people involved in natural hazard management on the Caribbean islands. Data gathered from the interviews gave an insight in how people perceive cooperation between the several parties involved. It is a perception of the respondents of the situation and therefore will differ amongst the participants. Qualitative research is thus interpretative and inductive by nature (Verhoeven, 2015). One way of adding validity of the research results has been through triangulation. To that end, multiple research methods have been used to address the research question from several points of view (Verhoeven, 2015). Interviews have been conducted with persons of interest on both sides of the Atlantic Ocean, the Netherlands and from Bonaire, St. Eustatius and Saba. This chapter also draws attention to confidentiality and data management. Lastly, the chapter concludes with ethics and positionality of the researcher.

#### 3.1 Research methods

##### ***Qualitative research: literature review***

One of the first methods of data collection in this research project has been doing qualitative desk research. This includes literature research and review. Including literature research in this study has been done for three reasons. Firstly, to address descriptive and comparative questions. Secondly, for orientation into a problem area and thirdly, as theoretical support for the actual research (Verhoeven, 2015). Literature review has also been part of the research proposal and therefore served as a base for the actual research. For the research, primary, secondary and grey literature have been used. Primary and secondary sources include articles retrieved from scientific journals. Grey literature includes policy documents from the Dutch Government and several Dutch ministries. In this research, literature research is important because it contributed to answering questions as to what natural hazards the islands deal with and why. It also shed a light on the current policies in place and who is involved with these policies. Also, disaster management structures in the Netherlands have been analysed through literature research, to find out in what way the Dutch government responds to crises and possible natural hazards. Therefore, the first, second and third sub-research questions have mainly been answered through literature review and analysing policy papers. Additionally, the answers to these questions are complemented with results from the interviews.

### **Qualitative research: interviews**

The second data collection method that the researcher used has been conducting interviews. According to Verhoeven (2015: 141), "*an interview is a conversation in which the interviewee's perceptions are paramount*". The aim of conducting interviews was retrieving information about a particular subject, in this case about international cooperation and administrative governance relations within the field of natural hazard and disaster governance. Sub-research questions four and five have mainly been answered based on data retrieved from the interviews.

The relation between the main and sub-research question is as follows: the first three research questions are mainly descriptive by nature and providing contextual information on natural hazard and disaster management on the Caribbean Islands. Findings from the first three sub-questions are therefore necessary to understanding and finding an answer to the fourth sub-question. Thereafter, the fourth sub-question analyses the perceptions of respondents by using five parameters from the *OECD framework for evaluation*, linking it to theory on disaster risk reduction. As the fourth and fifth sub-questions are evaluative and analytical by nature, the answers provided by the respondents are related to their perception on natural hazard and disaster management and are thus objective. Lastly, the fifth sub-question on the SWOT analysis functions as a summary of what has been brought to the fore in the interview and is therefore a validation for sub-question four. Combining the five sub-questions has resulted in formulating an answer to the main research question on the modalities of cooperation of Bonaire, St. Eustatius and Saba and the Netherlands.

For this thesis, semi-structured interviews have been conducted. This type of interview is in between the two sides of the spectrum (structured interviews on the one hand and completely open interviews on the other). For this reason, an interview guide has been set up that included a number of questions and topics to be discussed. This way, the respondents could rather freely answer the questions (Verhoeven, 2015). One way of selecting interviewees has been through purposive sampling. On the basis of given characters, people have been asked to take part in the research (Verhoeven, 2015). In this case, people working within the field of natural hazard and disaster management and are involved in the Dutch and Caribbean were of interest. People that have been part of the research population are mainly government employees that have a role in crisis management on the Caribbean islands or in the Netherlands. In this case, the researcher's network has mainly been used to find interviewees. The researcher has started with direct colleagues at the DCC-IenW who work on the Caribbean dossier and have a large network that has proven useful. Data retrieved from the interviews has been transcribed or summarized into Word-documents and were from there on further analysed. In relation to the setup of the interviews, once the interviews started, the question had been asked whether the participant gave his or her consent to record the interview. By recording the interview, the researcher could provide full attention to listening to the respondent, instead of being forced to write down the answers at the same time. However, notes have been made on the printed interview guide that include keywords. Furthermore, listening to the recording again increased the reliability of the results as it became easier to interpret and re-interpret the results (Verhoeven, 2015).

An important aspect that has been addressed at the start of each interview is the topic of informed consent. To each respondent an explanation has been given on the research and what it meant for the participant to take part. It has also been made clear that at any given point, the interviewee had the possibility to withdraw from the research or not answer the question. The participants have been asked whether he or she had understood the information about the research and have been given the opportunity to ask any remaining questions. Furthermore, it was made clear that confidentiality is protected by not mentioning names and professions in the final thesis. The researcher made it clear that quotes from the interview could be included in the report. The full text of the interviews and the recordings has only been available to the researcher and upon request to the supervisor and examiner for the purpose of grading the student.

Table 3 presents the list of interviewees that have been part of the research and is to be found in Annex 1. The table presents the location of the interview, the interview date, the occupation of the interviewee (and the department/ministry), the language of the interview and lastly the availability of a recording of the interview. As the table shows, eight interviews have been conducted in the Netherlands. The remaining interviews and conversations have been held on the Caribbean islands during a three-week fieldwork period. In some cases, more than just one interviewee was present during the interview. This has been the case for interview number 12 and interview number 19. For these interviews, the interviewees suggested to have the conversation with the other policy officers present at the same time, thereby reducing the amount of time needed to spend on the research. It is possible that this has caused biased answers by the respondents, as it is possible that the respondents could not freely speak their minds in front of their colleagues. To partly overcome this, the researcher added after the interviews that in case anyone wanted to add something, this would be possible by contacting the researcher privately (either by e-mail or phone). In case the interviewee's mother tongue was Dutch, the decision was made to conduct the interview in Dutch, as this is also the mother tongue of the researcher. This facilitated a better understanding of each other and improved the trust between the researcher and interviewee. This resulted in the fact that the majority of the interviews have been conducted in Dutch.

One of the main goals was to get an equal number of interviewees for the three islands. To increase the validity of the research, the aim was to speak to the same type of policy officers of the Public Bodies. Ideally, that would have at least included the following persons: the gezaghebber (title on Bonaire and Saba) or island commissioner (title on St. Eustatius) of the island, the island secretaries, the deputy island secretaries and crisis coordinators. Table 4 in the Annex 1 presents the results thereof.

### **3.2 Fieldwork on Bonaire, St. Eustatius and Saba**

The researcher has travelled overseas from mid-February to mid-March 2020 to conduct the interviews and speak to people who are involved in natural hazard and disaster management. The research did not have the character of ethnographic research and 'going local' for an extended period of time, but it did show the willingness to travel to the islands to retrieve the data and invest in the relationship with the interviewees. According to Verhoeven (2015), working on rapport with the interviewee is the most important aspect of conducting a good interview. Therefore, showing the initiative to travel to the islands contributed to the positive view the researcher wished to create in order to get the information required. According to De Vries (2018), access is more than getting to a geographical place and is most importantly about finding the right people to talk to and making sure that they want to talk and be honest. To best prepare for going into the field, time has been put aside to find the persons of interest, to set up contacts, to prepare the interviews and set final appointments. The fieldwork has been carefully planned and travel dates had been set ahead of time. Once these dates had been set, the researcher sent out invitations to participants to invite them for the interview once the researcher would be on the specific island. The researcher also always mentioned the possibility of doing the interview over the phone or Skype, in case an interviewee did not want to meet face-to-face, would be unable to meet or preferred to talk over the phone. The majority of the interview requests were answered positively. Others required a reminder, or the invitation went through the secretary to schedule an appointment and took up more time. In one case, the interview request was denied, but an alternative was given to talk to someone else. Reading about the islands, customs and culture has also been part of the preparation of doing fieldwork. Getting to know the islands by reading up on the history and way of life has been part of preparing. Moreover, conversations have been held with people who are familiar with the region. For example, with a colleague who regularly visits the three islands, a colleague who has worked for three months on Saba and with colleagues who have been born on Aruba. They have provided the researcher with relevant background information and, to give an example, warned the researcher to be flexible with regards to planning and time-management of scheduling interviews.

The researcher travelled to the three islands from mid-February until mid-March 2020. As a means of making sure that there would be enough possible moments to meet with respondents, the researcher spent five working days on each of the islands. Traveling to the next island was done on weekends. This increased the amount of time spent on working days and therefore increased the chances of meeting with respondents. Thus, there were five possible morning slots and five afternoon slots each week to do interviews. As the aim was to achieve at least three or four interviews per island, this provided the researcher with flexibility. Time not spent on doing interviews has been used to work on the transcription of interviews or to unwind from the efforts. Having enough time also provided the researcher with the possibility to 'wander around' and 'run into' people along the way whilst being on the islands. This caused the researcher to have chats with local people who could provide contextual information about the life on the islands. Such information has been important to the researcher to sketch an image on what life looks like on the islands and on whether natural hazard and disaster management is a topic that the citizens deal with.

### **3.3 Data management, positionality and research ethics**

All written files (the proposal file, used literature, transcribed interviews and so forth) have continuously been saved on a personal Office 365 WUR OneDrive account. OneDrive is a cloud-based service, providing the user with internet connection to upload files to the cloud. Therefore, it is not needed to save files on physical hard drives such as thumb drives or external hard drives. This reduces the chances of data being stolen, leaked or disappeared. This OneDrive account is password protected and the password had to be changed regularly. The data has also been stored on the laptop of the researcher. This is not the personal laptop but the one from the employer DCC-IenW. This means that the data on it is protected by Rijkswaterstaat mechanisms. It was not possible to access these files directly when turning on the laptop. First, the user had to log in to the Rijkswaterstaat Windows environment. Then, the user should log in to the Citrix webpage to access the data. This is done with two-factor authentication, with a password sent to the mobile phone of the researcher. This adds an extra layer of protection to the data. Due to practical considerations and these protection mechanisms, the files have to be saved to the laptop and from there uploaded to the OneDrive account. Another data management procedure included the private laptop of the researcher, by means of making back-ups of the OneDrive data to the personal laptop.

Writing this thesis took place in a rather unusual setting. Whilst being a student from Wageningen University, the researcher was at the same time an intern and working at the DCC-IenW of the Ministry of Infrastructure and Water Management during the majority of the thesis writing process, as a government employee. However, during a number of weeks within this period the researcher also worked 24/7 on duty shifts for a number of weeks. During these weeks, the researcher worked full-time for the ministry. This duality of function has been clearly communicated to the interviewees, as the professional network of the researcher had been used to get access to the research population. More importantly, it was made clear that the research itself had no relation to the ministry. The research was not written for the ministry, nor being assigned by the ministry. It is part of the master's degree in International Development Studies and therefore the researcher is the owner of the research. The unique setting has provided the researcher already with access to certain persons from the research population.

Another point of attention is the fact that the researcher's positionality might have influenced answers given by the respondents. These might include the following aspects of the researcher: being a student, being a government employee, being white and from Europe, being a young female, someone who does not speak Papiamentu, being highly educated and many more aspects that are intrinsic to the researcher. Such factors could have influenced the answers respondents gave. According to De Vries (2018), one's identity comprises both fixed and negotiated aspects and such strategic representation combines the presentation of the researcher and the research topic. Therefore, it perhaps needs constant adjustments without losing credibility.

To reduce the chance of respondents answering not honestly or omitting information, it was of great importance to be transparent about the researcher's identity, the purpose of visiting the islands and the reasons why the participants were selected. Lastly, the decision has been made to write one version of the thesis that includes all names and professions, only to be seen by the student and supervisor. A summary has been made available to the respondents who expressed their interest in the research results.



## 4. Research background

This chapter describes the background in which the research takes place and includes the geographical factors that are relevant to the three islands and its relation to natural hazards, by looking into the location, precipitation, the islands as small island developing states (SIDS) and the history of the islands in relation to previous natural hazards.

The three Caribbean special municipalities are located in the Caribbean Sea and are characterized by several differences. Bonaire is located only 90 kilometres from the Venezuelan coast and there is roughly a distance of 810 kilometres between Bonaire and St. Eustatius and Saba. This large difference in distance causes geographical and cultural diversity on the islands. The largest island of the three, Bonaire (288 km<sup>2</sup>), has a population of roughly 20,000 inhabitants. The majority of people speak Papiamentu and Dutch. St. Eustatius is notably smaller (21 km<sup>2</sup>) and is inhabited by roughly 3,500 inhabitants. The smallest island of the three is Saba (13 km<sup>2</sup>) and is home to approximately 2,200 inhabitants. The latter two are both English and Dutch speaking islands. Another difference is to be found within the domain of geography, whereas Bonaire is mainly based on coralline limestone, Saba and St. Eustatius are volcanic islands (Rijksdienst CN, 2019b). Figure 2 below presents the locations of the three Dutch islands.



Figure 2: Location of the BES islands in the Caribbean Region (Rijksdienst CN, 2019b)

Because of their proximity to the equator, the weather and climate on Bonaire, St. Eustatius and Saba are very constant throughout the year. On average, the weather and climate are tropical, hot and dry. The two Windward islands, Saba and St. Eustatius differ slightly from the climatic conditions on Bonaire which is part of the Leeward Islands. This difference in geographical location causes differences in climatic conditions, as can be seen in the precipitation charts below (Weather and Climate, 2019).

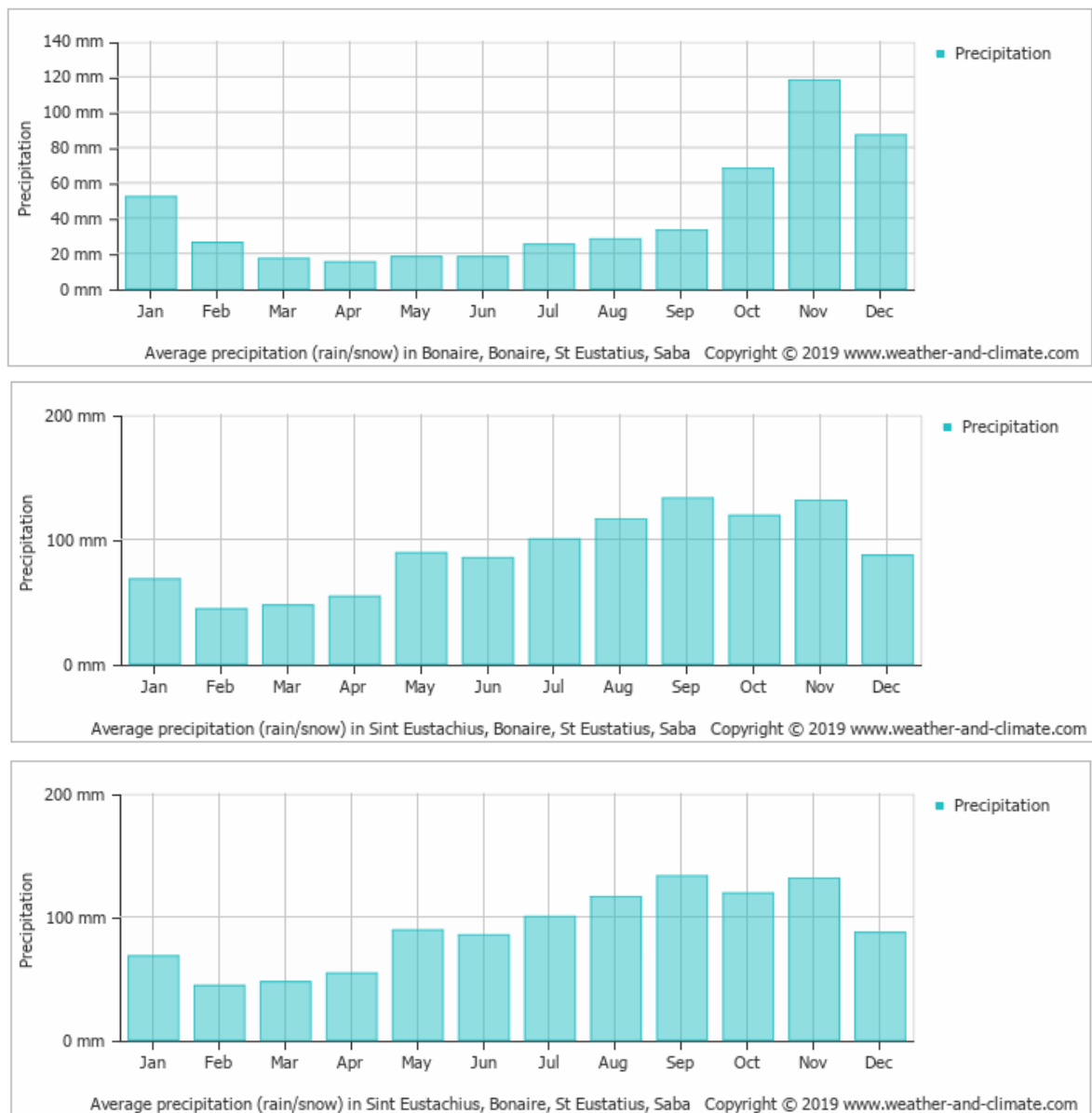


Figure 3: Precipitation charts for Kralendijk, Oranjestad and Windwardside (Weather and Climate, 2019)

All three islands are subject to the hurricane season. The official hurricane season for the North Atlantic Ocean and Caribbean Sea starts on the first of June and ends on the last day of November. Usually the highest storm activity is measured through the months of August, September and October (KNMI, 2019a). For the year 2019, the Atlantic Hurricane Season was characterized by 18 named storms and included six hurricanes. Out of these six, three were categorized as major (category 3, 4 or 5). According to the National Oceanic and Atmospheric Administration (NOAA), the year 2019 marks the fourth consecutive above-normal Atlantic hurricane season, meaning that the intensity and frequency of hurricanes increased (NOAA, 2019). As mentioned previously, the islands of Saba and St. Eustatius are volcanic islands as a result of the plate tectonics of the Caribbean Plate, North American Plate and the South American Plate. Consequently, the subduction of Northern American Plate under the Caribbean Plate result in the possibility of earthquakes up to a magnitude of 8 on the Richter's scale. Such an earthquake can have devastating effects itself or the earthquake can cause a tsunami which then can result in even more damage (KNMI, 2016). On the contrary, Bonaire is characterized by a less intense and less frequent presence of hurricanes, as the islands in front of the Venezuelan coast are characterized by little seismic activity. However, there have been historical examples of earthquakes and tsunamis in the area that have also affected Bonaire. The difference in frequency and intensity of hurricanes and tropical storms between Bonaire and Saba and St. Eustatius can be found in the North Atlantic Hurricane Tracking chart of the years 2017, 2018 and 2019. These are to be found in Annex 2. It is clear that for the last three years there have been more hurricanes in the region of Saba and St. Eustatius, compared to the intensity and frequency of hurricanes in the region of Bonaire. Moreover, plate tectonics have caused the Caribbean region to be relatively volcano rich and dense. Therefore, the volcanoes Mount Scenery on Saba and The Quill on St. Eustatius (Figure 4b below) are continuously monitored by the KNMI (KNMI, 2019b).

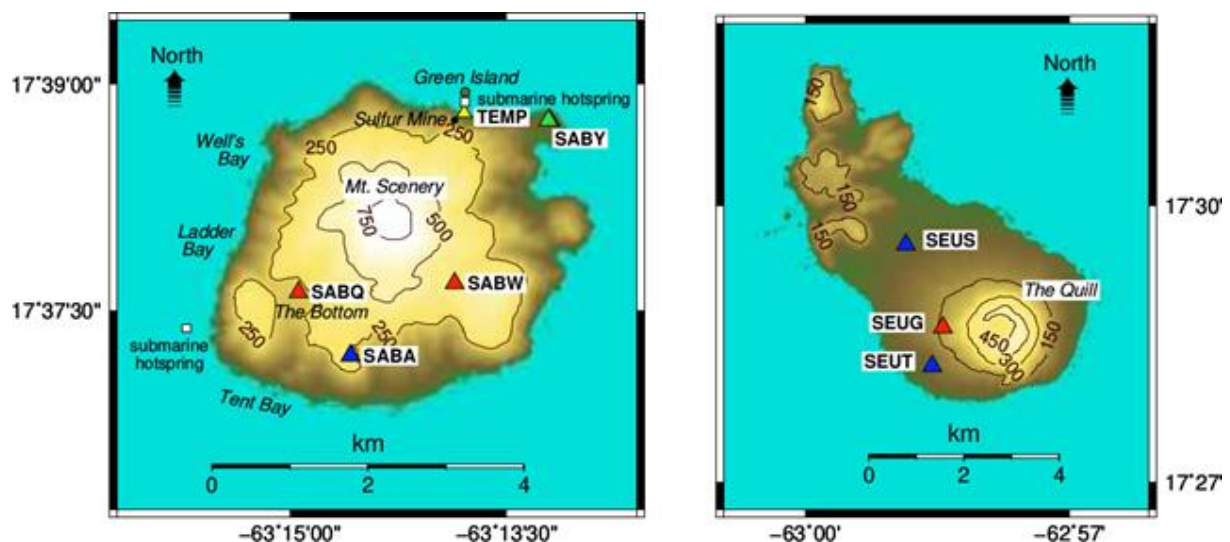


Figure 4: Volcanoes Mount Scenery on Saba and The Quill on St. Eustatius (KNMI, 2019)

The three Dutch Caribbean islands can be characterized as small island developing states (SIDS), as is the case with many similar islands in the region. The Greater Antilles, a grouping of larger islands in the Caribbean Sea, are characterized as the most disaster-prone island group, in which islands as Haiti and Jamaica have had to deal with natural disasters repeatedly over the years (Pelling and Uitto, 2001). According to Briguglio (1993) in Pelling and Uitto (2001), small islands are disproportionately vulnerable to disasters with a natural trigger. The author concluded that nine out of ten most vulnerable countries to natural disasters were small island states. The same authors argue that small islands are made vulnerable by their small size, insularity and remoteness, environmental factors, limited disaster mitigation capacity and demographic and economic structure (Pelling and Uitto, 2001). Even though the Caribbean Netherlands are part of a larger Kingdom of the Netherlands, it is argued that the islands do have the characteristics of SIDS and are to be seen as such (Interview 8, 2020). The factors that make small islands vulnerable are also present for the Dutch islands. The Caribbean Netherlands has a structural trade deficit in which more goods are imported than exported. Compared to European Netherlands, production of goods is low on the Caribbean (CBS, 2020). Moreover, the three islands heavily depend on tourism for their income. Bonaire receives most of its tourists from large cruise ships with mainly American tourists. St. Eustatius and Saba mainly receive tourists via air traffic from European Netherlands as well as neighboring islands Aruba, Curacao and St. Maarten (CBS, 2018).

