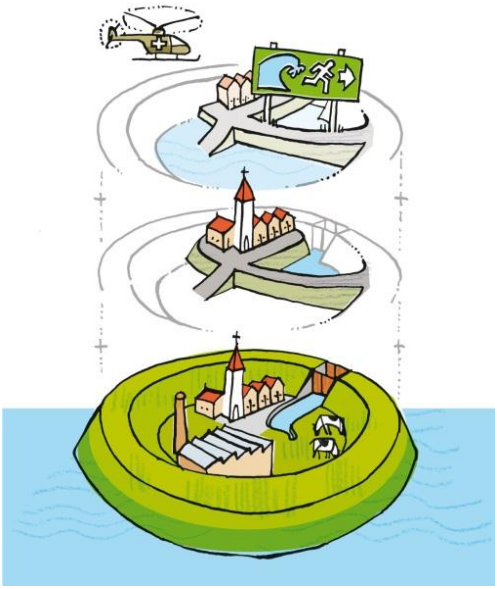
Multi-layer safety in provincial and municipal policy: a maturity approach



Capability maturity table				
5. Optimizing 4. Managed 3. Defined 2. Repeatable 1. Initial				
level /dimension	discourse	coalition of actors	power and resources	rules of the game

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Abstract

In this thesis the integration of multi-layers safety (MLS) as a flood safety approach in the Netherlands is evaluated. This is realized by the creation of a policy maturity table evaluating the maturity of MLS in the policy arrangement of provincial and municipal planning policy. Researching Provinces and Municipalities in two case studies this research shows diversity on the level of maturity in MLS. The discourse of MLS is most integrated in policy and defined within nearly all Provinces and Municipalities. Also Provinces are more matured in all dimension of the policy arrangement. The differences in level of maturity in both statements can be explained by the organisational size and the relation of these organisations with the Deltaprogram, the climate change adaptation program in the Netherlands. Bigger organisational size and a close relation to the Deltaprogram positively influence the policy maturity of organisations. The policy maturity of power and resources concerning MLS is yet to be developed and this research suggests extra attention to this part of the policy arrangement because difficulties on governance issues can be expected.

Keywords: Policy evaluation, Climate adaptation, Policy arrangement, Capability maturity model, Flood safety, Multi-layer safety

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Second I would like to thank all of my interviewees; a range of civil servants and a number of researchers. By sharing experiences without limitations on multi-layer safety integration in their government organization and research, the possibility of this research was created. The iterate process and data collection due to the interviews are crucial for the findings of this research.

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Thank you all

Summary

This thesis describes the state of multi-layer safety policy integration in the two case studies in the Netherlands. Multi-layer safety is a policy discourse that is currently integrated in provincial and municipal policy. Multi-layer safety approaches flood safety in three layers; flood prevention, sustainable spatial development and disaster management. Provinces and Municipalities have considerable power and responsibilities in the field of sustainable spatial development and disaster management. The success of MLS is therefore dependent on the integration of MLS in these two governmental levels. To create insight on this integration process and determine the state of integration this thesis answers the following main research question: What is the state of integration of multi-layer safety in provincial and municipal planning policy?

The integration of flood safety policy have been studied by researchers before. However the integration of multi-layer safety have not been researched specifically. Also, the literature study shows limitations on the structure of previous integration processes evaluated. Therefore this study combined two concepts that, when combined, create a structured evaluation model for scoring the level of policy maturity within governmental organizations. The first concept is the policy arrangement model of Van Tatenhove *et al.* (2000), describing the four dimensions of policy: Discourse, Coalition of actors, Power and resources and Rules of the game. The second concept is an evaluation model for product integration assessment in computer design. This model of Paulk *et al.* (1993) is altered into a scale that scores the policy maturity in five levels. Combining these model created the capacity maturity table that is used for evaluation.

The state of MLS policy is evaluated in two case studies chosen on the complexity and diversity of challenges in the separate case studies. The Province of Noord-Holland and the Municipality of Amsterdam are assessed in the case study Watergraafsmeer. The Province of Zuid-Holland and the Municipality of Krimpen aan den IJssel are assessed in the case study Krimpenwaard. This resulted in four separate capacity maturity tables and an overall score of all governmental organizations in this research.

This thesis concludes that the integration of MLS in the case studies is spread in the initial and repeatable level. The discourse dimension is already in the defined level in two of the organizations and is the most matured dimension of MLS. Power and resources are still to be integrated and in the initial level. Important causes for policy maturity of MLS integration are the capacities of assessed organizations and the relation of these organizations with the Deltaprogram. Considering the power and resources dimension being in the initial level in all organizations, this research suggest extra attention to this part of policy integration because difficulties in governance issues on roles and responsibilities can be expected.

Table of Contents

Table of Figures

Chapter 1 Introduction

1.1 Introduction

The Netherlands is a low-lying, densely populated Nation state. Cooperation in organizing flood safety is culturally embedded within the Dutch society throughout the history. The characteristics of present flood safety evolved through three different sorts of changes: change of policy concepts, increase of knowledge and the happening of shock events. The flooding of 1953 is of important influence in the last century. This event played an essential role in the realization of the Delta works, part of the Dutch 'Struggle against the water' policy discourse. Since the eighties another policy discourse evolved, changing the view on flood safety from 'flood defense' to 'accommodating water', using the metaphor of 'Working with water' (Hidding and van der Vlist, 2009). The way flood safety is approached changes as new policy discourses are introduced.

New challenges for future development, for instance climate change and soil subsidence, led the Dutch government to install the second Delta committee in 2007. Their mission was to 'climate proof' the Netherlands; thus keeping it safe from flooding and attractive for investment for companies, laboring for employees and living for inhabitants in flood prone areas (Delta Commission, 2008, Kabat *et al.*, 2009). This committee reported their recommendations concerning the improvement of flood safety and fresh water supply in 2008 (Delta Commission, 2008). Recommended improvements and suggestions by the Delta committee are investigated and subsequent action programs are currently created, these will be presented in 2015 (Deltacommissaris, 2013).

One of the recommendations in evaluation in the Delta program is to achieve improvements in flood safety by a new way of dealing with flood risk, known as multi-layer safety (MLS) (Deltacommissaris, 2013). This new concept is based on a risk approach concept; it combines the probability of a flood and the possible consequences of floods in its risk assessment. Combining these two is considered as a new policy discourse since present flood risk management focuses on flood chances of dike rings. Flood risk in MLS is divided in three layers as shown in figure 1. The first layer describes prevention of floods by for example dikes, floodgates and flood barriers as shown in the bottom of the figure. The second layer is sustainable spatial development; flood safety is included into spatial development by for example flood proofing separate houses and housing blocks, compartmentalization of dike rings and flood impact considerations in future spatial developments, represented by the middle image in the figure. The third layer of MLS is disaster management, reducing consequences by installing well-functioning disaster management, evacuation routes and plans and informing citizens about appropriate responses in case of a flooding, shown in the top image (Rijksoverheid, 2009). While the first layer is focused on prevention of floods, the second and third layers focus on the reduction of consequences of a flood.

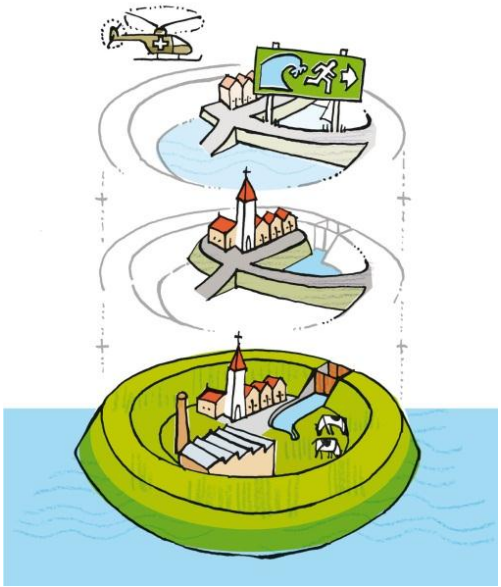

Figure 1: The multi-layer safety approach (Rijksoverheid, 2009)

The concept of MLS is described in recent policy documents like the National Water Plan 2009-2015 and the Delta program 2013 (Deltacommissaris, 2013, Rijksoverheid, 2009). Also European laws, such as the Floods Directive, demand the integration of flood safety in spatial development, leading to a required assessment of the influence of spatial plans on the water system (European Commission, 2007). On European and national level MLS is being used in policy formulation. Execution and implementation of MLS demands the consideration of flood safety in sustainable spatial development policy and disaster management. The responsibilities of spatial development and disaster management are directed considerably to Provinces and Municipalities. Therefore they are mainly responsible for MLS execution and implementation. Thus the success of realizing MLS depends on the capacities of Provinces and Municipalities. Capacities of Provinces and Municipalities in means of power, control and resources determine the success of MLS as a concept.

The contemporary integration of MLS is following a top-down route from a national to provincial and municipal level. This is relevant for the policy phase of MLS in the policy lifecycle concept. The policy lifecycle concept is described by Winsemius (1986) and shows this policy lifecycle and its phases, combined with the corresponding level of political interest in figure 2. In the case of MLS, European and national governmental levels are already formulating policy. The lifecycle phase of Provinces and Municipalities is unidentified in policy evaluation and research. According to the policy lifecycle concept of Winsemius, Provinces and Municipalities should start formulating and implementing MLS by increasing the political interest on the subject.

