



Multi-layered Safety in Marken: A Policy Arrangement Analysis

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Summary

Climate change, the increase in wealth and population have strengthened the need for additional measures concerning water safety. Climate change effects have consequences water managers. For instance, rise in sea- and ocean levels are to be expected in the future. The increase in wealth and population causes the increase of impacts in case of a flooding. Water safety management in the Netherlands was in the past driven by disaster, this means measures to prevent flooding were only implemented after a disaster. After disasters like the river flooding in the Netherlands in 1995 and the Hurricane Katrina in 2005 the Dutch national government of the Netherlands was determined to develop a new way to manage flood risks.

In 2009 the Dutch national government presented its first National Water Plan to present as a framework for policy makers to develop water safety policy. In their approach to water safety they use the strategy of multi-layered safety. This policy strategy was based on the belief dykes cannot completely offer 100% safety. The strategy involved a three-layer approach to ensuring water safety:

1. Prevention of flooding as main focus of policy;
2. Sustainable spatial planning;
3. Develop disaster management and maintain it.

The first layer involves the strengthening of dykes in order to ensure the prevention of a flooding. The second layer involves spatial measures to improve water safety, such as elevating building to protect them from flooding. The third layer involves crisis management, crisis management in this term is used as the ability to evacuate, such as highlighted evacuation-routes as well as resources allocated to help people to get to safety.

In order to test this policy-strategy in a real situation the government in 2013 instituted 3 pilots to test multi-layered safety as a means of water safety management. The research done by Wiering & Arts (2006) have inspired me to use the policy arrangement approach to analyse policy. Their research was a critical analysis of a the “room for the river” strategy. Their research has inspired me to perform an analysis multi-layered safety. In this research I have chosen the case of Marken. Following this I have defined the following research question:

“How does the implementation of multi-layered safety in Marken affect the policy arrangement of the flood risk/crisis management process in Marken?”

In order to answer the main research question, an operationalisation of the policy arrangement was made in chapter II. The policy arrangement consists of 4 dimensions: actors, resources and power, rules and discourses. Following these 4 dimensions the indicators have been formed.

Concept	Aspect	Dimension	Indicators
Policy arrangement	Organisation	Actors	Policy coalitions Role
		Resources and Power	Knowledge Budgets Expertise Policy instruments
		Rules	Laws Norms Policy
	Substance	Discourses	Policy Strategies Problem definitions Solutions

Copy of table 1 presented in chapter II: The operationalisation of the policy arrangement

In Chapter III the methods of this study are discussed. This research is a single case study in which I used two different time points in the project of Marken. Data collection was done based on semi-structured interviews with policy makers, also policy documents and evaluations were used in the collection of data.

Based on the results I have concluded the following:

Due to the implementation of multi-layered safety, changes in all dimensions of the policy arrangement could be observed. First of all, the discourses of the different policy actors have been changed by the way they approach water safety; the actors have been introduced to their role in ensuring water safety. In the rules dimension of the policy arrangement a shift of importance from laws towards policy has been witnessed, as the national policy accommodates the multi-layered safety approach. Where the law on flood defences did not accommodate the multi-layered approach. In the resources/power dimension, on the other hand, little changes were observed; besides Rijkswaterstaat there were no actors that assigned budgets. Therefore, the budget of the “HWBP” remained the only financial resource. Changes were observed in the possible allocation of the HWBP-2, as policy makers tried to design a solution beyond a single dyke-strengthening. As a consequence of the MLS approach, in the actors dimension, safety regions are now included in the project in order to accommodate the 3rd layer of MLS. Finally, changes have been observed in the policy coalition of the project, as during the MLS pilot the actors worked in close collaboration towards a possible solution.

Table of Contents

Summary	III
Chapter I Introduction	1
1.1 Background.....	1
1.2 Multi-layered Safety	3
1.3 Research goal	8
1.4 Research model	9
1.5 Research Questions	10
1.6 Case description	11
1.6.1 Multi-layered safety in Marken	11
1.6.2 Case justification	13
1.7 Research Outline	14
Chapter II Theory	16
2.1 Policy Arrangement Approach	19
2.2 Operationalisation.....	23
2.3 Conceptual model	23
Chapter III Methods	25
3.1 Research strategy	25
3.2 Research material.....	26
3.3 Data analysis.....	29
Chapter IV: Dyke Strengthening Project Marken 2008	31
4.1 Rules	31
4.2 Actors.....	33
4.3 Power/Resources	35
4.4 Discourses.....	36
4.5 Outcome Project Marken 2008	37
4.6 Table	38
Chapter V: MIRT-Research MLS Marken 2013-2014	39
5.1 Rules	40
5.2 Actors.....	43
5.3 Power/Resources	44
5.4 Discourses.....	46
5.5 Outcome Pilot MLS 2013-2014.....	49
5.6 Table	51

Chapter VI Comparison	52
6.1 Rules	52
6.2 Actors.....	54
6.3 Power/ Resources.....	55
6.4 Discourses.....	56
Chapter VII Conclusion	58
7.1 Conclusion	58
7.2 Discussion	61
7.3 Reflection.....	63
Bibliography	66
Appendixes	70
Appendix I Interview Guide Anneke Mobron.....	70
Appendix II Interview Guide Amélie Strens.....	72
Appendix III Interview Guide André Sluiter	74
Appendix IV Interview Guide Gertjan Winter	76
Appendix V Interview Guide Bert Kappé.....	78
Appendix VI Interview Guide Jochiem Hendriksen	80
Appendix VII Safety Norms per dyke-track	82

Chapter I Introduction

1.1 Background

In the past 30 years, climate change has been of growing importance to the scientific world. The impacts of these climate changes are getting more and more important in the daily lives of civilians, as these changes have widespread consequences. For instance, rise in sea- and ocean levels are to be expected in the future (IPCC, 2013). Not only the rise in sea levels is troubling for water managers in the Netherlands, they also have to cope with rising water levels in rivers. Although IPCC researchers could not find a coherent globally applicable trend in the changes in runoff, they acknowledge that in some regions the runoff has increased, for instance in Northern America, whereas they acknowledge that runoff has decreased in some Western European countries. Moreover, the changes in temperature have inflicted changes in the runoff in the winter period, as rising temperatures cause precipitation to fall as rain more often and the snow melting season starts earlier (Bates, 2008, pp. 21,22). In the Netherlands the “Koninklijk Nederlands Meteorologisch Instituut” (KNMI) produces national climate scenarios. The latest climate scenario was produced in 2015. In this document the KNMI argues that the sea level can rise with 50cm or even 1 meter until the year 2100 depending on the temperature scenario. The KNMI (2015) also mentions that the intensity of extreme rainfall in the summer will increase, also precipitation does rise in general during winter (KNMI, 2015). The Delta Committee (2015) argues that the rise in sea level might not be of high influence on the investment costs in the short- and mid-long term, but it might have consequences on the level of investments necessary in the long-term depending on which climate scenario is used to predict sea-level rise (Deltacommissie, 2015).

These climate changes bring a new problem and new challenges for flood management in the long term. Although this is a pressing development for flood risk management, this is not the only challenge flood risk management has to face. Brouwer et al. (2010) suggest that population growth, increases in wealth and accumulation of assets in areas at risk of natural hazards are the biggest causes of the increase of losses due to natural disasters (Brouwer, Bubeck, & Aerts, 2010, p. 363). Important to note is, that this increase in wealth and population makes areas more vulnerable to flooding, but does not increase the probability of a flooding. This vulnerability is reviewed by Klijn et al. (2007) as possible damage and casualties, which are higher in densely populated areas (Klijn, Baan, de Bruijn, & Kwadijk, 2007). This notion is supported by Barredo (2009) who argues in his discussion section, that even in a hypothetical situation in which climate change is not a factor in

flood losses, still flood losses will be increasing over the years, due to the rise of the standard of living since the 1970's. The exposure of people and assets in flood-prone regions has grown, and still is growing.

The previously mentioned developments all contribute to the growing necessity of flood risk management. According to the European Commission, Europe suffered from over 213 major floods in the period of 1998 until 2009. These floods have caused 1126 deaths as well as displacement of half a million people and over 50 billion euro in insured damage (European Commission, 2007). Due to the growing problems mentioned above, the European Commission instituted the "EU Directive on the assessment and management of flood risks [2007/60/EC], often referred to as the 'Floods' Directive, which came into force late in 2007" (The office of Public Works Ireland, 2015). The Floods Directive aims to set assessments for member states to identify areas of significant flood risk. Furthermore, it requires member states to undertake appropriate actions concerning mapping these hazards. In other words; member states have to make flood risk maps, as well as flood hazard maps. The Floods Directive also requires member states to develop a flood risk management plan.

In the Netherlands water and flood management was, like in most countries, driven by disaster. This means that policy and organisational changes are instituted after a disaster. In the last 60 years' flood risk management and water management have been successful due to organisational changes, but also due to better financial and legal instruments (Slomp, 2012, p. 3). Although the flood risk management in the Netherlands is conceived as sufficient by Rijkswaterstaat (the executive organisation connected to the Ministry of I&E) (RWS), still they recognise conflicts concerning safety and nature values when making flood risk plans. Also they call for adaptation of climate change effects in new plans (Slomp, 2012, p. 3; Ministry of I & E et al., 2011, p.3). Problems concerning the communication between crisis- and flood risk management were addressed heavily in the media, for instance the communication during the hurricane Katrina was insufficient. As images of the hurricane Katrina and the consequences of it, travelled the world, questions were raised on what the impacts would be if a flooding took place in the Netherlands. In order to prepare for a flooding, the minister of I &E instituted the TMO (Taskforce Management Overstromingen) in 2007, which had as goal to better the communication and logistics concerning a possible flooding (Remkes, 2007). The Delta Committee (2008) stated in their advisory report to the government: "The assignment was to view water safety in a broader perspective (..) The insurance of water safety will prevent casualties, societal damage and damage to economy, landscapes and environment." (Deltacommissie, 2008, p. 4). In the report they urge the national government to develop a plan to redevelop the norms and standards for water safety, as well as to maintain these norms better. They argue that the societal

and economic impacts of a flooding are growing, which highlights the urgency of the need for new and reformed policy (Deltacommissie, 2008).

1.2 Multi-layered Safety

As stated previously, the government acknowledges that actualisation of policy is due, as the 'Deltacommissie nieuwe stijl' reported in September of 2008 on a necessity and urgency to review current water safety policy. The twelve-point advice given by the Delta Committee was therefore a stepping-stone to develop new policy. Their advice focused on the revaluation of the existing safety-norms in accordance with the values set by the European Union. This strategy mainly involved the strengthening of dykes to lower the chance of a flooding (Rijksoverheid, 2009a). In view of river flooding in 1995 in the Netherlands and the hurricane Katrina in 2007, the government believes a flooding can never be completely ruled out. The government acknowledged that safety should not only be in the prevention of flooding by building dykes, which sparked the development of multi-layered safety.

Around the same time, in order to combat the pressing developments in the water safety realm, the Dutch government decided to actualize the national water safety policy. Doing so, they published the first National Water Plan in 2009. The first National Water Plan creates a national strategic plan for water managers in general. It deals with policy on water shortage, drinking water, climate impacts on water and water safety (Helpdesk water, 2016). In this plan the government chooses for the adaptation of multi-layered safety (MLS) as central approach of water safety policy.

The government chose to renew the water safety strategy by focussing on a risk management-approach which had as main goal to manage uncertainties in a sensible way. Until that point water management was mainly focused on the prevention of risks. The risk management-approach acknowledges the possibility of a flooding, as a flooding can never be completely ruled out. (Rijksoverheid, 2009b). In the first National Water Plan the government claims that the water safety strategy of prevention of the last century was successful. This strategy was developed in the fifties of the last century by the first Delta Committee. The Delta Committee developed the foundations of safety norms and of water safety policy in general. Their strategy involved the focus on the prevention of flooding. Sturdy dykes and large dunes should be sufficient to protect the population of The Netherlands.

Later on, the policy note on water safety (2009b) came as an addition to the National Water Plan, to further explain and detail the concept of multi-layered safety. In the policy note on water safety the government sets the strategy on water safety for a period until 2040. The aims are to strive for a form of adequate protection, whilst enhancing the resilience in case of a flooding and strengthening the adaptability of water systems in the future (Rijksoverheid, 2009b). In their argumentation the government uses the risk approach in combination with a sustainable approach to focus on multi-layered safety. The multi-layered safety approach is viewed by the government as a means to reach a water-resilient way of building and creating (Rijksoverheid, 2014c).

In the policy note on water safety (2009b) the government adapts the flood risk-management cycle (figure 1). The flood risk-management cycle is used to structure the concept of flood risk. In their vision, the flood risk management cycle covers all the relevant factors of flood risk management. In their argument the government defines 5 different indicators: Pro-action, Prevention, Preparation, Response and Recovery. Pro-action can be viewed as the way vital-infrastructure and vulnerable places can be protected from flooding. Prevention is defined as the construction and maintenance of dykes in order to prevent flooding. Preparation is the degree of preparedness of an area in terms of, for instance; early-warning systems, monitoring of water levels, evacuation plans and risk maps. The response indicator can be viewed as ways of actual coordination during a flooding, for instance medical-response teams and rescue teams. The recovery indicator includes the repairs of physical damage, insurance on risks and psychological help for victims. The government argues that multi-layered safety will accommodate in the 5 different indicators, as the 3 layers of MLS should cover all 5 parts of the flood risk-management cycle (Rijksoverheid, 2009b).

Figure 1 symbolizes the flood risk-management cycle as adopted by the national government. Starting at the top: pro-action followed clockwise by: prevention, preparation, response and recovery.

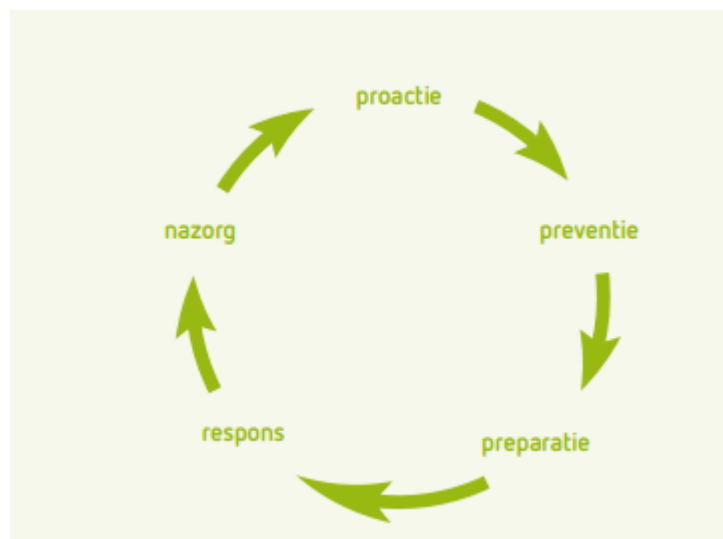


Figure 1: The flood risk-management cycle as in the policy note on water safety (2009b) (Rijksoverheid, 2009b, p.17)

In the policy note on water safety (2009b) the government argues that, based on their previously mentioned strategy, multi-layered safety is a good fit. MLS is viewed by the government as the best suitable option to provide protection against water as well as to reduce societal damage in case of a flooding. In the policy note the government describes their MLS-strategy as a “3-layer strategy:

1. Prevention of flooding as main focus of policy;
2. Sustainable spatial planning;
3. Develop disaster management and maintain it.”

(Rijksoverheid, 2009b, p. 12).

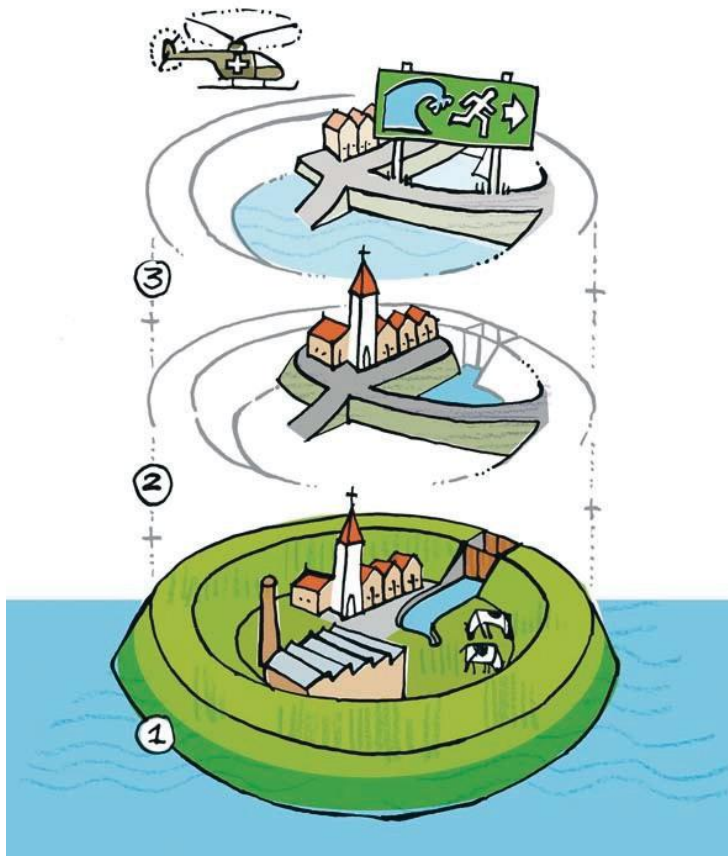


Figure 2: Multi layered safety. Source: (Rijksoverheid, 2009a)

To further specify the definition given by the government, in figure 2 the three different layers of multi-layered safety are illustrated. (1) Illustrates the first layer; Flood prevention. This concerns dyke enhancements and other flood defences to reduce the probability of a flooding. (2)

Illustrates the second layer; Spatial planning, which concerns the planning and development of housing areas et cetera. It is stated that spatial solutions should involve, for instance, building on elevated areas and relocating from unprotected flood-prone areas. (3) Illustrates the final layer of multi-layered safety; Crisis management. Crisis management in this term is used as the ability to evacuate, such as highlighted evacuation-routes as well as resources allocated to help people to get to safety. But crisis management also consists of flood alerts, response and recovery (Slomp, 2012, p. 22) (Hoss, Jonkman, & Maaskant, 2013, p. 58).

Coming back to the flood risk management cycle, there are three parts to this cycle. The water managers should take responsibility for the water management, whereas crisis management should be taken care of by crisis managers. These two should work together, as collaboration is an important part of multi layered safety. Also, under the influence of MLS, spatial planners should be involved in the process of flood risk management, as the second layer of MLS describes the spatial component of flood risk management. Therefore, I can assume the role of spatial actors like the municipality and the province will intensify under the influence of MLS.

Multi-layered safety is still a relatively 'new' approach in the realms of flood risk management in the Netherlands. To 'test' the implementation of MLS in water safety projects, the Ministry of Infrastructure & Environment has started 3 different pilots in 2013. These pilots are: The island of Dordrecht, The IJssel-Vecht Delta, The pilot Marken. All three pilots have been classified as a MIRT-research (Meerjarenprogramma Infrastructuur Ruimte en Transport). In these researches the ministry of I&M allocates additional budget to a specific project. The 3-MIRT pilots have been set up by the government to see how MLS can be implemented in reality. A lot of research has been done by the government, the Ministry of I & E, consultancy agencies and even scientific researchers.