The Dutch Caribbean islands have historically been rather lucky in relation to the occurrence of hurricanes. Only a few major hurricanes have been recorded in history that also hit the Dutch Caribbean, for example Hurricane Luis in 1995 and Lenny in 1999. However, this changed in 2017. On the 27<sup>th</sup> of August, a tropical wave developed close to the African West Coast (region of Cape Verde). In one week time, it strengthened to a hurricane which came to be known as Irma. The hurricane strengthened from category-3 to a category-5 hurricane in two days (National Hurricane Center, 2018). In a period of 14-days, Irma was succeeded by storms Jose and Maria. These hurricanes have had a tremendous impact on the northern Caribbean Islands and to a lesser degree also impacted Saba (see Figure 5) and St. Eustatius. On both the Windward Islands no deaths had been recorded but the storms did cause damage to infrastructure and nature. These hurricanes have had no impact on Bonaire. After the hurricanes and storms passed, it appeared vital that proper planning and disaster management had to be in place. Therefore, it is argued that the consequences of Irma, Jose and Maria woke policy makers up and action needed to be taken (Interview 1, 2020).





*Figure 5: Damage after Hurricane Irma on Saba (NOS, 2017)*



*Figure 6: Damage after Hurricane Irma on St. Eustatius (BN de Stem, 2017)*

## 5. Research results

### 5.1 The institutional relationship between The Netherlands and the islands

This section focusses on the institutional relationship between the Netherlands and the three islands and explains how public administration systems are set up for the Kingdom of the Netherlands. It moreover explains how disaster management is implemented on the islands. It hereby answers the first sub-research question on the special institutional relationship for the Netherlands and the islands of Bonaire, St. Eustatius and Saba.

#### **Public administration in The Kingdom of the Netherlands**

The Kingdom of the Netherlands consists of four autonomous countries. The majority of its territory is located in Western Europe and the other three countries are West Indian island territories in the Caribbean Sea (Veenendaal, 2015). Figure 7 below serves as an illustration of how the Kingdom of the Netherlands is comprised.

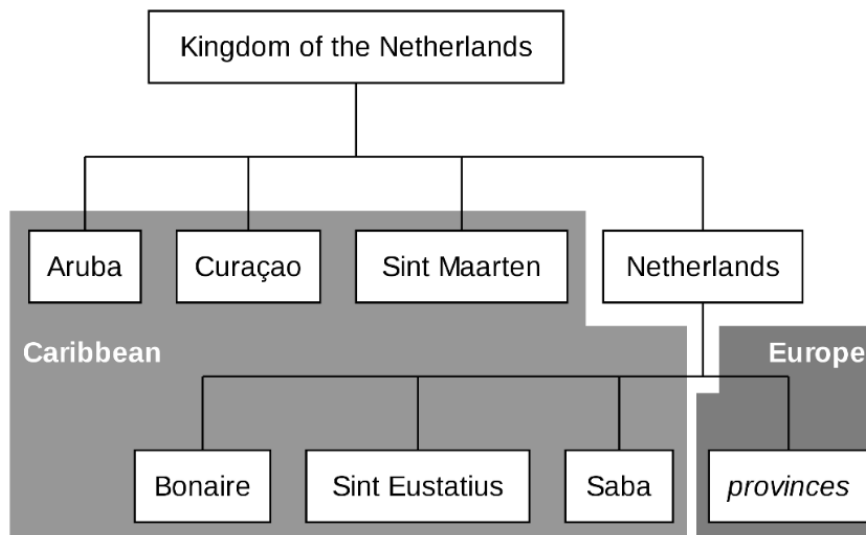


Figure 7: The Kingdom of the Netherlands (Wikipedia, 2019)

The four countries (Aruba, Curacao, Sint Maarten and the Netherlands) have autonomy over their domestic affairs, whereas the Kingdom government remains responsible for foreign affairs, defence and the guaranteeing of democracy and good governance (Ferdinand, Oostindie & Veenendaal, 2019). The countries have their own Parliaments. The Ministry of Interior and Kingdom Relations (BZK) is responsible for the partnerships with the countries Aruba, Curacao and Sint Maarten (Government of the Netherlands, 2019c). According to Veenendaal & Oostindie (2018), often a distinction is made between two types of political units: sovereign states and subnational jurisdictions such as provinces and municipalities. However, the authors argue that a third category is being overlooked: the so-called non-sovereign territories that are political hybrids; enjoying some but not all of the privileges of fully sovereign states. The same authors argue that this is the case for the Dutch Caribbean (Veenendaal & Oostindie, 2018).

The Dutch central government and its public administration system is built on four tiers: central government, the provinces, municipalities and water authorities. The central government is responsible for policymaking and for drafting and adopting legislation. It serves to prepare and carry out the plans of the government and parliament and is therefore responsible for the daily management of the country (Government of the Netherlands, 2019a). One of the aims of the government is to have a smaller and more efficient civil service that performs fewer tasks. Thus, central government responsibilities have been shifted to the provinces and municipalities (Government of the Netherlands, 2019b). According to Maes et al (2018), decentralisation can be defined as: “a restructuring of authority so that there is a system of co-responsibility between institutions of governance at the central, regional and local levels according to the principle of subsidiarity” (Maes, 2018: 163). This means that the responsibilities and resources are decentralised down to the lowest level that is able to effectively perform necessary tasks, which is also the case in the Kingdom of the Netherlands. In Box 5, the several levels of decentralisation are further discussed.

The first level of decentralisation and delegation of tasks are the provinces. The Netherlands has twelve provinces. Each province receives funds from the central government to manage goods for the public. This includes for example, managing nature, building and maintaining cycling paths, provincial public transport and services related to art and culture. As is the case with the municipalities, the provinces are increasingly taking over tasks that used to be the responsibility of the central government. Moreover, the provinces are to focus on spatial planning, the economy of the provinces and nature conservation (Government of the Netherlands, 2019b). Another tier in Dutch public administration are the municipalities, which are closely connected to the people and inhabitants. Each municipality has an executive in which a mayor and aldermen are represented. The mayor is the one to chair the municipal executive and the municipal council. One of the main responsibilities of the mayor is public order and safety and preventing disorder (Government of the Netherlands, 2019b). As mentioned before and to make clear once again, the three Caribbean islands are public bodies (*openbare lichamen*). In practice they serve as municipalities. As a group, the three islands are often referred to as the “BES islands” (Bonaire, St. Eustatius and Saba). After long lasting negotiations about the position of the Caribbean islands, the authorities settled for the integration into the Dutch constitutional and legal framework (Veenendaal, 2015). Lastly, the water authorities are responsible for water management in a specific geographical area. Administration is done by an executive board that is appointed through an elected general council. Both the executive board and general council are chaired by the *dijkgraaf*. The main tasks of the water authority are to manage the natural water systems and protect citizens from flooding and other water related issues (Government of the Netherlands, 2019b).

*Box 5: The provinces, municipalities and water authorities in the Netherlands*

### **Public administration and disaster management on the Caribbean islands**

The link between the European Netherlands and the municipalities in the Caribbean is the National Office for the Caribbean Netherlands, RCN (*Rijksdienst Caribisch Nederland*). Each ministry in the Netherlands is responsible for the introduction and implementation of policy of each respective ministry. To do this properly, the ministries have the ability to receive support and the services of the RCN. This can include supporting in employment practices, business operations, housing, ICT and human resources (Rijksdienst CN, 2019a). However, not all ministries are represented on the special municipalities, as is the case with the Ministry of Foreign Affairs and the Ministry of Defence. Each of the three islands have three separate bodies, the Island Governor, the Island Council and the Executive council. All three bodies have their own responsibilities and duties on their island. The island governor is the chairman of the island council and has formal authority and responsibility to guarantee public order and safety. As such, disaster management and the elections are amongst others part of the responsibilities (Rijksdienst CN, 2019b). The role of island governor is comparable to those of the mayors in the Netherlands. To facilitate the link between the Netherlands and the Caribbean municipalities, the Kingdom Representative (*Rijksoverheidsvertegenwoordiger*) serves as the 'eyes and ears' for the various ministries and has as a main task to keep the minister of Interior and Kingdom Relations informed about the developments on the islands. Moreover, the Kingdom Representative keeps an eye out for good governance and has an important role within the safety and security domain (Rijksdienst CN, 2019c). In the Netherlands, the overarching ministry responsible for Dutch disaster management and response, as well as public order and safety, is the Ministry of Justice and Security, under supervision of minister Ferdinand Grapperhaus (2017 – present). Argued by Kuipers & Boin (2014), the Dutch crisis management approach includes measures taken at various levels of administration, in consultation and cooperation with stakeholders and organisations, aimed at maintaining national safety and security. Dutch law makes a distinction between the concepts of crisis and disasters:

*"On the one hand, a disaster is a major incident or accident which seriously threatens or damages the lives and wellbeing of citizens, environment or property and that requires a coordinated deployment of multi-disciplinary services and organizations to counter the threat or mitigate the consequences. On the other hand, a crisis is a situation that violates or threatens to violate vital interests of society."*

(Safety Regions Law, 2010 §1, art. 1. In Kuipers & Boin, 2014: 8).

Kuipers & Boin (2014) argue that this distinction is highly relevant in the context of the Netherlands. Disasters are incidents that usually start locally and have effect on local communities, the wider region or in extreme cases, cross-regional areas. Crisis management is also decentralized to lower tiers of government and the local authorities. In case of a large incident or disaster that affects multiple municipalities, the involved municipalities can call for "upscaling" to regional authority. On the contrary, in case of a crisis, central command is executed by the Ministry of Justice and Security and therefore managed from the top.



The constitutional and legal framework in the Netherlands has fragmented responsibilities and authority for crisis and disaster management. As many parties are involved, coordination and cooperation are a prerequisite for successful outcomes (Kuipers & Boin, 2014).

Another tier of governance that has not yet been discussed previously and that are relevant for disaster management, are Safety Regions (*Veiligheidsregio*). The safety regions are also a decentralized form of government and are in charge of the fire departments and the emergency medical care in their region. It represents the government and operational link between the local civil protection organizations and the national government. Enshrined in the Safety Regions Act of 2010, a safety region assumes the role of a provincial authority in times of crisis and emergency. In case of a crisis that affects multiple municipalities within the safety region, the mayor is ultimately responsible for decision making and response. Again, the authority and responsibility for public order, safety and disaster preparation and response lies with the local tier of government but is transferred to higher levels of governance when the crisis overwhelms local communities capacity. This is implemented through the GRIP-protocol (*Coordinated Regional Incident-Management Procedure*). In extreme cases, the national government has the mandate to intervene and overrule the local mayor (Kuipers & Boin, 2014).

In the case of the Caribbean islands, both the Kingdom Representative and the Island Governor are responsible for practices related to disaster management and preparedness. The local tier of governance, the Island Governor is ultimately responsible for the daily affairs on the islands in cooperation with the Caribbean Netherlands Fire Department. There is one fire department for the three public entities. Each island has its own branch, led by a local commander. More details about the Caribbean Netherlands Fire Department are to be found in Box 6.

Compared to the Netherlands, the main tasks of the Caribbean Netherlands Fire Department are in accordance with the BES Safety Act (*Veiligheidswet BES*) and are as follows (Rijksdienst CN, 2019b: 13):

- *"The prevention, reduction and combat of fire, to limit fire hazards, to prevent and mitigate fire accidents and all therewith connected.*
- *The limitation and control of risks for humans and animals in accidents other than fire.*
- *The exploration of hazardous materials and the provision of disinfection*
- *The advice of competent authority in the field of fire prevention, firefighting and prevention, reduction and control of accidents involving hazardous materials.*
- *The execution and management of disaster or crisis tasks as required in the event of disaster control and crisis management.*

- *To provide all the above-mentioned tasks at the airport of each Public Entity.*

#### *Box 6: The Caribbean Netherlands Fire Department*

These tasks show that the Caribbean Netherlands Fire Department plays a large role in disaster preparedness, response and management (Overheid Wettenbank, 2019). It is responsible for the safety of citizens, business and visitors of Bonaire, St. Eustatius and Saba (Rijksdienst CN, 2019b).

In cases of large crises or disasters, the island governor may bring in the Kingdom Representative as an intermediary. The island representative can in cases of fire, disaster or crises request military assistance. Such a request for military assistance can also come from the Police Department or the Royal Netherlands Military Constabulary. In case of a disaster, crisis or calamity that affects more than one island, the Kingdom Representative can give instructions to the island governors and can ultimately intervene if necessary. In the end, the Kingdom Representative is responsible for proper disaster and crisis planning of the public entities (Rijksdienst CN, 2019b). Figure 8 in Annex 3 presents a visualisation of the public administration arrangements on the public entities. Since the 10<sup>th</sup> of October 2010, the three islands became special municipalities of the Netherlands. For each of the islands, the intended structure was the same and roles of the administrative employees. However, on the 7<sup>th</sup> of February 2018, the *Tijdelijke Wet Taakverwaarlozing Sint Eustatius* came into effect as the local government was accused of neglecting its duties. The local government was accused of lawlessness, financial maladministration, the abuse of power and intimidation. As a result, several government officials were discharged from their functions. As of then, one government commissioner and deputy commissioner were stationed on the island, aimed at restoring the functioning of the island's government. As of mid-February 2020, the first two commissioners were replaced by two new officials (Overheid Wettenbank, 2018).

### **Conclusion**

The Kingdom of the Netherlands is comprised of four autonomous countries: The Netherlands, Aruba, Curaçao and Sint Maarten. The Netherlands is characterized by several layers of decentralisation of governance. The first level of decentralisation are the provinces. The second layer in public administration are the municipalities. The three Caribbean islands Bonaire, St. Eustatius and Saba are public bodies, and in this sense similar to municipalities. By being a municipality of The Netherlands, the islands are integrated into the Dutch constitutional and legal framework. The link between the European Netherlands and its overseas municipalities is the National Office for the Caribbean Netherlands, in which the Kingdom Representative has an important role in disaster management. On the islands, three separate bodies are responsible for the daily affairs: the Island Governor, the Island Council and the Executive council. This has been the case since the 10<sup>th</sup> of October 2010. For the island St. Eustatius, the *Tijdelijke Wet Taakverwaarlozing* came into effect, aimed at restoring the functioning of the islands government and thereby replacing local governors for a government commissioner and deputy commissioner from the Ministry of the Interior and Kingdom Affairs.

## **5.2 National and regional natural hazard and disaster management policies**

This section sheds a light on the national and regional disaster management policies in place for the Caribbean islands, thereby providing an answer to the second sub-research question. It does so for different levels of governance arrangements. Without going in too deep into the different laws and policy, it is of the essence to understand the basic mechanism and is therefore briefly discussed. It first looks into the Wet Veiligheidsregio's and the Veiligheidswet BES. Thereafter, the role of the Kingdom Representative as a coordinator of the three islands and the related plan is discussed. It then briefly discusses the regional plans as well as the international aspect of disaster management.

### ***Wet Veiligheidsregio's and Veiligheidswet BES***

On the first of October 2010, the Wet veiligheidsregio's (Wvr) came into effect and acts as an overarching law that defines the tasks of the twenty-five Safety Regions in the Netherlands. As mentioned in the previous chapter, the Safety Regions are a decentralized form of government responsible for disaster management, public order and safety. The islands of Bonaire, St. Eustatius and Saba- are to be seen as three safety regions, responsible for the same tasks and to be executed by the Public Body (Interview 4, 2020). The Veiligheidswet BES (VwBES) is a separate law that defines the tasks of the police, the fire department, and the system of disaster and crisis management on the three islands. The Veiligheidswet BES describes the roles of the Island Governor, the Island Council and the Executive council in the domain of disaster and crisis management. Therefore, the island governor is the chairman of the island and is therefore ultimately responsible for proper disaster management and preparation (Wettenbank Overheid, 2020). Thus, the laws in the Veiligheidswet BES are at the base of the disaster management plans of the islands Bonaire, St. Eustatius and Saba.

### ***Multi-island coordination plan***

As the three islands are part of the larger Kingdom of the Netherlands and the ministries in The Hague remain responsible for proper governance policy plans, this is therefore managed from The Hague. As it is possible to think that once a natural hazard threatens one of the islands, other islands have to deal with the same threat. To overcome this challenge, a link is set up between the three islands and The Netherlands, facilitated through the Kingdom Representative. In this regard, cooperation and coordination can be brought back to one single actor. In the Veiligheidswet BES, the Kingdom Representative is given the responsibility to design a crisis and disaster coordination plan (*boveneilandenlijk coördinatieplan rampenbestrijding en crisisbeheersing Bonaire, Sint Eustatius en Saba*) that overarches the three independent islands. This is to be done every four years and has recently been revised in 2019, after the passages of Hurricanes Irma, Jose and Maria (RCN, 2019d). After these hurricanes passed, the Inspectorate of Justice and Security conducted a review of the functioning of the disaster management systems for the islands. One of the main conclusions was that the function and role of the Kingdom Representative was not completely clear. This led to the fact that the Kingdom Representative did not fully perform all the tasks intended to do.

Confusion arose about each other's authorization and what role to play (Inspectie Justitie en Veiligheid, 2018). Therefore, the National Office for the Caribbean Netherlands (RCN) revised the coordination plan. The coordination plan has been updated from the legal obligations written in the Veiligheidswet BES. As written in the revised coordination plan, the Kingdom Representative has the following main tasks, responsibilities and authorities. The full set of responsibilities and duties of the Kingdom Representative can be found in Annex 4.

- *In case of a multi-island disaster or crisis, the Kingdom Representative fulfils a facilitating role towards the Island Governors by providing information about the islands, assistance requests and supports mutual information exchange.*
- *The Kingdom Representative fulfils a facilitating role towards relevant parties (amongst which the Minister of Justice and Security and the Minister of the Interior and Kingdom Relations in the European Netherlands.), for providing an multi-island description and opinion (beeldvorming), possible bottlenecks and advice on the decisions to be taken in relation to assistance requests (bijstandsverlening), the division of goods, and measures to limit social impact and so forth.*

*Box 7: Main tasks of the Kingdom Representative (Inspectorate of Justice and Security, 2019)*

To perform these tasks effectively, the Kingdom Representative has the opportunity to gather a team, the emergency staff. This team consists of the Kingdom Representative himself, an information manager, an assistance coordinator (*bijstandsverlening*), communication advisor, crisis advisor and someone who supports the functioning of the team. If needed, a liaison from a specific organisation can join. This disaster management team by the Kingdom Representative is responsible for the monitoring of disaster management and taking action whenever necessary to properly deal with the disaster or crisis. If deemed necessary, the Kingdom Representative can *scale up* to a higher level of decision making and can activate the national crisis structure of the Netherlands. This is visualized in Figure 8, to be found in Annex 5. As can be seen in the figure, the regional disaster management structure, EBT, is first and foremost responsible for operational response. In case necessary, the disaster management team of the Kingdom Representative is gathered and performs its tasks as coordinator. If the national crisis structure is activated, the NCC (*nationaal crisis centrum* of the Ministry of Justice and Security) and the LOCC (*landelijk operationeel coördinatie centrum*) are called into action to involve national levels of decision making. In the case of a threat of a natural hazard that possibly affects more than one island, the Kingdom Representative will be called into action.

### **Regional disaster management plans**

The Veiligheidswet BES obliges all islands to have a system of disaster management and preparedness in place. As the Ministry of Justice and Security is the main department responsible for safety and security, disaster management on the islands is supported with funds from the Ministry of Justice and Security. However, there are no guidelines on how to spend these funds in the domain of disaster management. Therefore, differences exist in the way the islands have set up their disaster management systems. One difference is to be found in the fact that Bonaire has external consultants who are hired to assist in disaster management (Interview 12, 2020). These roles are performed by crisis coordinators from the Public Body on Saba and St. Eustatius and are therefore governmental actors (Interview 19, 2020; Interview 17, 2020). As such, there is a difference between the public bodies on the number of employees working on disaster management. For Bonaire there are at least two consultants, whereas Saba and St. Eustatius have only one employee at the Public Body involved in disaster management.

Depending on the intensity and severity of the disaster or crisis, three coordination levels are present for regional disaster management. Coordination levels 1 and 2 are regional, whereas coordination level 3, led by the Kingdom Representative, is characterized by being multi-island.

*Table 1: Coordination levels for regional disaster management (Rijksdienst CN, 2019d)*

Coordination level	Crisis team	Extent of the incident	Tasks	Authorized officer to <i>scale up</i>
1	Commando plaats incident (CoPI)	Control of the incident site	Coordination of the operational units on site	Leader CoPI
2	Insular Policy Team (EBT)	Affects the surroundings which include the wellbeing of citizens or (complex) administrative complications	Coordination of tactical and strategical level and informs citizens, Kingdom Representative and ministers	Island governor
3	Emergency team of the Kingdom Representative	Multi-island effects that can include questions on the division of goods/materials	Coordinates assistance requests and multi-island cooperation	Kingdom Representative

### ***The international aspect of disaster management***

Disaster management in the Caribbean region is not only national and regional as the effect of a natural hazard potentially affects more than one country. There are also international stakeholders at play and cooperation between national governments also exist. For example, the Caribbean Disaster Emergency Management Agency (CDEMA). This is a regional intergovernmental agency for disaster management in the Caribbean Community (CARICOM) and primarily focusses on the coordination of emergency response and relief (CDEMA, 2020). The Kingdom of the Netherlands is not a member of CDEMA, but it has a Memorandum of Understanding (MoU) to ensure cooperation on disaster risk management. The MoU applies to the CAS islands, as well as to the Netherlands which include the BES islands (CDEMA, 2019). In the domain of military and naval assistance, the Netherlands has close cooperation with countries such as France and the United States of America (Interview 2, 2020). As is the case with the threat of a natural hazard, it is likely that other Caribbean countries will also be affected by the storm or hurricane. Therefore, it is of the significance to know the partners in the region and cooperate wherever possible. Moreover, some partners in the Caribbean region have more means and possibilities than others. It is important to know who can deliver what and if necessary, make use of the possibilities (Interview 2, 2020).

### ***Conclusion***

The regional, national and international disaster management policies all aim at providing the Caribbean Netherlands with a system of disaster management that prepares for a diverse set of possible natural hazards. A diverse set of national laws provide the Public Bodies with responsibilities in the field of disaster management and the government in The Hague leaves the responsibility on how to implement disaster management with the islands. The Ministry of Justice and Security remains the responsible department in The Hague. In the case of a natural hazard, the hazard often reaches beyond the scope of just one island. Therefore, a natural hazard often has a multi-island character. As such, the Kingdom Representative will very certainly play a role in the management of the threat or disaster. The responsibility of proper disaster planning and governance lies with the Public Bodies of the islands. The Island governor, and in the case of St. Eustatius, island commissioners, are responsible for the safety of the inhabitants of the island. Ultimately, in the case of a multi-island threat or disaster, the Kingdom Representative has the formal responsibility to coordinate the three islands in relation to The Hague.