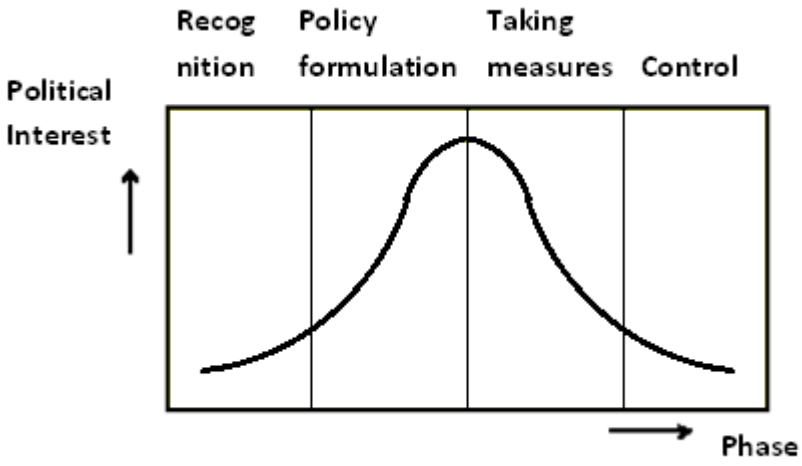

Figure 2: Policy life cycle of Winsemius (1986)

To estimate the chances of success of MLS integration, an overview of earlier research on the integration of flood safety policy by Provinces and Municipalities is needed. According to multiple authors subsequently mentioned, the success of flood safety policy integration in provincial and municipal policy is questionable. The past has shown that the development of European and national policy formulation into provincial and municipal implementation has not been easy, for example, local governments usually neglected their flood mitigation measures in spatial planning in the 00' (Berke, 1996, Burby & May, 1997, May *et al.*, 1996). Apart from past results, the integration of flood safety policy is a demanding challenge for existing policy arrangements (Termeer *et al.*, 2012). Werners *et al.* (2009) expect problems in the implementation phase due to a lack of clarity about allocation and accountability of flood safety measures. This means that integration of flood safety policy faces major difficulties. However, it is not specified or researched in the case of MLS. What problems can be expected in the process of this integration, what are the factors that influence this integration and what is the current state of integration?

1.2 Problem statement

In the introduction the problems of policy integration and challenges for local governments in past experiences are described. Because of the considerable responsibilities of Provinces and Municipalities in spatial development and disaster management, it is interesting to determine the current state of integration of MLS in Provinces and Municipalities. Unfortunately, few studies are executed on the topic of flood risk reducing policy integration problems and challenges on flood safety policy and the specific difficulties concerning this policy area (Hutter, 2007). A relevant and valuable study is done by Neuvel and van den Brink (2009). In which they name five factors causing policy integration difficulties;

1. lack of support from higher level governments
2. psychological factors
3. different interests trade-offs
4. public commitment
5. local capacity

This study show relevant factors creating difficulties in the process of policy integration. However the outcomes of this study are of limited use because they are not specifically concerning MLS. Also it does not offer a customized framework for structural and comprehensive evaluation of factors influencing MLS integration. A structured evaluation of factors would increase usability and integration improvement possibilities. For this structure and comprehensiveness a policy model is needed that cover the complete policy arrangement.

Apart from the lack of specific research on provincial and municipal MLS integration, earlier research does not fully satisfactorily measure different dimensions of policy integration structurally, thereby limiting the comparison power of those research results with comparable and/or future policy integration evaluations in provincial and municipal policy. Therefore a structuring evaluation model is needed than can measure the policy integration.

The knowledge on the current state of MLS integration in provincial and municipal planning is unknown. Also a structuring evaluation model is lacking to measure the integration process. The knowledge on the integration is needed to increase effective and efficient integration and implementation of MLS.

1.3 Objective

The objective of this thesis is to structurally evaluate the state of multi-layer safety integration in provincial and municipal planning policy. The objective is to score this state in a policy maturity model for the complete policy arrangement on a qualitative scale and additionally discussing possible causes and reasons for the current state of MLS integration.

1.4 Research questions

1.4.1 Main research question:

What is the state of integration of multi-layer safety in provincial and municipal planning policy?

1.4.2 Research questions:

1. What is policy integration?
2. Which policy concepts can be used to measure and evaluate policy integration?
3. What is multi-layer safety and what is the policy context?
4. Which factors influence the integration of the multi-layer safety in provincial and municipal planning policy?
5. How can the integration of multi-layer safety be evaluated based on the concepts and the factors influencing this integration?

Chapter 2 Methods

2.1 Research framework

In this section the procedure and methods used in this research are elaborated. By researching literature, conducting interviews and policy analysis the main research question will be answered.
To answer this main research question a model is created to structurally evaluate the state of integration by an evaluation model. This model is based on two concepts from the literature study and will be used as an analytical framework for the case studies. These case studies consist of data from qualitative interviews and policy documents. This primary data was transcribed, coded, labeled and analyzed; creating the basis for a solid and reproducible analysis. Subsequently concluding and discussing results and thereby answering the main research question. The research framework is visualized in figure 3.

Figure 3: Research framework

2.2 Research methodology

2.2.1 Worldview

This research is based on a social constructivist worldview. Combining constructivism: 'the philosophical belief that people construct their own understanding of reality' (Oxford, 1997) and social evolution: 'Through usage of these interactions and experiences with the environment individuals construct their own reality' (Smith, 2006). Understanding of reality is constructed individually and in interaction and experiences with the environment. Though the applied approach will mainly come from a social constructivist worldview, the positivist worldview is also represented in this research by the case study design. Because structured evaluation, the evaluation model in this thesis, aspires evidence based research through measuring quantifiable predefined criteria for data collection. This worldview is based on the case study research worldview suggested and discussed in Creswell (2008). By doing a literature review, a theoretical framework will be established that functions as predefined criteria for the case study research.

2.3 Research methods

2.3.1 Methods

In this study three methods are used to answer the research questions. First a desk study to create an evaluation model. The second and third methods are interpretative/discourse analysis of qualitative interviews and policy document analysis in a set of case studies. The desk study creates secondary data. The interview transcripts are primary data.

First research question 1 is to be answered by the desk study on policy integration. Policy integration literature, conclusions and concepts are discussed. Research question 2 is answered by a desk study describing the policy arrangement concept and policy evaluation concept used in this research. These two concepts are combined in a model used as the evaluation model in this research. Research question 3 is answered by summarizing Dutch flood safety policy history and describing MLS in the Dutch policy context. Research questions 4 and 5 are answered by the statements and results of the case studies. These statements are analysed and the results are used to conclude and discuss the state of integration of the multi-layer safety approach in provincial and municipal planning policy, the main research question

2.3.2 Case study

The case studies consist of interviews and policy document analysis. The interviews were conducted with four civil servants, responsible for the integration of MLS within the Province and Municipality in two different case study areas, meaning that two Provinces and two Municipalities will be evaluated. To increase the data of one Municipality in one case is supplemented with one interview with an official from the Deltaprogram to give additional information for this specific case. The interviews were subsequently; taken in person, entirely transcribed, labelled on subject and then analysed. The policy document study was conducted by reading and selecting relevant policy documents and extracting relevant statements per subject. It consists of an overview of MLS integration statements in policy documents produced by the Province and Municipality in the two case study areas.

2.3.3 Methods of validating

This research is validated by methodological triangulation. Different methods to obtain the data within the case studies are used. Triangulation in research refers to the use of multiple techniques for gathering and/or handling data within a single study (Adami & Kiger, 2005). This research validates by methodological differentiation of case study research methods and embedding results in an evaluation model derived from literature.

2.3.4 Methods of analysis

The data obtained by earlier described methods are analysed by an evaluation model to create valid results and conclusions. By analysis on the context of MLS in flood safety policy and MLS the researcher created knowledge on the object and the context. Combining literature on policy evolution and policy evaluation creates a theoretical framework to analyse the case studies. This evaluation model will be used to evaluate interviews and documents. Results are produced by analysing matching

statements of the interviews and documents in the evaluation model and finally determining the state of integration.

2.4 Case study selection

The case study area selection in this research is based on two main considerations. The first consideration is based on a combination of time constrains and the second consideration on differences between the case study areas. First, the method of random selection of a large sample group is not possible in this research. This method is not possible in the given time. Therefore the case studies are chosen by a strategy described by Flyvbjerg. He states that in this strategy the cases are selected on the basis of expectations about their information content. Choosing the typology of critical cases in water adaptation needs is of relevance in the future (Flyvbjerg, 2006). Both case study areas face a complex challenge by their geographical location, characteristics and land-use. But both challenges differ by important characteristics. Meaning the first case study, Watergraafsmeer, is facing a high impact in case of a flooding and the second case, Krimpenerwaard, is facing an increased chance of a flooding.
The second consideration is based on the relevance of contribution this research produces. By choosing Krimpenerwaard, part of the initial subprogram Rijnmond-Drechtsteden, and Watergraafsmeer, part of the later launched subprogram Climate Proof Cities (Knowledge for Climate, 2013). By choosing different subprograms, this research can contribute to the reflective practice of professionals as described in (Termeer *et al.*, 2012) by choosing two case study areas with different governance perspectives on climate adaptation.

Chapter 3 Theoretical framework

In this theoretical framework theories and concepts are described to structure the research. This chapter starts describing policy integration. Covering research on policy integration and defining the concepts of policy integration to contribute to the context of MLS integration. The second part of the theoretical framework describes and explains the creation of the analytical framework. First this part elaborates on the policy arrangement, defining the dimensions of the policy arrangement by Van Tatenhove *et al.* (2000) and definitions of the different dimensions in adjacent fields of research. The second part elaborates on the concept of policy evaluation, showing concepts of policy evaluation as a tool to evaluate policy integration (Paulk *et al.* (1993). Merging the descriptions and concepts of Van Tatenhove *et al.* (2000) and Paulk *et al.* (1993) to create a combined model in this theoretical framework. This combination results in the capacity maturity model. An analytical framework is created for evaluating the integration of MLS policy in Provinces and Municipalities.