All 3 pilots are very different. Not only based on scale or urgency of the matter, but also on the landscape-characteristics. The pilot in Marken is on a small island in the IJsselmeer area, which makes the project small scaled. The island has a lot of cultural heritage, this requires special approach to enhance the dyke, as this cultural heritage is protected by law. The greater part of the island can be classified as a polder area, because these parts are lower than the standardized IJsselmeer level (Rijkswaterstaat, 2016b). As the initial plan to enlarge the dyke was shut down, Rijkswaterstaat searched for policy alternatives, and found an alternative in the MIRT-Pilot (van Buuren, Ellen, van Popering-Verkerk, & van Leeuwen, 2015). The initial plan of 2012 involved a large dyke enhancement which did not fit the protected town-characteristics, therefore it lacked support of the citizens. Rijkswaterstaat (2014) also stated the costs of this plan were too high, which forced RWS to reform the plans (Rijkswaterstaat, 2014). In their search for new policy, RWS has chosen for

the MLS approach in 2013 for the case of Marken, in order to get a good alternative to the traditional dyke-enhancement. The co-operation with different stakeholders to get a socially desired, safe outcome was a new approach for policy-makers (Rijkswaterstaat, 2014).

In Dordrecht researchers have performed a lot of exploratory work concerning multi-layered safety (Hoss, Jonkman, & Maaskant, 2013) (van Herk, van Zevenbergen, Gersonius, Waals & Kelder, 2013). The research done by Hoss et al., mainly focuses on the cost-effectiveness of the approach, so research on the economic viability of multi layered safety. It delivers an overview of the cost-effectiveness of the possible measures in the Dordrecht case. They conclude in Dordrecht there was no cost-effective multi-layered solution. Hoss et al. (2013) argue that research on the effectiveness of measures should be done on a case-by-case basis. Which expresses the need for case-studies on the multi-layered safety approach. The research performed by Van Herk et al. is more exploratory of nature. They try to analyse the concept in the face of a more comprehensive approach of dealing with climate change. They argue that multi-layered safety sparked creative ideas to deal with water safety issues. The report deals to lesser extent with the earlier highlighted problems in communication between water managers and crisis managers. This is illustrated by van Herk et al. (2013) "Literature provides limited guidance on how to organise a collaborative planning process" (van Herk, van Zevenbergen, Gersonius, Waals & Kelder, 2013, p. 113). This is why it is important for researchers to look deeper into the collaborative aspect multi-layered safety, as flood risk management involves more than one stakeholder. In their paper van Herk et al. (2013) recommend further research into the governance activities involving multi-layered safety, as "The governance activities are not only to engage a broad range of stakeholders to define ambitions and select strategies, but also to explore their legal mandates and willingness to commit or combine resources" (van Herk, van Zevenbergen, Gersonius, Waals, & Kelder, 2013, p. 113). This illustrates the complexity of the multi layered safety approach, and expresses the need for additional research into the planning process of this approach.

The adaptation of the risk management-approach in water safety policy, does not only affect the organisation of water safety. According to Ellen & Van Buuren (2014) it also has consequences for the spatial planning and crisis management. The effects of the adaptation of risk-oriented approach presented in the MLS-strategy by the Dutch government, have not been delineated completely yet. Policy makers need more experience in dealing with multi-layered safety, so that instruments and procedures can be changed accordingly (Ellen & van Buuren, 2014).

Van Buuren et al. (2015) give an analysis of the 3 MLS pilots mentioned before. The goal of their research is to look at the 3 pilots separately to understand how these pilots can contribute to

the development of a new step towards implementing multi-layered safety in the future. In their final provisions they acknowledge that it has taken a couple of decennia to ensure safety through dykes, they go on to mention that it will probably take some decennia to accomplish a flood-risk based strategy (van Buuren, Ellen, van Popering-Verkerk, & van Leeuwen, 2015). In order to look for new steps to implementing MLS, it is important to understand how current policy was influenced by the implementation of the strategy of MLS.

1.3 Research goal

In the face of earlier mentioned climate change and socio-economic change, flood risk management is growing in importance for the public. The social relevance of this research will mainly be useful for policymakers. The adaptation of MLS has implications for policy makers, as MLS requires more deliberation and co-operation between policy-makers in different levels of government (Ellen & van Buuren, 2014). I see the policy arrangement approach as a good fit to investigate how this change in collaboration between policy-makers may result in a change in policy making. In chapter II, I will elaborate further on the policy arrangement approach, and how and why I will use this approach to answer my research questions. As this research focuses on the changes made to policy, it can enable policy makers to review the changes MLS brings to traditional water safety policy.

As I have stated in the paragraph 1.1, 3 MLS-pilots have been instituted by the Ministry of Infrastructure and Environment. In these pilots the ministry tries to test the implementation of MLS-policy. This research will focus on the case of Marken specifically. In chapter III, I will elaborate further on why I have chosen for a single-case study. My research focuses on the changes made in the water safety policy through implementing MLS in the water safety policy of Marken. In this case-study I will try to accommodate the need for more case studies on multi-layered safety, as expressed by the researchers mentioned in paragraph 1.2. In this research I will map out the changes made to water safety policy in the Marken case due to the implementation of MLS in Marken.

For analysis of the Marken case, I was inspired by the approach Wiering & Arts (2006) used in their research. They research in their paper a seemingly discursive shift in the Dutch river management. They assume a discursive shift from 'a battle against water' to 'living with water' or 'accommodating water'. They argue that some authors claim that this change is not a deep institutional change. In their research they want to determine if this shift is a deep institutional change, or this shift is just an everyday change induced by water managers as an adaptation strategy.

In doing so, they used the policy arrangement approach. This approach deals with the institutional aspects, as well as the discursive aspects of policy (Wiering & Arts, 2006).

The multi-layered safety approach to define problems and find solutions to water safety related issues differs from traditional approach of sectoral dyke-enhancements. This approach was adopted by the national government to create a sustainable way to organise water safety. This research investigates the effect multi-layered safety has on the policy arrangement of Marken. In this sense the aim of this research aligns with the research goals set by Wiering & Arts (2006), as this research will focus on the actual changes the adaptation of multi-layered safety has brought to the local policy arrangement of Marken.

Following my ambition to analyse the changes made in water safety policy by the implementation of MLS in Marken, and having chosen my approach in doing so; I have formulated the following research goal:

“Gathering insights on how the implementation of multi-layered safety affects the policy arrangement of the flood risk management process (in Marken) “

1.4 Research model

In this subsection I present my research model.

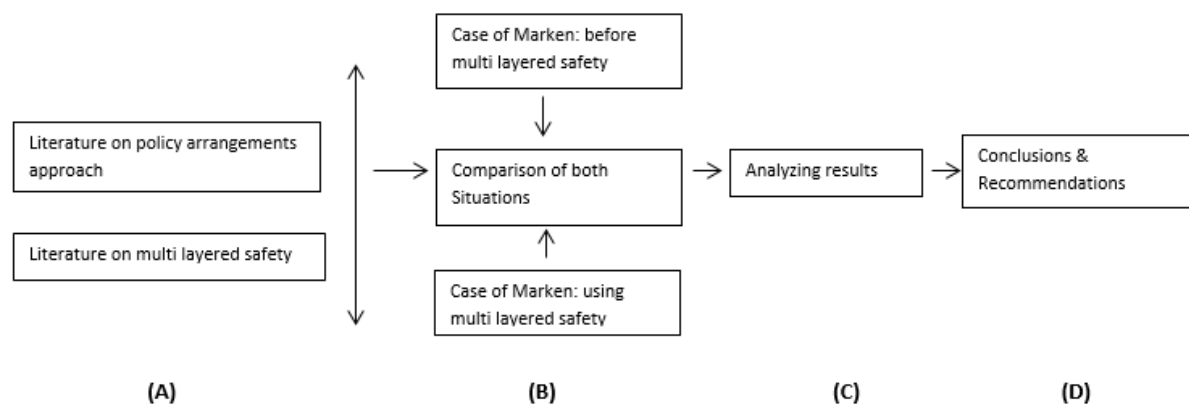


Figure 3: Research model

In figure 3 the research model for this research is illustrated. The research model consists of 4 parts which are used to structure my research. These parts are categorized as (A), (B), (C), (D).

(A) This first part of my research model focuses on the available literature I have used in my research. Using the scientific literature on multi-layered safety I have defined a research gap, and I have defined my research goals. Also the literature on multi layered safety is useful to analyse my results. I have used literature on the policy arrangement approach to structure my analysis of the changes in policy making. After an operationalisation of the policy arrangement approach, I will start with the analysis of the case of Marken itself.

(B) In the second part of my research model I have presented a part of my research strategy. Using the operationalisation of the policy arrangement approach, I have made an overview of the policies of two periods. Firstly, I have analysed the case of Marken, in the phase before the concept of multi-layered safety entered the plans to combat the water safety issues in Marken. In my research I have used the plans of RWS of 2008 to analyse this phase. Secondly I have analysed the phase of the project in Marken when multi layered safety was an option to ensure water safety on Marken. This phase was during the MIRT-research: "Pilot multi layered safety in Marken". This time period was from the start of the project, until the end of the 2nd phase of the MIRT-research (2013-2014). After this, I will compare both situations to each other in order to determine the changes MLS has brought to the policy arrangement.

(C) The third part of the research model visualizes the analysis of the results, after the mapping of the changes made by MLS in the policy arrangements, I have performed an analysis on these changes. This analysis consists of the comparison of the results of my study to the available literature on multi-layered safety in the Netherlands.

(D) After performing the aforementioned analysis, the research questions are answered in the conclusion. After the conclusion I can give recommendations for future researches and policy makers.

1.5 Research Questions

Following the research goal, I have formulated the following main research question:

"How does the implementation of multi-layered safety in Marken affect the policy arrangement of the flood risk/crisis management process in Marken?"

As mentioned before, in this research the policy arrangement approach was used to research changes made in policy making in Marken. The policy arrangement approach consists of four

dimensions; actors, rules, resources, discourses. In chapter II, these dimensions will be discussed more elaborately.

To answer the main research question, the policy arrangement approach has been used to formulate the following sub-questions:

Sub-question 1:

“How have the (in)formal rules of policy changed in the Marken project under the influence of multi-layered safety?”

Sub-question 2:

“How have the roles and policy coalitions of the actors involved changed in the Marken project under the influence of multi-layered safety?”

Sub-question 3:

“How has the commitment and distribution of resources in the Marken project changed under the influence of multi-layered safety?”

Sub-question 4:

“How have the discourses used by policy makers in the Marken project changed under the influence of multi-layered safety?”

The previously presented sub questions have been developed to help answer the main research question of this research. These questions have been formulated using the operationalisation of the policy arrangement approach presented in Chapter II.

Coming back to the research model presented in the previous chapter, the policy arrangement of two periods are used to compare the situation before using multi-layered safety and the situation under the influence of multi-layered safety. Using this comparison, the sub-questions will be answered and ultimately the main research question.

1.6 Case description

1.6.1 Multi-layered safety in Marken

As described earlier in the introduction, a single-case study will be performed in Marken. Marken is part of the municipality of Waterland, situated in the province of North-Holland. Marken used to be

an island in the Zuiderzee. The first settlers arrived on the island in the 13th century. Much later on the island has been connected to land through dyke in 1957, from this time onward, it is considered a peninsula in the IJsselmeer.

But how did this peninsula become a candidate for ‘the pilot multi-layered safety’ of Rijkswaterstaat? The water safety on the Marken peninsula does not meet the current safety standards. In 2006 during the second test-round for the Hoogwaterbeschermingsprogramma-2, the dykes around Marken were tested. Parts of the dyke did not meet the set safety norms. For instance, a part of the dyke has stability issues or is not high enough. In large parts of the dike the safety standards are not being met, especially on the south and west parts of the dyke (Rijkswaterstaat , 2008). Overall Rijkswaterstaat stated that something needed to be done. To solve these problems RWS has worked for years on a dyke strengthening program, but due to the mass enlargement and the cultural and nature effects of this, the public did not see this plan as a good fit. Main concerns of the population were the massiveness of the new dike, which would ruin their view over the IJsselmeer and the view of Marken in general. Some of the inhabitants had a more direct claim to reject the initial plan. These inhabitants would lose some of their land property, which is a critical point, as space is already really scarce in Marken. Also the costs of this plan were considered too high. These arguments led Rijkswaterstaat to heavily reform the plan and research the possibility to adopt multi-layered safety.

In 2013 the Pilot multi-layered safety was launched. The case of Marken was deemed as a suitable option to test the concept of multi-layered safety, as well as to develop a dike-strengthening program that would be suitable for the island, as this approach would leave a lot of space open to develop different strategies. The pilot was instituted by the Ministry of I & E, under their research programmes called the MIRT’s (Meerjarenprogramma Infrastructuur Ruimte en Transport). This programme is under direct supervision of the Ministry of I & E. A MIRT-research has 3 different stages: The orientation phase, the planning phase and the realisation phase (Rijksoverheid, 2012). The pilot in Marken has delivered 6 different strategies after the first phase of the project. These strategies were themed; ‘Markant, Leefbaar en Veilig Marken’ which could be translated as follows; a culturally, naturally appropriate way to create a safe and liveable Marken (Rijkswaterstaat, 2014, pp. 1-10). After developing the 6 strategies, the project team has delivered in the 2nd phase 5 different solutions for the safety-problem in Marken (Rijkswaterstaat , 2014b). Currently the pilot is in the 3rd phase of the MIRT-research. The minister of Infrastructure & Environment has selected a desired solution in the summer of 2016. Further planning and development of the desired solution is currently being realized.

1.6.2 Case justification

Marken as a pilot for multi-layered safety project is an excellent example, as it is still in the planning phase. The plan has not been realized nor finalized yet, and therefore can provide a close inside look into the planning process. According to their timeline at the start of my research, the programme was in the phase where they work out the most viable solutions and they were close to the final selection of the desired solution. At the time of the completion of my project (august 2016), the minister of Infrastructure and Environment has selected a desired solution, doing so in July 2016. This is not problematic for my research, as the gathering of information had already been done by that time.

As the project covers a small area, it is very suitable for this research, because I will be personally able to see the whole project within the limited time I have for this bachelor thesis. The problems stated by Rijkswaterstaat give a clear view in what needs to be done in Marken. The current dyke-system does not meet the current safety-norms, later on I will elaborate further on the current/future dyke norms. The problem defined by Rijkswaterstaat is clear; there is a need for safety on the island, and the contemporary/traditional approach does not meet the needs of the population. The pilot MLS was instituted by them to search for new policy outcomes, in order to solve the standing problems. Therefore, a different approach was needed; multi-layered safety. The need for policy change in Marken connects to my research goal, to research the change in policy by incorporating MLS. This makes Marken a good case for my research.



Image 1 : Map of Marken. Source: [http://www.12prov.nl/noord-holland-topografische-atlas-\(1-25.000\),94.html](http://www.12prov.nl/noord-holland-topografische-atlas-(1-25.000),94.html)

1.7 Research Outline

This research consists of 7 Chapters. In the first chapter I have introduced the goal of this research and I gave a general outline of the research by showing my research model. In chapter II, I discuss the theory used to answer my research questions, the policy arrangement approach. This approach is central in my research and will be visualized in my conceptual model. In chapter III the methods of my research are discussed. These methods are split into 3 different paragraphs; my research strategy, the research material used and the data analysis. After the chapter about methods, I will discuss the analysis. My analysis is split into 3 chapters. In chapter IV I give an overview of the policy arrangement of the Marken project in 2008, in which the four dimensions are described separately, followed by a table summing up the most important points in the policy arrangement. Following this overview, I present in chapter V the policy arrangement of the Marken project during the MIRT-research (2013-2014). The structure of this chapter corresponds with chapter IV. Chapter VI deals with the comparison of the two chosen research moments. In chapter VII, the conclusions are presented, based on my main research question and sub-questions. It also deals with the discussion and reflection of my research.

Chapter II Theory

As made clear in the introduction, I have used the policy arrangement approach (also: PAA) to analyse my research questions. In this chapter I present the theoretical framework used to answer my research questions. Firstly, the justification of my choice for the policy arrangement approach to analyse my research questions is presented. Secondly, I briefly explore the content of the policy arrangement approach and the definition of a policy arrangement. Thirdly, I look deeper into the different dimensions of the policy arrangement approach. In paragraph 1.2 I present the conceptual model. At the end of this chapter the operationalisation of the policy arrangement approach is presented, which I have used to analyse my data.

The strategy of multi-layered safety is still a relatively new approach to deal with water safety, and therefore it is important to look deeper into the new power relations of the involved actors. The policy arrangement approach offers a structured way to link policy changes to larger structural changes within society and the political domain. The policy arrangement approach offers a broad starting point in understanding policy practices (Veenman, Liefferink, & Arts, 2009). The approach is based on multi-actor network models (Wiering & Arts, 2006). The fact that this approach is based on these multi-actor network models makes it very useful in my analysis in the case of Marken, as multi-layered safety requires multiple actors to reach its policy goals. In addition to the elements of the multi-actor network models, the policy arrangement approach pays attention to the institutional contexts wherein the actors involved in policy are operating (Wiering & Arts, 2006). Also the substance of policy making is included in this approach, in other words the essence of what is being said and done in policy. Also the power relations between the different actors in policy making are included in this approach (Wiering & Arts, 2006). For my research especially the addition of the institutional contexts and the power relations for the policy makers are important. The inclusion of institutional contexts is very important in this research as policy concerning water safety in the Netherlands is formally institutionalised by laws and national policy and the allocation of duties of public institutions. Therefore, it is adequate to include the context in which the actors of the Marken project operate. Also the inclusion of the power relations of the different actors in policy making in the Marken case is very important for my research.

Kingdon (1995) mentions social scientists are inclined to look at structural changes to explain policy change, whilst journalists try to look in to the concept of ‘the right person in the right spot at the right time’. He argues both are right, which emphasises the role a specific actor can have in policy-making as well as making the importance clear of a deeper insight into the underlying structural changes (Kingdon, 1995). The argumentation used by Kingdon (1995) emphasises the need

to include structural changes into policy research. Liefferink (2006) argues the policy arrangement approach tries to encompass these structural changes: “Our approach, more than most other meso-level policy theories which tend to focus on only one or two of those dimensions, provides an excellent basis for an encompassing and dynamic analysis of policy processes.” (Liefferink, 2006, p. 45).

Based on the previously mentioned I have chosen to use the policy arrangement approach as main concept to answer my research questions. Using the work of Van Tatenhove et al. (2000), Wiering & Arts (2006) define a policy arrangement as follows: “We can define a policy arrangement as the way in which a certain policy domain – such as water management – is shaped in terms of organisation and substance”. In my research I use their definition of the policy arrangement approach. In this research I define the policy arrangement of Marken as the way in which the water safety management is shaped in terms of organization and substance. Following this definition, a distinction between two different aspects of the policy arrangement approach can be made; the organisation aspect and the substance aspect. Liefferink (2006) argues that the aspect organisation originates from the network theories developed by Marsh & Rhodes (1992). The substance aspect is where the policy arrangement approach really differs from other multi-actor network models. As the policy arrangement approach has been enriched by elements of the discourse analysis by Hajer (1995), Dryzek (1992) and Van Tatenhoven (2000).

In order to use these aspects to research the aforementioned questions, analytical dimensions have to be formulated (figure 4). In a lot of articles, some by the same authors, (Arts, Leroy, & van Tatenhove, 2006; Arts, van Tatenhove, & Leroy, 2000; Liefferink, 2006) the following dimensions of a policy arrangement are used: Discourse, Rules, Actors, Recourses. These four dimensions are the general indicators for the analysis of change in the water safety policy domain, regarding the introduction of MLS in Marken. Actors, rules and resources can be assigned to the organisational aspect of the policy arrangement, discourse is assigned to the substance aspect of the policy arrangement. Also, important to note, rules can also be assigned to the substance aspect of the policy arrangements as some rules can be informal (Wiering & Arts, 2006). Wiering & Arts (2006) define the four dimensions as follows: the dimension discourse consists of 3 indicators, changes in paradigms (ontological), changes in utopias (normative) and changes in policy programmes (strategic). The dimension rules of the game consist of legislation, procedures and political culture. The actors can be characterised as the stakeholders and the coalitions and oppositions in a policy arrangement. Resources can be viewed with the indicators resource constellation, power relations and political influence (Wiering & Arts, 2006).