### 5.3 Administrative governance actors in the disaster domain

This section elaborates on what actors are involved in natural hazard and disaster management for the Netherlands as well as on the three islands, from the administrative governance perspective. To gain a better understanding of who is involved, this chapter presents the actors that play an active role in crisis management. This is done by following the event from the beginning until the end, thereby passing through all involved actors. As the thesis focuses on natural hazards, an example is taken of a threatening hurricane. Throughout the process, a distinction is made between what is called the *cold* and *hot phase* of a disaster. The disaster cycle (Coppola, 2011) serves as a base for the course of the event and examples from the interviews on the islands are included in the different phases.

#### ***From notification to impact***

As of January 2016, the Royal Netherlands Meteorological Institute (KNMI) provides the meteorological and seismological services for the Caribbean Netherlands. The observational, satellite and radar data of the island reach the Netherlands in real time and is continuously monitored by the KNMI from De Bilt. Mainly during the hurricane season (June - December), KNMI closely cooperates with the National Hurricane Center (NHC) in Miami. In case of a hurricane or storm threat, the KNMI uses a color-coded warning system for alerting the islands and The Netherlands, which ranges from an no threat phase to the strike of an event. From the information phase onwards, KNMI in collaboration with the NHC provide *Tropical Cyclone Bulletins (TCB)* to inform relevant actors. These actors include the governors of the threatened islands, the Kingdom Representative, local crisis coordinators and the National Crisis Centre (NCC) (KNMI, 2020). The color-coded warning system and an example of a Tropical Cyclone Bulletin are to be found in Annex 6. If necessary, a *Weather Impact Team Caribbean Netherlands (WIT-CN)* can be activated. This is a partnership and cooperation platform for diverse governmental stakeholders and the islands representatives. After the passage of Hurricane Irma, the WIT-CN was called into being as a means to set up a platform for the stakeholders to share information. The goal of the WIT-CN is sharing information between the involved parties about the weather predictions and the analyze its possible impact (DCC-IenW, 2019).

The WIT-CN can be activated for the following three reasons:

1. In case of a watch phase (see color-coded warning system KNMI)
2. In case the departmental coordination crisis center of the Ministry of Infrastructure and Water Management (DCC-IenW) and KNMI together decide to activate the WIT-CN
3. In case one of the islands requests to activate the WIT-CN

In the WIT-CN, the following parties are invited to the teleconference:

- KNMI for their meteorological expertise and weather forecast
- The Public Bodies as representatives of the involved island(s)

- The Ministry of Defense (CZMCARIB) in case military assistance is required
- The LOCC for the coordination of assistance requests
- The Ministry of the Interior and Kingdom Relations because of its responsibility to the islands
- The NCC for national crisis management
- The DCO (directive communication IenW) for communication strategies and media monitoring
- The DCC-IenW as a crisis advisor and facilitator of the meeting (teleconference)

*Box 8: Weather Impact Team-CN (DCC-IenW, 2019)*

In relation to the disaster cycle, such an event as a hurricane can involve the following phases. In the mitigation phase, it is mostly about reducing and eliminating the likelihood or consequences of a hazard or both. In this phase, there is not yet an actual threat of a natural hazard. It aims to treat the hazard such that it will have less impact on society (Coppola, 2011). For the Caribbean islands, this is done by the responsible ministries from the European Netherlands and the local public body. For the responsible ministries, this means that based on the laws and regulations, disaster management needs to be implemented on the islands. The islands, in turn, are responsible for the execution of their own disaster management plans. The mitigation phase is therefore mostly in the cold phase of a natural hazard and aims at increasing the resilience of the island. Also important in the mitigation phase is doing exercises and trainings so the employees working in disaster management know their tasks and responsibilities in case something happens. One example of a larger exercise is the yearly Hurricane Exercise (HUREX) in which government officials, fire departments, ambulance and police services and the marines jointly exercise a hurricane scenario (Interview 2, 2020). Throughout the year, several exercises are conducted and also include a warning exercise by the KNMI and the local governments (Interview 6, 2020). Such initiatives contribute to the intention to increase the islands resilience and reduces disaster risks.

In the preparation phase, it is known that a natural hazard is about to or threatens the island. For the Caribbean case, at this moment, the KNMI and NHC have alerted and informed the islands that a hazard is on its way. Preparedness is about equipping people who might be affected and relates to the physical preparations on the islands. To give an example: on Saba, such preparations are done by the Public Works department of the Public Body and includes putting up shutters, closure units and preventively close the harbor and airport. The people on the island are asked to prepare themselves and their property, e.g. by cleaning their land and storing all their belongings inside. The Public Works are mainly an executive part of the government in which hurricane preparedness is one of the main tasks. After a possible hit, the Public Works are also responsible for cleaning and restoring infrastructure. It is therefore an ongoing process for the Public Works department, as restoring might also include preparing for something new (Interview 18, 2020). Another example in the preparation phase for Saba is that the Public Body sends out WhatsApp messages to its inhabitants and include a warning from the Island Governor about what is about to happen.



This is one of the ways of Saba to inform the public in the domain of crisis communication (Interview 19b, 2020). Other examples on hurricane preparedness include the positioning of Dutch marines on Sint Maarten, even before Hurricane Irma would reach land. If a hurricane is threatening to hit one of the Dutch islands, the marines are pre-positioned on the island with communication tools (Interview 2, 2020).

In the response phase, the disaster strikes and possibly causes loss to life and damages the surroundings. In case of a hurricane threat, this is the moment in which the hurricane reaches the islands and when the storm is at its strongest. This is when immediate relief is offered by the medical services or the military. Once the storm has passed, employees from the Public Bodies will start the disaster response by help those in need and restore infrastructure (e.g. by cleaning roads) (Interview 18, 2020). One respondent points out that from a cultural perspective, inhabitants of St. Eustatius are keen to help the Public Body out. Once trees fell down during the storm Irma, local men got active and started cleaning the streets to make sure that emergency staff could pass freely. The volunteers on the island want to make a difference and contribute to the disaster response (Interview 17, 2020).

In the recovery phase, amongst many more tasks, a damage assessment is done and afterwards plans are made to return victim's lives to a normal state. It generally begins after the immediate response (Coppola, 2011). If needed, assistance can again be provided by the military. This is done in case a Public Body has asked for assistance requests through the Kingdom Representative. At this stage, after a disaster, all stakeholders are involved again to learn lessons from what happened. This is also the time when other administrative governmental actors such as inspectorates (e.g. of Justice and Security (I J&V) or Human Environment and Transport Inspectorate (ILT)) come into play. For example, the inspectorate Justice and Security test whether the disaster systems have functioned properly and what lessons are to be learnt (Interview 4, 2020). This has also been the case after the passage of Hurricane Irma, Jose and Maria for which the Inspectorate has set up a large overarching research on the functioning of the disaster management systems (Interview 4, 2020).

Additionally, in all phases of the disaster cycle, other stakeholders might be involved in disaster governance. These are often local initiatives, non-governmental stakeholders such as the Red Cross Dutch Caribbean or other private stakeholders who wish to contribute to reducing disaster risk and effects. The help of such actors seems to positively contribute to disaster management, as is also visible from the involvement of the Red Cross in the recovery processes on Sint Maarten after Hurricane Irma (Trouw, 2020).

The schematic on the following page presents a simplified overview of who is involved in the governmental administration of natural hazard and disaster management on the Caribbean islands, in the cold phase and hot phase of a disaster. It moreover presents the process of the WIT-CN and the summarized responsibilities of the governmental actors. It does not present all different connections throughout the occurrence of a hurricane, as these connections are very diverse and complicated to grasp in a visualization.

## ***Conclusion***

To conclude, the involved stakeholders in administrative governance are to be found on the islands themselves, represented by the Public Bodies. On the public bodies, diverse roles in crisis management are to be identified namely the island governor (or commissioner on St. Eustatius), the island secretaries and crisis coordinators. The link between the islands and the European Netherlands is the (deputy) Kingdom Representative, who is advised by crisis advisors. Then, the diverse Dutch ministries all have their responsibility, mainly the Ministry of the Interior and Kingdom Relations. For some of these ministries, 24/7 employees are involved and monitor notifications consistently. This is the case with the LOCC, the NCC and multiple DCC departments. Often seen as a last resort and able to assist with logistics and practical means is the Ministry of Defense (which also includes the Coast Guard). The information about upcoming weather events comes from another government stakeholder; the KNMI. At the KNMI, there are several people involved in disaster management, for example seismologists, volcano experts and meteorologists at the front office. These identified actors result in a complicated web of who is involved with what responsibility. Pre-researching the involved stakeholders made it easier to identify the respondents to answer the other sub-research questions on how cooperation is perceived by those involved. How this is perceived is answered next, through the fourth research question.

## COLD PHASE (NO THREAT)

### European Netherlands

- Ministry of the Interior and Kingdom Relations
- Ministry of Justice and Security
- All other ministries
- KNMI
- Inspectorates of the diverse ministries

### Are responsible for:

- Laws and regulation
- Preparation
- Disaster management plans
- Contact with the islands
- Interdepartmental work group CN
- Contact with CN

### Public Bodies of Bonaire, St. Eustatius and Saba

- Disaster preparations
- Exercises and training
- Contact with EU NL

## THREAT



Islands (public bodies)

Kingdom representative

DCC-IenW

### WIT-CN

- KNMI
- Defence CN
- DCC-BZK
- DCC-VWS
- LOCC
- NCC



## HOT PHASE (NATURAL HAZARD THREAT)

### Insular Policy Team

- Prepare the island for possible impact
- Communication to the public
- ESF structure

### Regional coordination level 3

- Emergency team
- Multi island coordination
- Assistance requests

### Informs

- Communication
- DCC-BZK
- DCC-BZ
- DCC-VWS
- DCC-EZK/LNV
- Defence
- NCC
- CZMCARIB
- Netherlands Representation on the CAS islands

### Abbreviations

BZK: Ministry of the Interior and Kingdom Relations

CAS: Curaçao, Aruba and Saint-Martin

CN: Caribbean Netherlands (BES islands)

CZMCARIB: Commander of Naval Forces for the Caribbean

DCC: department coordination crisiscenter

ESF: Emergency Support Functions

EU NL: European Netherlands

EZK/LNV: Ministry of Economic Affairs and Climate Policy and Ministry of Agriculture, Nature and Food Quality (together in one DCC)

LOCC: Landelijk Operationeel Coördinatie Centrum

NHC: National Hurricane Center (USA)

NCC: Nationaal Crisis Centrum

VWS: Ministry of Health, Welfare and Sport

## 5.4 The functioning of the administrative governance cooperation

This part delves deeper into how the modalities of cooperation between the identified governmental stakeholders is perceived by those involved. It does so by looking at a set of evaluation criteria set by the OECD DAC framework for evaluation (OECD DAC, 2019; see Box 3 on p. 21 above). The respondents have been asked about their perceptions on cooperation and what they perceive the state to be. Respondents have been asked to rank the criteria on a scale from one to five whereby an elaboration on their answer was asked to provide the reasoning and background for their answer. As such, the score of the criteria is not as important as no statistical analysis will be conducted; the focus is on the perceptions and motivation that the respondents added to their explanation.

### **Criterion 1: The relevance of cooperation**

According to the framework, the concept of relevance is to be defined as: *"The extent to which the intervention objectives and design respond to beneficiaries', global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change."* (OECD DAC, 2019). For this criterion, the respondents have been asked to scale how relevant they perceive cooperation between the public bodies and The Netherlands to be in the field of natural hazard and disaster management. The answers amongst the respondents shows unanimity: the relevance of cooperation within natural hazard and disaster management is perceived very high. This is mainly due to the size of the islands and the necessity to cooperate, as illustrated by Interviewee 9 (2020):

*"There are often the problems of a large country that the island authorities have to deal with, also in the domain of crisis and disaster management, but compared to the European Netherlands, the islands have the size of a small village."* (Interview 9, 2020).

The quote indicates that help is needed in the preparation phase, during the incident and in the aftermath of a natural disaster, as such, in all phases of the disaster cycle (Coppola, 2011). Only limited upscaling possibilities are available, help from outside is limited and replacement of staff is difficult to find. These are all challenges that need to be overcome the islands. As all the islands are small, they face the diverse set of challenges that have been previously mentioned under the umbrella term of *Small Island Development States* (SIDS) (Pelling and Uitto, 2001). It is argued that the three BES-islands as well as the three CAS-countries are characterized as SIDS (Interview 8, 2020). These SIDS challenges include that resources and means are scarce and that external assistance is always required in case something large happens. The three BES islands need each other just as they need the European Netherlands. According to interviewee 1 (2020), it is not just of the significance that the BES cooperates with The Netherlands, but they should also cooperate within the region. Another issue related to SIDS is the fact that many of the employees working within crisis and disaster management perform multiple roles. Not many of those involved are purely focused on disasters and crisis and must balance several responsibilities at the same time. Another issue added to this is the fact that such roles are only performed by one single actor on the island. And once a disaster has taken place, this actor might also privately be affected.

As one respondent puts it: *"People are dedicated to their roles and responsibilities in crisis and disaster management, but once you, your family or friends are negatively affected by the disaster, focus could shift away from work to private matters"* (Interview 2, 2020). Also, with regards to the future, SIDS seem to be disproportionately negatively impacted by global trends such as climate change, the rise of sea levels and the increase in hurricane intensity. It is therefore of the significance to invest in proper cooperation (Pelling and Uitto, 2001; Interview 8, 2020). Moreover, from a communicative and technical perspective, cooperation appears to be extra relevant. Without the communication about possible threats, the observatory methods and knowledge about natural hazards, the island authorities cannot properly prepare. The knowledge on meteorology and weather forecasts is done by the KNMI from the Netherlands. Without such observations, predictions about natural hazards cannot be made and the island authorities cannot be informed. This possibly results in bad preparation strategies and signifies the role of information management and information sharing between the Netherlands and the islands (Interview 6, 2020).

Often the example of Hurricane Irma is taken as an illustration of how relevant it appeared to be to cooperate in this domain. In the European Netherlands, once such an event happens, the Safety Regions around the affected area can easily join in the disaster response. According to interviewee 5 (2020), these mechanisms are not so easily defined for the BES islands. To illustrate, Hurricane Irma had a very large impact on Sint Maarten, resulting in transportation difficulties for Saba and St. Eustatius. If this damage would have been the case for Saba or St. Eustatius, it would have been completely different and the crisis would have been devastating (Interview 10, 2020). It is therefore argued by many respondents that Hurricane Irma has brought about many changes in perspectives and increased the relevance of jointly preparing for such worst-case scenarios. Because once it happens, the effects could be disruptive.

Initiatives are taken to tackle issues related to the small island problems, on various levels. First, local initiatives are brought to the fore to tackle the issue of staff replacement on for example Saba, where employees from other Public Body departments (e.g. the agricultural department; which is anyway not possible during a natural hazard) are asked to assist the Public Works department (Interview 18, 2020). Secondly, cooperation takes place within the BES islands themselves, for example within the fire departments who exchange employees from the different corps and train together (Interview 13, 2020: Interview 9, 2020). Such cooperation also takes place within a larger context, between the BES islands and the CAS countries. However, this brings about a complicating issue. For the island Bonaire, it is more useful to ask assistance from Curaçao or Aruba and the islands Saba and St. Eustatius benefit quicker from cooperation with Sint Maarten. This is related to the distance of the islands to each other, but there are different administrative governance relationships between these islands and counties. Therefore, the formal way to request assistance are more complicated (Interview 9, 2020). Cooperation between the Public Bodies and The Netherlands is mostly related to supporting with funds, means and goods. On the international level, regional intergovernmental cooperation takes place through CDEMA and with other countries in the Caribbean area (Interview 2, 2020).

## **Criterion 2: Efficiency of cooperation**

According to the evaluation framework, efficiency is to be defined as: *"The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way."* (OECD DAC, 2019). In relation to this criterion, the interviewees have been asked to scale how efficient they perceive cooperation between the Public Bodies and The Netherlands to be, again in the field of natural hazard and disaster management. Results from the interviews show that in general cooperation is perceived efficient, but that there is room for improvement. Several arguments have been brought to the fore that reduces the efficiency.

One of the main issues related to efficiency is the distance between those cooperating. It is generally easier to cooperate with someone who is close to you so misunderstandings can be avoided more easily (Interview 1, 2020). As is the case in any crisis, but especially when participants are thousands of kilometres apart from each other and must deal with 5-6 hrs of time difference, is that communication remains difficult. This thus poses an extra challenge to efficiency (Interview 8, 2020). On an interdepartmental level in The Hague, the several involved ministries are cooperating in a workgroup to investigate the roles, tasks and responsibilities of each of the ministries. By clarifying such roles, tasks and responsibilities, the efficiency might be increased (Interview 2, 2020). However, there is also another side to this coin. There are multiple structures and many incentives taken to contribute to disaster management. These multiple cooperation structures do therefore not make it any easier to keep the overview (Interview 2, 2020). As one respondent puts it nicely: *"Many great initiatives are taken within crisis management and disaster response, but who has the overall image and knows the complete picture?"* (Interview 9, 2020). On these grounds it is argued that all these plans should be looked at critically and possibly be replaced by less plans but increase the quality of those that are still left. To reduce the quantity, but increase the quality (Interview 10, 2020). Related to planning and writing handbooks is the fact that writing something on paper seems an easy task which is also done properly in the Netherlands. But the challenge that it brings about is to check those plans, train with stakeholders and exercise scenarios (Interview 2, 2020). One example of such an exercise scenario is the yearly HUREX exercise in which a hurricane scenario is exercised. It used to be an exercise conducted by the marines and defence forces, but it has expanded and included more stakeholders. In the year 2021, the HUREX will include the diverse set of ministries as well as the Public Bodies, fire departments and other stakeholders (Interview 13, 2020; Interview 2, 2020). Many of the respondents are dedicated to the HUREX and are keen on finding out whether it works well and learn from its outcome (Interview 2, 2020; Interview 8, 2020; Interview 17, 2020).

Again, experiences from Hurricane Irma also showed that the response was not conducted in the most efficient way and that improvements are possible (Interview 2, 2020; Interview 4, 2020). For example, it is argued that processes started only after Irma had passed, thereby losing very valuable time. Only after a few days, efficiency increased and the response got going (Interview 2, 2020).

In relation to Hurricane Irma the following example is given by one respondent: a few days before Irma would hit the islands, a Weather Impact Team (WIT) had been organized share information about the forecasts and what to expect, including the Dutch ministries and the Public Bodies. Saba and St. Eustatius participated in the conference but Bonaire was omitted because Irma would not cause any damage on the Leeward Islands. One complication that arose during the WIT was the fact that the WIT was conducted in the Dutch language. This appeared not a problem for Saba, as there were Dutch-speaking employees present. However, on St. Eustatius, the employees did not speak Dutch and were therefore left in the dark on what was going on during the conversation. Translations were shared though, but it did pose an extra challenge to the participants (Interview 8, 2020). This example shows that throughout the process of conducting a WIT, language also possibly poses a challenge to efficient cooperation.

A number of respondents observed that there are also differences amongst the three islands in terms of disaster governance and that these differences are significant (Interview 6, 2020; Interview 5, 2020; Interview 8, 2020). For example, it is argued that on St. Eustatius the situation is even more complex because of the placement of two commissioners from the Netherlands, thereby replacing the local authorities (Interview 7, 2020). The respondents highlighted more complications that reduce efficiency:

- The political situation and chosen model for the BES and the CAS islands in relation to geography. This argument has been made before and includes the geographical distance between the BES islands and the CAS countries. More efficient support could be provided between the ABC islands (the Leeward Antilles) and the SSS islands (Windward Islands) (Interview 1, 2020).
- The multi-island coordination is problematic, especially because of the distance (Interview 5, 2020). In this regard, the functioning of the Kingdom Representative is also under discussion (Interview 19, 2020).
- The point has been made that once an island has other difficulties that they have to deal with on a daily basis, that the domain of disaster management and natural hazards seem to be less important than other more urgent and pressing issues. It is argued that this is the case for St. Eustatius and is again related to the complex political situation on the island (Interview 6, 2020).

On a positive note, suggestions have been made to improve the efficiency. However, a downside of this relates to what has been mentioned about reducing the number of plans and initiatives and to focus more on the quality. This therefore needs alignment. Another way to increase the efficiency is through introducing the web-based platform LCMS, initialized by the island Saba. LCMS is the *Landelijk Crisismanagement Systeem* and is used in The Netherlands as a means of sharing information during a crisis and is part of what is called *netcentrisch werken*. It is system used by the twenty-five Safety Regions to share information in case an incident overarches one Safety Region.

As of this year, a pilot-project has started to use the system on the BES islands, and possibly include the CAS countries in a later stage. According to one respondent: *"From the perspective of equivalence, the system of LCMS is a great way to get each other on the same page, especially when you are 9000km away from each other, then the stakes are even higher. It is therefore a huge increase in efficiency if the system is implemented"*. (Interview 19, 2020).



### **Criterion 3: Effectivity of cooperation**

The third criterion in the evaluation framework, effectiveness, is to be defined as *"The extent to which the intervention achieved, or is expected to achieve its objectives, and its results, including any differential results across groups."* (OECD DAC, 2019). Again, the respondents have been asked to scale how effective they perceive cooperation to be between the Public Bodies and The Netherlands in the field of natural hazard and disaster management. Results from this question show that in many cases in general the goals are met, but at times with a detour and at times on specific terms. Once more, the setting in which cooperation takes place causes many extra complicating factors (Interview 8, 2020). Cooperation is effective in a sense that all sorts of initiatives are taken and in the end, everyone wants the same outcomes (Interview 10, 2020).

One of the ways in which the government in The Hague support crisis management and disaster preparations on the islands is through funds made available by the responsible (*stelselverantwoordelijke*) Ministry of Justice and Security. These funds are given to the islands on a yearly basis and are to be spent within the domain of crisis management. How the islands allocate the funds is their decision to make. In relation to effectiveness, it is argued that setting no terms on how to allocate the funds could contribute to ineffectiveness. On the one hand, it is argued that it would be more effective to look into what is needed and then support in that domain, instead of "just" handing over funds, as funds are not always the only way to increase effectivity (Interview 1, 2020). However, on the other hand, it is argued that *"by only presenting the painting framework, the painter can still decide for themselves what to paint"*, hereby leaving space for flexibility and adjustment whenever necessary (Interview 19b, 2020). Arguments can be made for both sides of the spectrum, but respondents agreed that with regards to this matter, effectivity could be increased.