3.1 Policy integration

Historically, the first generation of researchers on policy integration were focused on a top down integration. This type of integration is extensively tested and respected by many scientist (Sabatier, 1986). This focus can be explained by the more top down character of policy integration in the past. Sabatier and Mazmanian (1980) created a comprehensive evaluation of top down policy implementation. However, as explained earlier, the political reality of contemporary policy making does not consist of a one way policy integration such as top down (or bottom up) system. Contemporary integration has to take place in a much more complicated, multi-level governance reality. Bache and Flinders (2004 p. 34) state: "The multi-level governance concept thus contained both vertical and horizontal dimensions. 'Multi-level' referred to the increasing interdependence of governments operating at different levels, while 'governance' signalled the growing interdependence between governments and non-governmental actors at various territorial levels." Policy interdependency is nothing new and is well recognized in federal systems in various countries (Mickwitz *et al.*, 2009). It presents additional challenges for policy integration, because interdependencies frequently lead to unclear power relations and responsibilities for government agencies at different levels, often in respect of the problem of budgeting. Reforming such policy interdependency and improving policy integration is an important matter (Mickwitz *et al.*, 2009). The integration of a policy interdependency influence the power and impact of policy, the success of policy itself depend on this integration.

The importance of policy integration in the field of climate change adaptation is evident. Mickwitz *et al.* (2009) state that adaptation policy integration is seen in the context of single level governance or, if more levels are involved, as a simple top-down control problem in the Netherlands. Other research characterises the Dutch system as a multi-level co-governance where higher levels supervise the lower ones, but at the same time the lower levels have a certain degree of autonomy (Van Bommel & Kuindersma, 2008). The exact vertical integration characteristics of Dutch adaptation policy are debated, however both authors agree on the limitation of effectiveness and efficiency by limited co-governance between governmental levels. Van Bommel and Kuindersma (2008 p. 37) conclude that: 'too frequently, both mitigation and adaptation are perceived in the context of just one level of governance or, if several levels are concerned, they are viewed as simply a top-down control problem. This study has clearly shown that both mitigation and adaptation concerns all levels, from the local to

the global, and that the interactions between levels are complex and multidirectional.' Mickwitz *et al.* (2009) add to this by concluding that climate adaptation is a complex and multidirectional kind of governance.

3.2 Policy arrangement

To evaluate the integration of MLS as a policy concept, this part of the theoretical framework will describe the arrangement of policy. Literature is used that can subdivide the arrangement of policy and define these subdivisions.

3.2.1 Policy arrangement model

In this research the integration of MLS in provincial and municipal policy is evaluated. Therefore this research needs a theoretical structure in which the level of policy integration can be measured in a differentiated way. This research uses policy arrangement structure by Wiering and Immink (2006) derived from Van Tatenhove *et al.* (2000). The structure is starts with a subdivision of policy arrangement into content and organisation, based on the theory of duality of structure by Giddens (1984). Content is about the information that is exchanged between actors, organisation is focussed on the information about exchange between actors or groups. Van Tatenhove *et al.* (2000) divide this duality into four dimensions constituting the policy arrangement. Wiering and Immink (2006) used this policy arrangement perspective to analyse previous emerging policy discourses in Dutch water management. They concluded that, over the years, more or less similar dimensions proved important in the execution of water- and spatial policy integration (Wiering & Immink, 2006). This integration is evaluated by the four dimensions of policy arrangement: discourse, coalition of actors, power and resources, and rules of the games. The policy arrangement scheme by Van Tatenhove *et al.* (2000) is shown in figure 4. In order to obtain a good understanding of this policy arrangement scheme, it is important to understand and define the dimensions of the policy arrangement scheme and are therefore explained hereafter.

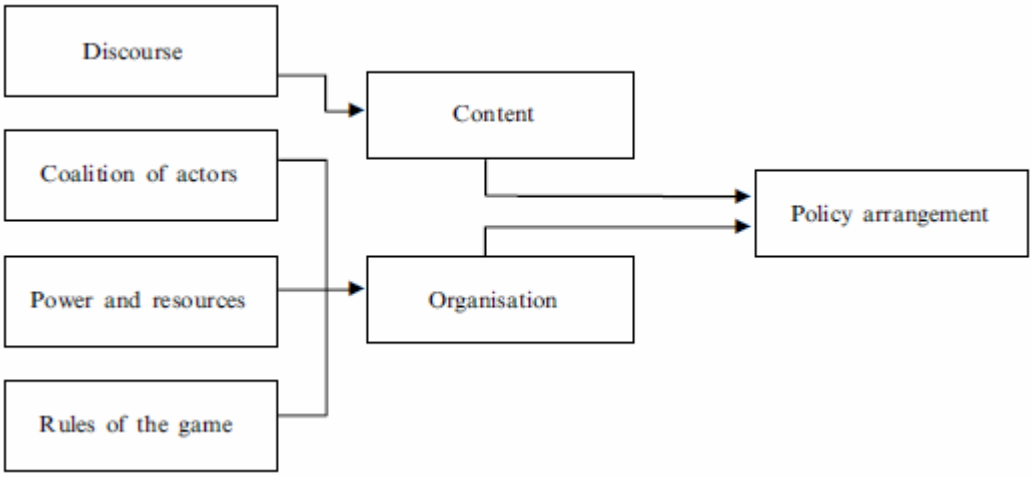

Figure 45: Dimensions of a policy arrangement(Van Tatenhove *et al.*, 2000)

3.2.2 Discourse

The term `policy discourse' refers to the content of a policy domain, and the way in which actors give meaning to, and derive meaning from, that content. Discourse is a very broad and open concept, varying from micro-level linguistic research methods, Foucauldian discourse analysis of power

relations in the society or even broader, discourse as a worldwide ideology. This research seeks a more restricted description of discourse. Therefore, this research will use a policy-related definition of discourse, in line with the understanding of Hajer, using discourse coalitions (Hajer, 1995). Stating that: 'Environmental discourses are a collection of multiple ideas, concerns and actors that, in some way distil coherent problems' (Hajer, 1995, p. 18).

Apart from Hajers definition, this research will use another definition of discourse. A different way to define discourses is explained by Therborn (1980). In his book three fundamental ways of ideological interpellation are categorized by means of statements on (1) what exists and does not exist; (2) what is good and beautiful, correct or justified; and (3) what is possible and impossible. The three fundamental ways are translated into policy discourses. Three types are classified: (a) discourses that define reality and reflect the belief systems of actors in the truth of certain propositions or the applicability of certain ideas (ontological discourses); (b) discourses that express desirable situations (normative discourses); (c) and discourses that give options for getting to the desirable situation (strategic, or `route', discourses) (Wiering & Immink, 2006). This research chooses the MLS as the last option - c: a discourse that is showing what is possible and impossible. It gives options for getting to the desirable situation, as a strategic discourse.

Combining these both inputs from Hajer and Therborn, defines a description: MLS is a policy discourse as a collection of multiple ideas, concerns and actors that give options to realize a desirable situation with a strategic discourse. This research will use the definition of discourse in evaluating MLS within the policy arrangement model in figure 4.

3.2.3 Coalition of actors

Coalitions are clusters of actors grouped around certain points of view, interests, or policy perspectives (Wiering & Immink, 2006). This is because coalition actors share a set of policy core beliefs, actors in different coalitions will perceive the world different and therefore interpret this world in different ways (Sabatier, 1998). The coalition of actors is playing an important role in policy integration, because description and definition of the coalition of actors within a policy domain creates insight in its influence on the policy arrangement. This is because the constitution of the coalition effects cooperation and collaboration of different actors. It also gives insight in the actors that decide, use or execute a certain policy arrangement (Wiering & Immink, 2006). There influencing the organisation of the policy arrangement.

Apart from the importance of the coalition of actors in understanding the policy arrangement in this research, the understanding of provincial and municipal policy makers and civil servants of the coalition of actors is also a relevant issue. Having a shared and accurate perception about relevant actors in the integration of MLS in Provinces and Municipalities is important when integrating MLS.

3.2.4 Power and resources

Regarding power and resources this research focuses on tools with which an actor (or a coalition) can exercise influence; financial resources, production of knowledge, strategic use of knowledge, policy instruments (Wiering & Immink, 2006), policy goals and implementation power (Bronston & Allen, 1977). All these factors can influence the policy arrangement through the organisation by the power they represent. Because in practice power plays a role in the definition of the decision-making situation (Faludi, 1973, Faludi, 1985, Faludi & Waterhout, 2006, Valk, 1989, van Dijk, 2008). The

power of actors (or coalitions) is exercised by mobilisation of resources in order to be able to act, to intervene or to change developments such as the arrangement of policy. In planning processes, the resources are divided among actors, these power by resources influence the policy arrangement. Despite its centrality, the concept of power remains highly contested in the social, political and planning sciences. For an overview of the power debate see for example Arts and Van Tatenhove (2004).

3.2.5 Rules of the game

Institutional patterns and visions can be laid down in formal institutions in for example, procedures, substantive norms and also informal institutions, as rules of the game influential (for example, the Dutch `polder model' as a political negotiation culture) (Wiering & Immink, 2006). Institutions of informal constraints are abstract and thus need defining to make the concept suitable. Therefore the definition of North (1994) is used, he defines institutions of informal constraints as norms of behaviour, conventions and/or self-imposed codes of conduct. In this research inter-organizational norms and codes of conduct are used. The combination of formal and informal institutions creates the rules of the game. As formal institutions form a set of rules, informal institutions provide legitimacy to these rules (North, 1994).

3.2.6 Application

These dimensions, and their specific definitions, constitute the arrangement of a certain policy concept. The four dimensions will be used as criteria to evaluate the integration of MLS in provincial and municipal policy.

3.3 Policy evaluation

To evaluate the arrangement of policy as described previously, this research needs a framework for evaluation to define the state of integration of the MLS in provincial and municipal planning policy. This evaluation concept should have a scale to enable this research to compare the policy integration between different dimensions and the different case studies. To determine the state of policy integration, this research will use an ordinal categorical scale. The categories will create an order that is valued qualitatively. Starting the scale with a low valued category and continuing with enhanced valued categories, ending up with the most valued category at the top. The categories cannot be quantified. Therefore the intervals between ordinals is unknown therefore results have to be analysed without linearity of intervals (Stevens, 1946).