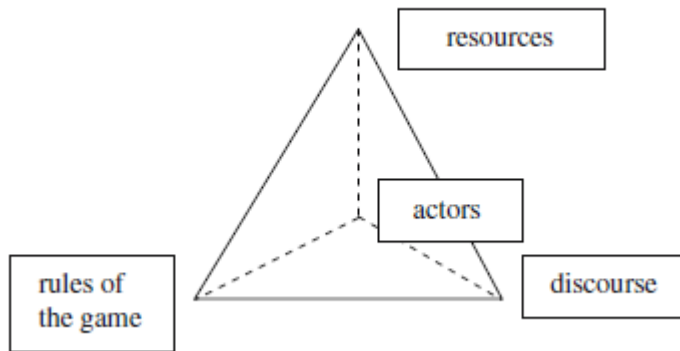


Figure 4 The tetrahedron as symbol for the connections between the dimensions of an arrangement. Source: Arts (2007) political modernization and policy arrangements p.99

In figure 4 The policy arrangement approach is visualized. The tetrahedron symbolizes the interplay of the four dimensions, meaning; changes in one dimension should have consequences for the other dimensions. The interdependence of the dimensions is symbolized by the lines between the dimensions. It is important to note that due to the various influences of the approach, only looking at the four dimensions mentioned separately, will not deliver a clear view of a policy arrangement. The interconnectedness of the dimensions is important to understand the policy arrangement in a certain point in time (Liefferink, 2006). In paragraph 2.1 I will elaborate further on the 4 dimensions and highlight their interconnectivity.

Arts et al. (2006) define policy arrangements as a combination of 3 factors: Political modernization, institutionalism and policy arrangements. “The concept of political modernization, as stated, refers to structural processes of social change and their impact on the political domain” (Arts, Leroy, & van Tatenhove, 2006, p. 97). This means that changes in social awareness have consequences for all political domains and therefore policy domains. Institutionalism refers to stabilization of problem definitions and the development of solutions to problems (Leroy & Arts, 2003). The policy arrangement can be defined as “temporary stabilization of the substance and organization of the policy areas. (...) Stabilization in the sense that the processes of institutionalization are halted.” (Leroy & Arts, 2003, p. 12). Arts et al. (2006) use quite the same definition and define it as: “the temporary stabilization of the content and organisation of a policy domain.” (Arts, Leroy, & van Tatenhove, 2006, p. 96). This stabilization is made in a sense that daily activities in the policy realm have a structuring way of developing patterns. Important to understand is that political modernization and institutionalism are ongoing processes, constantly. The policy arrangement in this sense allows the researcher to temporarily stabilize and halt the processes of political modernization and institutionalism to analyse policy changes.

2.1 Policy Arrangement Approach

In order to use the concept of the policy arrangements approach as an analytical tool to answer my research questions, I have to define the concept more specifically. In this paragraph I will give a more detailed view of the policy arrangement and the aforementioned dimensions of the policy arrangement approach. Firstly, I will discuss the actors, followed by the resources and power, after which I will discuss the rules of the game and finally I will discuss the discourses of the policy arrangement.

Actors.

The actors dimension refers to the policy coalitions and the actors themselves who operate within them. These coalitions have shared beliefs concerning discourses, and will also have the same interpretation of the rules of 'the Game'. They also use their resources and power together to achieve their (more or less) similar goals. Arts & van Tatenhove (2005) argue that this may result in some policy coalitions and actors supporting the main discourses/beliefs, whilst other actors may challenge or oppose the main discourses.

Several distinctions can be made in the definition of the actors in the flood risk management-realm. Article 21 of the constitution of the Netherlands describes that the government is responsible for liveability for its citizens and therefore has the responsibility to take care of the water safety in the Netherlands (Broekmans, Correljé, & van Ast, 2010). The main actors in the realm of flood risk management are the Ministry of I&E, the water boards, the provinces, the municipalities. They all have their own tasks in water management, and so in ensuring water safety. In Chapter IV and V, I will highlight their roles more explicitly.

Also important for my case are the public interest groups. From the outside(externally) they influence the policy making by voicing their interests/beliefs. In the case of Marken one of the main interest groups is the 'Eilandraad' which is a council who voices the interests of the inhabitants of the island of Marken. Liefferink (2006) also defines private interest groups as actors in the policy domain. These private interest groups can be corporations, privately funded interest groups or even individuals. For the case of water management in Marken these private actors are not actively involved (Liefferink, 2006).

Also Knowledge institutions have their role in the development of policy. In the realm of water management institutions like the KNMI and consultancy agencies have influence on policymakers, as they are main sources of information and expertise.

In order to pinpoint which actors had a role in developing policy, it is important to know ‘policy entrepreneurs’ are able to set the agenda. Policy entrepreneurs are characterized by Dahl as (1961) “political figures who use their resources to the maximum to create political change” (Verduijn, 2013, p.33). Although in the past these policy entrepreneurs have been seen as rational calculators, who happen to be in an authoritarian position, recent scholars like Sheingate (2003) have pointed out that policy entrepreneurs can be viewed as creative, resourceful and opportunistic leaders who can influence policy, create new institutions and transform an existing one (Verduijn, 2013, p.34). The theory on policy entrepreneurs can be useful in defining the actors as people who can influence the agenda of policy.

To analyse how the actors in a certain policy domain relate to each other’s interests and power. It is useful to map them accordingly. Liefferink (2006) mentions the importance of the mapping of the different policy actors in accordance with their respective power and ability to

mobilize
resourc
es.

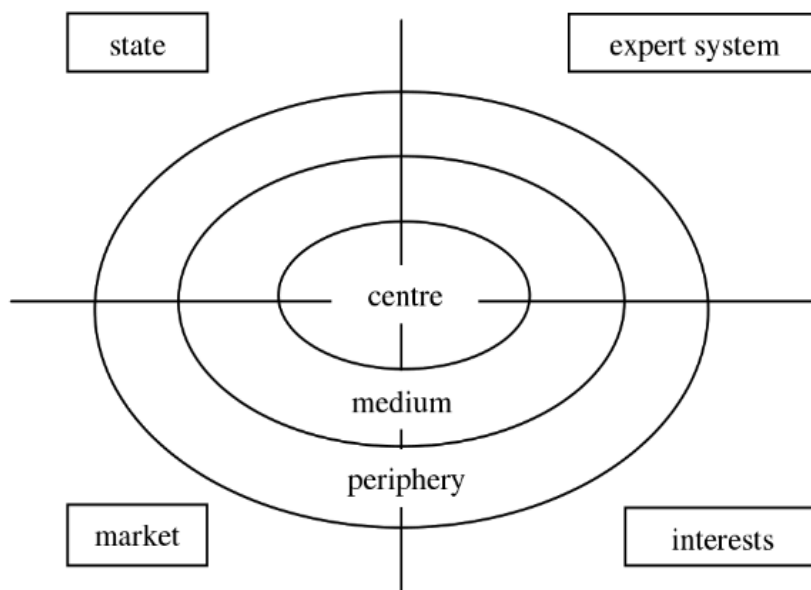


Figure 5 Map of actors in policy domain. Source: (Liefferink, 2006, p. 52), Adopted from (Arts, van Tatenhove, & Leroy, 2000)

Figure 5 visualizes the 4 categories of stakeholders in the policy making process. These stakeholders can be classified into 3 different classes, periphery, medium and centre, stating their power in the policy making process (Liefferink, 2006). My interviews indicate there is no market party involved in the project of Marken, so I will leave this out of my analysis. The other categories can be useful to help identify the role, and power of the involved actor.

Resources and power.

When talking about resources in general these can be; budgets, expertise, information and knowledge. When viewing these resources in the policy arrangements approach the changes in the distribution and the addition of particular resources are important. According to Arts, van Tatenhove, & Leroy (2000) the resources in a policy arrangement refer to the ability of an actor to mobilize resources. Availability of resources reflects on a certain kind of power the actor possesses (Arts, van Tatenhove, & Leroy, 2000). These systems of power symbolize the interrelations these actors have with each other. They argue that this ability to mobilize resources reflects on the actors' ability to change their social and physical environments. This mostly reflects on the ability to use the resources as means to establish power. They go on to argue that the 'constitution of power' is per se unequally divided. Therefore actors will never have the same resource allocation possibilities, which will result in dependencies between actors. In order to make these power relations and resources measurable, I will use the definition by Leroy, Arts, & van Tatenhove (2006), they view resources as the ability to allocate money, knowledge and skill (Arts, Leroy, & van Tatenhove, 2006). In order to allocate these budgets, knowledge and skill, governments use policy instruments to get influence. These are good indicators of how an actor is able to mobilize its resources and reflect on the changes in power relations. Looking at the dynamics of these resources, the state is predominantly responsible for the information and influences on the rules while interest groups mainly provide expertise, co-operation and legitimisation of policy.

Rules of the game.

The rules of the game demarcate a policy domain for actors. It maps out the possibilities of an actor within this certain policy domain. But maybe even more important, it defines the constraints for an actor. The rules of the game consists of rules and norms considering this policy domain. These rules and norms can be split into two different kinds of rules; formal and informal. Formal rules can be considered as rules which are written in laws, legal texts and in plan documents. Informal rules are shaped by the political culture in the given policy domain and can be considered as dynamic (Arts, van Tatenhove, & Leroy, 2000). The rules of policy making change over time, which is an ongoing process. In their article Arts et al. (2000) discuss how these dynamics suggest that under the influence of more fluid and less formalised rules policy change should come easier, but that might not be the case, as formal rules still exist. In my research I will focus on changes in the formal rules as well as changes in informal rules, the former might be hard to link to a single case, as it hard to link changes in formal legislature to a single case. Still it is important to view the changes in formal

legislature in perspective with the changes in Marken. The latter might be more plausible as it is possible to change political thinking with instances of a single case.

Discourses.

The last dimension of the policy arrangement is the discourse dimension. In their paper Arts, van Tatenhove, & Leroy, (2000) mention the importance of the definition of environmental problems, as these are socially and politically constructed. In my opinion this is also applicable in the case of flood risk management, as government policy in general is socially and politically constructed. The discourse dimension can be viewed as the interpretations used by actors to define problems and solutions (Arts & van Tatenhove, 2005, p.343). It is a “Specific ensemble of ideas, concepts, and categorisations that are produced and transformed in a particular set of practices and through which meaning is given to physical and social realities” (Hajer, 1995, p. 355). In this research I will view discourse as the most dominant interpretations of the problems and solutions. This may include buzzwords and policy strategies, as these give an insight on how problems are viewed and how the appropriate solutions are found by the actors.

2.2 Operationalisation

Concept	Aspect	Dimension	Indicators
Policy arrangement	Organisation	Actors	Policy coalitions Role
		Resources and Power	Knowledge Budgets Expertise Policy instruments
		Rules	Laws Norms Policy
	Substance	Discourses	Policy Strategies Problem definitions Solutions

Table 1: Operationalisation of policy arrangements

To summarize the indicators and dimension mentioned in the previous paragraph, I now present the operationalisation of the policy arrangement approach. This is visualised in table 1, above.

In table 1 the starting point of my analysis is visualised. The indicators mentioned have used to structure my analysis of the 4 dimensions of the policy arrangement, also the indicators helped in the coding of my interviews.

2.3 Conceptual model

As was mentioned before, if one of the dimensions changes, the other dimensions should change as well, as they are strongly connected. The adaptation of multi-layered safety into the policy arrangement of Marken. should have implications on all of the 4 dimensions, in order to influence the policy arrangement of the case of Marken. Liefferink (2006) mentions that due to the interconnectivity of the dimensions, change in one dimension should ultimately also reach the other dimensions. Therefore, in practice the analysis can start at every corner of the tetrahedron. He goes on to argue that still it is rather relevant to choose a starting point with the goal of the research in mind (Liefferink, 2006).

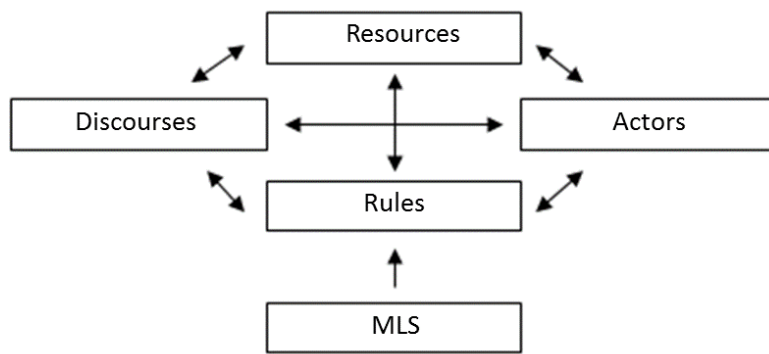


Figure 6 Conceptual Model of the PAA of Marken

In figure 6 the conceptual model is visualised. Here it is visible how I assume that multi-layered safety is influencing the policy arrangement of Marken. This model represents the research-angle. In this research I have chosen to view the adaptation of multi-layered safety as a change in the rules dimension. The introduction deals with multi-layered safety in general and why the national government sees this approach as a good fit to ensure safety in the Netherlands in the future and adopts it as main water safety policy. The goal of this research is to view how the adaptation of multi-layered safety actually affects the policy arrangement of Marken. Following the goal of this research it is most logical to use the rules dimension as starting point, as policy is part of the aforementioned rules dimension.

Chapter III Methods

3.1 Research strategy

I chose to perform qualitative research, as there is no way to quantify the needed information, as this information is scarce and highly contextual. This automatically brings me to the next question at hand, the research shall be a case-study. Yin (2003) argues there are several reasons to perform a single case study, one being the uniqueness of a case (Yin, 2003). Marken is a unique case of the implementation of MLS due to the high-cultural historical value of the Island. This could have high consequences for the implementation of MLS, therefore the case on its own is worth looking into deeper. So a single case study is the design I chose to use, as I want to provide an in-depth look into the complexity of the matter. Also another important factor is the time I can allocate to do so is very limited.

In the introduction I have presented my research model in which I present my general research strategy. Yin (2003) states the importance of the formulation of a theory in a case-study research. Hence, in chapter 2 the conceptual model has been defined, which highlights the interconnectivity of the dimensions of the policy arrangement. There, the main research angle was defined; the effects of a change in the rules dimension on the other dimensions.

An important element in this research strategy is the use of two situations. In order to use the policy arrangements approach to answer my research questions I have to use two different situations in order to investigate the impact of MLS on the PAA of Marken. To highlight the changes MLS has brought to Marken, the PAA of these two situations is used; the PAA of Marken before MLS and the PAA of Marken with MLS. To be more concrete, two time windows are chosen which have been used to analyse the differences. For the situation before multi-layered safety I chose the year 2008 as this is when Rijkswaterstaat published their notion of intent for the MER of the dyke, which was the starting point of the initial dyke enhancement. For the PAA under influence of MLS I chose the time between 2013-2014, as this was the timeline of the 1st and 2nd phase of the MIRT research.

3.2 Research material

Interviews

The main material that I am using to answer the research questions comes from semi-structured interviews that I have conducted with the different stakeholders. I have chosen to use semi-structured interviews to be able to structure the interviews in such a way, that I will get the information I need, whilst still leaving room for the interviewee to give additional insights. With the representatives of these stakeholders I have performed 6 interviews, including; The municipality, the Safety region, the province, the water board and Rijkswaterstaat. These organisations are labelled by me as stakeholders, because all of these organisations are part of the project-group for the Pilot MLS in Marken. These stakeholders have signed an agreement called an 'intention' agreement in which they state their commitment to the project. I have performed interviews with the following persons;

Rijkswaterstaat is the main executor of the pilot study in Marken, hence I have chosen to perform two interviews with them. In these two interviews I have interviewed the project leader for the Pilot Marken and the regional manager of the Pilot Marken. André Sluiter is as project leader of the Pilot MLS in Marken responsible for the progress of the Pilot Marken in general, and reports to the Ministry of I & M as well as the other directors in the Pilot. Amélie Strens is the regional manager for the pilot MLS. She is responsible for the communication between Rijkswaterstaat and the different partners/actors in the Marken area. These two interviewees of this pilot-study gave a clear view of the role of RWS in the process of policy making.

Anneke Mobron is as coordinator spatial planning responsible for the spatial planning of The Municipality 'Waterland', of which Marken is a part of. She has been involved as the representative for the Municipality in the meetings of the project-group from the beginning of the Pilot MLS.

The Water board "Hoogheemraadschap Hollands Noorderkwartier" (HHNK) also has a delegate in the project group. Bert Kappé is as project manager for the water board also a participant of the project-group in Marken. He has been involved with the project since last October (2015).

Participant of the project-group on behalf of the Province of North-Holland is Jochiem Hendriksen. As Policy advisor in the Province he is concerned with water issues for the whole province. He has been part of the project-group since February 2016.

On behalf of the safety region Zaanstreek-Waterland, Gertjan Winter was participant of the project-team from the beginning of the project. Gertjan Winter is coordinator risk-management at the safety region Zaanstreek-Waterland.

The persons, mentioned above give in my opinion a great view into how their organisation has functioned in the project over the years and they can give insights on how the project has developed over the years. As these are the only 5 parties directly and actively involved in the plan making process, this gives a good view on the policy-making process.

I have chosen not to perform interviews with citizens and private interest groups, as this did not align with the focus of this research. My research is focuses on the actors and their perception of the changes made in the policy domain. To put this into perspective; the public is an important factor when analysing policy change, for instance for legitimisation (Lieverink, 2006). The public does not have a direct vote in what policy makers select as most suitable option. Hence I have used the perspectives of the policy makers on the public opinions, as this the way in which the public can influence policy; through policy makers. This is why I have elected to not interview public actors and use their opinions through the eyes of the policy maker. In chapter VII, I will further reflect on this choice.

Interviewee	Date	Location	Function	Interview Guide
Anneke Mobron	10-03-2016	Monnickendam	Coordinator Spatial planning, Municipality Waterland	Appendix I
Amélie Strens	18-03-2016	Haarlem	Area Manager for the Pilot MLS Marken, RWS	Appendix II
André Sluiter	18-03-2016	Haarlem	Project Manager for the Pilot MLS Marken, RWS	Appendix III
Gertjan Winter	21-03-2016	Zaandam	Coordinator risk-management at the safety region Zaanstreek-Waterland	Appendix IV
Bert Kappé	22-03-2016	Heerhugowaard	Project manager Pilot MLS Marken, HHNK	Appendix V
Jochiem Hendriksen	23-03-2016	Haarlem	Policy advisor water, Province of North-Holland	Appendix VI

Table 2: overview of interviewees.

Table 2 shows an overview of the interviewees. All interviews were performed face-to-face. To reflect on the interviews and the process of making appointments; firstly, I approached RWS for information on who to contact within their organisation. As Rijkswaterstaat is a national institute

with many responsibilities, this would take some time for their telephonists to find the person responsible (waiting time around 10 workdays). So secondly I approached the Municipality Waterland, who put me in contact with Anneke Mobron. She helped me to get in contact with the persons responsible with Rijkswaterstaat. Afterwards I have contacted Bert Kappé via Amelié Strens, via e-mail. All interviewees were very enthusiastic about my project, as well as about theirs, and were willing to help me out eventually.