Since many eyes were opened to the necessity of having disaster plans in place, after Hurricane Irma hit Sint Maarten, a lot has happened and improved in the modalities of cooperation. It became clear that cooperation is necessary, as the islands would not be able to cope on their own in case of a large natural hazard. All these developments and changes have been or are still being implemented. Thus, it is argued that to find out whether these have been effective, a new crisis needs to occur. In a crisis or disaster, nothing will be perfect, but it is always possible to compare to previous experiences and find out whether changes have been successful (Interview 1, 2020). As interviewee 3 (2020) puts it, the fact that there is cooperation at all in itself is already effective (Interview 3, 2020). Hurricane Irma also shed a light on the importance of having a single point of contact that is familiar with the islands. In case an event occurs and information is shared from the islands to The Hague, the employees of e.g. the National Crisis Centre (NCC), need to have knowledge about the local circumstances and context. For example, about the several oil storage and shipment companies on the islands (NuStar, BOPEC) that have special environmental laws and regulation to take into consideration. Such examples shed light on the fact that it is important that mutual understanding of each other's context exists (Interview 17, 2020).

Furthermore, in relation to Hurricane Irma, the point is made that there is a difference in efficiency in the operational response and political response. As reported by one of the respondents, the operational response of the police, fire brigade and emergency services went well and made agreements before the hurricane would hit. This opposed to the political response, in which it appeared difficult for the Public Bodies to cooperate with the European Netherlands (Interview 13, 2020).

With reference to laws and regulation, the situation and implemented regulation on the BES islands have been based on laws and regulation from the European Netherlands and the question that arose is whether this was the best decision to take (Interview 4, 2020). This results in the discussion and evaluation of the Veiligheidswet BES, which is under evaluation in the year 2021 (Interview 5, 2020). The argument is made that aspects of the Veiligheidswet BES do not completely fit the circumstances on the BES islands and that it was too much based on the situation in European Netherlands (Interview 4, 2020). One of the main points of attention is the position of the Kingdom Representative, which will be discussed later on. Lastly, in relation to effectivity and the observation of natural hazards, the point is made that only weather observations and cooperation in this regard is effective once the forecasts are acted upon. In the end, it would increase effectivity once weather warnings and storm watches are taken seriously and immediate action undertaken (Interview 6, 2020). This also relates to the effectivity in relation to doing exercises and training together. According to one of the respondents, if taken into consideration the amount of time and budget invested, cooperation can be seen as effective. Hurdles have to be overcome, for example in the domain of communication. On the islands, Facebook is a medium that is used a lot to inform the island inhabitants. However, for example the KNMI, does not use Facebook for communication in relation to weather. The question arose of how effective the weather messages from KNMI were, but this increased by publishing these on Facebook. Effectivity is to be increased by such cooperation agreements (Interview 7, 2020).

#### **Criterion 4: Impact of cooperation**

The fourth criterion from the OECD DAC (2019) framework has to do with impact and can be defined as: *"The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects."* As with the other criteria, the respondents have been asked to rank the impact on a scale. The results show that opinions on the impact differ and range from being "too low" to high in natural hazard and disaster management.

One main aspect that reoccurred during various interviews is the factor "moment in time". After a crisis, for example in this case during the aftermath of Hurricane Irma, the impact of cooperation appears to be high. In case it takes many years again for a natural hazard to happen, the attention for natural hazard and disaster management decreases and therefore results in little impact (Interview 1, 2020). Before Hurricane Irma, the general tendency was that *"nothing ever happens"* on the islands and according to Interviewee 1 (2020) it felt like the Elfstedentocht (Eleven cities ice-skating tour, an almost mythical national event in the Netherlands), which everyone anticipated but would not happen. In fact, when looking at the statistics, this also appeared to be the case as natural hazards are relatively scarce for the BES islands. But now that Hurricane Irma and the consequent storms Jose and Maria have damaged the islands, it is not possible to state that *nothing ever happens*. Now it seems self-evident that natural hazards can happen and preparations are deemed necessary (Interview 4, 2020).

On the one hand, respondents argue that the impact is too low and that those cooperating *are not there yet*, leaving room for improvement (Interview 17, 2020). Amongst others, this has to do with the fact that it is not possible to invent something today, which is mostly done from the Netherlands, and implement it on the islands tomorrow. It takes time to gain trust and mutual understanding and implement changes. Even though the process takes time, the point is made that this seems to increase (Interview 6, 2020). Numerous initiatives are undertaken on both sides of the ocean and many people are involved. This however seems to reduce the possible impact, as there is a lack of safeguarding in policies, guidelines and laws, resulting in a lack of incentives to really put agreements on paper (Interview 3, 2020). Interviewee 3 (2020) used a carpenter's toolbox as a metaphor for the possibilities for Caribbean people:

*The toolbox [used to invest in the modalities of cooperation] that the people on the Caribbean islands have differs from those available in The Netherlands. Once the Caribbean toolbox is open, only a few tools are available. Investments must be done to add instruments and to exchange broken hammers for repaired ones, and add in screwdrivers, pincers and saws. But not only invest in material tools and hard skills. Once these tools are available, what to do when the right skillset is not present? Also invest in soft and social skills. You need to know how to use the tools from the toolbox. One of the items in the toolbox should be safeguarding laws and regulation. Better legislation is needed to invest in the toolbox and know how to use the tools."* (Interview 3, 2020).

According to the same respondent, the impact of cooperation could be increased by looking at the tools available in the toolbox and thereafter invest in the right set of tools (Interview 3, 2020).

On the other hand, respondents nonetheless argue that the impact is already high or very high, mainly because of the fact that there is cooperation, as opposed to not cooperating at all (Interview 2, 2020). Bringing people together in conversations, meetings and other ways of communicating already impacts cooperation, even though there is a large geographical distance separating the involved people (Interview 10, 2020). Without cooperation in natural hazard and disaster management, the small islands would be on their own. Once every stakeholder remains in their own bubble, it has no impact. Once out of their bubble, dynamics and synergy develops. Even possible contradictory stakes are put aside and overcome in the case of a hurricane passage (Interview 2, 2020). At the moment, the investments made on cooperation start to show results and increases (Interview 9, 2020). Some respondents take this further and argue that the impact is already at a high stake. However, that does not mean that cooperation can stop. To continue the impact, both the islands as well as European Netherlands have to remain active and keep cooperating. This to keep the impact high, because without the European Netherlands, fewer funds would be invested, resulting in a low impact. The better the modalities of cooperation, the better the impact (Interview 4, 2020). The impact is mostly to be found in making use of the available knowledge, expertise and funds from the Netherlands. Already a lot of impact can be made in the cold phase by using the available options from within the Kingdom, impact can be increased. These are the assets the Public Bodies have (Interview 8, 2020)

### **Criterion 5: Sustainability of cooperation**

The fifth and last criterion from the framework is about the sustainability of cooperation. This involves *"the extent to which the net benefits of the intervention continue or are likely to continue"* (OECD DAC, 2019). To clarify the statement, an addition was given which stated that it is about whether the corporation is built to last, in changing circumstances and whether it was something happening just now or also in the future. Corresponding to the other criteria, the participants were asked to rank their score in relation to natural hazard and disaster management. Results from this criterion show that in general, the opinion is shared that cooperation is sustainable. Little steps are taken at the time to improve (Interview 5, 2020), but it is also perceived vulnerable, as the structures are not completely known and integrated, which makes it dependent on those who are now involved in the domain (Interview 9, 2020).

A number of respondents answered the question in a sense that much of the sustainability depends on the persons that are involved in natural hazard and disaster management (Interview 16, 2020). Interviewee 1 (2020) points out that many of the relationships that have been built so far, are person-dependent. Those who have experienced Irma and lived through the consequences, are familiar with each other and now motivated to make it work. Once staff is replaced, it is hard to transfer the knowledge that has been built up to new people, therefore it is difficult to achieve sustainability. If it is just the transfer of one person, that would be easier to overcome. Recently, three employees that perform a role in crisis management on St. Eustatius have been replaced. According to interviewee 6 (2020), this must cause some complications. According to interviewee 7 (2020), repeatedly explaining what the roles are and what to do is difficult. It is difficult to build sustainable relationships while at the same time changes are occurring often (Interview 7, 2020). The importance of those involved is once again emphasized by interviewee 8 (2020), who is of the opinion that sustainability depends on who is involved, what appointments and agreements have been made, whether these agreements are transferred once people are replaced and whether it is possible to perform capacity building and knowledge transfer. A difference exists in this regard between the Caribbean islands and the Netherlands in which the reality of the islands is that in case of a crisis, before, during and after, the amount of available people to choose from or to appeal on, is simply much smaller in the European Netherlands (Interview 8, 2020).

The sustainability criteria also relate to what has been said in the previous criteria on the momentum, that it is to be understood as a wave motion, at times weakening and strengthening again. As interviewee 2 (2020) puts it:

*"If we have trained a lot together and practiced scenarios, we know how and where to find each other, resulting in a well-functioning cooperation. However, if it takes another ten years for a natural hazard to hit the islands, all procedures and agreements might be covered in dust and could be outdated. Now the memories of Irma are still fresh in our minds, which results in people in places that know each other and have shared experiences. We should make sure to hold on to this and keep procedures and plans updated."*

For a respondent from the Netherlands, there is also an ethical and moral point of attention to cooperation. As interviewee 3 (2020) puts it:

*"I think cooperation is as sustainable as we want it to be. Do I do this work because I need to have a job? Or, do I do this job because I find it worth leaving my bed for in the morning? This question is a question that everyone should ask themselves. Once you realize that it is just a job, go find another one".*

At the moment, the large part of those involved are genuinely interested in doing well and pushing cooperation forward in the right direction. Nevertheless, some of those involved might be equipped with a smaller *toolbox* than others, or with a toolbox that has little content (Interview 3, 2020).

Taken in a wider context, the sustainability is also related to the discussion on the positions of the islands within the Kingdom of the Netherlands. It is argued that there is difference amongst the three BES islands on the wished degree of integration to The Netherlands. Some of the islands are more in favor of strengthening ties with the European Netherlands, whereas other islands tend to be more holding back and wishing to gain more independence (Interview 4, 2020). Again, the discussion on this geographical and political division came to the fore. In case one of the CAS-countries gets hit by a natural hazard, one of the BES islands could be hit too, resulting in the fact that there will always be cooperation between the islands. However, it is not certain whether the position of the islands will remain like this in the future. Interviewee 4 (2020) drew attention to the discussion that it could be more beneficial for the islands to divide differently, for example as ABC-islands (Aruba, Bonaire and Curaçao, as Leeward islands) and SSS-islands (Sint Maarten, Saba and St. Eustatius, as Windward Islands). To conclude, whether the modalities of cooperation are sustainable and are built to last, is only to be seen within the future (Interview 2, 2020). Only time will tell whether these internal disaster management structures are robust enough to overcome times of no threats, and within the larger discussion of politics on the integration of the six Caribbean islands in the Kingdom of the Netherlands.

### ***To conclude: the criteria taken together***

Whilst conducting the interviews it appeared to be difficult to separate the five criteria completely, thereby causing some overlap between arguments made for certain criteria. Some arguments that have been brought to the fore are also applicable for other criteria. For example, arguments mentioned under the criteria of efficiency, also impact effectivity and sustainability of cooperation.

One of the topics mentioned in relation to multiple of the criteria, has been the position of the Kingdom Representative in natural hazard and disaster management. As explained before, the Kingdom Representative serves as the eyes and the ears for the Netherlands and connects the islands to the European Netherlands with a hawk-eyes view (Rijksdienst CN, 2019c; Interview 10, 2020). Nonetheless, the way this has been intended did work for some time, but as of the year 2018, there has been a deputy Kingdom Representative and the process is still ongoing to appoint a new one. Whether this is going to happen is still uncertain, because of the discussion about the functioning and likely depends on the outcome of the evaluation of the Veiligheidswet BES (Interview 4, 2020). The Kingdom Representative has an important role in the domain of crisis management, as his legal tasks are written in the Veiligheidswet BES (Interview 12, 2020). Compared to the European Netherlands, these tasks are performed by the Safety Region. However, this does work in the European Netherlands but does not function well on the islands. The Kingdom Representative misses certain authorizations, resulting in what interviewee 4 (2020) describes as *a general without his army, who is formal in the lead but does not have the possibilities*. Opinions about the Kingdom Representative differ within the several ministries as well as the islands who are not unanimous on the topic. The ministries differ on the opinion on whether the function can be completely omitted or not. Some argue that one coordination point for the six islands is useful to keep an overview (Interview 5, 2020). Whereas others argue that the Kingdom Representative is not necessary, on the terms that the tasks are transferred properly. However this is where a problem starts to pop up, according to respondent 10 (2020), it is not possible to transfer most of the tasks to the Public Bodies, as it would result in a situation in which *a butcher inspects his own meat*. As long as the departments in The Hague are not consistent in how to deal with the function of the Kingdom Representative, cooperation is not helped in the right direction and reduces the effectivity (Interview 5, 2020). On the islands, the Kingdom Representative is also thought of differently. In relation to Hurricane Irma and storms Jose and Maria, it became evident that some of the islands had direct contact with the European Netherlands and not through the Kingdom Representative (Interview 13, 2020). Taken even further, it is argued that the Kingdom Representative is deemed unnecessary and even causing more complications.

*"We do not see the added value of the Kingdom Representative. We think we do well, as on a daily basis we are already in good contact with the ministries. Furthermore, those in The Hague are happy to be informed firsthand. To include an extra link, the Kingdom Representative, would not help the equivalence of information sharing. In this quick [fast-moving] world, in which it is extremely important that information is shared rapidly, this would not be efficient. We are always looking for the most efficient way to perform crisis management, then why include an extra link if we are already in touch with the one needed in the end? That is unnatural."* (Interview 19a, 2020).

Again, only time will tell whether the discussion about the Kingdom Representative will be solved anytime in the near future. The Inspectorate of Justice and Security will be conducting an evaluation of the Veiligheidswet BES in 2021, in which the position of the Kingdom Representative will be included and critically looked upon (Interview 5, 2020).



## 5.5 The functioning of the disaster response

In this part, an elaboration is given on how cooperation is perceived, as analyzed through the complications by Moynihan (2009), as firstly mentioned in the chapter 2.1 theoretical framework. These statements shed a light on diversity in collaboration processes, hierarchy and power relations and lastly about positive working relations. Regarding these three statements, the respondents have been asked about their perceptions and opinions on these statements. The researcher elaborated on the statements by mentioning that it was not about whether they agreed with the statements or not, but that their reasoning and motivation were of the essence. Together with the outcomes of the five OECD DAC (2019) criteria under Section 5.4, in the conclusion an answer is formulated to the fourth sub-research question on to what extent the cooperative governance relation between the administrative governance stakeholders involved in natural hazard and disaster management is effective in a sense that it stimulates disaster risk reduction.

### ***Diversity in disaster response***

As argued by Moynihan (2009), network settings such as administrative governance cooperation deal with a number of complications. One of these is the number and diversity of organisations and agents involved in disaster response. In case natural hazards evolve into larger events, such as Hurricane Irma has proven to be for Sint Maarten, an increase in capacity is required. Resulting in a larger and more diverse set of responders (Moynihan, 2009). As such, in relation to the administrative governance cooperation between the BES islands and the European Netherlands, the interviewees have been asked to respond to the statement: *In the modalities of cooperation between the Public Bodies and European Netherlands, the diversity of stakeholders influences disaster response*. This was clarified by using the terms background, culture, perceptions and having a shared vision and goal.

In general, two strands of reactions emerged on the statement. On the one hand, respondents who argued that diversity could cause difficulties and setbacks in disaster response. On the other hand, those respondents who argue that diversity is not problematic in disaster response. First, those who argue that diversity hinders disaster response are of the opinion that this is something that is probably not possible to prevent completely, as interviewee 1 (2020) argues. To a certain degree, diversity will always hinder cooperation to some degree, caused by a multiplicity of factors: cultural differences, geography, distance and time differences (Interview 2, 2020). Once a disaster or crisis occurs, the diversity of those involved causes confusion of who is the right person to call, resulting in the fact that someone is contacted that might not be the one to contact, but happens to be the one you think is the one to help (Interview 1, 2020). Another point of attention that hinders cooperation in relation to diversity, is the fact that the used language is never completely similar. Interviewee 6 (2020) argues that of course Dutch or English is used, but it also relates to content specific language and jargon. In relation to natural hazards and threats, this makes sense, according to interviewee 6 (2020).

People who have never been thought to think in technical terms about natural hazards, cannot be blamed for not understanding or completely grasping the technical information. A scientist, it is therefore extra important to be able to translate the science to information that the citizens from the islands do understand (Interviewee 6, 2020). This example of technical understanding of job specific tasks is also the case for the fire departments. Too much diversity in cooperation does probably not help, in case fire fighters from one island are to help on another island, it is important that they do know how these systems function and that they can understand these procedures. In the case of the fire fighters, it is possible to overcome such language differences, by training and practicing together (Interview 9, 2020). Lastly, interviewee 13 (2020) makes the point for: *"the smaller the team the better"*, as with an increase in participants, cooperation tends to get more difficult. This is also in line with Moynihan's (2009) argument.

On the other hand, respondents argue that diversity does not have to be a complicating factor in disaster response and can even strengthen cooperation. Interviewee 8 (2020) explains that diversity does play a role in disaster response but that it does not have to be negative. A local example from Saba demonstrates that once storm Dorian (in 2019) reached the island, the local fishermen already geared up and knew what would happen. The diversity of including locals and listening to their experience resulted in proper planning and preparation (Interview 8, 2020). In addition, diversity can help in certain tasks in disaster response. Interviewee 9 (2020) demonstrates that in cases in which local citizens are in need of shelter or in relation to law enforcement, diversity helps in case local languages are spoken and people know each other. Lastly, as pleaded by interviewee 3 (2020), diversity can even be seen as a force multiplier, strengthening disaster response. However, everyone in the discussion should be on equal terms and have equal strength in the dialogue (Interview 3, 2020).

In between the two extremes is the argument that it is not per se diversity that influences disaster response, rather the distance between the BES islands and the European Netherlands. Interviewee 4 (2020) explains that the first response phase, on the islands, functions well. Rather, once the incident starts to increase in size and extent, the Netherlands seems suddenly very far away. As stated by interviewee 4 (2020):

*"Mainly in the field of information management this causes hindrance to the disaster response. Information management is anyway, also in the Netherlands, problematic and difficult. How to get relevant information, at the right time, with the right people? That is very difficult. Also, in the Netherlands this is struggled with a lot. And on the BES islands, I think this is even worse. The distance, the time difference... I don't think that diversity make disaster response difficult, I am of the opinion that especially the distance and time difference complicate it even further".*

In the clarification of the statement, which included background and culture, the cultural aspect triggered many different responses from the respondents. It is argued that at times, the relationship between some of the islands and the Netherlands can be tense. This however varies between islands (Interview 1, 2020). Mainly discussed by the respondents is the so-called *Dutch glasses* or European perspective. The way people work with each other in the European Netherlands differs from the way people work with each other on the Caribbean islands. People from the Netherlands can be rather directive, keep fast paces and keep pressure on cooperation and this differs from the way it works on the islands. Using these same methods in the Caribbean does not work the way it does in the Netherlands (Interview 2, 2020; Interview 7, 2020). Being successful in the Caribbean Netherlands, involves looking into local circumstances, customs and traditions. According to interviewee 3 (2020), from the Netherlands, employees tend to use the western perspective on development and cooperation:

*"That is not possible, we cannot do that. We must take socio-cultural aspects of the region into consideration, take the history into consideration. We basically have to be half of an anthropologist to properly estimate what the situation on the other side of the world is like, to make the proper connection. However, we do not do this because of bad intentions. Because of our genuine involvement and good intentions, we have this drive and urge to make the situation better. However, the pitfall is that we continuously have to look into our responsibility and where our responsibility ends. At times, we have to look at ourselves and stop for a moment – where are we at, what am I doing and for whom?"*.

This quote sheds light on the fact that awareness of cultural differences is important in the context of natural hazard and disaster management. An additional example is given by interviewee 6 (2020), who demonstrates that there are differences in dealing with appointments and times. In the Netherlands, people are very punctual, whereas on the islands there is more of an island mentality, leaving open more possibilities (Interview 6, 2020). Interviewee 7 (2020) argues that diversity causes complications for disaster response in a sense that because every person is different, situations are differently experienced. From this differentiation in experience, it is also acted upon differently, but with the same goal in mind. As this respondent puts it:

*"In the Netherlands we know very well, or think to know very well, how to deal with something that went wrong. However, what we do in the Netherlands cannot be projected on the islands. Everything, from infrastructure to well-being... it is different on the islands. So, it is needed to look from both sides to match and adjust. Yet, the problem is, during a disaster, direct actions must be taken."* (Interview 7, 2020).

These differences do not have to pose a problem if you know each other for longer and deal with it respectfully. However, as The Netherlands, we need to keep an eye out for this within the larger Kingdom of the Netherlands, to not disrespect other people (Interview 2, 2020). On a positive note, interviewee 6 (2020) concludes that once known how to work with the Caribbean culture, there are also beneficial aspects to be discovered, such as the ability to do many things on an ad hoc basis (Interview 6, 2020). Likewise, interviewee 5 (2020) draws attention to the fact that the Netherlands should make use of the local culture and knowledge:

*"The locals know more about natural hazards than we do. They have great shelters, know that they should stock up on drinking water. Once it is known that a storm is reaching the islands, the inhabitants completely know what to do. They are completely prepared and do this better than we would."*

Once more on a positive note, respondents brought to the fore that within the domain of crisis management and disaster response, differences are put aside and *people step up their game* when needed. *"If something really happens on the island, it does not matter whether you belong to the Makamba [witte Nederlanders] culture or whether you are local, together we make sure that the island recover and get up and running again"* (Interview 1, 2020). In addition, in the wider context, interviewees 12 (2020) make the point that once one of the Dutch Caribbean islands get hit by a natural disaster, it does not matter whether it is one of the BES islands or one of the CAS countries, help and assistance is always given (Interview 12, 2020). Another tool in overcoming diversity, is making use of the differences in languages. In interview 19 (2020), it was claimed that there is a difference between the *Dutch language* and the *island language*, but that they are very well capable of speaking both languages:

*"If we know that we need to have contact with The Netherlands, we are forced to talk in that way. And that is something we do effortless; the island has been doing that for a very long time. Such differences are therefore not a problem to us, you just have to know that they exist."*

### ***Hierarchy and power relations in disaster response***

Further, argued by Moynihan (2009), another difficulty related to administrative governance cooperation is the emergent nature of crisis response and including new members, causing issues with shared authority. Underlying assumptions about equality amongst members are not always valid. Any stakeholder involved in cooperation should negotiate terms and establish legitimacy to perform any role (Moynihan, 2009). In this regard, the interviewees have been asked to respond to the statement: *In the modalities of cooperation between the Public Bodies and European Netherlands, hierarchy and power relations influence disaster response.* In case clarification was needed, the respondents were asked whether any form of hierarchy or power relations were present, and if so, whether this simplified or complicated disaster response processes.