3.3.1 Capability maturity model

The evaluation in this research will be conducted by combining two concepts. The first concept of this evaluation is the policy arrangement of which we will use the four dimensions of the policy arrangement model that are described earlier. These dimensions will be interpreted by the second concept used; the level of policy maturity. The policy maturity level uses the descriptions from the capability maturity model (CMM). The first CMM was developed by Paulk *et al.* (1993). This model was introduced as a software process evaluator by the US Department of Defence. Subsequently used in the fields of human resources, systems engineering and knowledge management. The CMM provide structured guidelines that can judge organisations on their ability to contribute to predetermined organizational outcomes (Volker *et al.*, 2011). The model is a generic approach which describes the development of an entity over time progressing through levels towards a, usually idealistic, ultimate state (Klimko, 2001).

This research will assess the state of integration by the level of capacity maturity, and thereby ability to contribute to the goals of MLS in provincial and municipal planning policy. Therefore this research chooses to use this model to evaluate the maturity of the policy arrangement of the MLS. Additionally on the structure the CMM offers, other researchers also emphasize on the evaluation of the maturity level of policy as an effective policy integration evaluation method (Jugdev & Thomas, 2002, Sabatier & Mazmanian, 1979). Maturity within this research is defined by the definition given by Paulk *et al.*(1993):

'Maturity implies a potential for growth in capability and indicates both the richness of an organization's policy integration process and the consistency with which it is applied in projects throughout the organization' (Paulk *et al.*, 1993, p. 5).

This maturity is ordered in the CMM by maturity levels, defined plateaus of achieving a mature integration process. Each level is defined by a set of goals that, when reached, contribute to the integration process of a concept. Achieving a certain maturity level results in an increase of the process capability of an organisation (Paulk *et al.*, 1993).

Thus, the CMM is a model that evaluates the maturity of a certain activity within an organisation. Usually, it is used to evaluate key performance indicators by analysing them on their maturity. This research will use the four policy arrangement dimensions (discourse, coalition of actors, power and resources, rules of the game) as the key performance indicators. These dimensions will be tested on their maturity by the five levels of policy integration used by Paulk *et al.* (1993): initial, repeatable, standard, managed and optimal level. The levels, and there categorical ordinal scale, are shown in figure 5.

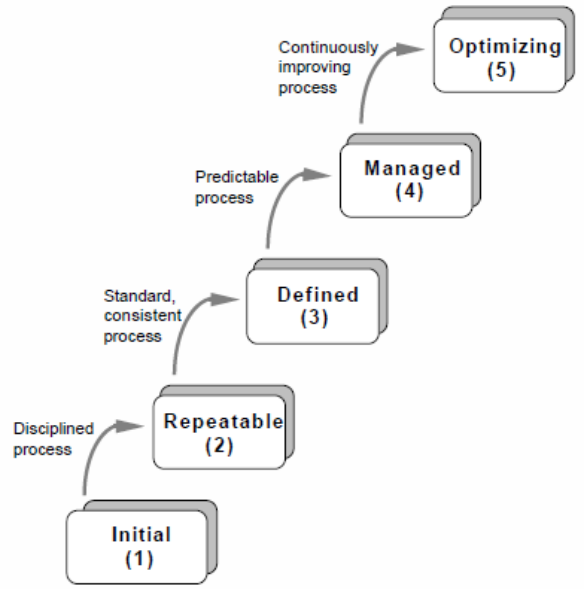

Figure 5: The five levels of the capacity maturity model (Paulk *et al.*, 1993)

To evaluate all dimensions on their maturity level, this research will need a definition on every level of maturity for every dimension of policy arrangement. This gives an analytical framework wherewith the present level of every dimension for Provinces and Municipalities, focused on the integration of the MLS, can be evaluated. However, first the capacity maturity levels will need to be customized per

level, without focus on a specific dimension. Using the first version of Paulk *et al.* (1993) and the more specified version on project maturity by Kwak and Ibbs (2002).

At the initial level, level one, the organization typically does not provide a stable environment for developing and maintaining a certain policy. Schedules, budgets, functionality, and product quality are generally unpredictable. Performance depends on the capabilities of individuals and varies with their instinctive skills, knowledge, and motivations. The policy is not documented. In the repeatable level, level two, policy is documented. Therefore repetition is possible and functionality is evaluated. Procedures of implementation are established and effective management is institutionalized.
The defined level, level three, is reached when policy the policy integration process is maturing by policy documentation and standardisation. All projects are approved to this standard creating a regulated capability. In the managed level, level four, measurements of the product and process quality are collected. The organisation sets quantitative quality goals for both policy products and processes. The optimizing level, level five, is the most matured and therefore most valued level in the CMM. In this level there is continuous improvement enabled by quantitative feedback on product and process.

To explain the analysis and framework more explicit, the five levels of capability maturity are defined for all four dimensions separately. The definitions are based on the research of Paulk *et al.* (1993) and Kwak and Ibbs (2002). Thereby a qualitative evaluation model is created for present capability maturity to evaluate the integration of MLS.

3.3.2 Discourse dimension levels

The discourse dimension level starts with initial level. This first level is characterized by the lack of a stable definition of MLS and no documentation in policy of the specific government layer. The second level is the repeatable level, reached when the MLS discourse is documented in policy documents of the government layer. The MLS discourse is defined, the third level, when discourse is documented and has a standardised definition, all policy documents and projects are approved to this definition, and the definition is controlled. The fourth, managed, level is measured on the product and process quality and quantitative feedback on both product and process is installed by an evaluation system. The most matured level 5 is reached when continuous quantitative evaluations of the MLS discourse in product and process. At the fifth level the discourse is in the optimized level.

3.3.3 Coalition of actors dimension

The initial level of the coalition of actors dimension is regarded as no coalition of actors is defined and the coalition is not set and/or recognized. The second level is reached when the coalition of actors is documented by the governmental organisation. Defined, the third level, is the coalition when the actors are defined and standardised, also roles and responsibilities of actors are defined. When the coalition of actors is qualitatively evaluated the managed level is reached. This dimension is optimized when the evaluation is executed not only qualitatively but also quantitative.

3.3.4 Power and resources dimension

The power and resources dimension is in the first level when resources, usage of knowledge, instruments, policy goals and implementation power are unpredictable. In the initial level operation depends on personal capabilities of individuals and varies with their innate skills, knowledge, and motivations. The second, repeatable level is characterized by an effective process. The process is effective when resources, knowledge, instruments, policy goals and implementation power are clear.

These are documented and recognized by the organisations relevant employees by experience and/or training. Power and resources are defined and in the third level when formal quality policies and standards are established. An organization-wide training program is implemented to ensure that the staff and managers have the knowledge and skills required to fulfil their assigned roles. Power and resources are controlled. The managed level is categorized as soon as MLS is instrumented with well-defined and consistent measurements. Optimal conditions are recognized in the fifth level when the power and resources are continuously quantitative evaluated on the instruments and policy goals.

3.3.5 Rules of the game dimension

The rules of the game dimension initially starts with the integration process being ad hoc, formality and behaviour towards MLS are personal interest based. The system is a reaction-driven. The second, repeatable level is characterized when MLS in projects is managed based on experience, creating institutional, repeatable management. The integration of MLS is defined, the third level, when integration is a standard process with clear responsibilities, procedures and informal norms of behaviour. The rules of the game are managed in the fourth level. In the fourth level the rules of the game are qualitatively evaluated on procedures and norms. This dimension is optimized when continuous qualitative and quantitative evaluation is installed in the optimized level.

3.4 Capability maturity table

In the foregoing both policy arrangement dimensions and capability maturity levels are explained. The next and final step of this theoretical framework can be taken, the visualisation of the analytical framework for this research in a table. This framework, the product of the combination of both concepts, is the capability maturity table. Consisting of a table in which the state of the dimensions of Provinces and Municipalities per case study area are determined on the level of capacity maturity. In which the current level of capability maturity per dimension is stated. The visualization of this table and an example of scoring is given in figure 6.

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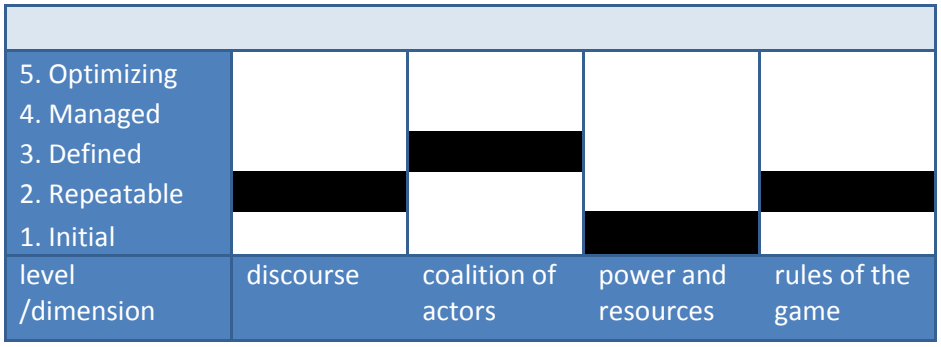

Figure 6: Capability maturity table

Chapter 4 Case study: interviews and analysis

4.1 History

4.1.1 Introduction

To understand the present integration of the MLS approach in provincial and municipal policy, it is necessary to understand the history and the events that lead to the creation of this approach towards flood safety. The historical context of the MLS approach does influence the present by influencing attitudes and opinions towards and responsibilities of governmental levels concerning water safety. Therefore important events and discourses in flood safety are explained to increase the understanding of this historical context.

4.1.2 Early history

The Dutch approach to flood risk control developed over centuries. This control on flood risk started when first inhabitants of the Netherlands build their houses on higher ground, such as sea- and river-dunes. Fleeing to higher ground is the oldest approach limiting flood risks. With increasing wealth, population and importance of agriculture, not only higher grounds had to be protected, also the agricultural lands had to be. This was realized by the creation of the first small dikes and the institutionalization of governance by the instalment of regional water boards in the Netherlands. These diking systems and regional water boards grew in importance over centuries. The trust in flood risk control increased in such a way that the Dutch started to reclaim land and make investments in flood risk areas, such as the bottom of former lakes. Developing not only agriculture but also urban development and crucial infrastructure (for example airports) (Expertise Netwerk Waterveiligheid, 2012).