Documents

I used textual sources to further analyse my research questions, and combined these with the performed interviews to develop a clear-cut analysis of the case of Marken. I used these documents for two purposes. Firstly, I used evaluation reports from the Marken case to get a clear view of the case-specifics. Secondly I used national policy documents to get insights in the national developments on FRM in general and MLS.

To further analyse the Case of Marken itself I used some policy documents; in order to track the progress, the Pilot-study has made in Marken, I used the policy documents released by Rijkswaterstaat regarding the 1st and 2nd phase of the MIRT-research in Marken. In these two documents outlines of the proposed policies are outlined. The third policy document on Marken I used is; 'Marken boven water' published by the Rijksadviseur on Water and Landscape. In this document the progress of the Pilot is being analysed by the Rijksadviseur's staff and he gives recommendations to other Pilot studies. The fourth document I will use for the case of Marken, is the one published by the Erasmus University and Deltares, it shows analyses of the 3 pilot studies of which I will only use the analysis of Marken.

To give insights to National developments in regards to MLS I will use three "Deltaprogramma's" in which MLS was featured. In my analysis I have used the Deltaprograms from the years 2013, 2014, 2015. The national government has set goals for water managers in 2050. The Delta programs can be viewed as an interim report on the progress. In these delta programs, the delta commissioner reports on the yearly developments concerning water management, including flood risk management. I have chosen for these 2014, 2015 and because the pilot MLS started in 2013, and I want to get a clear view on how national perceptions of MLS have changed during the pilot.

In the National Water Plans the government sets guidelines concerning water management. These plans are reviewed after a term of approximately 5 years. It also reports on changes in future policy and law-making. Another important fact, in this water plan MLS was first mentioned. I will use

2 national water plans in which MLS is mentioned; the National Water Plan 2009-2015 and the National Water Plan of 2016-2021. Also I use a document concerning the intermediate edit of the National water plan, in which MLS was introduced to the National Water Plan. These plans give a good indication of how MLS is positioned in future FRM-strategies in The Netherlands.

3.3 Data analysis

As mentioned in chapter II, the policy arrangement approach is being used to answer the research question. This approach structures my analysis. The indicators I have made clear in the operationalisation of the policy arrangement approach structure my coding. The process of coding involves the process of summarizing parts of texts and visual data into small categorizations of information (Creswell, 2013).

A grounded theory analysis would have been possible, but the interviews I will be performing will be hard to generalize as there is not really an ungraspable phenomenon to analyse. (Creswell, 2013, pp. 89-90) This is because the main focus will be to gather insights into the process, rather than explaining why the phenomenon multi-layered safety arose. Therefore, the case itself is the most important research focus, rather than formulating a generalizing theory (Creswell, 2013, p. 122). This why was chosen to use a deductive way of coding, using the policy arrangement approach.

Using the dimensions of the policy arrangement I have made four categories of codes. These categories correspond with the four dimensions mentioned in chapter II, and are structuring my coding. I have used the same categories two times in order to distinguish the old and new situation. To further specify my coding, I have used the indicators mentioned in chapter II to make it easier to find specific coding. This coding process can be viewed as a way of deductive coding with pre-made categories. Creswell (2013) defines this strategy as an analysis of themes, in which case-study researchers follow a description and “the researcher analyses the data for specific themes” (Creswell, 2013, p. 293). Creswell (2013) also acknowledges this form of analysis causes some complications. He argues that this can limit the analysis because of fixed coding possibilities. In avoiding this, it is important to be open to additional codes that might emerge while coding (Creswell, 2013). In my coding, whilst coding in categories, I have been open towards new codes emerging.

Validation

In my analysis I have used multiple sources to get my information. Firstly, in the research material I have stated the sources of information. According to Creswell (2013) the validity of a research can be increased by the triangulation of “sources, researchers, methods and theories”

(Creswell, 2013, p. 251). Due to the mix of interviews with policy-makers, policy documents, evaluations by governmental institutes and scientific researchers I aimed to accomplish triangulation of sources. I have not interviewed inhabitants personally. This might be problematic for the validity of my research. In contrast my interviewees have stated public opinions. Also the “Eilandraad” has as published a lot of public response documents to the dyke-enhancement plans. Also the public has no direct influence in the decision-making process.

Practicalities

The information gathered from the interviews and the policy documents was coded using software called Atlas.ti. Using Atlas.ti I created open codes and labelled them accordingly. These codes have been placed into code families, to further structure the overview of the codes I have acquired. This program proved to be useful in structuring the acquired codes from interviews, policy documents and evaluations.

Chapter IV: Dyke Strengthening Project Marken 2008

In this chapter the policy arrangement of the dyke strengthening project in Marken in the year 2008 is discussed. During this stage of the project, Rijkswaterstaat is searching for ways to reinforce the dykes around Marken. This was because the south- and west bank of the dyke did not meet the safety norms (Rijkswaterstaat, 2008b). Besides, the historical quay the “Rozewerf” did not completely meet the standards and needed a special treatment, as this quay is not a regular dyke. The south- and west bank of the dykes around Marken are classified as primary dykes under the Dutch water law. Primary dykes directly protect land from open water. In contrast to other primary dyke embankments, the dyke-ring around Marken is owned by Rijkswaterstaat, whilst most other primary dykes are owned by local water boards. The law on flood defences states that the owner/supervisor of a particular dyke should be in charge of an eventual necessary dyke strengthening project. Therefore, Rijkswaterstaat was the main executor of the dyke enhancement project already in 2008 (Ámelie Strens(Rijkswaterstaat), personal correspondence, 2016).

This chapter starts off by elaborating on the rules which are applicable for the case of Marken in 2008, as these rules structure the responsibilities and obligations of the different actors. In the section about the rules concerning the project of Marken I make a distinction between laws, national policy and safety norms.

4.1 Rules

Laws

In 2008 the “Wet op waterkering” (also known as Law on Flood defences) was in act. It states that the “beheerder” (Supervisor/owner) is the governmental authority who owns the dyke (Law on Flood defences, 1996, Art. 1). By law the owner of the dyke is responsible for the enhancement of the dyke itself. Possible owners are; the national government or a local water board. In the case of Marken this is Rijkswaterstaat. The law also states that during the plan phase the “beheerder” should at least involve: The province, and the municipality of the appropriate planning area (Law on Flood defences, 1996, Art. 8). Their roles are mainly determined by their lawful objectives and obligations. The province defines in their structure vision the general outlines concerning spatial planning, the province will test the plans for the dyke-enhancement to their structure vision (Jochiem Hendriksen (Province of North-Holland), personal correspondence, 2016). The province also carries the responsibility for reviewing the MER (Milieu effect rapportage) in which the plan maker (‘beheerder’) elaborates on the environmental effects of the new dike. Also the province of North- Holland carries the responsibility to test the plans in accordance to the water law (André Sluiter(Rijkswaterstaat),

personal correspondence, 2016). The municipality on its turn has to compare the dyke enhancement to the local “bestemmingsplan”, the dyke has to conform the local allocation plan, otherwise the municipality has to change the allocation plan or the owner of the dyke has to change its plans (Anneke Mobron (Municipality) personal correspondence, 2016).

Of secondary importance for the water safety-management is the Spatial Planning Act, this law describes the responsibilities of the provinces and municipalities as well as the responsibilities of the water boards concerning spatial activities. These responsibilities for provinces cover the establishment of a structure vision of the province, in which it sets spatial guidelines for the lower governments (Jochiem Hendriksen (Province North-Holland), personal communication, 2016). The responsibility of the municipality lies with determining the local allocation plan, in which the water test (‘watertoets’) is performed by the water board (Anneke Mobron (Municipality of Waterland), personal communication, 2016). These documents are important in the sense, that the physical aspects of the proposed dyke should be in accordance with the plans of the municipality and province.

Policy

At the start of the project of the dyke-strengthening project in Marken, the first National water plan was still in development. The national government already in 2007 called for changes in water policy in their water vision (Ministry of Transport, Public Works and Water Management, 2007), as they underline the problems concerning climate change mentioned in the introduction. They acknowledge that there was no coherent and satisfying solution to the extreme weather conditions expected in the future, yet.

The main lines of water safety policy were written down in the HWBP and Law on flood defences (1996). The “hoogwaterbeschermingsprogramma’s” (HWBP) structure all Dutch dyke enhancement projects. In this program the national government and the water boards work together to keep primary dykes up to safety norms, and in this program financing is determined. According to my interviewee at the HHNK, water safety management at the start of the project was mainly focused on the reinforcing of dykes for a long term period. When building a dyke, the focus was on meeting the safety norm for the coming 50 years (Bert Kappé (HHNK), personal correspondence, 2016).

Already in 2003, in The National Administrative Agreement on Water (“Nationaal Bestuursakkoord Water” (NBW)), the water boards, municipalities, provinces and the national government agree to a comprehensive approach towards water policy in general which involves all

actors (Rijksoverheid, 2003). This policy document mainly contains the shared ambition of governments to improve water policy. All the governments declare to develop water plans.

The Province of North-Holland developed their provincial water plan in 2006 called “Bewust omgaan met water”. In this plan the Province of North-Holland defines their long term goal when looking towards primary dykes. “to ensure the safety of the citizens of North-Holland in a cost-effective way.” (Province of North-Holland, 2006, p. 35). The plans also delineate their responsibilities according to the law on flood defences (1996): “The examination of the safety-tests developed by Rijkswaterstaat and the water boards. And the approval of the dyke-enhancement plans including the MER (environmental impacts report)” (Province of North-Holland, 2006, p. 35). Rijkswaterstaat also has to take into account the regulation plans made by the HHNK. These plans include: “Management plan levees and the Water control plan” (Rijkswaterstaat, 2008, p. 43).

Safety norms

The safety norms in 2008 were based on “overschrijdingskansen”. ‘Overschrijdingkans’ in this case means; the mean chance per year that the highest water level on which primary dyke bodies are designed are surpassed. This norm was selected by the first Delta committee in the second half of last century, mainly because the Delta committee could not make a clear connection between the strength of a dyke and the probability of a flooding. The available technology was not capable of measuring the ways water levels impact the stability of a dyke. Sufficient calculation models of the strength of a dyke were not available (Rijksoverheid, 2009a). Therefore the safety norm in 2008 was based on heights and waterlevels. Important to note is that this safety norm only takes into account the dyke itself and not the physical properties of the area it protects. The “overschrijdingsnorm” for the dyke ring of Marken (dyke-track 13b) was set on 1/1250 per year (Law on Flood defences, 1996, Appendix. II). The safety norm has the same mean value for the whole dyke-ring, as the safety norms are based on the dyke-rings as a whole.

4.2 Actors

According to the law on flood defences the main actor in the project of Marken in 2008 was Rijkswaterstaat- North Holland. As stated in the previous section on rules, the owner of the dyke is responsible for the possible renovation and reinforcement of the dyke. This was confirmed by my interviewees at Rijkswaterstaat (André Sluiter (Rijkswaterstaat), personal correspondence, 2016; Amélie Strens(Rijkswaterstaat), personal correspondence, 2016). At the same time, Rijkswaterstaat defines in their startingnotice on the “m.e.r. procedure” (environmental impact report procedure) some additional stakeholders:

“- Rijkswaterstaat IJsselmeergebied

- Province of Noord-Holland

- Province of Flevoland

- Municipality Waterland

- Hoogheemraadschap Hollands Noorderkwartier (Water board)

- Citizens of Marken (..)”

(Rijkswaterstaat , 2008, p. 5). Important to note is that these stakeholders could help Rijkswaterstaat in finding good ‘meekoppelkansen’. In other words, if these stakeholders should see non-water safety related opportunities on or around the dyke to improve the region, they could contact Rijkswaterstaat. Rijkswaterstaat recognised these possible opportunities and fostered these opportunities, but they set some conditions to their cooperation. These opportunities should not slow down the development of the dyke-strengthening, also the safety of dyke should not be undermined. Also, the stakeholders themselves should carry the costs of the possible opportunity (Rijkswaterstaat , 2008).

The Province of North-Holland and the Municipality of Waterland are responsible for the spatial aspect of the dyke. As mentioned, these responsibilities do mainly involve the evaluation of the plans set by the ‘beheerder’. The province’s tasks involve in accordance with the Water law; to make the plans available for the public and finally establish the plans. Besides, the province has to test the plans to the Natura 2000 laws, and provincial regulations (Jochiem Hendriksen (Province of North-Holland), personal correspondence, 2016). The municipality’s role is focussed on the interests of the public and the delivering of the of local permits to build the dykes.

In most other cases of primary dyke-enhancements, the water board is the owner of the dykes and therefore has a leading role in the development of plans. In contrast to most other cases of dyke-enhancements, the water board (HHNK) had in this case a lower influence, because Rijkswaterstaat was the owner of the dykes in Marken. The water board therefore had a limited role in the project compared to other dyke-enhancement projects, as they were not the owner of the dyke (Bert Kappé(HHnk) personal correspondence, 2016). HHNK is mainly responsible for maintaining the water systems within the island such as the ditches on the island itself, which are connected to the dyke enhancements itself, although the impacts on the water systems itself are considered limited by Rijkswaterstaat (Rijkswaterstaat , 2008).

The citizens of Marken have united themselves in the Eilandraad. The Eilandraad is a non-political public interest association which voice the concerns and interests of the inhabitants of the Island of Marken. They have instituted a special committee in 2012 to oversee the dyke-

enhancement project, but have been involved in the project since 2006 (Eilandraad, 2014; Eilandraad, 2013).

4.3 Power/Resources

All dyke-rings which have been rejected during the 2nd test-round (2001-2006) have been adapted into the “hoogwaterbeschermingsprogramma-2” (Hoogwaterbeschermingsprogramma, 2016). As the dyke in Marken was tested and rejected in 2006, the project was adopted in to the “Hoogwaterbeschermingsprogramma -2” (HWBP-2) by 2007. Rijkswaterstaat decided in 2007 to renew the southern part of the dyke-ring completely as well as parts of the western part of the dyke-ring. In the HWBP-2 €21,3 million in total was reserved for the renovation of the dykes in Marken (Ministry of I & E, 2013)

Because the HWBP-2 is financed by the national government, the expected costs of the project had to be financed by the Ministry of Transport, Public Works and Water Management. (Minister of Transport, 2010) Therefore, as RWS was an executor of the former Ministry of Transport, Public Works and Water Management, it carried the financial responsibility of the project. That means in the case of Marken in 2008 the national government is the owner and the planner of the project, as well as the financier of the project. As the HWBP-2 states; the financing of budgets are covered by the National government for 100%, which is paid to the owner of the dyke (Minister of Transport, 2010). Therefore, the other local governments have no budgets available for the dyke-strengthening project. This budget was reserved for the dyke-strengthening only, as the possible “meekoppelkansen” have to be financed by other budgets.

As was mentioned in the rules section of this paragraph, the municipality and the province have a clearly delineated role in the dyke-strengthening project. They have a monitoring role in the case of Marken, their focus is on the spatial domain. The municipality has their local allocation plan as means to influence policy. The province has as means to influence policy; structure visions and specific laws such as the Nature 2000 law (Rijkswaterstaat , 2008). Rijkswaterstaat has to take into account the regulation plans made by the HHNK. These plans include: “Management plan levees and the Water control plan” (Rijkswaterstaat , 2008, p. 43)

4.4 Discourses

As was mentioned in the introduction, approach to organising water safety by water managers was mainly focussed on the development of strong dykes in order to protect the lands. This argument is supported by the starting notice MER (2008) delivered by Rijkswaterstaat. In this document the future plans for the dyke are highlighted. This document contains a lot of technical information about the dyke itself and information about Rijkswaterstaat's approach to strengthen this dyke. In the problem definition of this document, Rijkswaterstaat identifies their primary goals in this project. The goals are to ensure the dyke is being restored and re-strengthened in accordance with the current safety norm based on the "overschrijdingskans". While taking into account the cultural heritage the island houses and respecting natural values of the island. They also identify the importance of the existing recreational function of the dyke, as it is being used as a bicycle path overlooking the IJsselmeer. All together the focus of Rijkswaterstaat can be described as technical and goal oriented (Rijkswaterstaat, 2008). The dyke enhancement should be sufficient for the coming 50 years, so the dyke should be able to meet the safety norms for at least 50 years (Bert Kappe (HHNK), personal correspondence, 2016). The design of the dyke should incorporate this principle, also RWS acknowledges the dyke had to be robust, sober and adequate. Which was the main approach towards restructuring of dykes (Rijkswaterstaat, 2008).

As was mentioned in the actors dimension, the province focuses on the spatial aspects of the dyke-enhancement and has an evaluating function in these spatial aspects. Their focus lies on the provincial monuments and the preservation of the cultural aspects of the island. The province states these monuments and aspects are very important to the spatial quality of the Island. As qualified authority to test the spatial aspects of these plans, defined this as their main points of attention when reviewing the spatial plans (Jochiem Hendriksen (Province of North-Holland), personal correspondence, 2016).

The municipality also mainly focuses on the spatial components of the dyke. Their main concerns were the protection of the protected town-view, cultural heritage whilst considering opinions of the population of Marken. My interview at the municipality indicates the old vision of the municipality was to review the dyke enhancement plans mainly focused on spatial quality, as in their vision the safety of the dyke itself is the responsibility of Rijkswaterstaat. In contrast the municipality was monitoring Rijkswaterstaat's progress on the dyke-enhancement, as the safety of its citizens is of high importance for the municipality itself (Anneke Mobron (Municipality of Waterland), personal correspondence, 2016).

The Eilandraad was involved in the formulation of the plans and had as main points: to ensure safety on the island whilst keeping in mind the needs of the population (Eilandraad Marken, 2014). The Eilandraad mainly focused on the delivering of technical idea's to RWS, "the Eilandraad consists of people with a lot of technical knowledge and the Eilandraad has been active in the project from the HWBP-2 stage" (Amélie Strens (Rijkswaterstaat North-Holland) personal correspondence, 2016).

My interviews indicate that the main approach concerning water safety is a sectoral approach in problem definitions as well as in the search towards possible solution to the problems stated in Marken. Every actor acts within their lawfully defined spheres. Rijkswaterstaat focusses on water safety of the dyke and the composition of the dyke itself, while the province and the municipality focus their approach on the spatial quality. To summarize; the problem definition of the actors was based on the dyke itself, and searched for a solution in the enhancement of the dyke. The role of spatial planners can be characterised as controlling and accommodating, in the sense that they acknowledged the safety issues on the island and realised something needed to be done whilst trying to preserve the physical aspects of the island. This is explained by my interviewee at the municipality; "That is because we are not responsible for the safety on the Island" (Anneke Mobron (Municipality of Waterland), personal correspondence, 2016). Therefore, a focus on the dyke itself was a logical result in solution finding.

4.5 Outcome Project Marken 2008

In 2012 Rijkswaterstaat presented their preferred alternative in the development of a new dyke. With their strategy of "vierkant versterken" Rijkswaterstaat saw a possible solution to the stability issues the dykes face. The plan involves the enlargement of the dykes, in width as well as in height. After the presentation given by RWS to the population of Marken, Rijkswaterstaat concluded there was little support for the plans among the population (Eilandraad Marken, 2014). This was due to two main reasons. The enlargement of the dyke in this plan required a lot of additional land usage. On an island which has a land surface of 2,71 km² this was hard to accept for the population, also some housing is already close to dykes "if you do something there, you literally do it in their front yard" (Amélie Strens (Rijkswaterstaat) personal correspondence, 2016). Secondly the enlargement has effects on the landscape characteristics and the cultural heritage of the island. As the planned enlargement was huge, the inhabitants and the municipality were concerned this would damage the attractiveness of the island (Eilandraad Marken, 2014).