Respondents explained that many of the hierarchy and power relations have to do with the Veiligheidswet BES, and that it is just part of the game. Several ties and agreements have been made, that is a fact (Interview 2, 2020). Par example, in case the ministry of Justice and Security or the Kingdom Representative requires the Public Body to do a certain task or write a certain paper, this is what they have to do, as written in the Veiligheidswet BES (Interview 1, 2020). Other examples include having to listen to the gezaghebber or island commissioner as the ultimate responsible for the island, or in case the Ministerial Crisis Management Committee (MCCB) decides on certain measures or assistance, this is not under discussion (Interview 5, 2020). Lastly, in case the gezaghebber or island commissioner requests assistance, this is always to be done through the Kingdom Representative who requests the involved minister for assistance (Interview 17, 2020). Interviewee 9 (2020) advocates for structure and hierarchy to help disaster response processes and that a clear structure, amongst which a hierarchy is part of, helps in the response phase:

*"Hierarchy is often seen as a dirty word, especially by people from The Netherlands, as they find it difficult to work with clear tasks. But I believe that in crisis management and disaster response, it only helps. As the challenges faced are very diverse and many stakeholders involved, who are on a daily basis not often working together, have to jointly perform the same tasks."*

This is supported by interviewee 17 (2020), who also implies that hierarchy is particularly important in times of crisis:

*"You don't want to hear all kinds of different stories from different perspectives. It needs to be short, in one line, unambiguous and only about the facts. It should not be based on "hear say" but on the facts. And based on these facts, decisions on upscaling for assistance can be made."*

In addition, interviewee 19 (2020) argues that hierarchy and power relations are needed for disaster response and a condition for proper disaster response. As the respondent puts it:

*"I like hierarchy and power; you have to know when and how to escalate in certain situations. Some people think escalation is dirty, but I love it. You have to make use of it, of the different layers in the decision-making processes. You must carefully deal with it; this helps disaster response tremendously. You have to neatly follow the line of hierarchy, up to the top – this is very important."*

Hierarchy and power relations are also to be seen as something functional in cooperation. For example, in relation to assistance requests to a minister, in the end it is always the same way in which this request is to be dealt with, therefore it is functional. But in these discussions and possible blurry dialogues, *dialogue is always amongst each other, and not about each other* (Interview 19b, 2020). Moreover, respondent 19a (2020) is of the opinion that people on the island should not forget the luxurious position they are actually in. As compared to a municipality in the Netherlands, those in the Netherlands have to fight very hard for anything with the Dutch Ministries, whereas it is relatively easy for the islands to get things done. In relation to this, it is part of the game for the islands to present insight into where money is spent and how (Interview 19a, 2020).

Interviewee 2 (2020) states that ideally, disaster response should not be complicated by the presence of hierarchy or power relations, but whether it is the case in reality is hard to decide. Whether it is also perceived that way on the islands is uncertain to interviewee 2 (2020):

*"It is an interesting question, because we are the big Netherlands compared to the small island authorities. I don't think that from The Hague we have the intention to be the big guy watching over the small guy's shoulder, but I don't know how this is perceived on the islands."*

This feeling of watching over one's shoulder has been pointed out by multiple respondents. The question remains whether accepting rules and regulations from the Netherlands is problematic or not. For some, it is argued that traditionally and historically this is perceived problematic. The interference of the Dutch is not always wished for, and the islands are keen on keeping up their appearance until it is very hard to not ask for assistance, as a last resort. Since the islands are proud of who they are and are therefore reluctant in asking the Dutch to help (Interview 7, 2020). Some respondents argue that even though there should be equality amongst those, it is argued that in the end, The Hague makes the decisions, because that is where the money and funds are (Interview 8, 2020; Interview 10). It is also possible to turn this argument around, by inviting the Dutch to see the local reality and show to those with their own eyes what they make policy for and how this influences life on the islands, resulting in mutual understanding (Interview 10, 2020).

Mutual understanding of the situation and each other's context is also significant to interviewee 3 (2020), who claims that with regards to power differences and hierarchy it is always possible to find common ground again to move forward with. Interviewee 3 (2020) states:

*"If the two of us clash in our dialogue, let us find out why this happens, perhaps we clash because we believe the same and have the same beliefs and values but from a different perspective. We both value respect and that possibly causes us to clash, let us then find common ground again and get moving forward, together."*

Some issues regarding power relations and hierarchy also related to the position of the Kingdom Representative. According to Interviewee 4 (2020), there are at times tension and power differences between the Kingdom Representative and the *gezaghebber* or island commissioners. This mainly became evident during Hurricane Irma, in which contact between the islands and The Hague did not always go through the Kingdom Representative, but directly to the Netherlands and thereby passing the Kingdom Representative. Hence, the position of the Kingdom Representative deals at time with the power relations and difficulties. This mainly is because of the authorization of the Kingdom representative, compared to similar functions in the European Netherlands. As such, the Kingdom Representative is again the *general without his army* and cannot properly perform his tasks. The way these functions in the Netherlands, does not function on the BES island (Interview 4, 2020).

### **Positive working relationships and trust in disaster response**

Lastly, Moynihan (2009), argues that the final issue related to network governance deals with working relationships and trust. According to Brass et al. (2004) in Moynihan (2009), trust is a key mechanism to foster coordination. Thus, a consistent group of responders allow for mutual familiarity and trust, it is not possible to create trust once the crisis occurs but should already be present before a crisis happens (Moynihan, 2009). Thus, the last statement presented to the respondents: *In the modalities of cooperation between the Public Bodies and European Netherlands, positive working relationships and trust influence disaster response*. Clarification was given by elaborating on cold phase working relationships and trust during the process of corporation.

As an answer to this statement, quotes by the respondents are the best way to show the significance of working relationships and trust and grasp the essence of how participants responded. The quotes all have in common that the respondents very much value the positive working relationships and trust in natural hazard and disaster management between the European Netherlands and the BES islands.

- *"If you get to know each other, this only has positive effects. I know, within our organization, regularly trips are undertaken to visit each other. That has a positive effect. If you know each other and know the problems they have to deal with, that really helps understanding. If you organize the cold phase well, this will only provide benefits in the hot phase. I believe that the islands trust us, as something really big happens, that the Netherlands are there for them. To help, to support. I also believe that we have proven this in the past. I believe that they trust in their big brother to provide support. In the Caribbean region, everyone is connected to each other. This has also been the case with Hurricane Irma, it did not just hit Sint Maarten, but also Saba and St. Eustatius had to deal with consequences. Even though less extreme, they were still hit. And in this case, it did not matter to which part of the Kingdom you belonged – help was available. In times of crisis, such barriers are softened."* (Interview 2, 2020).
- *"Yes, trust and positive working relationships are the most important of all. As well as long-lasting relationships. There is still the idea of the white man who passes by... generation after generation, white passengers have come to the islands and continuously told them what to do and then go back to their luxurious life in The Netherlands... This influences perceptions on the islands. So, you have to invest in the relationship, first and foremost. Therefore, I am of the opinion that those involved in such corporations, should do this because they have the experiences needed to build a sustainable relationship and make use of it. Thus, perhaps it is to say that making career in this field is not the end goal, but the end goal is to get out of the bed in the morning to do something important. You might have to be a bit of an idealist. It is all about investing in long-term relationships."* (Interview 3, 2020).



- "I believe this is always the case – it does not matter in what field. Cooperation without trust? I do not believe that works. During the Hurricane Irma and storms Jose and Maria, luckily there were no scarcity questions, but if this were the case; the islands must trust the Kingdom Representative that these scarce means are divided in a fair way. And what I also notice, the people from the island really appreciate it when you take their perspective on matters. Not the perspective from The Netherlands, but the island perspective. It is also the responsibility of the Netherlands to get acquainted with the islands. In culture and perceptions, this is also the case in crisis management in the Netherlands. In case a Safety Region in The Netherlands needs something; there are also differences between Drenthe and Amsterdam. What do they need and why? That is also investigated then! So why not for the BES islands?"*

(Interview 4, 2020).
- "Yes, it is anyway needed to have a good relationship. That is why it is important to invest in the relationship beforehand. And know who you have to deal with. It is easier to get the correct links once you know each other. Its important to pick up the phone easily and have a quick change of thoughts with someone. You do not pick up the phone if you don't know the other person."*

(Interview 5, 2020).
- "Yes, I believe anyway that within the dossier of the whole Kingdom that it helps when you know people. It does not work to put things on paper in the Netherlands, whilst you do not know who is on the other end. Once you know each other, especially while thousands of kilometers apart, it is possible to have other conversations too, more informal ones. Once a crisis hits; it only brings benefits when you know each other during the cold phase and know how to have a conversation."*

(Interview 8, 2020).
- Definitely, in the cold phase and hot phase. Because it functions well in the cold phase, it functions well during the hot phase and during the aftermath. (Interview 19a, 2020). In fact, I believe the cold phase is a precondition for a successful hot phase. If you know each other, you build faith, even separated from structures and regulations."*

(Interview 19b, 2020).

- *"So far, I find cooperation and work relationships very positive. Also, when sharing documents and receiving each other's feedback. And if you do not agree that you easily pick up the phone to contact. Within this cooperation, a lot goes through e-mail traffic. At times we call each other when things are unclear, we try to keep this as approachable as possible."*  
(Interview 10, 2020).
- *"From my perspective, I see good faith in cooperation. Each year we meet up and discuss whether we want to do with the crisis department for the upcoming year. We discuss what we want to train and exercise. So, for me, this cooperation goes well. And I hope it remains like this. The knowledge from the Netherlands is shared with us and I hope that will not stop in the future."*  
(Interview 17, 2020).
- *"You need to trust each other's qualities, that everyone delivers what they are supposed to. That people step forward instead of backwards. I think that in crisis and disaster management, getting to know each other and being known is very important. In everything, in the cold and hot phase... you cannot plan the hot phase. But in the cold phase, you can practice or make plans together. The added value is to be found in the process of making these plans together and discussing dilemmas. Those are the important aspects."*  
(Interview 9, 2020).
- *"We have to trust on the fact that they know what to do with what is offered, and that they give you the right information. En they must trust us for doing that. I believe that distrust in the case of a disaster or crisis only slows down."*  
(Interview 1, 2020).

All the above quotes show that the respondents agree on the fact that positive working relationships and trust are of the essence in natural hazard and disaster management. From the point of view that those from The Netherlands should invest in the Caribbean islands and their context, to the fact that successful outcomes in the hot phase depend on the connections made during the cold phase. The outcomes of this statement are in accordance with what Brass et al (2004) and Moynihan (2009) state on disaster response.

## Conclusion

In part 5.4 on the functioning of the administrative governance cooperation, a light has been shed on how cooperation is perceived by those involved. Based on their rankings for the five OECD DAC (2019) criteria, a brief conclusion can now be drawn for each of the criteria. What became clear during the interviews, is that the criteria are not mutually exclusive and overlap exists.

- **Relevance:** the answers amongst the respondents show unanimity in a sense that many perceive the relevance in natural hazard disaster response to be very high. During all phases of a natural hazard, cooperation between the Public Bodies and the European Netherlands is high, as the consequences of such a hazard could be devastating. In almost all cases, the Public Bodies need the assistance of the Netherlands to cope with effects of a natural hazard. Many of the issues on the islands have to deal with being a *small island developing state*, resulting in little possibilities for upscaling, support and staff exchange. Global changes even disproportionally influence the islands, causing the relevance of cooperation to increase further.
- **Efficiency:** respondents argue that cooperation is perceived efficient but that there is room for improvement. One of the main issues with regards to efficiency is the geographical distance and time difference between those involved. Communication remains a difficult topic. Multiple structures and many incentives are taken to increase cooperation, but this has a pitfall; too many initiatives poses the challenge of keeping the overview. It is argued to reduce the quantity, but increase quality of agreements and plans. Further, the political situation of how the Caribbean islands are divided, the multi-island coordination by the Kingdom representative and other more urgent matters are all contributing to less efficiency. Lastly, it is argued that for St. Eustatius the situation is even worse, because of the interference of the Netherlands.
- **Effectivity:** results show that in many cases goals are met, however at times with a detour. Again, the setting in relation to the distance and time difference causes negative influence on effectivity. Points of attention are the allocation of funds by the ministry of Justice and Security and the difference in effectiveness in operational response and political response. In addition, the implemented regulations on the BES islands have been based on laws and regulations from the European Netherlands, whereas this does not seem to be a perfect fit for the BES, thereby reducing effectivity of cooperation. In 2021, the Veiligheidswet BES is under revaluation and could cause changes for the Kingdom Representative and its responsibilities. Lastly, it is argued to find out whether new agreements are effective, a new incident needs to happen and therefore it is not yet possible to score effectivity.
- **Impact:** with regards to impact, the interviewees differ on their opinions. One important aspect is the moment in time, as it is argued that cooperation can be seen as a wave motion, at time strengthening and weakening. Impact also deals with that something designed in The Hague, cannot be implemented on an island the other day. It takes time and trust to increase the impact of cooperation. A point of attention is the perseverance that is needed

to keep cooperation going and thus the impact high. Without cooperation the islands would have little chance of coping well with natural hazards. Impact is mostly to be found in available knowledge, expertise and funds from the Netherlands.

- **Sustainability:** results on the last criteria show that in general cooperation is perceived sustainable. Little steps are taken at a time towards improvement but it is also perceived vulnerable, as structures are not completely known and integrated yet. Many respondents also argue that much depends on the persons involved in natural hazard and disaster management and that it is difficult to build sustainable relationships if people are replaced regularly. The last discussion in relation to sustainability deals with the wider context of all the six islands in the Kingdom of the Netherlands, whether the system the way it is known now, will last in the future.

In part 5.5 on the functioning of disaster response, the respondents have been asked to comment on three statements, based on arguments by Moynihan (2009). By commenting on these statements, an insight is presented on how diversity, hierarchy and power relations and positive working relations and trust play a role in natural hazard and disaster management in cooperation between the European Netherlands and the Caribbean BES islands. It can be concluded that for the three statements

- **Diversity:** in relation to disaster response, it is claimed that diversity can on the one hand cause difficulties and on the other, function as a force multiplier. There are always some complicating factors, which include cultural differences, geography, distance and time differences. Also, the used language is never completely similar, leaving room for miscommunication. To train and practice together, such issues can be overcome partly. In relation to culture, it is explained that at times the Dutch and the Caribbean culture clash. On the contrary, these differences in culture also allow for new and unexpected positive changes. Awareness of cultural differences play a large role in building bridges. Lastly, if any differences arise during disaster response, these are often put aside for the larger and common goal. Together, those in disaster response make it work.
- **Hierarchy and power relations:** for many respondents, hierarchy and power relations are part of the game. As laws and regulations are written in the Veiligheidswet BES, this is part of the way it works. It is even argued that hierarchy and power relations make disaster response more efficient and that it is a condition for proper disaster response. In addition, it is claimed that hierarchy and power relations are to be seen as something functional. In this regard, the discussion on the influence of the Netherlands on the BES islands arose again. The amount of interference or help from the Netherlands has always and continues to be points for discussion, as some wish to gain more independence whilst others wish to strengthen ties with The Netherlands. Lastly, the Kingdom Representative also deals with certain issues in relation to power and hierarchy, as the function does not perform the way intended.

- **Positive working relations and trust:** unanimity on this statement was one of the highlights for many responses. They mostly had in common that positive working relationships and trust are important in disaster management, and that by knowing someone and investing in the relationships only benefits disaster response. Getting to know each other in the cold phase helps disaster response in the hot phase.

By combining the summaries on the five criteria and the three statements presented above, it is possible to present an answer to the fourth research question, on the extent to which the cooperative governance relation between the administrative governance stakeholders involved in natural hazard and disaster management is effective in a sense that it stimulates disaster risk reduction. First, it is time to briefly go back to the theory on disaster risk reduction. As mentioned by Twigg (2015), disaster risk reduction can be one of the objectives of disaster governance practices and can be part of all phases in the disaster cycle. It entails the development and application of policies, strategies and practices to reduce vulnerability and disaster risk throughout societies. Such development and application of policies, strategies and practices is consistently and repeatedly done by all those in the modalities of cooperation. Based on the five criteria, it can be stated that these in cooperation are getting closer to where they want to be: cooperation takes place, contact is regularly undertaken and people try to keep thresholds as low as possible to easily contact each other. However, room for improvement is still visible and will be visible for quite some time, as respondents have argued that it takes time to build trust and commitment. A pitfall that must be avoided is the one of the wave motion – continuous attention should be paid to natural hazard and disaster management, as the stakes are too high when letting go and weakening contacts. By improving cooperation, the effectivity is enhanced, and thereby reduces disaster risk throughout the societies on Bonaire, St. Eustatius and Saba.

## 5.6 SWOT-analysis

As a means of summarizing the interviews and to recap what has been mentioned during the interviews, the last section the interviewees went through is a SWOT-analysis. This last section of the results therefore gives insights in the strengths, weaknesses, opportunities and threats within cooperation of natural hazard and disaster management for the administrative actors involved. Table 2 on the following pages presents the full overview of the results of the analysis and for each a summary is given below. Lastly, these outcomes are related to how the outcomes of the SWOT-analysis can effectively contribute to disaster management practices.

### **Strengths**

Several strengths have been mentioned by the participants. Overall, the answers were similar in a sense that most of the positive aspects about cooperation are shared amongst the respondents. These include that lessons learnt from Hurricane Irma have been implemented (Interview 1, 2020), interdepartmental cooperation within The Hague has gained strength (Interview 2, 2020; Interview 5; 2020) and the necessity to cooperate is now recognized amongst the respondents (Interview 3, 2020; Interview 5, 2020; Interview 9, 2020). Within the modalities of cooperation, the accessibility and approachability are characterized as a strength (Interview 6, 2020; Interview 10, 2020; Interview 12, 2020). Lastly, the structure and professionalism of the network and the level of trust amongst the participants are also seen as strengths of cooperation (Interview 12, 2020; Interview 19, 2020).

### **Weaknesses**

One of the main weaknesses is the geographical distance which makes it harder to cooperate (Interview 1, 2020; Interview 4, 2020). Related to the distance is being different and having different laws and legislation that do not completely fit (Interview 4, 2020). Moreover, the capacity and continuity of the people in the domain is seen as a weakness; the incentive to invest is not always recognized (Interview 1, 2020; Interview 3, 2020; Interview 12, 2020). Furthermore, weaknesses are to be found in the discussion about the Kingdom Representative (Interview 5, 2020; Interview 10, 2020), the coordination and alignment of initiatives (Interview 5, 2020) and finding the right perspective on how problems should be tackled (Interview 4, 2020; Interview 9, 2020). To illustrate the discussion on the Kingdom Representative and which is also illustrative for the wider cooperation, interviewee 5 (2020) puts it nicely:

*"We all want to make progress and move forward, but at the same time because we keep discussing, you are being pushed back by invisible brakes. It brings about an immediate backlog and you are 1-0 behind, even before starting."*

Lastly, a weakness is to be found in the national risk profile of The Netherlands, in which natural hazards as they occur on the BES islands are omitted and not included in the risk profile (Interview 4, 2020; Interview 19, 2020).

### ***Opportunities***

For the third, opportunities, the respondents point out that there are many options to improve cooperation. These are to be found in the funds given by the Ministry of Justice and Security (Interview 1, 2020), in cooperation with international partners such as CARICOM and CDEMA, but also with other countries (Interview 2, 2020) and to be active in other domains such as education, social services, economy and infrastructure. All at aiming to increase the resilience of the Caribbean region (Interview 3, 2020). Moreover, opportunities are seen in the direct cooperation with each other; getting to know each other and finding out about one's roles and tasks. To invest in the relationship by training, practicing and following courses together (Interview 7, 2020; Interview 8, 2020). Not only can the Caribbean learn from the Netherlands, the Netherlands can also learn from the Caribbean (Interview 9, 2020). To conclude, opportunities are also seen in the multi-island coordination and in the preparations for the aftermath of a disaster (Interview 12, 2020).

### ***Threats***

The main aspects that threaten the success of cooperation are mainly: people-dependency of those in cooperation (Interview 1, 2020), the political climate in which cooperation takes place and includes the larger discourse about the Kingdom of the Netherlands, but also on lower levels in which other dossiers on the islands could influence the domain of natural hazard and disaster management (Interview 2, 2020; Interview 4, 2020; Interview 8, 2020). Moreover, keeping attention and the momentum for the dossier is seen as a threat (Interview 1, 2020; Interview 4, 2020). Other points of attention include the following threats: interdepartmental discussion amongst departments in The Hague (Interview 5, 2020), the discontinuity of employees and frequent changes on the islands (Interview 6, 2020), the diversity and multiplicity of initiatives undertaken (Interview 10, 2020) and the lack of flexibility (Interview 12, 2020). Lastly, thinking from a European perspective and designing plans and regulations in the Netherlands is seen as a threat (Interview 9, 2020; Interview 12, 2020). Related to this is the lack of early inclusion of the Public Bodies in the design phase of policy and regulations (Interview 19, 2020).