4.1.3 Delta works

Water safety in the Netherlands changed explicitly after a shock event in modern Dutch flood history, the flood of 1953. Killing almost 2000 people and flooding more than 150,000 hectares. Shock events, such as a major flooding, can initiate a change of approach towards flood safety (Wiering & Immink, 2006). This new approach started already twenty days after the flood when the Delta committee was inaugurated. The commission would give advice about the execution of the Deltaplan, which would, in the long run, increase the safety of the Delta area. In 1959, the Delta Law was passed in order to organise the construction of the Deltaplan. The Delta Works improved flood safety by shortening the total length of dikes by 700 kilometres. Also the height and quality of the dikes improved (Stichting-Deltawerken-Online, 2004). Although safety was the number one priority, the seaways Nieuwe Waterweg and the Western Schelde would have to stay open, because of the economic importance of the ports of Rotterdam and Antwerp (Stichting-Deltawerken-Online, 2004).

4.1.4 Room for the River

In two 1990s winters, 1993 and 1995, large parts of the river delta in the Netherlands experienced local flooding or were threatened with river flood. These events triggered a new national water management strategy, which was consistent with other European countries. This new strategy addressed the need for more physical space for water. Creating a new policy discourse of working with

water called ‘Room for the River’ (in Dutch: Ruimte voor de Rivier). Consisting of physical measures aimed at providing more space for water to reduce flood risks, referred to as spatial measures for flood risk management. Examples of such measures are the removal of obstacles from the floodplains or the construction of bypasses and secondary channels to circumvent urban bottlenecks. Examples of spatial measures to prevent local flooding are the development of local and regional water retention areas or canal broadening (Neuvel & Van Der Knaap, 2010).

4.1.5 Delta committee

Since the last five years, the Dutch government is recognizing a new reality of climate change, causing expected sea level rising and greater river discharge variation. Flood events such as in New Orleans (2005) increased attention on the impact of a flood and the importance of flood safety. To secure water safety in the future, the government installed the ‘new’ Delta commission in 2008. This new commission was responsible for reforms in hydraulic engineering facilities such as dikes and also reforming the spatial and governmental organisation towards flood safety. The findings of this committee were presented in 2008. The committee concluding that a future sea level rise of 0.65 to 1.30 metre in 2100 and 2 to 4 metres 2200 should be considered, in which soil subsidence is included in the calculation. Also, they concluded, approximately a quarter of the flood defences does not meet the legal safety standards and 30 % of the defences the status on the legal safety standards are unknown(Delta commission, 2008). More recent studies show even higher numbers, mainly because of increased understanding on hydrological risks as ‘piping’ (Expertise Netwerk Waterveiligheid, 2012).

4.2 Multi-layer safety approach

4.2.1 Introduction

Explained in the history paragraph, dikes have significantly reduced the probability of floods in the Netherlands. However, settlement expansions, combined with the expected effects of climate change, are increasing the probability and the potential impact of floods within the areas protected by dikes (Oosterberg et al. 2005). In risk management literature, there is a growing consensus that, in addition to the reduction of the probability of a flood, reduction of flood consequences is needed as well (Neuvel & van den Brink, 2009).

4.2.2 Multi-layer safety approach

The risk approach is a concept used for operationalization on the reduction of flood chances and consequences. The goal is to reduce the risk to an acceptable level (ENW, 2012). This is realized by splitting methods of flood safety into three layers. Reducing flood chances by prevention (layer 1) and reducing flood consequences by sustainable spatial development (layer 2) and disaster management (layer 3). This set of layers is called the multi-layer safety approach. The definition and current state of the three layers will be described more explicit now:

Layer 1: Prevention

Law on prevention focusses on the avoidance of floods. The chance of exceedance of water levels is the basis of this prevention. These are evaluation every six years, followed by improvement

programmes. New safety norms of the Delta committee are included in this evaluation. The evaluation of acceptable flood chance is based on the amount of damage and number of fatalities as the consequence of a flood (Kolen *et al.*, 2010).

Layer 2: Sustainable spatial development
Water safety in spatial planning and policy is seen as directing, organizing or following principle. Therefore the Water test is introduced, a process where the developer of spatial development has to involve the responsible water authority. The authority will mostly use a fixed set of rules. However no evaluation framework with fixed criteria is used. Flood risks are not always included yet. However in structure visions and zoning plans certain areas are reserved for water safety (Kolen *et al.*, 2010).

Layer 3: Disaster management
Since the conclusion in 2004 that present organisational preparation on a flood was not acceptable, almost all Safety Regions developed a disaster management plan for flooding. The disaster management plan consists of instalment of information systems, informing citizens on self-reliance and practicing disaster situations with the National Government, Safety Regions, Provinces, Rijkswaterstaat and regional water boards. Notable is that in the current specified law only prevention of flooding is required to ensure safety. While in disaster management, by law, only 'effective action' is sufficient (Kolen *et al.*, 2010). This legal difference contradicts with the risk approach, ensuring flood safety by joining the combination of reducing risk and consequences. Without a change of law, the risk approach is not legally possible at this moment.

4.2.3 Organisation
Organisation of MLS integration and water safety in the case studies is organized in the Deltaprogram. The Deltaprogram is a national program of the National Government, Provinces, Municipalities and regional water boards working together with civil society organisations and the private sector. The program is subdivided into nine subprograms: Safety, Fresh water, Building and redevelopment, Coast, Rijnmond-Drechtsteden, Southwest delta, Rivers, IJsselmeer area and Wadden area (Rijksoverheid, 2012). Case study Watergraafsmeer is part of the subprogram Building and redevelopment within the sub-subprogram Climate proof cities. The case study Krimpenerwaard is part of the subprogram Rijnmond-Drechtsteden. The subprograms are regionally directed by the steering committees. These are essential for the connection of the National Government and the regions for controlling and guiding the subprograms (Rijksoverheid, 2012). The steering committees are engaged with formulating preferred strategies in 2013. These are needed as input for the Delta decisions that will be made in 2014 (Interviewee-D, 2013, Rijksoverheid, 2012).

4.3 Case study areas

4.3.1 Watergraafsmeer
The first case study is the polder Watergraafsmeer. Watergraafsmeer is an urbanised polder located in the south-east side of Amsterdam as shown in figure 7. The area has a size of nearly 600 hectares and is located three to six meters below sea level, being one of the lowest polders of the Netherlands (Watergraafsmeer, 2011). The area is densely populated and includes i.e. an academic medical centre,

a prison and a science park campus. Therefore, in the event of a flood, there is a high impact of investment and humans.

The governmental actors involved in the MLS integration in the study area are the Ministry of Infrastructure and the Environment, Rijkswaterstaat, the Province of Noord-Holland, the water board Hollands Noorderkwartier, the water board Amstel, Gooi en Vecht, the Municipality of Amsterdam, Waternet as an executive organisation and the safety regions (Interviewee-A, 2013, Interviewee-B, 2013, Watergraafsmeer, 2011). At first the area was not included in one of the sub-programs of the Deltaprogram (Deltacommissaris, 2012). However since two years it is included within the sub-subprogram 'climate proof cities' (Interviewee-B, 2013).

Figure 7: Watergraafsmeer

4.3.2 Krimpenerwaard

The second case study is the 'Krimpenerwaard'. The 'Krimpenerwaard' is a polder between the river Lek and the 'Hollandsche IJssel polder' as shown in figure 8. The area has a size of nearly 13,500 hectares and houses about 80.000 inhabitants. The area is located around one to two meters below sea level (van Schie, 2012). In the evaluation of the dikes surrounding the Krimpenerwaard on short and long term flood safety, the Northern dike of the Krimpenerwaard next to the Hollandse IJssel River was disapproved completely. As the Southern dike next to the Lek river was approved partly and further research is needed on some parts of the dike (Interviewee-D, 2013, van Schie, 2012). Due to insecurity of climate change and incompleteness of information on dike conditions, the exact chance of a flood is unknown. However all interviewees point out the increasing flood chances and therefore importance of taking measures to lower flood chances and consequences in the area (Interviewee-B, 2013, Interviewee-C, 2013, Interviewee-D, 2013, Interviewee-E, 2013).

The governmental actors involved in the MLS-approach integration in the study area are the Ministry of Infrastructure and the Environment, the Province of Zuid-Holland, other Provinces, Rijkswaterstaat the water board of Schieland en Krimpenerwaard, the city region Rotterdam, the Municipalities of Krimpen aan den IJssel, Bergambacht, Nederlek, Ouderkerk, Schoonhoven en Vlist and civil societal organisations (Interviewee-C, 2013, Interviewee-D, 2013, Interviewee-E, 2013, van Schie, 2012). The area is part of the Deltaprogram as part of the subprogram 'Rijnmond-Drechtsteden' (Rijksoverheid,

2013). Next to the Deltaprogram, the area is also part of the Research Program 'Knowledge of Climate' in the hotspot of the 'Rotterdam region' (Deltacommissaris, 2013).

Figure 8: Krimpenerwaard

4.4 Analysis of interviews

4.4.1 Analysis

In this thesis the state of integration of the multi-layer safety approach in provincial and municipal planning policy is evaluated. To answer this question case studies and interviewees were selected, as described in the beginning of this chapter. These case studies will be analysed in this chapter based on the capability maturity model created in chapter 2: the theoretical framework. Data for this analysis is derived from two sources. First the interviews conducted with key civil servants of the four governmental organisations: the Province of Noord-Holland, the Municipality of Amsterdam, the Province of Zuid-Holland and the Municipality of Krimpen aan den IJssel. The second source of data is policy documents from the corresponding governmental organisation.