The plans were problematic for Rijkswaterstaat itself, too. The plans were too expensive, and did not fit the budget set for the project. This reason in combination with the reasons mentioned before, sparked Rijkswaterstaat to reconsider their plans (André Sluiter (Rijkswaterstaat) personal correspondence, 2016).

4.6 Table

Actor	Rules	Power/Resources	Discourses
Rijkswaterstaat - Main Actor: Executor of the Dyke-Enhancement - Plan maker	- Law on Flood-Defences - Safety Norms in terms of "Overschrijdingskans" - NWB (2003)	- Financial Budget: HWBP-2. - Knowledge and expertise concerning dyke enhancement.	- Sectoral approach: Dyke-enhancement - Open for additional opportunities
Province of North Holland - Involvement: Evaluation of Spatial components	- Law on Flood-Defences - WRO (Law on Spatial planning) - NWB (2003) - Provincial Water plan 2006-2010	- Wro: Structure vision - Natura 2000 - MER	- Monitoring Physical aspects of dyke: Spatial details
Municipality of Waterland - Involvement: Evaluation of Spatial components	- Law on Flood-Defences - WRO (Law on Spatial Planning) - NWB (2003)	- Wro: Local allocation plan Marken - Local Knowledge	- Monitoring Physical aspects of dyke: Spatial details - Preservation of cultural heritage
Water board of Northern quarter of Holland - Involvement: by reviewing plans to local water safety policy	- Law on Flood-Defences: - Not the plan maker in this case - NWB (2003)	- Control Plan flood-defences - Water control plan - Management plan levees	- Sectoral approach: Dyke-enhancement
Eilandraad - indirect involvement: - influence on plans	- Ability to voice technical suggestions	- File policy complaint ("zienswijze")	- Sectoral approach: Dyke-enhancement. -Preserving cultural values of Marken.

Table 3 The policy arrangement of the Marken project in 2008

In table 3 the characteristics of the policy arrangement of the Marken project in 2008 are visualised

Chapter V: MIRT-Research MLS Marken 2013-2014

After the plan for the dyke-enhancement of 2008 was turned down in 2012, Rijkswaterstaat started looking for policy alternatives. Around the same time, in the water safety realm new developments had risen. As mentioned in the introduction the Ministry of I & E had defined the national policy in 2009 by publishing the first National Water Plan. In this document the first outlines for the multi-layered safety strategy were set. According to one of my interviewees at Rijkswaterstaat, the director of Rijkswaterstaat North-Holland had a major role in starting the Pilot MLS in Marken. “At the Ministry of I&E there was a certain need for pilot studies, eventually MLS was conceived as a suitable option” (André Sluiter(Rijkswaterstaat) personal correspondence, 2016). A combination of the limited depth of the polder (1m/1,5m below IJsselmeer-levels) and the existing pile dwelling, made the case of Marken a desirable case for the testing of multi-layered safety. After a stakeholder-analysis for the multi-layered safety approach, Rijkswaterstaat went into deliberation with; the Province of North-Holland, the Municipality of Waterland, the Water board for the Northern quarter of Holland (HHNK) and the Safety region for the Zaanstreek-Waterland (VrZW). After the deliberations between these parties, the parties agreed to work together in the Pilot MLS. In the beginning of 2013 a quick scan was performed with the five stakeholders (including RWS) to view within one month “what is multi-layered safety in Marken? Does it have potential?” (André Sluiter (Rijkswaterstaat) personal correspondence,2016). Out of these quick sessions was concluded that MLS indeed had potential for the case of Marken.

In this chapter I discuss the policy arrangement of the Marken project for the period of 2013-2014 during the 1st and 2nd phase of the MIRT-project. This chapter starts off by elaborating on the rules which are highly structuring the other dimensions. After dealing with all the dimension, a table representing the policy arrangement of the Marken project 2013-2014 is presented in the last paragraph

5.1 Rules

In this paragraph I discuss the rules dimension concerning the policy arrangement of 2013-2014 for the case of Marken. Firstly, I discuss the laws concerning the project of Marken. Secondly I discuss policy concerning the project of Marken. Lastly I will discuss the developments surrounding the safety norms which are important for the case of Marken.

Laws

During the period of 2013-2014 the Water law of 2009 was in force. This law incorporates 8 different laws into one law. The law on flood defences which was mentioned in the previous chapter, was one of the laws incorporated into the Water law of 2009 (Helpdesk Water, 2016b). The contents of the law concerning water safety, remained more or less the same. The most important change concerning water safety was the incorporation of water into the spatial domain. Later on in 2012 the Delta program was incorporated into the law (Helpdesk Water, 2016c). These changes seem of lower importance than when looking into future developments in policy and safety norms, which I will discuss later on.

Policy

One of my interviewees at Rijkswaterstaat indicated that MLS was mainly adopted into policy rather than into laws, she states: “policy-makers started to look more into the areas and their surroundings (..), this has been stipulated in the ‘delta-beslissingen’ (..) so this is mainly in the policy-corner rather than in laws.” (Amélie Strens (Rijkswaterstaat) personal correspondence, 2016).

As mentioned in the introduction, MLS was mentioned for the first time in the first National Water Plan(2009a) and the Policy note on Water Safety (2009b) came as an addition to the first National Water Plan. In the Policy note Water Safety (2009b), the first layer of MLS is still conceived as the most important part of water safety, as the prevention of flooding is the main goal of policy. The government defines the main policy actors for the first layer as: the old Ministry of Transport, Public Works and Water Management (from 2010 onward; Ministry of Infrastructure and Environment) and the water managers (Water boards and Rijkswaterstaat). The second layer of MLS is viewed in the report as the reduction of damage and casualties due to clever spatial planning. The main policy actors are defined as: Provinces, Municipalities and the Ministry of Housing, Spatial Planning and the Environment (from 2010 onward; Ministry of Infrastructure and Environment.). The third layer of MLS in the note on water safety is defined as disaster management. The main stakeholders are: The safety-regions and the Ministry of Internal Affairs.

In the first National Water Plan itself the government emphasises that the water managers (the water boards and Rijkswaterstaat) are not alone in their responsibility to facilitate water safety (Rijksoverheid, 2009a). The government argues that the concept of multi-layered safety will become a catalyst for a joint approach (Rijksoverheid, 2009b). In the governmental view the water management is a joint responsibility of national government, provinces, municipalities and water boards. The government wants lower government authorities to take act on the nationally defined water policy. Important to note is, that this connects to the governmental view (defined in the Act on Spatial Planning (2006)) of: “Decentraal wat kan, centraal wat moet” (Rijksoverheid, 2009a, p. 33) which means, lower authorities should have greater responsibilities as much as possible, the national government should only act where necessary. Essential to the implementation of this policy is co-operation. The exact responsibilities of the different levels of government are defined in the “in Water Law, and the Environmental Management Act” (Rijksoverheid, 2009a, p. 33).

In the Administrative Agreement on Water (“Bestuurs Akkoord Water”) (2011), the governmental agencies concerning water safety delineate their responsibilities. In facing water safety issues, the dyke “beheerder” is in charge of the production of solutions. After which the water boards, provinces and the national government decide together how to ensure safety. Either by using a dyke-enhancement or some other way, the national water plan is the guiding principle. Agreement also states that, if the possible solutions include significant changes in the spatial domain, the national government and a province or a municipality can be involved as initiator in the orientation of the solutions (Ministerie van I & M, 2011b). I will elaborate further on the specific responsibilities of these actors in the case of Marken in the Actors section of this chapter.

Safety Norms

As mentioned in the introduction of my research, the Delta committee of 2008 delivered the advice to reform current safety norms. This advice on the safety norms involved the adjustment of safety norms in terms of the heights of the norms. At the same time developments in the water safety in the 21st century also sparked the development of new safety norms, as a new approach to calculating these norms was possible. In the Policy note Water Safety (2009b) the government addresses the current safety norms. The government argues that the current is outdated, with current technology and knowledge we are able to calculate dike-strengths as well as the impacts high water levels have on the dike’s stability. The ambition of the government in 2009 was to reform the safety norms to a standard based on the “overstromingskans” of a complete dyke-ring. The “overstromingskans” takes into account the different failure mechanisms in a dyke, the norm gives an insight into how critical factors affect the strength of a dike. Therefore, a more customised fit can

be developed for certain areas, as a broader assessment of different protectionist measures can be made.

The “overstromingskans” can be used to reduce risks of flooding. The new approach to water safety set by the national government not only views the dyke itself, but also takes into account the land it protects. This is called the risk approach. This is illustrated by my interviewee at the Province of North-Holland: “The new approach to dyke-enhancement, is chance times the consequences.” (Jochiem Hendriksen (Province of North-Holland) personal correspondence, 2016). The consequences of a flooding are viewed by the government in twofold: Firstly, the victims and the mortality rate in case of a flooding. The government defines a *basic safety* right for all the citizens protected by a primary dyke, a citizen should at least receive a protection level of 10⁻⁵. This means the chance of a person protected by a primary dyke, dies by a flooding, should never be lower than 1/100.000 per year. Secondly, the damage of a flooding is taken into account, the economic damage and the overhead damage (STOWA, 2014).

The level of protection and the according safety norms for a certain dyke are based on the risk approach, which means, when the consequences are higher (STOWA, 2014). Appendix VII shows the norms per dyke-ring in the Netherlands. The government has set an “overstromingskans” of 1/300 chance per year as the new (future) norm for dyke-ring of Marken. The current safety norm for Marken is set at the “overschrijdingskans” of 1/1250 per year.

The newly defined norm-specifics will be incorporated in the water law, after which these new norms will be the new standard. The target date for the implementation of these new norms is January 1st, 2017. According to the interim-change report (2014), by then agreements on the financing of the changes of the norms should be done (Ministerie van I & M, 2014). My interviewee at Rijkswaterstaat indicates that due to the incorporation of the Delta program the Water law, and the policy choices made in the Delta Decision Spatial Adaptation (2014), the new norms (1/300 “overstromingskans in Marken”) are already available to use in the Marken case (Amélie Strens (Rijkswaterstaat) personal communication, 2016). The use of these norms and therefore the calculation of the magnitude of the dyke-enhancement are essential to the approach of multi-layered safety. This is illustrated by my interviewee at the Rijkswaterstaat: “ The thought was, maybe we can use multi-layered safety to achieve the safety-norm, by using a dyke-enhancement, as well as the other two layers. This could mean the magnitude of the dyke-enhancement could be lower than when only reinforcing the dyke.” (André Sluiter (Rijkswaterstaat) personal correspondence, 2016). He argues the approach of multi-layered safety is only possible under the safety norms based on “overstromingskans”, as these take into account the hinterland of the dyke. Whereas safety norms

based on “overschrijdingskans” are directly based on the dyke itself, which leave no room for interpretation to solution finding when a dyke does not meet the safety standards (André Sluiter (Rijkswaterstaat) personal correspondence, 2016). Therefore the implementation of the new (future) safety norms are important for the case of Marken, as these norms are necessary to be able to search for solutions to achieve safety beyond a dyke-enhancement only.

5.2 Actors

As was stated in the rules section of this chapter, the incorporation of the water law in 2009 did not have effects on the responsibilities of the different actors. Although, due to the incorporation of MLS into the first national water plan, the field of actors active in the development of water safety policy changed.

Flood risk management in the Netherlands is highly institutionalised on different levels of government. Due to the changes to the approach to water safety mentioned in the first NWP, the actors involved in the process have changed.

On the national level the Ministry of Infrastructure and Environment is responsible for spatial planning and flood protection. The Ministry of Security and Justice has the task to determine the national risk assessment, which includes flood risks. The provinces operate at a lower level of government, they are responsible for spatial planning, in their structure vision they determine which area's should be nature, urban or agricultural. Also they have a role in setting standards for infrastructure and secondary dikes. At the lowest level of government, the municipalities have the task to direct spatial planning in their “bestemmingsplan” in accordance with the guidelines set by the Provinces. At the same level of government, the water boards have the responsibility to manage water and provide flood protection at a regional level. For disaster management the Netherlands have developed 25 safety regions in which emergency services and public health services have grouped at a regional scale (Slomp, 2012, p. 35). For the case of Marken in 2013-2014 the actors are; Rijkswaterstaat, the Province of North-Holland, the Municipality of Waterland, the Water board for the Northern quarter of Holland (HHNK), and the Safety region for the Zaanstreek-Waterland.

At the start of the MIRT-research a broad project team was created. The five previously mentioned partners took seat in the project team. The project team consists of with three layers. Firstly, there is the officials (‘ambtelijk’) level in which non-elected government officials co-operate to develop plans. Secondly, the management level, in which the directors of the five organisation are

put together to deliberate on a higher level. Thirdly, the highest-authorities of the five parties deliberate on the decision-making. These high level-authorities are, the Minister of I& E, the mayor of Zaanstad (as head of the safety-region), the director of Rijkswaterstaat, the mayor of Waterland. (André Sluiter (Rijkswaterstaat) personal communication, 2016). So all these parties work together to generate a possible solution for the Marken-project. This can be considered as a form of policy coalition, as these parties have stated the intention to work together in achieving the policy goals of MLS.

In 2013-2014 Rijkswaterstaat is still the main executor and plan maker of the project of Marken. The province and the municipality are still responsible for reviewing the spatial implications of the plans. The responsibilities of the HHNK are still focussed on reviewing the technical effectiveness of the dyke enhancement. The safety region of Zaanstreek-Waterland is involved as new actor in the project for the period of 2013-2014. The safety region's responsibilities mainly concern the organisation of crisis- and disaster management.

The Eilandraad was during the MIRT-research involved in advising and reviewing the plans in general. The Eilandraad is concerned with the interest of the inhabitants of Marken in general, concerning safety as well as physical aspects (Eilandraad Marken, 2014).

5.3 Power/Resources

In this paragraph the power and resources used during MIRT-research are described. Firstly, I will discuss the financial resources concerning the project, followed by the allocation of these resources. Secondly, I will discuss the knowledge factor in this stage of the project. Finally, I will discuss the role of the new ownership of the dyke.

During the pilot, the entire old financial budget (€21,3 million) was placed under the n-NWBP ("nieuwe- Hoogwaterbeschermingsprogramma"). Therefore, the complete budget for the project in Marken assigned in HWBP-2, which was appointed in 2006, was reserved as a means of financing of the outcomes of the MLS-pilot (Rijksoverheid, 2012). After parts of the north side of the dyke were found inadequate during the 3rd test-test-round, additional budgets were granted for the renovation of the northern part of the dyke around Marken. These combined budgets were placed under the n-HWBP, the new value of this budget is estimated by one of my interviewees of Rijkswaterstaat as €30-€50 million in total (André Sluiter (Rijkswaterstaat), personal correspondence, 2016). The Marken-project did not receive additional funding for the realisation of a multi-layered solution. Although the ministry probably would be willing to grant additional budgets in case of a suitable, payable multi-layered solution. "I think they would be willing to allocate additional budgets, suppose

in this fictional situation; we have a budget of €50 million for the dyke strengthening and for €60 million we could have been able to achieve basic safety (..) as long as the additional costs are limited.” (Andre Sluiter (Rijkswaterstaat), personal correspondence, 2016).

The adaptation of the project into the n-HWBP allowed changes in the means of planning the dyke enhancement. This is illustrated by my interviewees as follows: “We can also say; we renovate for 25 or 50 years, the planning period of 50 years is not a given factor anymore” (Jochiem Hendriksen (Province of North Holland), personal correspondence, 2016). “In the new “hoogwaterbeschermingsprogramma” the lifecycle-costs are important, so not only the investment costs but also the upkeep costs. (..) Maybe it is possible to do more small investments to a couple of times, instead of a very large one at once” (Amélie Strens (Rijkswaterstaat), personal correspondence, 2016). Therefore, it was possible for the actors to look into short term investments in the dyke, for instance a 25-year short-cyclical renovation, which means a smaller dyke could be developed.

My interviews indicate, the actors besides Rijkswaterstaat had no budgets for the project of Marken, therefore the n-HWBP was the only financial input to the project. My interviewee at the Province of North-Holland mentions “To my knowledge there were no resources allocated to the project at the start of the project.” (Jochiem Hendriksen (Province of North-Holland), personal communication, 2016). This is also confirmed by my interviewee at the Municipality of Waterland “We are a small municipality with little resources (..) if we want to do something we would have to apply for subsidy at higher level governments” (Anneke Mobron (Municipality of Waterland) 2016).

Rijkswaterstaat had as plan maker the duty to acquire the knowledge possible. My interviews at Rijkswaterstaat indicate that a lot of knowledge and expertise was hired from consultancy agencies involving the technical aspects of the dyke and concerning plans in the 2nd and 3rd layer. The MLS-approach required a lot of knowledge on the new laws and safety-norms, as the material was new to everyone. To solve this knowledge problem, Rijkswaterstaat received help from its own ministry on the implication of the safety-norms and laws (André Sluiter (Rijkswaterstaat), personal correspondence, 2016).

My interview at the safety region indicates there was a specific need for knowledge on the 3rd layer. In the development of a crisis-management plan they had a need for specific knowledge. My interview at the safety region indicates this need was twofold: Firstly, the need for flooding-scenarios, in which the details of a flooding are worked out. For instance, information on the water-levels, time until the whole area is flooded. Secondly, the need for information about critical locations, like electricity distribution stations and electricity lines. Antea-group was commissioned by

Rijkswaterstaat to deliver the flooding-scenario. The safety region itself worked with electricity-grid operator Liander to get an overview of the critical locations (Gertjan Winter (VrZW), personal communication, 2016).

My interviewee at Rijkswaterstaat states: “together we have defined the MLS ambition, together we have tried to come up with these ideas”. This indicates the looseness of the power relations under the influence of multi-layered safety.

During the MIRT-Research the influence of the HHNK changed due to the “bestuursakkoord water” (2011) in this document the water boards agreed to take over the ownership of the primary dykes in the Netherlands. In the case of Marken, the HHNK would take over the responsibility of the dyke after the completion of the dyke in Marken. Therefore, it gave the HHNK a good bargaining position in the project, as the terms of the takeover would be negotiated after completion of the project. My interviewee at HHNK mentions: “The dyke will be taken over by us, it is important to us that we get a good dyke. (...) We want a strong and easy to maintain dyke.” (Bert Kappé (HHNK), personal communication, 2016)

5.4 Discourses

The adaptation of multi-layered safety sparked an open approach in finding a solution for the project of Marken. The five parties mentioned before were put together in a project team with Rijkswaterstaat as the ‘trekker’ (main actor) of the project. The goal of this project-team was to look how they could implement multi-layered safety into the project of Marken. In this project-team every actor covers their own responsibilities, while also delivering input on parts beyond their own responsibilities. In this paragraph I will highlight the discourses used by the different actors under the open approach of multi-layered safety.

The interviews I have performed at Rijkswaterstaat indicate the adaptation of the approach used in the first National Water Plan (2009). This is illustrated by one of my interviewees “suppose anything goes wrong, as no-one can deliver 100% safety, what can we do different?” (Amélie Strens(Rijkswaterstaat) personal correspondence, 2016). This corresponds with the vision presented in the first National Water Plan. In their approach they wanted to assure safety using the three levels at the same time.” The main thought was, maybe we can use multi-layered safety to reach the same norm as usual. But now with the dyke and the two other layers, these two layers could cause the dyke to be able to be lower. “(André Sluiter (Rijkswaterstaat) personal correspondence, 2016). The previously stated indicates a search for a solution beyond a dyke alone. Also Rijkswaterstaat continues their strategy in involving the population in the planning phase, through means of the

involvement of Eilandraad. Because MLS was a new approach for to ensure water safety, Rijkswaterstaat organised several workshops to inform the population about the developments in the case and listen to their opinions (Amélie Strens (Rijkswaterstaat) personal correspondence, 2016).