Table 2: Results of the SWOT-analysis

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• Lessons learnt from previous experiences with Hurricane Irma</li> <li>• Interdepartmental cooperation in The Hague: breaking down bubbles and island-culture within departments</li> <li>• The necessity to cooperate is recognized by all involved</li> <li>• Large will to cooperate and engage in dialogue with each other</li> <li>• Accessibility and approachability of actors involved</li> <li>• Bridging expertise and knowledge from both sides of the ocean</li> <li>• Making use of available knowledge, skills, expertise and means that are available</li> <li>• Being part of the national crisis structure means that help will always be offered</li> <li>• Solidarity on the islands</li> <li>• Hands-on mentality</li> <li>• Contacts in the cold phase of disaster management</li> <li>• Short communication lines</li> <li>• The structure and professionalism of the network</li> <li>• The level of trust amongst the involved</li> </ul>	<ul style="list-style-type: none"> <li>• The geographical distance</li> <li>• Capacity and continuity of employees in the domain: no real incentive to invest in expanding capacity, on different levels (Public Bodies, Ministries in The Hague and at the Kingdom Representative)</li> <li>• Information exchange</li> <li>• Different laws and legislation</li> <li>• Omission of natural hazards in the national risk profiles of The Netherlands</li> <li>• Using the European Netherlands perspective on the Caribbean situation</li> <li>• The discussion about the Kingdom Representative</li> <li>• "You are only as strong as your weakest link": the separate compartments are strong, but bringing it together is difficult</li> <li>• The coordination and alignment of initiatives taken</li> <li>• Understanding, comprehension and empathy of the Caribbean and Dutch reality and mutual understanding</li> <li>• Keeping focus on something that is far away</li> <li>• Clarity of who has what role and responsibility</li> <li>• Planning and follow up of agreements made</li> </ul>



EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• The funds given by the Ministry of Justice and Security: what is really needed for the islands</li> <li>• Find out whether the division of tasks fits with the structure of the Public Bodies</li> <li>• Cooperation with international partners: CARICOM, CDEMA but also France, the United States and United Kingdom</li> <li>• Involvement in multiple domains: education, social services, economy, and infrastructure. Hereby contributing to resilience of the region.</li> <li>• Direct communication to the local citizens about natural hazards and the role of the KNMI</li> <li>• Courses, training, and proper education</li> <li>• Invest in the relationship to get to know each other better</li> <li>• Exchange of people: not only the Caribbean can learn from the Netherlands, those from the Netherlands can also learn from the Caribbean</li> <li>• Multi-island coordination in case it is larger than one island</li> <li>• The aftermath of a disaster and thinking about this before something happens</li> <li>• Reorganization of the government and commissioners on St. Eustatius</li> <li>• Ownership of disaster management practices: include the islands in decision making and thinking processes</li> </ul>	<ul style="list-style-type: none"> <li>• People-dependency: the possible unwillingness, indifference and attitude of those people who are involved in the domain</li> <li>• The political climate in general: certain tensions or lack thereof could negatively or positively influence the domain of disaster governance</li> <li>• Constant attention for what is happening on the BES islands: as soon as something else happens in The Netherlands, attention could fade away</li> <li>• Cooperation is not something to be forced upon people</li> <li>• Interdepartmental discussion in The Hague</li> <li>• Discontinuity of employees and frequent changes on the islands</li> <li>• Relationships within the larger Kingdom of the Netherlands, the BES and CAS islands and their mutual relationship</li> <li>• The idea that The Netherlands is to take over control of the Public Bodies</li> <li>• Diversity of initiatives</li> <li>• Thinking from a European perspective and implying solutions from this European perspective on a different context: the Caribbean</li> <li>• Lack of flexibility</li> <li>• The position of the Kingdom Representative</li> <li>• Designing of plans and regulation in the Netherlands and during that process, in a very late stage including the islands in the process</li> </ul>

### ***Contribution to effective disaster management***

Now that the strengths, weaknesses, opportunities and threats have been identified for the international cooperation between the Public Bodies and The Netherlands, the question remains on how these results of the SWOT-analysis can contribute to effective disaster management. It can be argued that the strengths of cooperation, being mainly that eyes have been opened after Hurricane Irma and that many initiatives are undertaken and the necessity to cooperate is recognized, are to be kept alive and continuous attention needs to be given to the dossier, even when other issues are surfacing, as natural hazards can happen anytime. However, it is mostly the weaknesses, opportunities and threats that need to be looked into to contribute to effective disaster management practices. For the weaknesses and opportunities, the pointed-out aspects need to be tackled or eventually transformed into strengths. This is only possible by keeping in touch with each other and continuously investing in the relationship. How this is to be done in the future is part of the chapter Recommendations. For the pointed-out threats, these are to be considered as aspects that also need continuous awareness and attention and how this is possibly to be dealt with will also be discussed in the discussion and recommendations. To conclude on the SWOT-analysis, the indicated strengths, weaknesses, opportunities and threats are all related to each other and thus not mutually exclusive. As interviewee 4 (2020) puts it nicely:

*"In cooperation, the challenge lies in the alignment of the components. The separate components are strong, which are strengths in the modalities of cooperation. That is also needed to have a strong cooperation. However, the chain is only as strong as its weakest link, this is a weakness and threat. And if those links are weak, it is never going to happen successfully. However, I believe the basis is strong – that is positive. Much in the modalities of cooperation is possible".*

## 6. Discussion

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This thesis research has looked into the administrative governance relationships between several of the involved stakeholders in natural hazard and disaster management for the three islands Bonaire, St. Eustatius and Saba and The Netherlands. It has mostly focussed on the perceptions of those involved and whether they perceive the modalities of cooperation to be effective. Results from the thesis indicate that there are a diverse set of strengths, weaknesses, opportunities and threats to look into. Moreover, complications for disaster response have been identified and looked into for the BES islands. This chapter presents the findings in relation to the major scientific debates surrounding the topic of natural hazard and disaster management and disaster governance. It also includes an evaluation on the methodology and thereby identifying strengths and weaknesses of the research. Lastly, recommendations for further research are brought to the fore.

### 6.1 Research results

The nature of a hazard, the extent to which societies are exposed, the vulnerability of the islands and the capacity to reduce or cope with the potential harm all influence the outcome of a possible natural hazard on the Caribbean islands (Twigg, 2015). Differences exist throughout the world on how disasters are managed and result in the fact that some countries and regions are more capable of properly addressing natural hazards than others. The emergence of global problems makes it more challenging (Coppola, 2011). In relation to such global problems is the notion of small island developing states (SIDS), as explained by Pelling and Uitto (2001), who claim that small islands are more vulnerable to natural hazards because of their size, insularity and remoteness, environmental factors, limited disaster mitigation capacity and demographic and economic structures. On top of this, Briguglio (1993) argues in Pelling and Uitto (2001) that such SIDS are disproportionately vulnerable to disasters with a natural trigger, which are mostly threatening the islands of Bonaire, St. Eustatius and Saba, which are to be characterized as SIDS. The previously mentioned factors are all to a lesser or larger extend present for the islands. Results from the research show that many of the problems in disaster management and response is related to being a small island with very limited capacity and capabilities. This is for example the case in staff turnover, the availability of funds and goods and the fact that many people on the islands involved in disaster management are individuals who perform other tasks and responsibilities besides their disaster roles.

The four-phase DRR cycle can also be identified on the Caribbean islands. In the mitigation phase, the responsible ministries from The Netherlands cooperate with the local Public Bodies to make sure that laws and regulations are in place and fit with the local context on the islands. The Public Bodies in turn make sure that their own disaster management plans are up to date and executed properly. Another main characteristic of the mitigation phase is the inclusion of exercises and training together with involved governmental and non-governmental stakeholders. During the preparation phase, the Public Bodies take measures to brace for impact. This is e.g. done by preventively closing the harbour and airport. Coppola (2011) claims that disaster management is not to be regarded as a cycle, as some interventions take place in multiple stages and possibly before entering another stage.

This is also the case on the Caribbean islands, where preparations for possible hurricanes are ongoing processes on the islands, interdependently of following the cycle completely. In the response phase, immediate relief is offered by medical services or the military, which also appeared to be the case when Hurricane Irma hit land in 2017. During the recovery and aftermath of a natural hazard, many stakeholders come together again, aiming at returning to a normal state of living. Lesson learnt and evaluations are part of the process, which is illustrated by the evaluations of Hurricane Irma and the upcoming evaluation of the Veiligheidswet BES. It is for this matter that disaster management on the BES islands is to be seen as a continuous process. Furthermore, disaster risk reduction (DRR) and related forms of risk management are to be seen as facilitators of change and can provide short-term benefits and at the same time contributing to long-term reduction of vulnerability (Twigg, 2015). Based on the findings in this study, this is also the case for the BES islands, where inclusive risk management could possibly also entail involvement of actors in different settings than disaster management. For example, investing in education, social services, economy and infrastructure can increase the resilience of the Caribbean communities. According to a number of respondents, it also works the other way around in the sense that modalities of cooperation in other policy domains influences cooperation in the field of disaster management.

Tierney (2012) argues that governance arrangements can either be horizontal as well as vertical. Horizontal governance is characterized by actor networks that mainly function in a local geographic context, whereas vertical relationships are characterized by local and supra-local entities. Thus, vertical collaboration forms are challenged by aligning the different levels of planning and management and therefore deal with issues that link to hierarchy (Tierney, 2012). For the islands of Bonaire, St. Eustatius and Saba and the European Netherlands, such horizontal and vertical governance arrangements need to be aligned. Horizontal arrangements are visible on the local geographic contexts, the islands themselves and include other organizations on the islands as well. The vertical relationships are to be found between the local Public Bodies and the Netherlands on the other side of the Atlantic Ocean. In these horizontal administrative arrangements, several levels of disaster governance are visible, as is seen with the diverse sets of decision-making levels that include the Interdepartmental Coordination Group (IAO), Interdepartmental Crisis Management committee (ICCB) and the Ministerial Crisis Management Committee (MCCB). An example of vertical arrangements is the possibility of assistance requests, which the Public Body always has to request through the Kingdom Representative.

Claimed by Boin & 't Hart (2003), large-scale crisis requires inter-sectoral and cross-jurisdictional response as well as decentralization and flexibility are necessary to respond to the ambiguity and turbulence of any crisis situation. On these grounds, also Provan & Kenis (2008) state that governance networks are loosely affiliated and decentralized. When crises are not occurring, response networks do exist, but are smaller and more loosely affiliated and interact less. When a crisis actually occurs, networks become highly centralized again (Provan & Kenis, 2008). This fluidity and flexibility over time of the crisis response network is also the case for the Caribbean cooperation between the islands and European Netherlands.

During the year, attention to natural hazards is strengthened before and during the hurricane season, from June to November. On the islands, preparations are starting before June. Further, also from a wider perspective these networks are weakened and strengthened over time, and function as a wave motion. Attention spend on disaster management is thus weakening and gaining attention as time passes by. This is also influenced by the number, intensity and history of natural hazards. In 1995 Hurricane Luis and in 1999 Hurricane Lenny impacted the islands. After these two hurricanes, a relatively calm period characterized life on the islands. This changed in 2017, when Hurricane Irma and storms Jose and Maria hit the region. Results from the thesis show that since these passages, attention to natural hazards in the Caribbean region has gained strength and the necessity for proper planning and cooperation has been recognized strongly, compared to the discourse previously, which was characterized by *nothing ever happens*. Moreover, the results also indicate that only time can tell whether the topic of natural hazards in the Caribbean region will remain on the agendas of the islands and European Netherlands. At the stage of the research, the interest and attention amongst the respondents are high and the intention is to keep this up for the future, as it became clear how much the islands need European Netherlands.

One of the main bottlenecks appeared to be the position of the (deputy) Kingdom Representative, as this topic has been put to the fore by at least six respondents. Not as such as the person himself, but the institution and its functioning. In relation to the OECD criteria of the relevance, efficiency, effectivity, the impact and the sustainability, in each of the criteria one or more interviewees referred to the Kingdom Representative as a drawback. However, this also differs per island. Whereas Bonaire and St. Eustatius did not express an extreme opinion on the matter, Saba deliberately chooses to deal with it differently. Also, in this regard, within the Netherlands, respondents were not unanimous on the topic. It appeared a discussion exists between the Ministry of Justice and Security and the Ministry of the Interior and Kingdom Relations, on whose responsibility it is. For now, the way forward seems that once the evaluation of the Veiligheidswet BES has been conducted, only then the position could be revised and changes implemented. This raises the question on whether earlier action is needed, as the functioning of the Kingdom Representative remains under discussion up until the moment of possible changes in the future. In practice it is recognized by a majority of respondents that the Kingdom Representative does not function well the way it is now. As such, in case a natural hazard threatens the islands before the position is changed, this might result in diverse response and possibly bad cooperation, as the islands will follow their own course. In the sequence of events, this could possibly lead to sub-optimal disaster response with possible negative consequences. In this regard, the laws and legislation in place are a misfit for the islands of Bonaire, St. Eustatius and Saba and the question remains on how long to wait with interfering as it is visible that it does not work well and possibly leads to a decrease in resilience of the islands.

Another point of attention is the discussion between the several ministries in The Hague, where the responsibilities are not always completely clear and a tendency could prevail to point the finger to one another. On the one hand, the Ministry of Security and Justice is the end-responsible for disaster management and crisis management.

On the other hand, the Ministry of the Interior and Kingdom Relations is responsible for the relations within the larger Kingdom and thus the islands. In addition, all other ministries are responsible for their domains on the islands. There seems to be a mismatch between some of the ministries in a sense that proper alignment is needed about who is to do what in what domain, and who is consequently responsible for funding. This also appeared to be the case in relation to Hurricane Irma where several ministries pointed the finger at each other for not taking responsibility and proper action, as illustrated by one interviewee who mentioned that one of the involved ministries could not care less for the islands at the time and that they were left to deal with the issues themselves. The question about responsibility also relates to the requirements and conditions to funding that the several ministries ask of the public bodies. In relation to disaster management, it is a point of discussion whether the Ministry of Justice and Security should set a framework for the available funds in the disaster domain. At the moment, there are differences amongst the islands on how many people work within the disaster domain. Doubt is casted on this fact as arguments are brought to the fore to create unanimity on this matter, e.g. by requiring a certain amount of employees in the disaster domain, within the Public Bodies. In relation to the involvement of the ministries also the following point of discussion emerged. During the interviews concern was raised about the involvement of the Ministry of Defense and argued that the expectations are not always in line with each other. This point of discussion relates to the *taking over* of the military rather than *supporting* the disaster management processes of the island's government.

## 6.2 Ideal versus reality on the islands

### ***The ideal model and not so ideal reality: disaster network governance***

In Chapter 2.1, The theoretical framework, a model was presented in which network governance is seen as a way to tackle a diverse set of problems in disaster management. The previous section has shown that the reality in practice differs from the ideal scenario. This was also argued and illustrated in diverse ways by at least seven respondents. On the one hand, in the ideal scenario, international network governance (model 1) is argued to be one of the ways forward for disaster governance and addresses challenges in relation to natural hazards, with well-defined governance arrangements in place in which all actors know their roles and responsibilities. On the other hand, the system of administrative governance arrangements that include a diverse set of laws and legislation of the Netherlands is to be found (model 2). This section presents the way this network governance works out for the Dutch–Caribbean modalities of cooperation and shows that ideal models in as expressed in the literature (network governance) or law (hierarchy) do not match reality and the way administrative governance arrangements are implemented.

Chapter 5.2 has inventoried the formal structure of disaster management relevant to the Caribbean territories. These formal structures of disaster management relevant to the Caribbean territories include the Veiligheidswet BES, the multi-island coordination plan, the Kingdom Representative and regional disaster management plans on the islands. The research results show that the way the administrative governance arrangements of The Netherlands are implemented on the Caribbean islands, differs from this ideal scenario of network governance. Alignment of horizontal and vertical arrangements appears to be problematic because of the diverse layers of administrative actors and their roles and responsibilities. The study has shown that the hierarchy in such governance relationships is tense at times. For example, on one of the islands, the Public Body purposely chooses to diverge from governance arrangements, as illustrated by the fact that within crisis management, formal and informal lines exist for which it is possible to deliberately choose either one that suits best (Interview 19, 2020). This deviation shows that there is tension between the diverse administrative layers, which is caused by a mismatch in the intended governance arrangements and reality in practice.

The lessons learnt from Hurricane Irma, the large will to cooperate and engagement in dialogue and the recognized necessity to cooperate are all factors that contribute to the resilience and sustainability of the disaster governance on the islands. However, in the ideal situation of network governance (model one) the complications as brought to the fore by Moynihan (2009), are not present and therefore do not hinder disaster governance practices. At the moment of the research, these complications are identified for the modalities of cooperation between the Netherlands and its Caribbean counterparts. Therefore, the laws and legislation in place in the modalities of cooperation between the islands and the Netherlands are to be seen as a misfit.

This argument is backed up by the fact that a respondent from Saba claims that: “*The administrative laws and what happens in reality are far apart of each other for Saba*” (Interviewee 19a, 2020). This results in the island taking their own course that is not aligned with governance arrangements set by The Hague. In model two (Dutch laws and legislation), in relation to the interaction, collaboration, conflict, negotiation and decision-making processes, the actors involved all have different backgrounds and point of views on the modalities of cooperation between the islands and the European Netherlands, thereby causing cooperation to be either successful or cause possible hindrances or set-backs. Argued by Bakema (2019), governance is a double-edged sword that on the one hand can exacerbate a disaster by mismatches and mistakes in the institutional set-up. On the other hand, governance can facilitate multi-level interaction and post-disaster transitions that enhance resilience and sustainability. For both sides of the sword, there are examples to be found in the second model. Exacerbation of a disaster is e.g. to be found in the fact that the position of the Kingdom Representative causes confusion and distress, the limited capacity on the islands, a mismatch in laws and legislation on the islands and using a European perspective on the Caribbean islands. Multi-level interaction and post-disaster transitions are however also to be found.

### ***The hybrid model of Dutch international disaster governance***

The research results show that in practice, even though model one and two are not aligned, disaster management practices do seem to work and difficulties are overcome in case a natural hazard occurs. The current model does work in practice, as the larger common goal is served, but it does not fit either one of the two models mentioned. Once a disaster strikes, the pre-designed governance arrangements are blurred and replaced by hands-on response and fluid arrangements that fit the situation, as illustrated by one of the interviewees in interview 11 (2020): “*If it comes down to helping one another, we will arrange it.*” It is for this reason that the current state of cooperation is to be characterized as a third model, which is hybrid and creative. This model is to be found in the modalities of cooperation between the Netherlands and Caribbean special municipalities and is a combination of both the first and the second model. In relation to Moynihans’ (2009) complications, these are as follows present in this hybrid model:

- The number and diversity of actors involved: as the network of crisis response grows larger once a crisis intensifies, a larger coordination burden exists. The inclusion of people with different backgrounds, beliefs and cultures create uncertainty on how interaction should take place. A common goal and shared vision are therefore needed. Results from this thesis shows that in cooperation between the Public Bodies and European Netherlands, there is no unanimity on whether diversity hinders or helps disaster response. On the one hand, the results show that diversity can cause difficulties and complicating factors are always present. These include cultural differences, geography, distance and time differences. The language used is never completely similar which can also result in miscommunication. On the other hand, the results indicate that diversity can also be a force multiplier and allow for positive unexpected changes. Taken together, whether diversity is a complication or not, the larger and common goal is always served by overcoming differences and thus fits model three.



- Hierarchy and power relations: deals with shared authority and the fact that anyone in the network should negotiate terms and establish legitimacy (Moynihan, 2009). This thesis shows that in modalities of cooperation between the Public Bodies and European Netherlands, hierarchy and power relations are part of the game. Again, two strands of thinking emerged. From one point of view, hierarchy and power relations are causing disaster response to be more efficient, a condition for good response and are seen as functional. From a different point of view, it is argued that hierarchy and power relations are hindering disaster response and that such processes need alignment on several levels, for example amongst the different ministries or in relation to the Kingdom Representative and the Public Bodies.
- Working relationships and trust: as a prerequisite for successful cooperation. Within network research, trust is a key mechanism to foster coordination. A consistent group of responders allows for developing trust and familiarity; such mutual trust and familiarity is not to be created once a crisis starts, but has to be there beforehand (Moynihan, 2009). Results show that the respondents were unanimous about the fact that positive working relationships are a precondition for successful cooperation and that trust needs to be present before a natural hazard occurring. This however appears to be problematic in the third model, as there is a high staff turnover on the islands. In relation to "*speaking the same language*" beforehand and the diversity of involved stakeholders, the implementation of the system LCMS on the islands is aimed at information sharing and to overcome communication difficulties. However, the question is whether the automatization of systems and implementation of LCMS solves these problems, as argued by Boersma, Wagenaar & Wolbers (2012), who claim that this is not the case.

In this hybrid model, a combination of both models is used to respond more flexibly to disaster situations. This is desired by a multiplicity of respondents, who illustrate that once the situation is *"way over your head, you still have to adhere to all kinds of small rules and regulations because that's what The Hague wants us to do. We need to be flexible to respond properly"* (Interview 12, 2020). Moreover, compared to the Caribbean mentality, it is common for the Netherlands to operate in a very planned and systematic way, continuously securing policy, agreements and legislation on paper. This does not match the wishes and mentality on the Caribbean islands, which are characterized by being more flexible and functional in their way of cooperation. One respondent working on one of the islands expressed the wish for civil servants from the Netherlands to recognize these differences and recognize that this works as well (Interview 19b, 2020).

To conclude, it is widely shared by a majority of the respondents that in the whole system of governance arrangements, at one point or another, mismatches exist between the intended policies in place and the reality on the islands. These mismatches are to be found on several levels of the administrative governance arrangements and include the following:

- Within the Netherlands: the diverse involved departments and ministries, as illustrated by the discussion about the Kingdom Representative, the role of the Ministry of Defense, using an European perspective on the Caribbean situation and the evaluation of the Veiligheidswet BES.
- Between the special municipalities (BES), the three autonomous countries in the Caribbean (CAS) and European Netherlands, as illustrated about the larger discussion on the autonomy of the islands in the Kingdom of the Netherlands, the division of the CAS versus BES in disaster response and the amount of interference from the Netherlands to the islands.
- Discrepancies on the islands as illustrated by local staff turnover, the limited capacity in the disaster domain, cooperation with local executive disaster actors such as the Caribbean Netherlands Fire Department and difficulties with communication.

However, even though the results show that these mismatches are present and are neither fitting model one or two, this can be overcome once the necessity and greater good is recognized and this results in what is argued to be the third and hybrid model of international disaster cooperation between the Caribbean islands and The Netherlands. As such, one of the main takeaways is that even though the designed policies in place do not completely match reality, it is still possible to deal with the threats and consequences that potential natural hazards bring.

### **6.3 Research findings placed in a wider context**

After 10/10/2010, the political situation for the islands changed. On this date, the islands Bonaire, St. Eustatius and Saba became special municipalities within the Kingdom of the Netherlands and Curaçao and Sint Maarten gained their independence within the Kingdom, following Aruba who had gained *status aparte* in 1986. Before “triple ten”, the islands of Sint Maarten, St. Eustatius, Saba, Bonaire and Curaçao were grouped as The Netherlands Antilles from 1954 until 2010. Before this date, colonial relationships existed between the European part of the Netherlands and the Caribbean islands. There have been diverse forms of governance on the islands under diverse compositions, causing the region to be under continuous influence from European Netherlands. As a result, this historic situation has continuously influenced the perceptions from the Caribbean region on the European Netherlands and vice versa. It is for this reason that there have always been discussions about the amount Dutch of interference on the islands. It is argued that some islands wish to gain more independence from European Netherlands, whereas other islands are mostly satisfied with the current construction. In relation to the extent of Dutch interference on the islands is the matter of using a Dutch perspective on Caribbean matters. At times, Dutch civil servants are blamed for being narrow minded, not flexible and not understanding the Caribbean perspective which results in misunderstanding and possible frustrations.