The analysis of the interviews and documents is described in this section. The analysis is executed by evaluating three different characteristics. First, the quotes and statements made by the interviewees during the interviews will be used. These quotes and statements lead to confirmation by the descriptions of the dimensions defined in the theoretical framework. Either confirming a level has or has not been reached. Second, documents of the government organisation will be used to quote documentation, approval and/or evaluation of MLS. Again, confirming a level reached or confirming a level that is not reached. Third, relations between quotes and statements by the interviewees and the documents will be evaluated. This evaluation creates methodological validation by similarity in score on the policy maturity model by triangulation of two different data sources.

The maturity level scored in the case study organisations are structurally presented in the capability maturity table. Presenting the results of this thesis as the state of policy integration is determined, per

governmental organisation within the two case study areas and the case study areas in general. After this part also the results per governmental level and on overall governmental organisations are given. Thereby the state of integration of the multi-layer safety approach in provincial and municipal planning policy is determined.

4.4.2 Legend

The legend for the scoring of the capability maturity table is given in table 1. It shows scoring colours per (mix of) organisation(s).

Legenda for scoring				
0 %				
25 %	n/a	n/a	n/a	
50 %	n/a			
75 %	n/a	n/a	n/a	
100 %				
Corresponding percentage (%) /organisation(s)	Independent organisations	Per case study	Per government level	Overall

Table 1: Maturity model legend

4.5 Case study Watergraafsmeer

4.5.1 Province of Noord-Holland

The Province of Noord-Holland has taken steps to integrate MLS in policy. The Province is concerned in defining a position for their approach to MLS. A definition is created and documented in the internal work document for the civil servants involved with the subject. However this definition is not yet standardised as it is documented in a text that is evolving continuously. As the interviewee state:

'It is hard to take a final position, because you do not know what the frameworks are.'
(Interviewee-A, 2013)

Evaluation is based on experience from the pilot studies synthesis report prepared by external organisations (Interviewee-A, 2013, Oranjewoud & HKV, 2011). This evaluation consists of an evaluation of the product and is repeated in policy documents (Noord-Holland, 2013). However, no internal evaluation system is active within the organisation.

The coalition of actors is documented by the Province of Noord-Holland in the work document used internal in the organisation (Noord-Holland, 2013, pp. 7-10). In the interview a set of actors are named:
'The actors we consult within the subprogram 'The Water Resilient City' and multi-layer safety are the safety regions, regional water boards, municipalities, other Provinces and the national government.' (Interviewee-A, 2013)

The Province, on this moment, is in the phase of defining the coalition. The coalition of actors is not standardised by for example approval from the Provincial Executive, the work document is an advanced document within the organisation. The responsibilities of the actors within the coalition are described for the first layer of MLS. However, layer two is not yet organised and the work document state that 'many actors are active' within this layer (Interviewee-A, 2013). In the third layer responsibilities are not yet clear, however the responsibility is given to safety regions and regional water boards (Noord-Holland, 2013, p. 4). The roles, different from the responsibilities, are clearly defined within the work document (Noord-Holland, 2013, pp. 7-10). Also the interviewee states the clear role and responsibilities of the Province within the integration of MLS, this statement is not yet specified for Noord-Holland but adopted from the IPO (Inter Provincial Council) statement in the Administrative Agreement Water (Interviewee-A, 2013, Rijksoverheid, 2011, pp. 11-12).

The coalition, roles and responsibilities are evaluated minimally. In the interview only the evaluation on the role of the Province within the coalition is expressed in a qualitative way. However, the evaluation of the coalition itself is not specified in the interview or documents from the Province of Noord-Holland, according to Synthesis Report multi-layer safety(Oranjewoud & HKV, 2011).

Operation on integration of MLS in the Province of Noord-Holland is limited. It is dependent on personal capability and experience is limited. Awareness on the approach within the organisation is minimal, as for example on the spatial planning division. The Province depends on operationalization of MLS developed on a national level with several governmental organizations (Interviewee-A, 2013). Resources for executing MLS are documented in the working document within the organisation (Noord-Holland, 2013, pp. 7-10). On a national level, a knowledge agenda is set (Rijksoverheid, 2011). Nevertheless usage of knowledge, except from references, is not documented within the Province. The interviewee defines sources however a clear description of usage or a list of sources is not existing (Interviewee-A, 2013). The instruments that can operationalize the approach are defined by the interviewee; ordinances, risk zoning in structure visions and the water test, however, these instruments are not documented (Interviewee-A, 2013). The goal of the Province towards MLS is defined by the interviewee and documented (Interviewee-A, 2013, Noord-Holland, 2013, pp. 7-10). Concluding a lot of the factors influencing operationalization are recognized by relevant employees and documentation, but documentation is incomplete. The quality and possibilities of operationalization is not standardised. Also, as mentioned in the beginning of this part, awareness, not to mention training, within the Province is minimal.

The rules of the game concerning MLS within the Province is based on personal interest (Interviewee-A, 2013). For example, behaviour is constructed by attracting colleagues with an open view, therefore personal interest define the informal rules. Institutional management will be installed in the future with a working group on MLS and the creation of the risk zoning. This will be standardised by approval from the Provincial Executive and the Provincial Council (Interviewee-A, 2013). This institutional management is not realized up till now. Evaluation of procedures is not executed. However the interviewee states that the organisation is developing towards this next phase.

Therefore analysis concludes the maturity of the Province of Noord-Holland is corresponding with the following maturity levels per dimension.

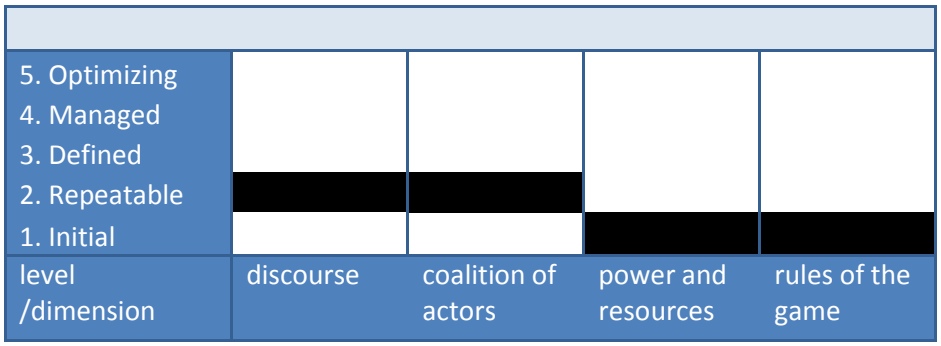

Table 2: Province of Noord Holland

4.5.2 Municipality of Amsterdam

Water issues of the Municipality of Amsterdam are executed by the executive organisation of the Municipality of Amsterdam and the regional water board Waternet, therefore the relationship with the water board is strong. As Amsterdam, including Watergraafsmeer, is a very dense populated area, the interviewee claimed the difficulty of assuring water safety by layer two and three of MLS. In the Municipal Executive (Dutch: College van B&W) a definition of risk zoning was given that included MLS as part of climate proofing the city (Interviewee-B, 2013). Also MLS is defined in the structure vision report of the city of Amsterdam, created a standard definition within the organisation, thereby controlling the definition (Municipality of Amsterdam, 2011, p. 140). Evaluation of the discourse is conducted in the City Council Committee in a qualitative system, however quantitative evaluation through measuring is inadequate (Interviewee-B, 2013).

In the interview several actors were mentioned. Waternet, as executive organisation of the Municipality of Amsterdam and the water board Amstel, Gooi en Vechtstreek, Province of Noord-Holland, Province of Utrecht, Rijkswaterstaat and other regional water boards. Amsterdam took the initiative of this coalition after the decision of the Municipality to be included in the Deltaprogram (Interviewee-B, 2013). Despite of this extensive list of actors, the integration of this coalition in documents within the organisation does not exist. As the interviewee state:

'The list of actors is not structured at this moment'(Interviewee-B, 2013)

The roles of different actors are also not set. At the start, Waternet identified the actors that would be relevant within the subprogram 'the water resilient city'. However this proactive attitude did not lead to results. For example the communication with the Province Noord-Holland was ill for a while as this Province focused more on another subprogram of the Deltaprogram. Although intensions and relations with actors, including the Province of Noord-Holland, recently improved (Interviewee-B, 2013).
The evaluation of the actors is evaluated by a mix of responsible civil servants and the administrators of the Municipality and regional water board in charge. This evaluation is only performed verbally and not documented, it is based on experience and consultation (Interviewee-B, 2013).

Operationalization within the Municipality depends mainly on two persons within the organisation, the interviewee and another civil servant. They assess the relevance of resources, knowledge and instruments. For example the usage of pilot studies is assessed as an important knowledge source

because of the experience of the responsible team (Interviewee-B, 2013). These factors and furthermore factors as policy goals and implementation power are not documented (Interviewee-B, 2013).

The interviewee state that the process of integrating MLS is based on personal knowledge and network. On the other hand it was stated that the attitude towards the concept is pro-active and knowledge and experience is bundled and used, thereby institutionalizing repeatable management. Also the subsequent phases in the process of integration are clear within the organisation (Interviewee-B, 2013). A standardised process is not installed and the organisation of integration is not structured, this is currently based on meetings with a network of people concerned with MLS.

Therefore analysis concludes the maturity of the Municipality of Amsterdam is corresponding with the following maturity levels per dimension.