The province acknowledges that a dyke-enhancement is still very important to ensure safety, while using the multi-layered safety approach to broaden their view of water safety policy. This is illustrated in their water plan for 2010-2015 “We embrace the multi-layered safety of prevention, limitation of consequences and hazardous situations involving flooding. (..) Prevention – the enhancement and maintaining dykes- is, and will be the most important pillar in our water safety policy” (Province of North-Holland, 2009, p. 11). The province had in the case of Marken a focus on the possibilities for the 2nd layer of multi-layered safety. The province looked into the possibilities of solutions like; restructuring of neighbourhoods to make them safer, the heightening of buildings, ‘waterproof’ building styles. The province focused in Marken on the improvement safety in terms of prevention of casualties and damage by flooding through layer 1 and 2. Where they acknowledge the main responsibility for layer 1 lies with Rijkswaterstaat in this case. Where the province itself has clear responsibilities in spatial planning (2nd layer). Whilst helping the search for possibilities the province, they kept in mind the provincial monuments and the preservation of the cultural aspects of the island (Jochiem Hendriksen (Province of North-Holland) personal communication, 2016).

Before the start of the pilot MLS in Marken, the Municipality of Waterland was hesitant towards the MLS approach, as the municipality’s main concern was the safety of its citizens, as was illustrated by my interviewee: “we just want the dyke to be strengthened (..) we are willing to participate, but some things have to be guaranteed.” (Anneke Mobron (Municipality of Waterland) personal communication, 2016). The Municipality of Waterland’s focus in the plans was on the 2nd layer of MLS in order to look for alternatives to the massive dyke presented in the “vierkant versterken strategy”. They have looked into 2nd layer solutions, which is very similar to the way the province of North-Holland approached MLS. The municipality also acknowledged the prevention of flooding itself was very important in the process (1st layer), and Rijkswaterstaat carried the responsibility for the execution of the first layer. “Rijkswaterstaat has the responsibility over the dyke and will re-strengthen it.” (Anneke Mobron (Municipality of Waterland), personal communication, 2016). Already in 2008 the cultural heritage and the opinions of the citizens were important to the Municipality’s approach, during the period of 2013-2014 it still was important.

The HHNK was involved in the project in the deliberations, the Water board for the Northern quarter of Holland (HHNK) had a background role due to the fact that its main responsibilities mainly

involve the 1st layer of MLS, and in this project RWS was the main executor of the 1st layer of MLS. HHNK has an open attitude towards new policy developments concerning all layers, while also having eye for its own responsibilities, such as the authority over the water systems on the Island itself. “Maybe an overflow-resistant dyke will be implemented (..) we have to be able to drain these overflows which is our responsibility” (Bert Kappe (HHNK), personal communication, 2016). My interview indicates HHNK’s approach to solution finding was focused on the first-layer because the HHNK would take over the dyke after completion of the project. In their vision the solution to the problems in Marken the should be a smart solution in which all layers are represented, but their focus remains on the first layer.

Safety region for the Zaanstad-Waterland’s focus was mainly on the organisation of crisis and disaster management, in the 3rd layer of multi-layered safety. According to my interviewee at the safety region the 2nd layer of MLS was also deemed important by the Safety region, as these layers are connected. He states: “Fundamentally, we are not responsible for the 2nd layer, but it has a strong relation to the 3rd layer, it deals with vulnerable objects and hazardous companies, these can be involved in the plan” (Gertjan Winter (VrZW), personal communication, 2016). In general, the safety region was open towards the deliberations and tried to advise about possible steps in the 2nd layer. The safety region also underlines the importance of public participation in the project, as my interviewee states: “Developing a plan, we did that in cooperation with the citizens themselves” (Gertjan Winter (VrZW), personal communication, 2016).

The Eilandraad was involved in the making of the plans, although they were not included in the project-team, the Eilandraad reviewed the plans of the project-team and delivered input to the project-team. My interviews indicate that the Eilandraad mainly focused on the dyke-enhancement as their members possessed a lot of technical knowledge. This is supported by the reaction to the plans presented by Rijkswaterstaat in 2014, at the end of the 1st phase of the MIRT-research, in which the Eilandraad states: “We are willing to contribute to the plans concerning MLS, but we expect the basic-safety to come from 1st layer solutions” (werkgroep dijkversterking van de Eilandraad, 2014, p. 11). Also during the time period of 2013-2014 the public participation may have been intensified in general, as for Rijkswaterstaat it was important to create public acceptance for the plans. This is illustrated by my interviewee at Rijkswaterstaat as follows: “from the start citizens have been involved in the process (..) already in the phase before the official start of the pilot. So we have been continuing with this, and maybe we even intensified it. We put extra effort in involving the population.” (André Sluiter(Rijkswaterstaat), 2016).

Overall the discourse of the involved actors can be characterised as follows: The involved actors were open towards the concept of MLS, and the actors embraced the open approach to policy making. While being open to the process during the pilot study, the actors also had eyes for their own interests and responsibilities. This is mentioned by my interviewee at Rijkswaterstaat: “We started this together. We have defined our multi-layered safety ambition together, to find these solutions together (..) And you notice sometimes they vote for solutions which better fit their needs.” (Amélie Strens (Rijkswaterstaat) personal communication, 2016). Also my interviewee at the municipality mentions “We all have input in the process, naturally everyone on its own field” (Anneke Mobron (Municipality Waterland) personal communication, 2016).

5.5 Outcome Pilot MLS 2013-2014

In this paragraph the results of the pilot MLS in Marken after the 1st and 2nd phase of the MIRT-research are presented.

After the first phase of the MIRT-research the project team presented ambitions towards multi-layered safety in their report. Their ambition was characterized as “Markant, Leefbaar, Veilig” which translates to; A strategy towards a locally fitting, liveable and safe solution for Marken. As mentioned in the introduction this resulted in 6 different strategies. Some strategies involved actions in all 3 layers of MLS, while some others only involved actions in the 1st layer. These strategies have resulted in five directions of solutions, presented after the second phase of the MIRT-research. Important to note is, in four of the five solution-directions the focus lays on the on the 1st layer solutions with an additional basic bundle in the 3rd layer to enhance safety. The focus of these four directions therefore is on the first layer, which will ensure safety in these four solutions in Marken. The fifth solution involves a short-cycle dyke enhancement and in order to ensure safety on the island, in this solution all three layers are a factor in achieving water safety. In the short run the 1st and 3rd layer will be used to achieve safety, as the possible measures in the 2nd layer cannot deliver safety to the Island (Rijkswaterstaat , 2014b).

In the report on the end of the 2nd phase is mentioned the 2nd layer are not viable options in achieving basic safety in Marken, at least not in the short term. This is due to a five reasons. Firstly, in simulations, the island of Marken floods like a ‘bin’. Therefore, when considering compartmentation, the secondary dykes around the residential areas would have to be as high as the primary dykes. In combination with the subsidence of the soil, this would become a very expensive operation (Rijkswaterstaat , 2014b). Secondly there are few spatial developments in Marken, therefore the

elevation of buildings would have to be paid from a water safety perspective, which makes it very expensive. It would be possible to organise the elevation of buildings during restructuring of neighbourhoods, but this restructuring is quite a process, and takes a long time (Jochiem Hendriksen (Province of North-Holland) personal correspondence, 2016). Thirdly, due to limited space on the island there is no space for retention basins, in which overflow could be stored. Fourthly, the effect of a lower norm due to spatial developments is very low. The difference is very little when designing a dyke with the safety norm of 1/300 (to ensure water safety only in first layer) or a dyke of 1/100. The height of the dyke would merely differ around 5 centimetres. Therefore, solutions in the second layer would not be cost effective (Rijkswaterstaat , 2014b). Fifthly, it was shown that there would be little public support for a solution in second layer in order to lower the norm in the first layer (Rijkswaterstaat , 2014b). Following these five reasons, the project team concluded second layer solutions were not a viable option in the short term. In the long term however they acknowledged possibilities in developing in a water resilient way, while remaining conservative because of the few spatial developments in Marken. (Rijkswaterstaat , 2014b).

My interviews indicate also in the third layer it was hard to find a way to contribute to the basic safety of the population of the Island. According to my interviewee at Rijkswaterstaat it is hard ensure basic safety through third layer solutions. He states:

“The number of casualties in case of a flooding in Marken is very low. The models suggest 1,6 casualties in case of a flooding (..) these norms are connected to the number of casualties in case of a flooding. So you have to invest an enormous amount in the third layer solutions to bring this number down, which is almost impossible because 1,6 is already very low. (..) also on the third layer you will not bring down the damage flooding causes. (..) you would have to use the second layer for that. And that costs are way too high, you will not get a return on those investments in the current situation.” (André Sluiter (Rijkswaterstaat) personal correspondence, 2016).

Therefore, a multi-layered safety solution to the water safety issues was not possible. Still the outcome of the pilot suggested the 2nd layer approach could be a good development in the long term. Although through the 3rd layer basic safety could not be ensured, the project team decided it might still be good to develop an evacuation plan and a basic set of measures in the 3rd layer. “To be continue the cooperation between the project team after the 2nd phase of the MIRT-research, all members of the project team signed an intention agreement. In this document the actors state their ambitions for the future and clarify the responsibilities of the actors concerning water safety in Marken in the Future.

5.6 Table

Actor	Rules	Power/Resources	Discourses
Rijkswaterstaat - Main Actor: Executor of the Dyke-Enhancement - Plan maker - Part of the policy coalition	- Water law - First NWP - Open interpretation of norms - Safety norms in terms of “overstromingskans” - Basic safety - Administrative Agreement on Water (BAW)	- Financial Budget: n-HWBP - Has or Hires; Knowledge and expertise - More knowledge and expertise required	Open approach: - Deliberation - Cooperation on 3 levels - Participation of citizens to create public support
Province of North Holland - Direct Actor - Spatial planning - Part of the policy coalition	- Water Law - First NWP - Provincial Water plan 2010-2015 - Wro (Spatial planning act) - Administrative Agreement on Water (BAW)	- Structure vision - Natura 2000 - MER - Provincial monuments - Policy rules - Provincial Water plan	Open approach: Deliberation - Focus on 2 nd layer - Cooperation on 3 levels
Municipality of Waterland - Direct Actor - Spatial Planning - Representative of Population - Part of the policy coalition	- Water law - Wro (Spatial planning act) - Administrative Agreement on Water (BAW)	- Wro: Local allocation plan Marken - Cultural heritage (protected) - Knowledge of local characteristics -Local allocation plan	Open approach: Deliberation - Focus on 2 nd layer - Cooperation on 3 levels
Water board of Northern quarter of Holland - Direct Actor - Part of the policy coalition	- Water law - Administrative Agreement on Water (BAW)	- New owner of the dyke after completion - Control Plan flood-defences - Water control plan - ‘Waterkeur’ HHNK	Open approach: Deliberation - Focus on 1 st layer - Cooperation on 3 levels
Safety Region Zaanstreek-Waterland - Direct Actor - Crisis management-expert - Part of the policy coalition	- Role determined in First NWP - Role not yet incorporated under water law.	- Knowledge of the safety-realm	Open approach: Deliberation -Focus on 3 rd layer -Participation of citizens - Cooperation on 3 levels
Eilandraad - Indirect Actor - Actively involved in submission of ideas	- Ability to voice MLS suggestions due to openness RWS	- File policy complaint (“zienswijze”) - Knowledge of local characteristics	- Partially in favour of Dyke-enhancement.

Table 4 Main characteristics of the Policy Arrangement of the Marken-project in 2013-2014

In table 4 the characteristics of the policy arrangement of the Marken project in in 2013-2014 are visualised

Chapter VI Comparison

In the previous chapters I have discussed the policy arrangement of the Marken project in two different time windows. In this chapter a comparison between the case of Marken during the dyke enhancement of 2008 and the case of Marken during the MIRT-research MLS of 2013-2014 is made. The conceptual model visualizes the implementation of multi-layered safety into the policy arrangement. Using this model, the impact the implementation of multi-layered safety into the rules dimension of the policy arrangement of Marken has been visualised. The implementation should have effects on the local policy arrangement of the Marken case. In this model the interconnectivity of the four different dimensions were visualised, which implicates a change in one dimension should have impacts in the other dimensions. As a start the rules dimension will be discussed, followed by the other dimension in the same order as the previous chapters.

6.1 Rules

Laws

In the law on flood defences (1996) the responsibilities of the actors in 2008 are delineated, the approach towards the strengthening can be defined as sectoral, the focus is on the dyke itself. The involved actors all have their assigned responsibilities. In 2013-2014 the water law (2009) was in force, this law delineates the roles of actors more or less in the same way with as the law on flood defences (1996) whilst also incorporating the spatial aspects of water safety into the laws. My interviews have indicated that the changes brought by multi-layered safety in 2013-2014 were mostly elaborated on in policy rather than laws and acts. The most important changes in the law mainly concerns the change in safety norms, which will be discussed later on.

Policy

Already in 2003, in the national administrative agreement on water, all levels of government decided to align their goals towards integrating water policy into spatial plans. This was visible in the plans published by the HHNK and the Province of North-Holland, in which they embraced the vision of a more comprehensive approach towards water safety presented in the national administrative agreement on water (2003). During the start of the MER procedure Rijkswaterstaat (2008) recognises the local water plans of the Province of North-Holland and the water plans of the HHNK. Also the Rijkswaterstaat takes the local allocation plan of the Municipality of Waterland into account, but the municipality did not yet develop a municipal water plan concerning water safety in 2008.

Due to the setup of the MIRT-Research Multi-layered Safety in Marken, the national policy goals of the first National Water Plan (2009) were implemented in the policy arrangement of Marken. The main policy goal of the NWP (2009) was to use the approach of multi-layered safety to reach a sustainable way of managing flood risks on a socially acceptable level. In this strategy prevention is still the main pillar of policy, where sustainable planning and crisis management would accommodate the management of flood risks.

The MIRT-research caused a shift in the development of policy. Instead of generating policy per actor and take these policy documents into account when making a plan for the dyke enhancement, the actors worked together to develop one comprehensive approach to the safety question at hand. Due to the openness of the in the solution finding of the project team during the MIRT-research, it was important for policy makers to look deeper in to development in national policy and new safety norms to find possibilities herein.

Safety norms.

The safety norms which had to be fulfilled in 2008 by plan makers were based on the “overschrijdingskans”. As explained, these norms are based on the dyke itself, and do not take into account the hinterland of the dyke and the impacts of a flooding. This explains the sectoral approach used by Rijkswaterstaat in 2008. As the law on flood defences states these safety norms had to be fulfilled, Rijkswaterstaat needed to bring the dykes around Marken up to standards.

The safety norms used by Rijkswaterstaat during the MIRT-research of 2013-2014, accommodated the search for policy alternatives to the dyke-enhancement in Marken. These safety norms are based on the “overstromingskans” in which take into account the hinterlands and the impacts of a flooding. The consequences of a flooding are viewed by the government in twofold: Firstly, the victims and the mortality rate in case of a flooding. The government defines a *basic safety* right for all the citizens protected by a primary dyke, a citizen should at least receive a protection level of 10⁻⁵. This means the chance of a person protected by a primary dyke, dies by a flooding, should never be lower than 1/100.000 per year. Secondly, the damage of a flooding is taken in into account, the economic damage and the overhead damage. Although these safety norms have not yet been incorporated into the water law, these safety norms were already available to use in the plan making due to the incorporation of the delta decisions into the water law. Also, these safety norms will be implemented in 2017, before the realisation of the project (Rijkswaterstaat , 2014b). This sparked a way in which multi-layered safety was possible.

6.2 Actors

In 2008 the approach to ensuring safety on the island of Marken could be characterised as sectoral and lawful. The main actors in the policy arrangements acted within their own field. Rijkswaterstaat was the main executor of the dyke-enhancement project, and was responsible for the stability and safety of the dyke (and still is). Rijkswaterstaat defines the necessity to accommodate their policy in accordance to the spatial and environmental plans of Marken. Also, under influence of the national agreement on water (2003) the Province, Municipality and the water board were included in the project group of the dyke enhancement of Marken. Together they were seeking for a suitable dyke-enhancement for the Island of Marken. The roles of the Province, Municipality and the water board can be described as controlling, as they test the dyke-enhancement plans to their own policy-instruments. And mostly had eye for their own responsibilities according to the law. Rijkswaterstaat's function as main executor was still responsible for the water safety on the island in general. HHNK's role in the project was mainly focused on the water systems of the island and the 'watertoets'. The roles of the Municipality and the Province concerned spatial planning in general.

During the MIRT-research a new actor was brought the picture, the safety region (VrZW). This is because the 3-layer approach did not only require water managers and spatial planners to facilitate the first and second layer of the multi-layered approach, but also required the inclusion of crisis managers in order to facilitate the third layer. The safety region did not participate in the plan making before the MIRT-research, as the safety region was not yet founded during the dyke-enhancement of 2008. Also even after the foundation of the safety regions in 2010, water safety was not on the agendas of safety regions. (Gertjan Winter (VrZW) personal correspondence, 2016).

The five government agencies formed a policy coalition in which they closely worked together in finding a solution to the safety problem in Marken. "what has changed is, that these parties much more looked together for solutions instead of doing it on their own" (Gertjan Winter(VrZW) personal correspondence, 2016). In this policy coalition the parties still had their own roles accordance to their lawful responsibilities. The safety region's role involved the organisation of crisis management in case of a flooding. In contrast to the project in 2008, during the MIRT-research all worked together to finding solutions which differ from a dyke-enhancement alone.

6.3 Power/ Resources

Budgets

In 2008 the project of Marken was placed in the HWBP-2. The funds of the HWBP-2 were appointed to the dyke-strengthening project. The allocation of these resources were focussed on the dyke itself. The budget for the dyke-enhancement of 2008 21,3 million in to renovate the dykes. The financing of this budget was completely done by the national government. The other actors did not have budgets assigned to the project of Marken.

During the MIRT-research the project of Marken was adopted into the n-HWBP. The adaptation of the Marken project into the n-HWBP, meant an increase in budget available for the project. This was due to additional funds required for the north side of the dyke. The project itself did not receive additional funding to realise a multi-layered solution from the Ministry of I & E. Although my interviews have indicated the willingness of the ministry to allocate a limited addition to this budget, if a suitable multi-layered solution would be found. Due to the adaptation of the national policy of multi-layered safety, the resources could be allocated in various layers. These resources would have to be used in the most cost-effective way possible. Important to note is that also during the MIRT-research the other actors did allocate budgets to the Marken project, therefore the budget of the n-HWBP was the only one available to Rijkswaterstaat to finance a possible solution.

Knowledge/Expertise

The implementation of the multi-layered safety strategy in Marken has resulted in a need for knowledge and expertise. In order to look for solutions such as compartmentation of the island additional knowledge was necessary. Rijkswaterstaat delivered for instance flood scenarios for policy makers to help them search for possible solutions. These flood scenarios were of high importance to the ability of the province and municipality to search for possible solutions in the second layer. The safety region needed these scenarios to produce adequate evacuation plans.

For Rijkswaterstaat itself the implementation of multi-layered safety in the case of Marken resulted in the need for additional knowledge and expertise as the new safety norms and policy is very complex. They received help from the Ministry of I & E in sorting out the technical implications of the new safety norms. In order to develop plan documents Rijkswaterstaat hired consultancy agencies such as Antea group, which was also done in the 2008 project.

Power relations

My interviews indicate that during the MIRT-pilot power relations of the actors are based on working together in finding a solution. As Rijkswaterstaat was the main executor of the dyke other actors needed to seek help from Rijkswaterstaat in order to finance or get additional knowledge or expertise, as none of the other actors had budgets available for the project of Marken. The ways in which the other actors could use their policy instruments to influence the plans of the Marken case have not changed due to multi-layered safety. But due to the fact that HHNK has to take over the dyke after completion of the project, HHNK gained a special bargaining position.