In relation to natural hazard and disaster management, the current division of the CAS and BES islands raises the question of effectivity in disaster response. The geographic location of each of the islands is in relation to effective politics questionable. Once a natural hazard hits one of the Windward islands (Sint Maarten, St. Eustatius or Saba), this means that Sint Maarten, as an autonomous country, and St. Eustatius and Saba as special municipalities, have different responses to the hazard. A different political line has to be followed for Sint Maarten, compared to St. Eustatius and Saba, whereas they are all part of the Kingdom of the Netherlands. Consequently, their requests for assistance are ending up at the same institutions in the Netherlands. In addition to this, in case the islands St. Eustatius and Saba are in need of assistance, this always has to go through the island of Sint Maarten, thereby reducing the resilience of St. Eustatius and Saba. By having to go through and using Sint Maarten as a hub, an extra political difficulty is added as they have their own autonomous government making decisions. For Bonaire, which is part of the Leeward islands, practical help of goods and services is always faster provided by the autonomous countries of Aruba and Curaçao and the local tier of governance on Bonaire will always look at those islands first, rather than ask help from St. Eustatius and Saba. It was even argued that in relation to Hurricane Irma, the hit islands felt and acted as if they were still one Netherlands Antilles. In this regard, it is questionable whether the division of CAS and BES makes sense or that this needs revision.

This study has investigated natural hazard and disaster management from the perspective of the European Netherlands and its overseas territories of Bonaire, St. Eustatius and Saba. In the Caribbean region, the Netherlands is not the only country that has historical territorial links with overseas territories (OTs). This is also the case for multiple other European countries, such as the United Kingdom or France.

According to Chauvin, Clegg and Cousin in Oostindie (2019), such Euro-Caribbean territories only make the news when they are hit by a devastating natural disaster, as exotic holiday destinations or avenues for undermining global financial standards (Chauvin, Clegg and Cousin (eds.) in Oostindie, 2019). For the British (Bermuda, British Virgin Islands, Anguilla, Montserrat, Cayman Islands and the Turks & Caicos Islands), French (Guadeloupe, Martinique, Saint Barthelemy and Saint Martin) and Dutch (Aruba, Bonaire, Curaçao, St. Eustatius and Saba) overseas territories, different governance arrangements have been in place over the years. The British OTs in the Caribbean consists of six territories and have traditionally claimed more autonomy compared to the OTs overseen by France and The Netherlands. For the British OTs, a looser approach has been taken by British governments. Compared to the British situation, the OTs of France and The Netherlands have undergone more changes. As Hurricane Irma passed in 2017, also these Euro-Caribbean islands have been badly affected and included in particular Anguilla, the British Virgin Islands, Saint Barthelemy and Saint Martin/Sint Maarten. It appeared that all three governments, including the British and French also had to intervene in the disaster response. As argued by Chauvin, Clegg and Cousin (eds.) in Oostindie (2019), all three governments could have done more but that in particular the British response was under criticism. Moreover the same authors argue that; *"the response of the three metropolitan powers to Hurricane Irma has been brought into sharp relief, so too has the way in which their respective governance arrangements have played their part"* (Chauvin, Clegg and Cousin (eds.) in Oostindie, 2019: 24). In relation to natural hazard and disaster management it could provide useful to the Netherlands to look at these countries and learn lessons from their experiences and possibly cooperate in the domain on an international level.

Lastly, a majority of the respondents are of the opinion that much of the success or failure of natural hazard and disaster management between the islands of Bonaire, St. Eustatius and Saba and the European Netherlands seems to depend on the type of person on the job. This is cause for concern, as it could reduce the resilience of the islands in case attention fades away from the subject. Another point of concern is on the one hand the argument made that at times, initiatives are not taken and people tend to wait-and-see, and on the other hand the multiplicity of initiatives that need to be better aligned. The willingness and incentive to work on natural hazard and disaster management is in general present but attention for the topic needs to be continuous and falling in the pitfall of slacking attention must be avoided.

#### **6.4 Evaluation and recommendations**

In relation to the methodology of the research, several strengths and drawbacks can be identified. First, this research is unique in a sense that it combines public administration with disaster governance that takes place in a unusual setting: a post-colonial relationship between the European Netherlands and the Caribbean overseas public bodies of Bonaire, St. Eustatius and Saba and thereby aims at filling a gap in academic literature in the domain of disaster studies. Second, as a student who has been an intern and working at the Ministry of Infrastructure and Water Management simultaneously, a unique insight into the research domain was provided to the researcher, thereby experiencing the modalities of cooperation first-hand. The thesis also contributes to the domain of disaster studies at Wageningen University, for which it appeared to be a unique combination to look into this Dutch system of disaster management in relation to its overseas territory. The fieldwork that has been part of the study increased the strength of the research findings as the researcher experienced the Caribbean herself. By visiting the islands, a better understanding of the research topic was gained and the modalities of cooperation under investigation could be better placed in context. A longer period of time on the islands would have allowed for an even better understanding of the islands and its characteristics. But within the available time and possibilities, the researcher has continuously invested in getting to know the local circumstances and experiencing the culture and islands by talking to people and visiting diverse places on the islands.

The selection of interviewees contributes to the strength of the research results. A diverse set of respondents have been included in the sample selection, including the diverse ministries, KNMI and local representatives from the Public Bodies. Other conversations have been held with people from the islands to increase the understanding of the islands and the research topic. In relation to the selection and number of interviewees, it would have been more valuable to have an equal representation of all the involved ministries as well as local representatives from the Public Bodies, as table 4 in Annex 1 shed light on. This would have increased the strength of the research and thereby contributed to a more complete oversight of the international cooperation and differences for the three islands. Results of the research and analysis could prove useful to those who are now involved in the modalities of cooperation as the identified weaknesses and points of attention are to be taken into consideration and acted upon to increase the effectivity and thereby the resilience to natural hazards on the islands. One last point of attention is the fact that the researcher did not have an extensive background in public administration which made it more challenging to present the results of the research in relation to public administration and governance practices.

In relation to the research results and the presented strengths and weaknesses, the following recommendations for further research are brought to the fore.

- Making a division for the three islands could provide more useful for an in-depth analysis of the three islands and the differences that exist amongst the islands. The way the research was conducted now did not leave much room for differentiation amongst the islands. One requirement would be to include all the identified respondents from table 4 in Annex 1.

- The system of natural hazard and disaster governance does not only include administrative governmental stakeholders. This is especially the case in disaster response, where NGO's and private actors play a large role too. To gain a better understanding of the whole system of disaster management, research should be conducted for the whole system and include other actors as well.
- The research has now been conducted by a student from The Netherlands with a western background. As the research also included cultural aspects, this could have influenced the responses given by the research interviewees. It would be therefore of interest for someone who has a different background or is from the Caribbean to conduct a similar research project.
- An extensive comparative study between The Kingdom of Netherlands, the British Overseas Territories and Overseas France could provide useful to these three political territories and could be aimed at learning lessons from each other in relation to e.g. international disaster management, disaster governance, disaster response or disaster preparedness.

## 7. Conclusion

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In the final chapter of this thesis, the conclusion is presented in which an answer is formulated to the main research questions. It first briefly summarizes the results chapters and answers the sub-research questions which is followed by the answer to the main research question. Thereafter, possible ways forward are presented, aimed at the involved actors.

### 7.1 Summary of the chapters

The special institutional relationship between the islands of Bonaire, St. Eustatius and Saba and The Netherlands is characterized by the fact that the three BES-islands are part of the Kingdom of the Netherlands and are public bodies of one of the four autonomous countries in the kingdom, The Netherlands. As a means of decentralization, the islands are similar to municipalities and are referred to as special municipalities, hereby integrated into the Dutch constitutional and legal framework. The link between the European Netherlands and its overseas territory is through the Kingdom Representative.

In relation to natural hazard and disaster management, a set of regional, national and international disaster management policies are in place, all aiming at providing the Caribbean Netherlands with a system of disaster management that prepares for a diverse set of natural hazards, which includes hurricanes, tsunamis and volcano eruptions. This diverse set of regulation and policies place different responsibilities upon a diverse group of actors and levels of administrative government. The main responsible department for disaster management is the Ministry of Justice and Security. On the local level, the island governor, island commissioner and crisis coordinator are responsible for the proper execution of their disaster management plans. In case a natural hazard threatens to impact more than one island, coordination in the region takes place through the Kingdom Representative.

The administrative governance actors involved in cooperation are mainly the Public Bodies of the islands and include the island governor (or commissioner on St. Eustatius), the island secretary and crisis coordinators. In the European Netherlands, all the ministries have their responsibility and some are 24/7 involved in monitoring. In natural hazard and disaster management, the KNMI plays an important role in keeping an eye out for weather warnings and continuous weather monitoring and if needed, notify the local authorities and NCC in the Netherlands.

The effectivity of the cooperative governance relation between The Netherlands and the islands has been measured through the five OECD criteria and the three statements related to disaster response. The results show that the respondents perceive the relevance high and that cooperation is needed in this domain. In relation to the criteria of efficiency and effectivity, many of the issues relate to the concept of small island development state, in which limitations will always prevail.

To increase the impact of cooperation, the wave motion needs to be taken into consideration and continuous attention is needed to successfully increase resilience of the islands and reduce the risks of disasters. Lastly, the sustainability of cooperation is characterized by progressing with little steps at the time but moving in the right direction. In relation to disaster response, results from the three statements show that diversity can cause difficulties as well as serve as a force multiplier. It is mostly the differences in language and perspective that causes issues. In relation to hierarchy and power relations, opinions differ on the matter and include a perspective that hierarchy is useful and functional. Other opinions show that hierarchy and power relations hinder successful cooperation. Furthermore, positive working relationships and trust seem to be a prerequisite for successful cooperation and is as such an important aspect to persistently work on for the involved actors. Outcomes of the five criteria and three statements all give ways forward to stimulate disaster risk reduction practices for the BES-islands.

Results from the SWOT-analysis indicate that a diversity of elements need to be taken into consideration to further develop and strengthen cooperation between the involved actors from the islands and within the European Netherlands (see Table 2 on p. 69 and p. 70). The strengths of the modalities of cooperation need to be hold on to and further invested in. Mostly, the weaknesses, opportunities and threats require active attention and changes. One of the main aspects is the continues attention that the dossier needs.

In the discussion, the point has been made that in the ideal situation, network governance, as described in the theoretical framework, would function as a model for disaster governance. The formal structures of disaster management relevant to the Caribbean territories include (amongst others) the Veiligheidswet BES, the multi-island coordination plan, the Kingdom Representative and regional disaster management plans and are as such part of the Dutch constitutional and legal framework and hierarchies. It is argued that these two models do not align in practice and that the current modalities of cooperation are to be characterized as a third and hybrid model.



## 7.2 Main research question answered

**Given the fact that the Caribbean Netherlands face the risk of natural hazards occurring and their special institutional relationship, how and how effectively do the islands of Bonaire, St. Eustatius and Saba and the Netherlands cooperate in natural hazard and disaster management?**

Natural hazards such as tropical storms and tsunamis have been present in the Caribbean region for many years. As opposed to the European Netherlands, who do not have a history of extreme natural hazards and extreme weather conditions. This results in a unique situation: the European Netherlands has the responsibility and task to develop governance practices in relation to natural hazards that are uncommon for their own territory and that relates to the other side of the Atlantic Ocean. This therefore requires proper alignment of policy plans intended for implementation on Caribbean islands. The Caribbean Netherlands have been relatively lucky in the frequency and intensity of natural hazards that influence the Caribbean Netherlands. However, in 2017, Hurricane Irma and consequently Storms Jose and Maria, brought about a change and caused significant damage on the autonomous country of Sint Maarten and also damaged St. Eustatius and Saba. This has been one of the reasons that the topic of natural hazard and disaster management became more prominent on the political agenda. It appeared impossible to hold on to the fact that *nothing ever happens*, as natural hazards can happen unexpectedly and the responsibility of the European Netherlands became clear as they had to act and intervene. This caused a shift in discourse and resulted in numerous initiatives taken to strengthen the disaster management practices on the overseas territories. The diverse set of actors involved in administrative governance practices in relation to natural hazards indicate that alignment is needed for the several levels of governance. The special institutional relationship that the islands, as special municipalities, are involved in with The Netherlands appears to be a complicating factor in disaster management. The division of the CAS and BES islands in the Kingdom of the Netherlands complicates disaster response, as well as the position of the Kingdom Representative. As such, this research has investigated a diverse set of criteria and statements to identify more complications and strengths of the modalities of cooperation. The effectivity of cooperation is at times strengthened and at times weakened and is therefore characterized as a wave-motion. The identified complications are to be acted upon to increase the resilience of the islands and thereby contribute to strengthening their position and reduce risks of natural hazards and possible disasters, to serve the ultimate goal of effective cooperation. The current state of modalities of cooperation can be characterized as a hybrid model, in which a combination exists of network governance characteristics and the existing Dutch administrative governance arrangements in place.

### **7.3 A way forward**

Now that the main and sub-research questions have been answered, the question remains on how to proceed forward in the domain of natural hazard and disaster management and the trans-Atlantic modalities of cooperation. Based on the outcomes of this master's thesis, the following main recommendations are brought to the fore. This list is not limitative but mainly serves as a starting point for awareness, discussion and possibilities to the involved actors.

- Reduce the effect of the unavoidable geographical distance: invest in understanding each other's background and getting to know one another is vital for successful cooperation. Avoid using a limited and/or narrow (European) perspective and thereby creating a mismatch between what is intended and outcomes in reality.
- Within the departments in the Netherlands more agreement is needed on the topic and it is important to identify who is in the lead to avoid pointing fingers at each other about responsibilities. This is to be done after a dialogue and discussion in which every participant is equal and can express their opinions on the matter and after agreements have been made, these need to be adhered to.
- Be inclusive in designing disaster management plans for the islands and include the islands' Public Bodies in an early stage to make a better fit and match local circumstances. Inclusion also relates to a comprehensive national risk profile of the Netherlands and should therefore include risks on the Caribbean islands and not just risks that relate to European Netherlands.
- From an international perspective, cooperation with other Euro-Caribbean countries such as the United Kingdom or France should be investigated to learn lessons and possibly cooperate. International initiatives such as CARICOM and CDEMA could be further looked into and used to increase the resilience of the islands and capacities to respond to natural hazards.

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## References to figures

- Figure 1                    **The Disaster Management Cycle**  
Coppola, D. P. (2011). *Introduction to international disaster management*. Second edition. Elsevier.
- Figure 2                    **Location of the BES islands in the Caribbean Region**  
Rijksdienst Caribisch Nederland. (2019b). Eilandgids Caribisch Nederland. Accessed on 15-11-2019. Downloaded from <https://english.rijksdienstcn.com/rijksdienst-caribisch-nederland/documents/leaflets/rcn/island-guide-caribbean-netherlands/2019/island-guide-caribbean-netherlands>
- Figure 3                    **Precipitation chart for Kralendijk, Oranjestad and Windwardside**  
Weather and Climate. (2019). Bonaire, St Eustatius and Saba average monthly precipitation over the year 2019. Accessed on 01/04/2020. Retrieved from <https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,kralendijk-bonaire-bq,Bonaire-St-Eustatius-Saba>
- Figure 4                    **Volcanoes Mount Scenery on Saba and The Quill on St. Eustatius**  
KNMI. 2019b. Volcanoes in the Dutch Caribbean. Accessed on 03-12-2019. Retrieved from <http://www.knmidc.org/volcanoes/>
- Figure 5                    **Damage after Hurricane Irma on Saba**  
NOS. (2017). Irma ging als 'goederentrein' over Saba, maar schade lijkt mee te vallen. Accessed on 01/04/2020. Retrieved from <https://nos.nl/artikel/2191750-irma-ging-als-goederentrein-over-saba-maar-schade-likt-mee-te-vallen.html>
- Figure 6                    **Damage after Hurricane Irma on St. Eustatius**  
BN de Stem. (2017). Oosterhouters bekijken schade op Sint Eustatius: 'Het is voor iedereen op de eilanden een persoonlijke ramp'. Accessed on 02/06/2020. Retrieved from <https://www.bndestem.nl/oosterhout/oosterhouters-bekijken-schade-op-sint-eustatius-het-is-voor-iedereen-op-de-eilanden-een-persoonlijke-ramp~ae95389a/>
- Figure 7                    **The Kingdom of the Netherlands**  
Wikipedia. (2019). The Kingdom of the Netherlands. Accessed on 12-11-2019. Retrieved from [https://en.wikipedia.org/wiki/Kingdom\\_of\\_the\\_Netherlands](https://en.wikipedia.org/wiki/Kingdom_of_the_Netherlands)



Figure 8

**Visualization of public administration on the Public Bodies**

Overbeek, C. (2019). Public administration and disaster management on the Public Bodies. Researcher's publication.

Figure 9

**Multi-island coordination of disaster response in the Netherlands**

Rijksdienst Caribisch Nederland (RCN). (2019d). Update bovineilandelijk coördinatieplan rampenbestrijding en crisisbeheersing Bonaire, Sint Eustatius en Saba. Accessed on 02-04-2020. Retrieved from <https://www.rijksdienstcn.com/documenten/publicaties/rv/coordinatieplan-rampenbestrijding/coordinatieplan-rampenbestrijding-en-crisisbeheersing/index>

## Annex 1: Interviewees and intended research participants from the Public Bodies

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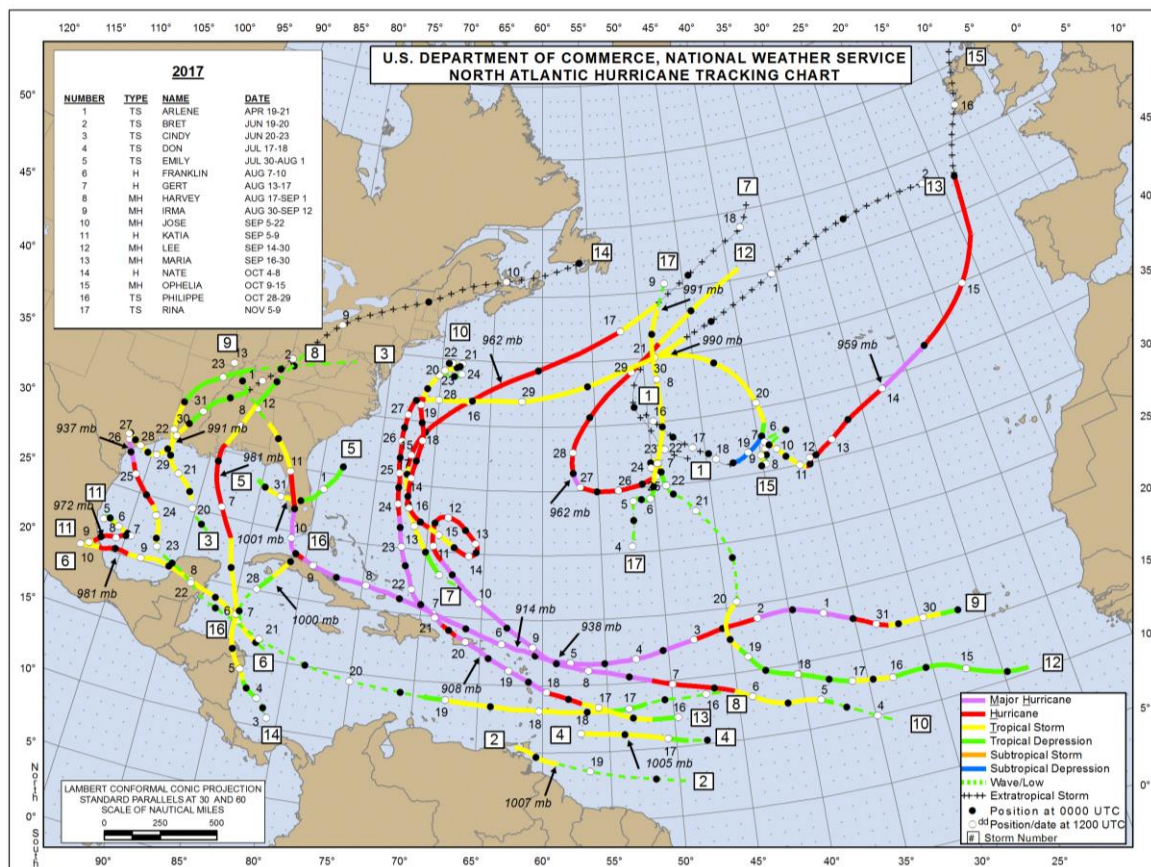
*Table 3: List of interviewees for data retrieval*

**Removed for privacy reasons**

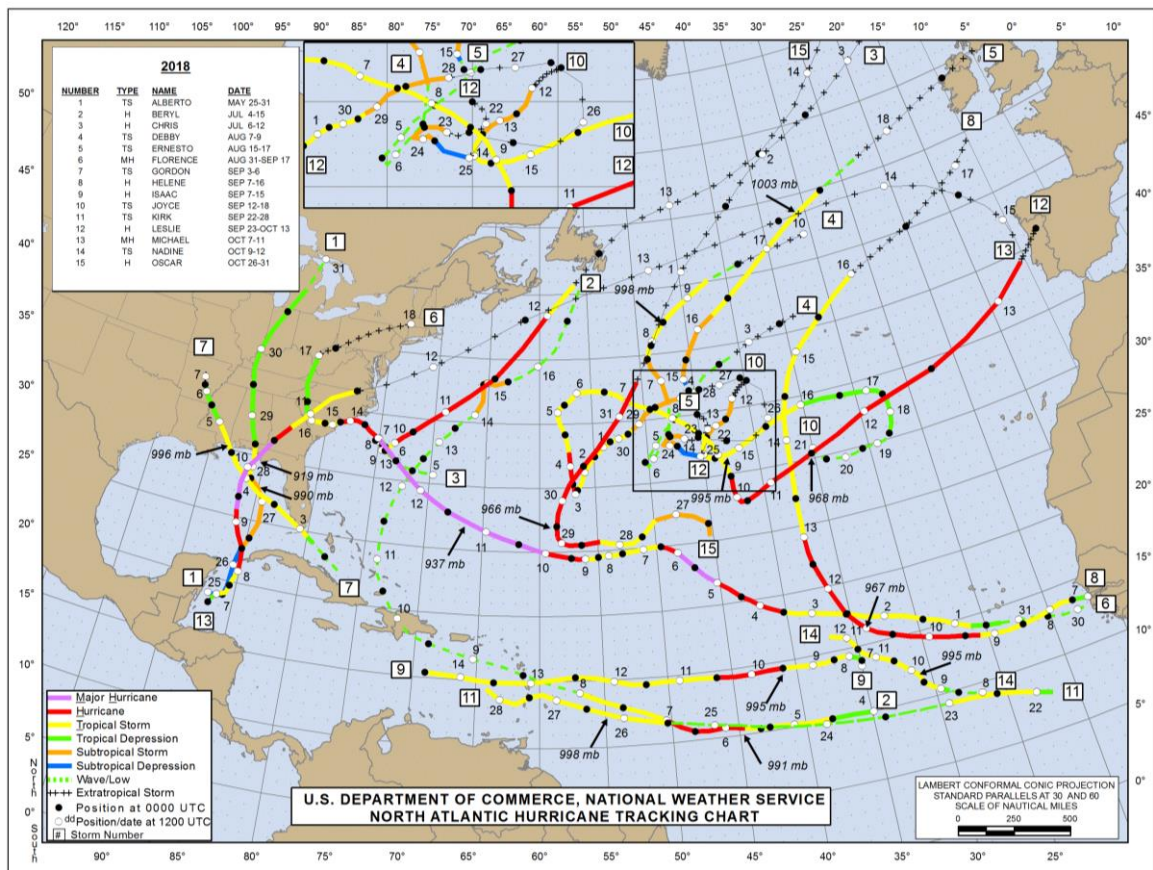
*Table 4: Intended research participants from the Public Bodies*