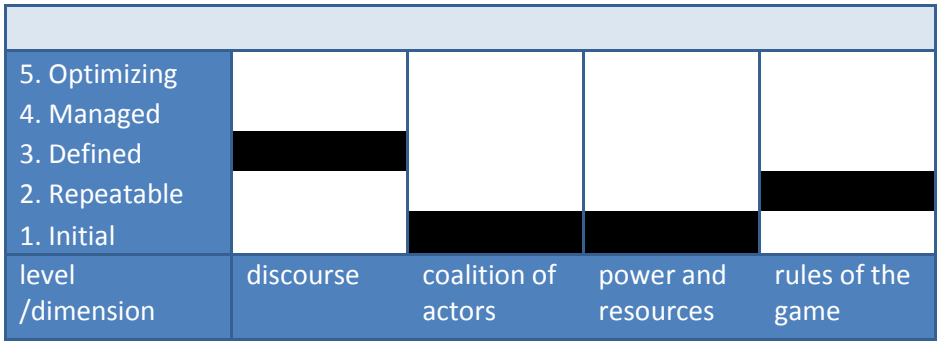

Table 3: Municipality of Amsterdam

4.6 Case study Krimpenerwaard

4.6.1 Province of Zuid-Holland

The Province of Zuid-Holland developed their own policy for MLS outside the dyke rings. Yet for the inner dyke area, the major part of the territory, own policy lacks (Interviewee-C, 2013). But as policy is absent, a definition of the approach is documented in a policy exploration document of the Province (Zuid-Holland, 2012). Apart from this the Provincial Executive (Dutch: Gedeputeerde Staten) defined a clear definition that included in a letter that was send to the Provincial Council, Minister and the Deltaprogram (Zuid-Holland, 2013a, pp. 1-2, Zuid-Holland, 2013c, p. 20). Thereby creating a clear definition that controls the discourse of the organisation. Evaluation is done by using external advice and data. MLS within the organisation is evaluated on a minimal qualitative scale. The Province will soon start quantitative evaluation themselves (Interviewee-C, 2013).

The Province of Zuid-Holland is part of the coalition of actors realized by the Deltaprogram, whereas the integration of MLS is part of. This coalition consists of the Province of Zuid-Holland, other Provinces, regional water boards, Rijkswaterstaat and civil societal organisations (Interviewee-C, 2013). However realized by the Deltaprogram, the coalition is also documented and defined in documents of the Province of Zuid-Holland (Zuid-Holland, 2013b, pp. 1-19).
Roles and responsibilities for MLS are not yet standardised as the Province is not yet at that point (Interviewee-C, 2013). However certain roles and responsibilities are documented within the investigation of policy possibilities executed by the Province. This documentation describes approaches of all actors of the coalition, differing from general intentions to more specific roles and responsibilities. For example a distinctive specification for the role of Municipalities in risk zoning for MLS. This is an important step because Municipalities are important as they are responsible for zoning plans and local structure visions (Zuid-Holland, 2012, p. 13). The evaluation of the coalition is not evaluated explicitly (Interviewee-C, 2013).

The Province of Zuid-Holland bases their operationalization on both personal capabilities and the usage of internal and external knowledge. Knowledge sources and usages of knowledge are documented and used for operationalization (Interviewee-C, 2013). The interview assessed the definition of instruments as limited, for the composition of useable instruments is not yet clear. However the interviewee stated clear instruments and these instruments repeated and complemented in the investigation of policy possibilities (Interviewee-C, 2013, Zuid-Holland, 2012, p. 16). Policy goals, resources and implementation power are not set or described.

The Province of Zuid-Holland has marginal experience on the integration of MLS. The process is interactive (Interviewee-C, 2013). Thereby characterised being reaction-driven Institutionalizing the concept is dependent on the Delta-decisions within the Deltaprogram, these will be approved by the House of Representatives (Dutch: Tweede Kamer) in June 2014 (Interviewee-C, 2013, Interviewee-D, 2013). After this decision a strategy and agenda will be made that will function as guidance in the process. Next to this the Province is occupied with institutionalizing the processes of the Deltaprogram by implementing as much as possible in the recalibration of the Provincial structure vision. Institutional management is created by evaluation and feedback with the representative in the Provincial executive and the civil service, influencing and adjusting formality and behaviour based on

personal interest towards repeatable management (Interviewee-C, 2013). Responsibilities are not set and the procedures are still insecure. Also norms are not evaluation at that level (Interviewee-C, 2013).

Therefore analysis concludes the maturity of the Province of Zuid-Holland is corresponding with the following maturity levels per dimension.

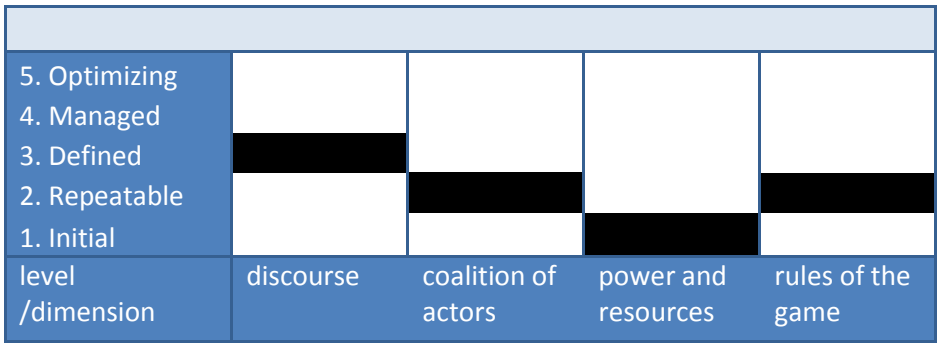

Table 4: Province of Zuid-Holland

4.6.2 Municipality of Krimpen aan den IJssel

The Municipality of Krimpen aan den IJssel is relatively unknown with the concept of MLS. Within the Municipality there is no definition of the approach. The definition used is stated in documents of the Deltaprogram (Deltaprogram, 2013, Interviewee-D, 2013). This confirms the lack of a stable definition within the organisation. Also Interviewee E specified in various questions the lack of statements from within the organisation defines MLS (Interviewee-E, 2013). In the interview, Interviewee E stated multiple times the limitations of a small municipal administration, as the lack of long-term thinking and specialism possibilities complicate the integration of approaches as the MLS (Interviewee-E, 2013).

The analysis within the Municipality on the integration of the coalition of actors consists of various divergent suggestions. Contradicting indications are made in the interviews and documents. The first statement on the coalition for this analysis is made by Interviewee E:
'We are not that active in this regard, at this moment we do not involve actors in the process of integrating MLS' (Interviewee-E, 2013)
This determines the minimal recognition of actors. Also no documentation within the Municipality is present where a coalition is recognised. This is contradicting to the documentation of the coalition of actors on the website and document of the subprogram 'Rijnmond-Drechtsteden'. As this recognises the Province of Zuid-Holland, water board Schieland en Krimpenerwaard, city region Rotterdam, Drechtsteden region and the ministry of Infrastructure and Environment as the present coalition (Rijksoverheid, 2013). This lack of inclusion of specific or collective Municipalities is identified within the Deltaprogram (Interviewee-D, 2013). The Municipalities collectively applied for a seat within responsible steering committee for the subprogram. However, this application was declined by the committee as the Municipality of Krimpen aan den IJssel is represented indirectly by the city region Rotterdam (Aboutaleb, 2013). Because of the lack of direct representation, the Municipality feels remote from current integration of MLS and the subprogram of the Deltaprogram (Interviewee-D, 2013). This is confirmed by the statement of the interviewee as he describes the Municipality of Krimpen aan den IJssel as passive (Interviewee-E, 2013). Thus, however documentation about the

coalition exist, the Municipality of Krimpen aan den IJssel is analysed to be very limited in their integration of a coalition of actors on MLS.

Information on the integration of power and resources within the Municipality are scarce. The interviewee recognizes operationalization with for example re-development of brownfields (Interviewee-E, 2013). Resources for the operationalization are researched and defined within the research report 'chances for MLS in the Krimpenerwaard', the polder in which the Municipality is located (Asselman & Slager, 2012). However no factors of operationalization are documented within documents of the Municipality as this means operations depend on personal capabilities dependant on innate skill, knowledge and motivation.

The interviewee states that the Municipality is not integrating the rules of the game concerning MLS.

'Interviewer: What are the next steps of the process?
Interviewee: It is yet to be developed. We are looking too little ahead. We are too busy with the present, the issues of the day. Long term projects as this (interpreted: the process of integrating MLS policy) fall off the list. This happens often in small Municipalities.' (Interviewee-E, 2013, p. 4)

This proves a clear lack of capacity for institutionalizing management and a standardised process. However the Municipality ambassador does not indicate this lack as a big. He questions that other decisions would have been made (Interviewee-D, 2013). Interviewee E (2013) does not confirm any experience or creation of management towards MLS. The Municipality is clearly not very experienced in this dimension, as the process being personal interest based, by which low capacity forces the organisation to be reaction-driven.

Therefore analysis concludes the maturity of the Municipality of Krimpen aan den IJssel is corresponding with the following maturity levels per dimension.

5. Optimizing 4. Managed 3. Defined 2. Repeatable 1. Initial				
level /dimension	discourse	coalition of actors	power and resources	rules of the game

Table 5: Municipality of Krimpen aan den IJssel

4.7 Combined results

4.7.1 Case studies

It can be concluded that the difference in state of integration between the two case study areas is minimal, as only the discourse dimension is slightly less matured in the case study Krimpenerwaard. This analysis is noteworthy as both case study areas face different challenges towards flood safety and both areas are included in two different subprograms of the Deltaprogram, as explained earlier in case study selection. Therefore this case study shows a minimal to no variety in the state of integration of MLS in policy by differences in physical or subprogram characteristics between the two case studies. The combined results per case study are shown in the capacity maturity tables below.