6.4 Discourses

Problem definition

In 2008 the problem definition of Rijkswaterstaat was very clear. The dyke did not meet the current safety norms. And therefore Rijkswaterstaat stated something needed to be done to restore the dyke up to standards, and so they went on to search for a solution to renovate the dyke.

At the start of the MIRT-research the problem definition of Rijkswaterstaat was more complex. The dyke did not meet the safety norms based on “overstromingskans” which meant the dyke did not adequately protect the hinterland from flooding, also the dyke did not offer the population behind the dyke basic safety. Overall the problem definition of the MIRT-research is based on the risk approach, and the appropriate management of these risks.

Solution finding

In 2008 the solution finding of Rijkswaterstaat was characterised as follows. A strong, sober and adequate dyke should be built to ensure safety for 50 years, while taking into account the cultural heritage and the natural values of the island. The other actors have worked with Rijkswaterstaat to develop the latter goals. For Rijkswaterstaat in 2008 the spatial aspects of the island were criteria which they would avoid to damage when building a dyke.

During the MIRT research the way of finding solutions was more open during the MLS when comparing it to the situation in 2008. Due to the implementation of the risk approach presented in the National Waterplan (2009) the management of risks became the predominant way to find solutions in Marken. The project-team worked together to create ways in which the safety on the island could be ensured using the multi-layered approach. All the actors involved in the project team

seem to have adopted the multi-layered approach to safety. The belief a flooding can never be ruled out sparked the actors so see how they can contribute to ensuring safety on the island. Still the actors acted within their lawful responsibilities, while remaining open in the deliberation process. Van Buuren et al. view this as the flexibility of the governance structures in multi-layered safety necessary to come to policy alternatives (Van Buuren & Ellen, 2013).

Chapter VII Conclusion

This chapter deals with the conclusions, the discussion and the reflection of this research. Firstly, the conclusions are presented. Secondly, in 7.2 the discussion section is presented. Thirdly, the reflection of this research is discussed.

7.1 Conclusion

At the start of this research, the following main research question was defined: *“How does the implementation of multi-layered safety in Marken affect the policy arrangement of the flood risk/crisis management process in Marken?”* As mentioned before, in this research the policy arrangement approach was used to research changes made in policy making in Marken. The policy arrangement approach consists of four dimensions: rules, actors, resources and discourses. These four dimensions led to the formulation of four sub-questions that helped answering the research question. In this research, the changes in these dimensions have been highlighted. In this paragraph these sub-questions will subsequently be answered, leading to a broad perspective towards the changes in the Marken project. At the end of this paragraph the answer to the main research question is given.

The first sub-question is: *“How have the (in)formal rules of policy changed in the Marken project under the influence of multi-layered safety?”*

Arts, van Tatenhove and Leroy (2000) have defined the rules of policy as twofold: Formal rules and informal rules. Formal rules can be considered as rules which are written in laws, legal texts and in plan documents. Informal rules are shaped by the political culture in the given policy domain and can be considered as dynamic. In the rules dimension of the policy arrangement of Marken a shift of importance from laws towards policy has been witnessed, as the national policy accommodates the multi-layered safety approach. The use of the multi-layered safety approach can be viewed as a shift in formal rules which structure the management of water safety, as this approach is mentioned in the National Water Plan (2009). The shift to the importance of policy instead of the laws, seems logical as the complete project has voluntarily agreed to search for possible multi-layered solutions. This means the actors stepped beyond their legal responsibilities to look into the way they could influence water safety themselves. This shift can also be viewed as a logical reaction to the future safety-norms which had not yet been incorporated into the water law. Therefore the actors were obligated to use national policy as guideline to be even able to look towards the second and third layer of multi-layered safety to ensure safety on the island.

The second sub-question is: *“How have the roles and policy coalitions of the actors involved changed in the Marken project under the influence of multi-layered safety?”*

The operationalisation of the actors dimension consists of two indicators: Roles and policy coalitions. The main actors in the realm of water safety management are the Ministry of I&E, the water boards, the provinces, the municipalities. They all have their own tasks in water management, and so in ensuring water safety. As a consequence of the MLS approach, in the actors dimension, safety regions are included in the project in order to accommodate the 3rd layer of MLS.

In both situations Rijkswaterstaat was the main executor of the project in Marken. The three layer-approach formulated by the government resulted in the need for Rijkswaterstaat to actively include the other actors in the plan making process, as Rijkswaterstaat for instance, has no legal spatial authority to make changes on the island itself. Therefore a policy coalition was formed in which the actors agreed on their common approach to ensure water safety on the island of Marken. Due to implementation of multi-layered safety into the local policy arrangement of Marken actors have been introduced to their role in ensuring water safety. The changes in contrast to their roles in 2008 are limited, as their actual responsibilities are still bound by law and also by their given expertise.

The third sub-question is: *“How has the commitment and distribution of resources in the Marken project changed under the influence of multi-layered safety?”*

This sub question refers to the resources and power dimension. This dimension has been operationalised into three indicators: Budgets, knowledge/expertise and power relations. The budgets available for the realisation of a multi-layered solution in Marken have not changed due to the implementation of MLS. The change magnitude of the budget refers to the disapproval of the north-side of the dyke around Marken. The budget in both situations was controlled by Rijkswaterstaat, while other actors had no budgets committed to ensure water safety on the island. The allocation of the n-HWBP budgets however, was open under the influence of MLS, the project team was open to allocate the budget in any layer, instead of the budget being reserved solely for the dyke-enhancement in 2008.

In the knowledge and expertise indicator changes were witnessed due to the implementation of multi-layered safety. Rijkswaterstaat needed additional knowledge on the safety norms and the exact implications on the technical aspects of the dyke as this is very complex material. Also other actors required additional resources such as flood scenarios which were provided by Rijkswaterstaat.

Under the influence of multi-layered safety the actors of the project team searched as a unit for solutions. Indicated was that there were no clear differences in power when deliberating. Although the actors seemed to act within their own interest, also their means to influence policy in terms of policy instruments showed little change under the influence of multi-layered safety.

The final sub-question is: *“How have the discourses used by policy makers in the Marken project changed under the influence of multi-layered safety?”*

In the discourse dimension the changes were witnessed in the problem definition and the solution finding under the influence of multi-layered safety. The problem definition handled by the actors shifted from viewing the malfunctioning of the dyke as dyke-related problem only, towards a more risk-based problem definition. This risk based approach contains the impacts of a flooding, which is cannot be completely ruled out as stated in the first National Waterplan (2009).

The use of this risk based approach resulted in a more open approach towards the organisation of water safety. Instead of only looking towards the dyke for a possible solution to the problem, the project team could look at reducing impacts of a flooding in terms of casualties and economical damage. My interviews have indicated all actors have used this discourse in finding solutions to the water safety issues on the island of Marken.

To conclude this paragraph, the main research question will now be answered. In the introduction of this research the following main research question was defined:

“How does the implementation of multi-layered safety in Marken affect the policy arrangement of the flood risk/crisis management process in Marken?”

Due to the implementation of multi-layered safety, changes in all dimensions of the policy arrangement have been observed. In the rules dimension of the policy arrangement a shift of importance from laws towards policy has been witnessed, as the national policy accommodates the multi-layered safety approach. Actors have been introduced to their role in ensuring water safety. As a consequence of the MLS approach, in the actors dimension, safety regions are now included in the project in order to accommodate the 3rd layer of MLS. Major changes have been observed in the policy coalition of the project, during pilot it was the first time, that these actors have worked in close collaboration towards a possible solution. In the resources/power dimension, on the other hand, little changes were observed; besides Rijkswaterstaat there were no actors that assigned budgets. Therefore, the budget of the “HWBP” remained the only financial resource. Changes were observed in the possible allocation of the HWBP-2, as policy makers tried to design a solution beyond a single dyke-strengthening. The discourses of the different policy actors have been changed in the

way they approach water safety. The problem definition and solution finding of the actors shifted towards a risk based approach.

Following the starting point of the analysis: the rules dimension where a major transition is seen in the approach to viewing water safety issues and the formulation of safety standards. Due to the interconnectivity of the dimensions of the policy arrangement approach mentioned by Liefferink (2006), a major changes in the all the other dimensions could have been expected.

When reviewing the results of this research in perspective of the ambitions of the government to form a more climate adaptive and water-resilient way to organise water safety in the future, the results of the Marken case are somewhat limited. Especially considering the amount of policy instruments and policy documents that have been produced to achieve this goal, more significant change could be expected.

7.2 Discussion

This research has shed light on the changes made in the policy arrangement of the Marken case. Using the discourse throughout my research as an explaining variable have found various ways in how the policy arrangement was influenced by the implementation of MLS. Using the policy arrangement approach an overview of the two situations was given and compared these two policy arrangements to find changes made in policy.

Whereas Van Herk et al. have highlighted the importance of governance activities in multi-layered safety. These governance activities are not only to engage a broad range of stakeholders to define ambitions and select strategies, but also to explore their legal mandates and willingness to commit or combine resources. In the case of Marken the way in which actors cooperate has significantly changed under the influence of multi-layered safety. When looking towards the outcomes of the planning phase of both situations, the following could deliver an explanation towards the lack of changes in the resource dimension. As my interviews indicate important financial agreements had not yet been made, these resource dimension showed little changes. In order to remain open towards the deliberation phase, no financial agreements had been made before the start of the pilot. Because the multi-layered approach of the was already shut down after the 2nd phase of the MIRT-research, eventually no financial agreements were to be made, as Rijkswaterstaat was only going to work out a dyke enhancement. These developments can explain the lack of changes in the resource dimension and therefore the power relations of the actors. As the actors never had to make hard agreements on financing there was no need for the actors to mobilize their power in order to get a better bargaining position. The decision to not make financial agreements at

the beginning of the MIRT-research, was reviewed by my interviewee as essential to the open approach multi-layered safety. In contrast van Herk et al. argue that the willingness to commit resources is essential to the success of the multi-layered safety approach.

When considering the stabilisation of the policy arrangement mentioned in chapter II, this offers an explanation to why the policy arrangement approach did not deliver satisfying results. The stabilisation of the processes of institutionalism and political modernisation allow the analysis of the policy arrangement. As the time periods chosen for this research are rather close together, due to the processes of institutionalism and political modernisation, the two periods can be similar in the organisational aspects of the policy arrangement. Already in 2003 governments started to develop policy to create policy which incorporates spatial values into water safety policy. For years policy makers had already been working on implementing this ambition into policy and laws. Therefore, the changes brought by the MLS approach can seem limited, as spatial planners had been involved in the water safety policy.

In the outcomes of the pilot MLS was concluded a multi-layered solution was not a viable solution in the short term. This came as a disappointment for policy makers. Ellen & van Buuren (2014) argue that the success of so-called smart combinations does not depend on randomly occurring opportunities, but the success sometimes seems to involve some kind of luck. Sometimes a spatial development is presented at the same time as a dyke-enhancement project, in that case the regional players have already done a lot of exploring into the possibilities (Ellen & van Buuren, 2014). For future initiatives, it is important to look deeper into the spatial developments in Marken in the future, in order to increase the chance of finding a smart solution to combine the three layers of MLS. As soon as a spatial development rises in Marken policy makers should be taking their chance to build in a safe and sustainable way.

My interviews have revealed there are possibilities to improve the facilitation of initiatives from the municipality and the province, but also uncovered that there are opportunities for further research. Firstly, the interviews showed that it is important to facilitate municipality and province initiatives. For example, the interviewees have indicated that the municipality and the province will both continue to search for solutions for the second layer of MLS in the long term. In my opinion, it is important to keep facilitating these initiatives in the Marken, as well as in future projects. The focus should in the facilitation should be on making financial agreements in an early stage, as soon as the planning process allows these financial agreements to be made. Additionally, interviewees mentioned the 'bewustwordings-proces' of water safety (consciousness of water safety among citizens): according to them the awareness has increased over time. Additional research can be done

on how the definitions of water safety of the citizens have changed under the influence of MLS. This consciousness does not only apply to the citizens of Marken, but also to the policy makers in Marken. My interviewees at Rijkswaterstaat and the Province of North-Holland indicate that the consciousness of water safety used to be very low among local governments such as municipalities and safety regions. Further researches can be done on the long term, on how these governments try to help ensuring water safety.

My interviewee at the safety-region of Zaanstreek-Waterland mentions that without the implementation of multi-layered safety in Marken, the safety region would not have developed emergency plans and evacuation plans of the island of Marken. He argues that due to his involvement in multi-layered safety, he started to think about multi-layered safety. He goes on to argue that he thinks it is not necessary to incorporate the role of the safety-region in flood risk management into the laws like the water law. As he believes the will to develop these plans has to be intrinsic, but long from every safety region has this perspective. Further research can be done on how the safety-regions in the Netherlands are involved in the water safety realm, even when not confronted with a project like a MLS Pilot.

Based on the results of my case study and the outcome of the Pilot MLS in Marken, I think multi-layered safety has potential in the future, but not in the short term. As the public would not soon agree with high costs of levelling their house nor would most of them agree with lower dykes in case of adequate evacuation. Multi-layered safety can be a suitable way to raise public awareness and at the same time reduce the damage and costs of flooding. Although it would probably not be a sufficient way in most cases to deliver a cost-efficient alternative to a dyke-enhancement, it could still be a very useful addition to flood risk management in general.

7.3 Reflection

This reflection deals with reflection on the drawbacks of my research followed by a reflection on the research process.

At the start of this research the research focus was based on the policy-makers themselves, in which I underestimated the role of citizens in plan-making. In this research the involvement of the population and their opinions on the MLS-strategy have not been analysed in a very profoundly. Public opinions were available in policy documents and in statements from the Eilandraad. I have used both in my research. A drawback herein is, it is hard to highlight the involvement of citizens

without primary data, and therefore the analysis of the public opinions has not been done accordingly. Therefore the legitimisation of policy has not been taken into account in my research. At first hand I thought this would be not of high importance. The results of the pilot presented in 5.6 however show the high importance legitimisation is to the multi-layered safety approach. As part of the reason the plans for the 2nd layer and 3rd layer were deemed insufficient, was the public response to the plans. The public did not see the 2nd and 3rd layer solutions as a good fit to ensure safety on the island, as in their argumentation a lower dyke causes risks for the population to rise. Therefore it would have been useful to analyse how they tried to influence the agenda in Marken during the two selected time-periods and how their believes have changed due to the implementation of multi-layered safety. Also my interviewee at Rijkswaterstaat highlighted the focus of Rijkswaterstaat on creating public awareness of the constant threat of a flooding. These aspects now fell outside my analysis but could have been useful to analyse how the public awareness of flooding changed due to the project.

In my analysis I have used policy-documents, laws, interviews and scientific literature. In Chapter III was argued this would deliver triangulation of sources. Although, for in the theory section a lot of the same authors have been used, this is a drawback to my research as far as triangulation is concerned. In the early stage of my project I have developed the interview guide to get the information I need from the semi-structured interviews. In the interview guide I have focussed on asking the interviewees on what has changed during the MIRT-research, but gave little insight on how the initial dyke-enhancement plan was formulated. Therefore a lot of policy documents had to be used to deliver a clear view of the initial dyke enhancement project, this made it hard for me to deliver a clear cut view of the policy arrangement of the project in 2008.

In this research I have used a structured way of analysing results. I used deductive coding to analyse my interviews. I found the policy arrangement approach a very helpful framework to deliver a systematic overview of policy. This framework helped me grasp the complicatedness and the interconnectivity of the different facets of policy. Although the policy arrangement approach is very structured itself the policy domain itself, the policy domain seemed to have a lot of overlap, therefore it sometimes was hard to distinguish the different dimensions from each other. This caused my analysis to be somewhat unorganised.

The theory used in my research was mainly based on the paper by Wiering & Arts, this made the theory aspect of my thesis somewhat one-sided. Where I thought at the beginning of the project this theory was sufficient to help me analyse the case of Marken, I now realise the policy

arrangement approach could have been adjusted to a more case-study related approach. The operationalisation I have used for the case of Marken left little room for the opinions of the policy makers themselves. Although I do have a lot of information on the opinions and the future of multi-layered safety in Marken, I was not able to adopt this information into my thesis.

Words of Gratitude

Lastly,

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Bibliography

- Arts, B., Leroy, P., & van Tatenhove, J. (2006). Political Modernisation and Policy Arrangements: A Framework for Understanding Environmental Policy Change. *Public Organiz Rev*, 93-109. Dordrecht, The Netherlands: Springer Science + Business Media BV.
- Arts, B., van Tatenhove, J., & Leroy, P. (2000). Policy Arrangements. In J. van Tatenhove, B. Arts, & P. Leroy, *Political Modernisation of the environment*. Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Bates, B. K. (2008). *Climate change and Water: IPCC Technical Paper IV*. Geneva: IPCC Secretariat.
- Broekmans, B., Correljé, A., & van Ast, J. (2010). *Allemaal op de bok: Naar de implementatie van een nieuw waterveiligheidsbeleid*. Delft, The Netherlands: TU Delft.
- Brouwer, L., Bubeck, P., & Aerts, J. (2010). Changes in future flood risk due to climate and development in a Dutch polder area. *Global Environmental Change*, 463-471. Amsterdam, The Netherlands: Elsevier
- Creswell, J. (2013). *Qualitative inquiry & Research design*. London UK: Sage.
- Deltacommissie. (2008). *Samenvatting Advies Deltacommissie: Samen Werken met Water*. Deltacommissie. The Hague, The Netherlands: Ministry of Transport, Public Works and Water Management & Ministry of Internal affairs.
- Deltacommissie. (2015). *Deltaprogramma 2016*. The Hague, The Netherlands: Ministry of Infrastructure and Environment & Ministry of Economic Affairs.
- Dryzek, J. S. (1992). Ecology and discursive democracy: Beyond liberal capitalism and the administrative state. *Capitalism Nature Socialism*, 18-42. Taylor & Francis
- Eilandraad. (2013). *Dijkversterking*. Retrieved from Eilandraad.nl: <http://www.eilandraad.nl/index.php/artikelen/omringdijk/167-dijkversterking>
- Eilandraad Marken. (2015). *Eilandraad maakt keuze in dijkversterking Marken*. Retrieved from Eilandraad.nl: <http://eilandraad.nl/index.php/home/omringdijk/246-eilandraad-maakt-keuze-in-dijkversterking-marken>
- Ellen, G., & van Buuren, A. (2014). *De governance van slimme combinaties*. Rotterdam, The Netherlands: Deltares/Erasmus University.
- European Commission. (2007). *A new EU floods directive*. Retrieved from Europa.eu: http://ec.europa.eu/environment/water/flood_risk/
- Hajer, M. A. (1995). *The politics of environmental discourse: Ecological Modernization and the policy process*. Oxford: Oxford University press.