	<b>Bonaire</b>	<b>St. Eustatius</b>	<b>Saba</b>
<b>Current gezaghebber or government commissioner</b>	Yes	No, appointments had been set with two commissioners, but they were replaced exactly during the fieldwork period	No
<b>Island secretary</b>	Yes	No	Yes
<b>Deputy island secretary</b>	Yes	Yes	No
<b>Crisis coordinator</b>	Partly, as there are multiple external consultants	No, as there was no one in function during the fieldwork period	Yes

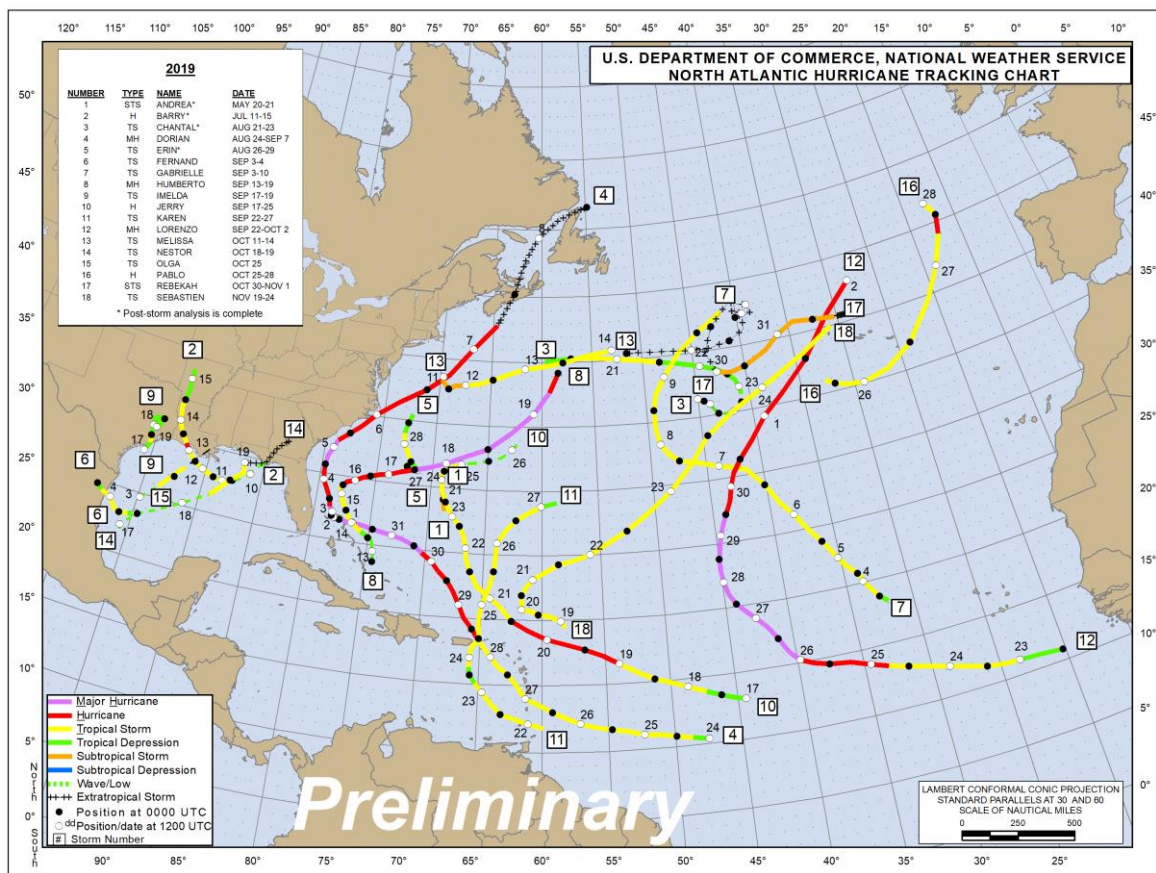
## Annex 2: Hurricane tracking charts 2017-2019



National Oceanic and Atmospheric Administration (NOAA). (2017). NHC Data Archive Past Track Seasonal Maps 2017. Accessed on 03-12-2019. Retrieved from <https://www.nhc.noaa.gov/data/tracks/tracks-at-2017.png>



National Oceanic and Atmospheric Administration (NOAA). (2018). NHC Data Archive Past Track Seasonal Maps 2018. Accessed on 03-12-2019. Retrieved from <https://www.nhc.noaa.gov/data/tracks/tracks-at-2018.png>



National Oceanic and Atmospheric Administration (NOAA). (2019). Atlantic Hurricane Season 2019 preliminary. Accessed on 03-12-2019. Retrieved from <https://www.nhc.noaa.gov/data/tcr/index.php?season=2019&basin=atl>

### Annex 3: Visualization of public administration (Figure 8)

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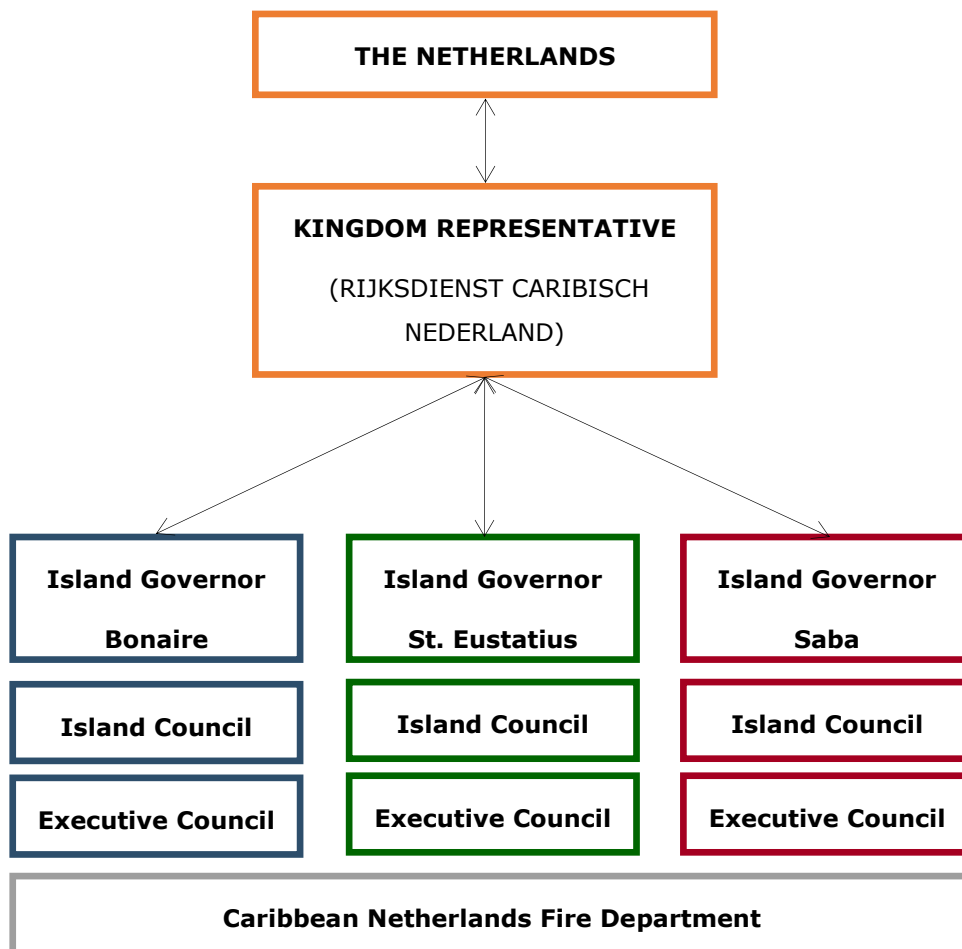


Figure 8: Visualization of public administration on the Public Bodies



## Annex 4: The Kingdom Representative

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Retrieved from:

Inspectie Justitie en Veiligheid. (2018). Onderzoek naar het systeem van de rampenbestrijding op de BES-eilanden. Accessed on 02-04-2020. Retrieved from <https://www.inspectie-jenv.nl/Publicaties/rapporten/2018/06/27/onderzoek-naar-het-systeem-van-de-rampenbestrijding-op-de-bes-eilanden>

De Rijksvertegenwoordiger fungeert als een bestuurlijke schakel tussen de Rijksoverheid (Den Haag) enerzijds en de drie openbare lichamen in Caribisch Nederland anderzijds. De Rijksvertegenwoordiger wordt op voordracht van de Minister van Binnenlandse Zaken en Koninkrijkrelaties (Minister van BZK) door de Kroon benoemd. Hij heeft als algemene taak de samenwerking van de rijksambtenaren in Caribisch Nederland, zowel onderling als met de eilandsbesturen, te bevorderen. Hij rapporteert aan de betrokken vakminister over aangelegenheden dan wel bijzondere bevindingen die openbare lichamen betreffen. De belangrijkste bevoegdheden van de Rijksvertegenwoordiger liggen in de sfeer van het interbestuurlijk toezicht en de bevordering van goed bestuur. De Rijksvertegenwoordiger rapporteert halfjaarlijks aan de Minister van BZK over zijn bevindingen. Daarnaast kent hij bepaalde taken en bevoegdheden bij een ramp of crisis die Caribisch Nederland treft of dreigt te treffen.

De Rijksvertegenwoordiger legt met betrekking tot de rampenbestrijding en crisisbeheersing verantwoording af aan de Minister van JenV en heeft bij rampen en crises vanuit de VwBES de volgende taken, verantwoordelijkheden en bevoegdheden:

### Algemeen

- De Rijksvertegenwoordiger vervult bij bovineilandelijke rampen en crisis een faciliterende rol richting de gezaghebbers door het verzorgen van informatiebeeld over meerdere eilanden, bijstandescoördinatie en ondersteuning van onderlinge informatievoorziening.
- Hij kan zich doen bijstaan door een door hem samengestelde rampenstaf.
- De Rijksvertegenwoordiger is ook faciliterend richting relevante partijen (o.a. het Minister van JenV en BZK en andere ministers die het aangaat in Europees Nederland) voor het verzorgen van een bovineilandelijke beeld en oordeelsvorming over de situatie, mogelijke knelpunten en een advies over de te nemen besluiten zoals bijstandsverlening, schaarste verdeling, maatregelen ter beperking van de maatschappelijke impact etc.

## Informatie

- De gezaghebber(s), Rijksvertegenwoordiger en Minister van JenV verstrekken elkaar de nodige inlichtingen in geval van een ramp of crisis van bovineilandelijke betekenis of een ernstige vrees voor het ontstaan daarvan.
- De Rijksvertegenwoordiger zal desgewenst ook de bewindspersoon van BZK - gelet op zijn coördinerende rol - informeren.

## Bijstand

- De door de gezaghebbers ingediende bijstandsaanvragen in het kader van VwBES behandelen: het beoordelen en doorgeleiden van bijstandsverzoeken;
- De Rijksvertegenwoordiger heeft een eigenstandige beslissingsbevoegdheid wat betreft de vraag aan wie het bijstandsverzoek wordt voorgelegd. De Rijksvertegenwoordiger kan zich richten tot de gezaghebbers van de andere openbare lichamen, een ander land binnen het Koninkrijk of tot de Minister van JenV dan wel, indien bijstand van een onderdeel van de krijgsmacht gewenst is, tot de Minister van Defensie.
- Voor bijstand bij maritieme incidenten richt hij zich tot de Minister van Infrastructuur en Waterstaat (IenW).

## Bevoegdheid tot geven aanwijzingen

- De Rijksvertegenwoordiger kan in geval van een ramp of een crisis van bovineilandelijke betekenis of van ernstige vrees voor het ontstaan daarvan de gezaghebber zo mogelijk na overleg met hem, aanwijzingen geven over het inzake de rampenbestrijding of de crisisbeheersing te voeren beleid.
- Hij kan tevens een functionaris in het openbaar lichaam aanwijzen die in de operationele leiding van de rampenbestrijding of de crisisbeheersing voorziet. Het ligt in de rede dat die taak aansluit bij of in het verlengde ligt van de werkzaamheden welke deze functionaris gewoonlijk verricht. De Rijksvertegenwoordiger kan niet één functionaris voor de drie openbare lichamen aanwijzen.
- De aanwijzingsmogelijkheden veranderen in buitengewone omstandigheden.<sup>4</sup>

In geval er sprake is van een ramp of crisis op zee geldt een ander wettelijk regime, namelijk de Wet Maritiem Beheer BES (Wmb BES). Ook bij rampen en crises op zee wordt er opgeschaald naar de Rijksvertegenwoordiger, zodat deze ook bij incidenten op zee in de rol van coördinator bij incidenten met bovineilandelijke effecten komt. De hierboven omschreven taken en bevoegdheden gelden dus ook voor incidenten op zee, met uitzondering van het toezicht op de planvorming.



## Annex 5: Multi-island coordination (Figure 9)

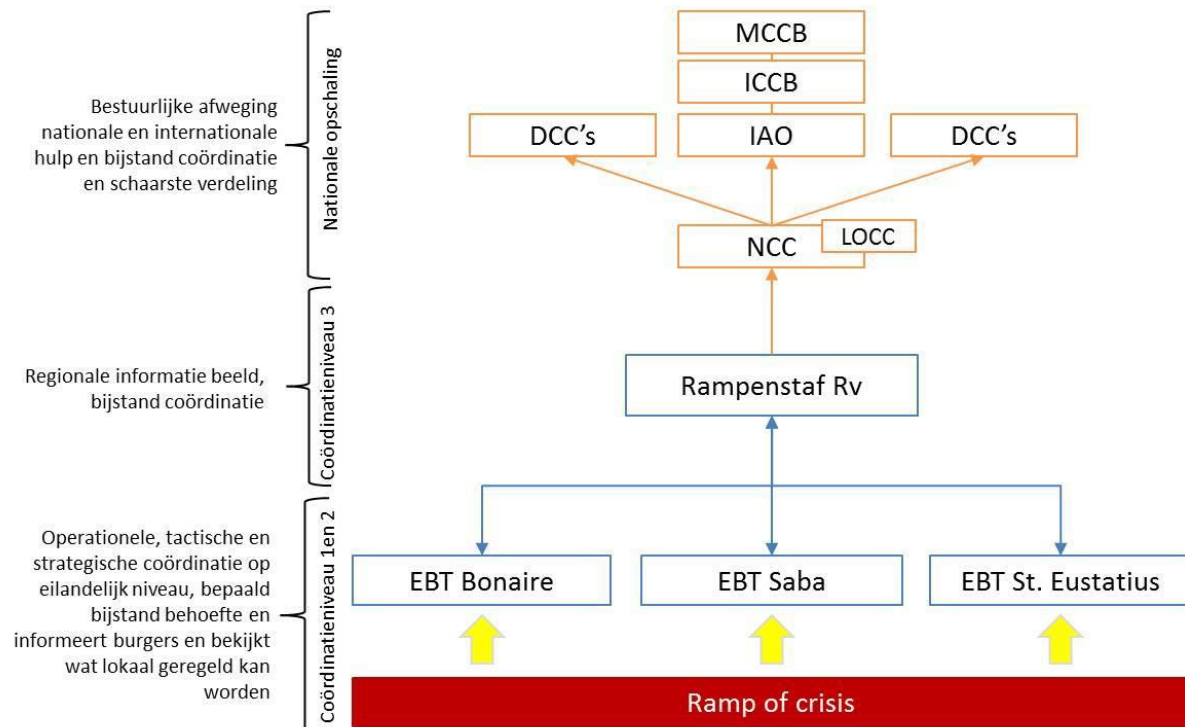


Figure 9: Multi-island coordination of disaster response in the Netherlands (RCN, 2019d)

## Annex 6: KNMI Warning System and Tropical Cyclone Bulletin

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Retrieved from:

Koninklijk Nederlands Meteorologisch Instituut (KNMI). (2019a). Factsheet Hurricane Warnings.

Accessed on 03-12-2019. Retrieved from <http://www.knmidc.org/weather/bonaire/>

The KNMI warning system consists of six (6) color coded warning phases indicating the severity of the conditions and time left before a (potential) storm reaches the community.

Phase	Definition:
	<b>No threat</b>
<b>Information</b> --- <i>Be Alert!</i> ---	<b>A Storm or Tropical Cyclone might threaten the community within 48 tot 72 hours</b>
<b>Watch</b> --- <i>Prepare Yourself!</i> ---	<b>Storm or Tropical Cyclone conditions might threaten the community within 48 hours</b>
<b>Advisory</b> --- <i>Carefull!</i> ---	<b>Heavy rainfall and or rough sea conditions are expected. No Tropical Storm or hurricane is expected</b>
<b>Warning</b> --- <i>Protect Yourself!</i> ---	<b>Storm or Tropical Cyclone conditions expected within the next 36 hours</b>
<b>Strike</b> --- <i>Seek Cover!</i> ---	<b>Storm or Tropical Cyclone conditions expected within 6 to 9 hours</b>

Guideline: might means  $\geq 10\%$  chance, expected means  $\geq 50\%$  chance

During the Information phase (Yellow Phase) KNMI will provide 2 times per day a Tropical Cyclone Bulletin (TCB). During the phases from "Watch" to "Strike" (Orange to Purple) this number increases to 4 times per day to provide the latest available information. These phases and the TCB will be initiated by KNMI in coordination with the National Hurricane Center (NHC). A TCB describes the warning, expected Wind, Rainfall and Maritime conditions. The TCB will be in the English language. See the example on the next pages.

Retrieved from:

Koninklijk Nederlands Meteorologisch Instituut (KNMI). (2019a). Factsheet Hurricane Warnings.

Accessed on 03-12-2019. Retrieved from <http://www.knmidc.org/weather/bonaire/>

## **Example Tropical Cyclone Bulletin**

### **TROPICAL CYCLONE BULLETIN NO. 10**

#### **WARNING MESSAGE NO. 5**

**Date:** Monday September 18, 2017 **Time:** 16:30 local time

#### **Key Messages:**

- **Hurricane watch in effect for dangerous hurricane Maria**
- **Maria is expected to pass 70 miles (112 km) south of St. Eustatius on Tuesday September 19, 16:00**
- **Tropical storm winds are expected from Tuesday September 19, 12:00 until Wednesday September 20, 06:00**
- **20-30% risk Hurricane force winds (CAT-1, gusts 85 mph/140 km/h) from Tuesday September 19, 18:00 until Wednesday September 20, 00:00**
- **Dangerous 25 ft high waves expected from Tuesday 06:00 till Wednesday 18:00, especially during the nearest approach on Tuesday 16:00**
- **Accumulated rainfall 4-6 inch, possibly up to 8 inch, forecasted with risk of life-threatening flash floods and mud slides**

#### **Effect on local conditions**

##### **Winds:**

Tuesday morning easterly winds will increase to tropical storm conditions (maximum gusts 60 mph – 100 km/h) and may continue till the early night to Wednesday. In this period there is a small risk (20-30%) for hurricane wind conditions (CAT-1), with gusts up to 85 mph - 140 km/h from Tuesday afternoon. From Wednesday morning wind speeds are expected to decrease to normal conditions. Wind will turn from East to South during Wednesday afternoon and evening.

##### **Seas:**

A dangerous storm surge accompanied by large and destructive waves will raise water levels by as much as 6 to 9 ft above normal tide levels near where the center of Maria moves across the Leeward Islands.

##### **Rainfall:**

Maria is expected to produce total rain accumulations of 4 to 6 inches with isolated maximum amounts of 8 inches. Rainfall could cause life-threatening flash floods and mudslides.

**Local authorities and residents of Saba and St. Eustatius are advised to continue monitoring the further progress of this weather system and to take all necessary measures to safeguard life and property.**

#### **Center's latest and forecast positions:**

##### **SABA:**

Till Sat Sep 23 14:00 AST, the nearest position is estimated at:

Mon Sep 18 17:00 AST 15.1N 60.7W Category 4 Hurricane 390 km (243 mi) SE of Saba  
Tue Sep 19 02:00 AST 15.7N 61.9W Category 4 Hurricane 258 km (160 mi) SE of Saba  
Tue Sep 19 14:00 AST 16.5N 63.3W Category 4 Hurricane 126 km (78 mi) S of Saba  
Wed Sep 20 02:00 AST 17.3N 64.7W Category 4 Hurricane 160 km (99 mi) WSW of Saba  
Wed Sep 20 14:00 AST 18.2N 66.2W Category 4 Hurricane 320 km (199 mi) W of Saba

**ST. EUSTATIUS:**

Till Sat Sep 23 14:00 AST, the nearest position is estimated at:

Mon Sep 18 17:00 AST 15.1N 60.7W Category 4 Hurricane 360 km (224 mi) SE of St. Eustatius  
Tue Sep 19 02:00 AST 15.7N 61.9W Category 4 Hurricane 230 km (143 mi) SSE of St. Eustatius  
Tue Sep 19 14:00 AST 16.5N 63.3W Category 4 Hurricane 115 km (72 mi) SSW of St. Eustatius  
Wed Sep 20 02:00 AST 17.3N 64.7W Category 4 Hurricane 184 km (114 mi) W of St. Eustatius  
Wed Sep 20 14:00 AST 18.2N 66.2W Category 4 Hurricane 350 km (218 mi) WNW of St. Eustatius

**Definitions:**

HURRICANE WATCH: A warning for hurricane conditions, including sustained winds within the range  $\geq 118$  km/h ( $\geq 74$  mph) ( $\geq 64$  knots) are possible in specified areas in 48 hours or less.

**Next bulletin:**

Monday September 18, 2017, 22:30 local time