- Helpdesk water. (2016, 07 ,12). *Nationaal Waterplan - Helpdesk water*. Retrieved from Helpdesk water: <http://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/nationaal/nationaal-waterplan/>
- Helpdesk Water. (2016b). *Belangrijkste wijzigingen in de waterwet*. Retrieved from <http://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/waterwet/wijziging/>
- Helpdesk Water. (2016c). *Achtergrond waterwet*. Retrieved from <http://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/waterwet/achtergrond-waterwet/>
- Hoogwaterbeschermingsprogramma. (2016). *Relatie HWBP-2; Hoowaterbeschermingsprogramma*. Retrieved from: Hoogwaterbeschermingsprogramma: <http://www.hoogwaterbeschermingsprogramma.nl/Programma/Een+introductie/Relatie+met+HWBP-2/default.aspx>
- Hoss, F., Jonkman, S., & Maaskant, B. (2013). A comprehensive assessment of multilayered safety in flood risk- A Dordrecht case study. In I. C. (ICHARM), *Floods: From Risk to Opportunity* (pp. 57-65). Göttingen, Germany: IAHS/Copernicus Publications
- IPCC. (2013). *Summary for policy makers. In: Climate change 2013: The Physical Science Basis*. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.
- Kingdon, J. (1995). *Agendas, Alternatives, and Public Policies*. New York: HarperCollins College Publishers.
- Klijn, F., Baan, P., de Bruijn, K., & Kwadijk, J. (2007). *Overstromingsrisico's in Nederland in een veranderend klimaat*. The Hague, The Netherlands: Milieu- en Natuurplanbureau.
- KNMI. (2015). *KNMI'14-klimaatscenario's voor Nederland; Leidraad voor professionals*. De Bilt, The Netherlands: KNMI.
- Law on Flooddefences. (1996). viewed on 27 june, 2006 from: <http://wetten.overheid.nl/BWBR0007801/2008-07-01>
- Leroy, P., & Arts, B. (2003). *Verandering van politiek, vernieuwing van milieubeleid : klassieke en post-moderne arrangementen*. Nijmegen: Nijmegen University Press.
- Liefferink, D. (2006). The dynamics of Policy Arrangements: Turning round the Tetrahedron. In B. Arts, & P. Leroy, *Institutional dynamics in Environment Governance* (pp. 45-67). Dordrecht, The Netherlands: Springer.
- Marsh, D., & Rhodes, R. (1992). *Policy networks in British government*. Oxford, United Kingdom: Clarendon Press.
- Minister of Transport, Public Works and Watermanagment (2010). Evaluatie en voortgang van het Hoogwaterbeschermingsprogramma. *Letter to House of Representatives of The Netherlands*. The Hague, The Netherlands: Ministry of Transport and Waterworks

- Ministry of I & E et al. (2011a). *Water management in the Netherlands*. The Hague, The Netherlands: Ministry of Infrastructure and Environment, Directorate-General Water And Rijkwaterstaat.
- Ministry van I & E. (2011b). *Bestuursakkoord water*. The Hague, The Netherlands: Ministry of I & E.
- Ministry of I & E. (2013). MIRT Projectenboek: Appendix: Afsprakenlijst watergerelateerde onderwerpen Bestuurlijke Overleggen MIRT 2013. The Hague, The Netherlands: Ministry of I & E
- Ministry of I & E. (2014). *Tussentijdse wijziging van het Nationaal Waterplan*. The Hague, The Netherlands: Ministry of I & E.
- Ministry of Transport, Public Works and Water Management. (2007). *Watervisie: Nederland veroveren op de Toekomst*. The Hague: Rijksoverheid.
- Province of North-Holland. (2006). *Waterplan 2006-2010: Bewust omgaan met water*. Haarlem, The Netherlands: Province of North-Holland
- Province of North-Holland. (2009). *Waterplan 2010-2015: Beschermen, Benutten, Beleven en Beheren*. Haarlem, The Netherlands: Province of North-Holland.
- Remkes, J. (2007). Instellingsbeschikking oprichting TMO. The Hague, The Netherlands: Ministry of Internal Affairs.
- Rijksoverheid. (2003). *Nationaal Bestuursakkoord Water*. The Hague: The Netherlands: Rijksoverheid, Interprovinciaal Overleg, Unie van Waterschappen en Vereniging van Nederlandse Gemeenten.
- Rijksoverheid. (2009a). *Nationaal Waterplan 2009-2015*. The Hague, The Netherlands: Rijksoverheid.
- Rijksoverheid. (2009b). *Beleidsnota Waterveiligheid 2009-2015*. The Hague, The Netherlands: Rijksoverheid.
- Rijksoverheid. (2012). *Mirt Projectenboek 2012: Rijksoverheid*. Opgehaald van Mirtprojectenboek: http://mirt2012.mirtprojectenboek.nl/mirt_2012/over_het_mirt/index.aspx
- Rijksoverheid. (2014). *Deltaprogramma 2015 Achtergronddocument B3: Ruimtelijke Adaptatie*. The Hague: Rijksoverheid.
- Rijksoverheid. (2015). *Nationaal waterplan 2016-2021*. The Hague, The Netherlands: Ministry of I&E.
- Rijkswaterstaat. (2008). *Startnotitie MER omringkade Marken*. Amsterdam/Haarlem, The Netherlands: Rijkswaterstaat, Arcadis.
- Rijkswaterstaat. (2014a). *MIRT Onderzoek Pilot Meerlaagsveiligheid Marken: Samenvatting eerste fase*. Amersfoort, The Netherlands: Rijkswaterstaat.
- Rijkswaterstaat. (2014b). *MIRT Onderzoek Pilot Meerlaagsveiligheid Marken: Notitie Fase 2: op weg naar kansrijke oplossingen*. Heerenveen, The Netherlands: Antea Groep.

- Rijkswaterstaat. (2016b). *Marken boven water: Waterbewust en Zelfredzaam bouwen op Marken*. Amsterdam: Rijkswaterstaat.
- Slomp, R. (2012). *Flood Risk and Water Management in The Netherlands*. Lelystad, The Netherlands: Rijkswaterstaat.
- STOWA. (2014). *Nieuwe normering van waterveiligheid*. Amersfoort, The Netherlands: STOWA.
- Taskforce Management Overstromingen. (2009). *Rapport van Bevindingen*. Den Haag: Taskforce Management Overstromingen.
- The office of Public Works Ireland. (2015). *EU Floods Directive*. From: CFRAM.ie: <http://www.cfram.ie/home/eu-directive/>
- Van Buuren, A., & Ellen, G. (2013). *Multilevel governance voor meerlaagsveiligheid: Met maatwerk meters maken*. Rotterdam, The Netherlands: Erasmus University
- Van Buuren, A., Ellen, G. j., van Popering-Verkerk, J., & van Leeuwen, C. (2015). *Die het water deert die het water. Overstromingsrisicobeheer als maatschappelijke gebiedsopgave*. Rotterdam, The Netherlands: Erasmus University
- van Herk, S., van Zevenbergen, C., Gersonius, B., Waals, H., & Kelder, E. (2013). Process design and management for integrated flood risk management: exploring the multi-layer safety approach for Dordrecht, The Netherlands. *Journal of Water and Climate change*. London UK: IWA Publishing
- Veenman, S., Liefferink, D., & Arts, B. (2009). A short history of Dutch forest policy: The 'de-institutionalisation' of a policy arrangement. *Forest Policy and Economics*, 202-208. Joensuu, Finland: Elsevier publishing
- Werkgroep dijkversterking van de Eilandraad. (2014). *Reactie Fase 1 MIRT Onderzoek pilot MLV dijkversterking Marken*. Marken, The Netherlands: Schouten Enterprises.
- Wiering, M., & Arts, B. (2006). Discursive shifts in dutch river management: 'deep' institutional change or adaptation strategy? In R. R. Leuven, *Living Rivers: Trends and Challenges in Science and Management* (pp. 327-338). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Yin, R. (2003). Designing case studies. In *Case study research: design and methods* (pp. 19-56). London: SAGE.

Appendixes

Appendix I Interview Guide Anneke Mobron

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen, maar eerst een paar algemene vragen:

- Wat is uw naam?
- Waar werkt u?
- Wat is uw functie?

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de orientatiefase, en hoe is dit overleg verlopen?
- Had u inspraak in dit proces?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe communiceert u uw belangen naar Rijkswaterstaat?
- Hoe zou u uw rol in de planvorming omschrijven?
- Welke lagen van Meerlaagsveiligheid bent u betrokken?
- Hoe zou uw rol in het beheersen van waterveiligheid er uit zien zonder meerlaagsveiligheid?

Betreffende Resources:

- Is er een mogelijkheid om geld van het rijk te krijgen om planologische ontwikkelingen te doen?
- Krijgt u vanuit de Rijksoverheid/Rijkswaterstaat andere hulp(planexperts ed.) om uw plannen te ontwikkelen?

Betreffende Rules:

In de waterwet staat dat met name de waterschappen en provincie zorg dragen voor de waterveiligheid, maar door de ruimtelijke plannen in de beleving van waterveiligheid op te nemen kan deze zorg ook naar u worden overgedragen, hoe kijkt u daar tegen aan?

- Denk u dat het waarschijnlijk is dat de gemeente meer taken krijgt met betrekking tot waterveiligheid?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor de gemeente willen zien?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?

Appendix II Interview Guide Amélie Strens

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen:

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de oriëntatiefase, en hoe is dit overleg verlopen? Welke punten waren hierin positief/negatief?
- Hoe heeft u het oriëntatieproces ingevuld?
- Hoe verschilt dit van proces van de normale gang van zaken?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe wordt deze communicatie gefaciliteerd? Wat zijn de moeilijkheden?
- Hoe ziet een overleg van belanghebbenden er uit?
- Komen er conflicten naar boven in deze overleggen? Zo ja, welke?
- Hoe zou u uw rol in de planvorming omschrijven?
- Welke lagen van Meerlaagsveiligheid bent u betrokken?
- Hoe is de rol van RWS veranderd onder invloed van MLV?

Betreffende Resources:

- Wat zijn de belangrijkste beweegredenen van RWS voor het betrekken van meerdere partijen in het planproces?
- Hoe verschilt/gaat de financiering van dit project verschillen t.o.v. een traditionele dijkversterking?
- Krijgt u hulp van buiten RWS in de planvorming?
- Hoe is de verdeling van (financiële) middelen veranderd door MLV? Is deze hetzelfde gebleven?

Betreffende Rules:

- Is er bepaalde wetgeving aangepast om deze Pilot te kunnen bewerkstelligen?

- Is er afgeweken van de wet in het maken van overeenkomsten tussen de belanghebbenden?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor RWS willen zien?
- Zal er wetgeving/plannen aangepast moeten worden om MLV te bewerkstelligen?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Hoe ziet u MLV in de case van Marken?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?

Appendix III Interview Guide André Sluiter

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen:

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de oriëntatiefase, en hoe is dit overleg verlopen? Welke punten waren hierin positief/negatief?
- Hoe heeft u het oriëntatieproces ingevuld?
- Hoe verschilt dit van proces van de normale gang van zaken?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe wordt deze communicatie gefaciliteerd? Wat zijn de moeilijkheden?
- Hoe verloopt de communicatie met het Ministerie?
- Is het ministerie actief betrokken bij de Pilot, aangezien zij de uiteindelijke oplossingsrichting moeten kiezen?
- Hoe is het ministerie betrokken?
- Zijn er naast de belanghebbenden nog overige partijen in het proces betrokken?
- Hoe zou u uw rol in de planvorming omschrijven?
- Welke lagen van Meerlaagsveiligheid bent u als RWS betrokken?
- Hoe is de rol van RWS veranderd onder invloed van MLV?

Betreffende Resources:

1. Wat zijn de belangrijkste beweegredenen van RWS voor het betrekken van meerdere partijen in het planproces?
2. Hoe verschilt/gaat de financiering van dit project verschillen t.o.v. een traditionele dijkversterking?
3. Krijgt u hulp van buiten RWS in de planvorming?
4. Hoe is de verdeling van (financiële) middelen veranderd door MLV? Is deze hetzelfde gebleven?

Betreffende Rules:

- Is er bepaalde wetgeving aangepast om deze Pilot te kunnen bewerkstelligen?
- Is er afgeweken van de wet in het maken van overeenkomsten tussen de belanghebbenden?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor RWS willen zien?
- Zal er wetgeving/plannen aangepast moeten worden om MLV te bewerkstelligen?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Hoe ziet u MLV in de case van Marken?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?
- Welke oplossingsrichtingen zijn voor RWS/het ministerie het meest gunstig? En waarom?

Appendix IV Interview Guide Gertjan Winter

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen:

- Wat is uw naam?
- Wat is uw functie?

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de oriëntatiefase, en hoe is dit overleg verlopen? Welke punten waren hierin positief/negatief?
- Hoe heeft u het oriëntatieproces ingevuld?
- Hoe wordt u in andere projecten mbt waterveiligheid betrokken?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe wordt deze communicatie gefaciliteerd? Wat zijn de moeilijkheden?
- Zijn er naast de belanghebbenden nog overige partijen in het proces betrokken?
- Hoe zou u uw rol in de planvorming omschrijven?
- Welke lagen van Meerlaagsveiligheid bent u als Veiligheidsregio betrokken?
- Hoe is de rol van de veiligheidsregio veranderd onder invloed van MLV?

Betreffende Resources:

- Hoe verschilt/gaat de financiering van dit project verschillen t.o.v. een traditionele dijkversterking?
- Krijgt u hulp van buiten in de planvorming?
- Heeft u extra deskundigen in moeten huren?
- Hoe is de verdeling van (financiële) middelen veranderd door MLV? Is deze hetzelfde gebleven?

Betreffende Rules:

- Welke wetgeving is voor u van belang in het organiseren van veiligheid in projecten die waterveiligheid bevorderen?
- Is er bepaalde wetgeving aangepast om deze Pilot te kunnen bewerkstelligen?
- Is er afgeweken van de wet in het maken van overeenkomsten tussen de belanghebbenden?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor de veiligheidsregio's willen zien?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Hoe ziet u MLV in de case van Marken?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?

Appendix V Interview Guide Bert Kappé

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen:

- Wat is uw naam?
- Wat is uw functie?

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de oriëntatiefase, en hoe is dit overleg verlopen? Welke punten waren hierin positief/negatief?
- Hoe heeft u het oriëntatieproces ingevuld?
- Hoe wordt u in andere projecten mbt waterveiligheid betrokken?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe wordt deze communicatie gefaciliteerd? Wat zijn de moeilijkheden?
- Hoe communiceert u uw belangen naar RWS?
- Zijn er naast de belanghebbenden nog overige partijen in het proces betrokken?
- Hoe zou u uw rol in de planvorming omschrijven?
- Waar loopt u tegen aan in de planvorming?
- Welke lagen van Meerlaagsveiligheid bent u als Hoogheemraadschap betrokken?
- Hoe is de rol van de veiligheidsregio veranderd onder invloed van MLV?

Betreffende Resources:

- Hoe verschilt/gaat de financiering van dit project verschillen t.o.v. een traditionele dijkversterking?
- Krijgt u hulp van buiten in de planvorming?
- Heeft u extra deskundigen in moeten huren?
- Hoe is de verdeling van (financiële) middelen veranderd door MLV? Is deze hetzelfde gebleven?

Betreffende Rules:

- Welke wetgeving is voor u van belang in het organiseren van veiligheid in projecten die waterveiligheid bevorderen?
- Is er bepaalde wetgeving aangepast om deze Pilot te kunnen bewerkstelligen?
- Is er afgeweken van de wet in het maken van overeenkomsten tussen de belanghebbenden?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor het hoogheemraadschap willen zien?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Hoe ziet u MLV in de case van Marken?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?

Appendix VI Interview Guide Jochiem Hendriksen

Meerlaagsveiligheid in Marken.

De waterveiligheid op Marken voldoet niet aan de huidige veiligheidseisen. Een deel van de dijk heeft stabiliteitsproblemen of is te laag. Om de problemen aan te pakken is de afgelopen jaren gewerkt aan een dijkversterkingsplan. Uiteindelijk is er gekozen om af te wijken van een traditioneel dijkversterkingsplan. Rijkswaterstaat voert op dit moment een plan uit om meerlaagsveiligheid toe te passen op de waterveiligheid in Marken. Door naar de verschillende lagen te kijken en deze te bewerken, zal niet alleen het overstromingsrisico verlaagd worden, maar wordt er gekeken naar veiligheid in bredere zin. Maar hoe zit dit Beleidsmatig? Is de besluitvorming veranderd ten opzichte van traditionele waterveiligheid?

Om deze vragen te beantwoorden heb ik in mijn onderzoek gekozen voor de Beleidsarrangementen Benadering. Kort gezegd ziet deze benadering beleid als een momentopname waarin 4 elementen van beleid samenkomen. Deze 4 elementen zijn: Actors, Resources, Rules, Discourses. De theorie Beleids arrangementen beschrijft dat deze 4 elementen kort samenhangen, en dat een shift in een van de 4 factoren gevolgen heeft voor de andere 3 factoren. In dit geval kijk ik naar hoe deze 4 factoren zijn veranderd onder invloed van het introduceren van Meerlaagsveiligheid in Marken. In dit interview wil ik u graag per element een paar vragen stellen:

- Wat is uw naam?
- Wat is uw functie?

Betreffende Actors:

- Waarom is er juist voor in Marken gekozen voor de Pilot Meerlaagsveiligheid?
- Welke partij heeft uiteindelijk Meerlaagsveiligheid op de agenda gebracht?
- Welke partijen hadden inspraak tijdens de oriëntatiefase, en hoe is dit overleg verlopen? Welke punten waren hierin positief/negatief?
- Hoe heeft u het oriëntatieproces ingevuld?
- Hoe wordt u in andere projecten mbt waterveiligheid betrokken?
- Na het instellen van de Pilot, welke partijen werden betrokken in de planvorming?
- Hoe wordt er tussen de belanghebbende partijen gecommuniceerd?
- Hoe wordt deze communicatie gefaciliteerd? Wat zijn de moeilijkheden?
- Hoe communiceert u uw belangen naar RWS?
- Zijn er naast de belanghebbenden nog overige partijen in het proces betrokken?
- Hoe zou u uw rol in de planvorming omschrijven?
- Waar loopt u tegen aan in de planvorming?
- Welke lagen van Meerlaagsveiligheid bent u als provincie betrokken?
- Zou u ook bij deze lagen betrokken zijn zonder Meerlaagsveiligheid?
- Hoe is de rol van de veiligheidsregio veranderd onder invloed van MLV?

Betreffende Resources:

- Hoe verschilt/gaat de financiering van dit project verschillen t.o.v. een traditionele dijkversterking?
- Krijgt u hulp van buiten in de planvorming?
- Heeft u extra deskundigen in moeten huren?

- Hoe is de verdeling van (financiële) middelen veranderd door MLV? Is deze hetzelfde gebleven?

Betreffende Rules:

- Welke wetgeving is voor u van belang in het organiseren van veiligheid in projecten die waterveiligheid bevorderen?
- Is er bepaalde wetgeving aangepast om deze Pilot te kunnen bewerkstelligen?
- Is er afgeweken van de wet in het maken van overeenkomsten tussen de belanghebbenden?
- Hoe kijkt u tegen de huidige wetgeving met betrekking tot waterveiligheid aan? Zou u een grotere of kleinere taak voor de provincie willen zien?

Betreffende Discourses:

- Wat is uw mening over Meerlaagsveiligheid in het algemeen?
- Hoe ziet u MLV in de case van Marken?
- Ziet u het als een goede/slechte toevoeging op traditionele vormen van waterveiligheidsmanagement?
- Hoe zou u uw belangrijkste aandachtspunten bij de planvorming omschrijven?
- Welke mogelijkheden biedt Meerlaagsveiligheid om uw belang te behartigen?



Dijktrajecten

- 43-1 dijktrajectnummer
- trajectgrens

Normspecificaties per dijktraject

- 1/300
- 1/1.000
- 1/3.000
- 1/10.000
- 1/30.000
- 1/100.000

Overstromingskans traject (per gebeurtenis)

- 1/10
- 1/1.000.000 aparte overstromingskans voor kerncentrale Borssele

14 | Nationaal Waterplan 2016-2021

Appendix VII Safety Norms per dyke-track

Future Dyke Norms per dyke track (Rijksoverheid, 2015, p. 44)