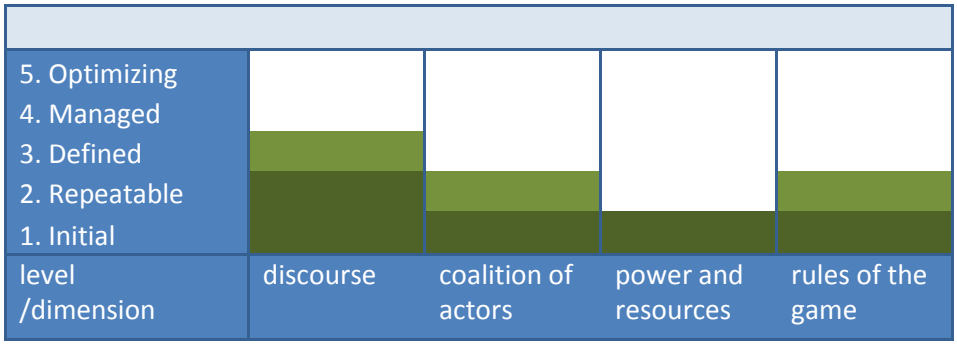

Table 6: Case study Watergraafsmeer

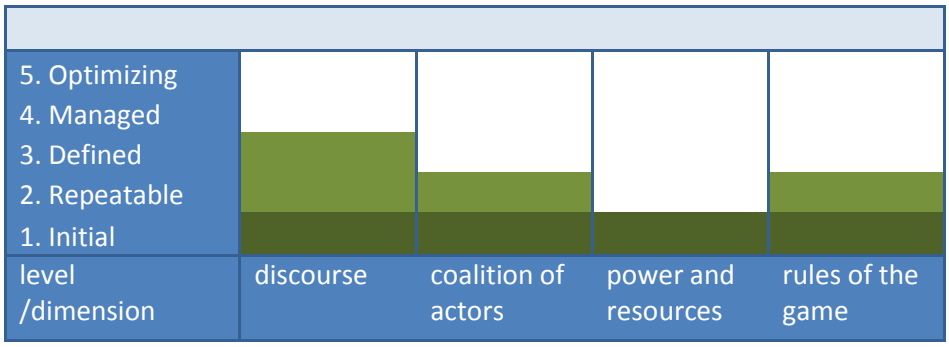

Table 7: Case study Krimpenerwaard

4.7.2 Governmental levels

The levels of maturity between governmental levels in this research differ. Both the discourse and coalition of actors dimensions are matured one level higher within Provinces. This is explained by the more intense relation with the Deltaprogram and a larger capacity of the Provinces (Interviewee-A, 2013, Interviewee-B, 2013, Interviewee-C, 2013, Interviewee-D, 2013). The municipal level scoring differs because of the dissimilarity of the two Municipalities. Amsterdam is a large governmental organisation cooperating with the regional water board within Waternet creating large capacity and specialist knowledge on water management within the organisation, resulting in a higher level of integration. Compared to Krimpen aan den IJssel, which organisation has other characteristics with lesser organisational capacity and interaction with the Deltaprogram. The differences in governmental levels are shown in the capacity maturity tables below.

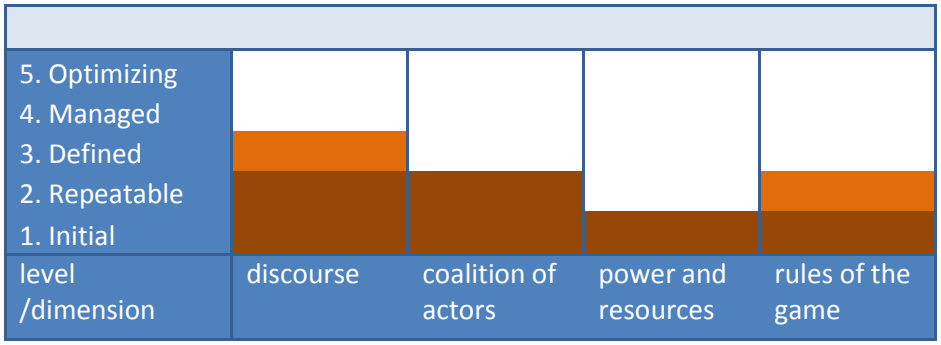

Table 8: Governmental level: Provinces

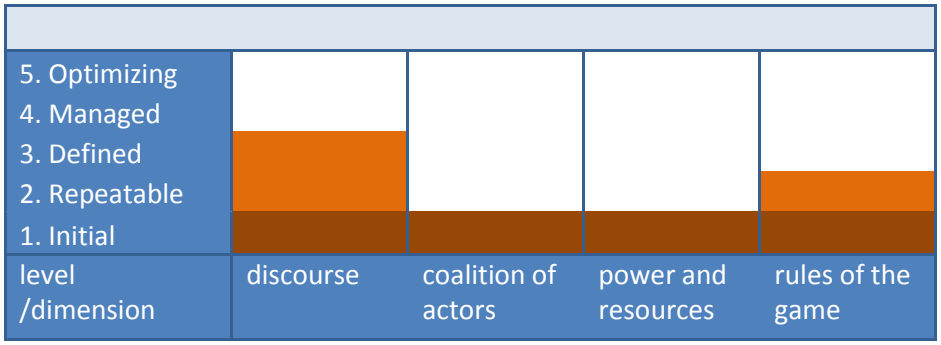

Table 9: Governmental level: Municipalities

4.7.3 Overall

The integration of the discourse dimension differs from the initial level to the defined level. Discourse is the most integrated dimension in the arrangement model. The maturity of the dimension is influenced by the personal interest of civil servants, knowledge by external organisations, knowledge by the Deltaprogram and internal research. Thereby knowledge and definitions are created that are used to define the discourse of MLS. The maturity depends on these factors, therefore maturity between governmental organisations differs. The Province of Zuid-Holland and the Municipality of Amsterdam are familiar to the concept by personal interest and intense relation with the Deltaprogram and already defined the discourse of MLS. The Province of Noord-Holland has a less matured discourse dimension and is in the repeatable level. The Municipality of Krimpen aan den IJssel, due to a lack of resources and distance from the Deltaprogram, is still in the initial level

The coalition of actors dimension policy maturity consist of the initial level and repeatable level scoring. The defined level or higher is not reached. Thus none of the governmental organisations has a standardised coalition of actors with clear roles and responsibilities. Both Provinces are in the repeatable level because of their definition and documentation of a coalition of actors. This definition and list of actors is based on the list of actors used within the Deltaprogram. The two Municipalities are both still in the initial level of this dimension. However there is a notable difference between these two. As the Municipality of Amsterdam is actively working on attracting and defining actors but is not receiving results from this attitude. The Municipality of Krimpen aan den IJssel is not active in working with other actors, as the Municipality and all other Municipalities in the case study area

Krimpenerwaard are excluded as collective Municipalities from a permanent seat within the subprogram committee of the Deltaprogram.

All four governmental organisations in the case study are in the initial level of maturity concerning the power and resources dimension. Meaning that power is uncertain and operations depend on personal capabilities. Ranging in incompleteness; resources, knowledge, instruments, policy goals are recognized by all but the Municipality of Krimpen aan den IJssel. However, none of the organisations has a complete overview of all factors and most factors are not documented within the organisation. This analysis shows that operations depend mainly on personal capabilities and innate skills, knowledge, and motivations.

The rules of the game dimension is integrated by level two, repeatable, for the Municipality of Amsterdam and the Province of Zuid-Holland. The Province of Noord-Holland and the Municipality of Krimpen aan den IJssel are in the first, initial, level. None of the organisations has a standardised process; meaning clear responsibilities, procedures and informal norms of behaviour. However the distinction can be made by the institutionalisation of management and informal behaviour towards MLS. The first two organisations state a clear pro-active behaviour and directions towards a defined management. The last two organisations are far less pro-active and advanced in institutionalizing. This is especially the case for the Municipality of Krimpen aan den IJssel, the reason for this is the limited organisational capacity.

The combined table of both case studies and all governmental organisations are shown in table 10, showing the overall scoring of MLS maturity by Provinces and Municipalities.

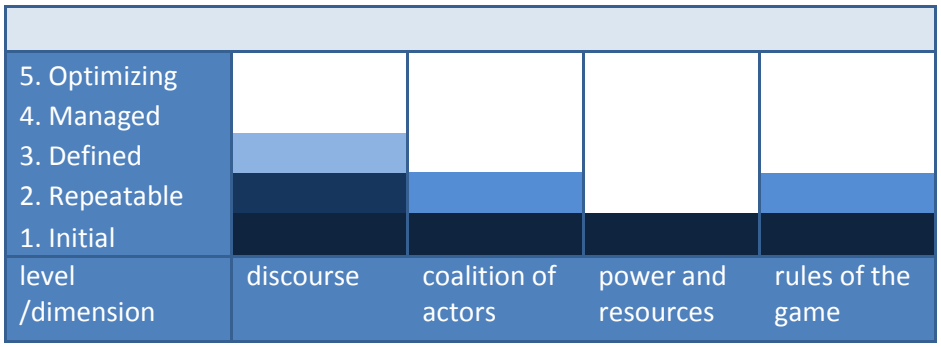

Table 10: Capacity maturity table: overall

Chapter 5: Discussion, Conclusions and Recommendations

5.1 Conclusions

The goal of this conclusion is to give an answer to the main research question:

'What is the state of the integration of the multi-layer safety approach within provincial and municipal planning policy?'

The analysis of the interviews and policy documents shows that multi-layer safety is being integrated in provincial and municipal policy. The policy maturity model created in this thesis is a combination of the policy arrangement model and the capability maturity model. The policy arrangement dimensions are used as factors to be evaluated and the capability maturity levels as a scale to score these factors. This combination proves to be functional. Also, the capability maturity model originates from computer science. This research managed to transform this model for evaluation in the field of policy integration of MLS. The model was tested by measuring two case studies and was functional in determining the level of policy integration in provincial and municipal policy. This resulted in an overview of the level and range of integration of policy maturity in all dimensions of the policy arrangement.

Five main conclusions can be drawn. First, on provincial and municipal level MLS is recognized as a valuable concept. However the overall integration in policy formulation is minimal. This causes concerns because this new concept requires a different position and role of Provinces and Municipalities in flood safety management. The literature study shows that this could be a risk in the success of integrating MLS. Redistribution and redetermination of roles and responsibilities on flood safety policy in governmental organization is needed to integrate MLS successfully in policy. Previous accustomed redirection by Provinces and Municipalities of flood safety concerns to the Ministry of Infrastructure and the Environment, regional water boards and other governmental organizations will not create effective MLS.

Second, the discourse dimension is the most matured policy dimension of the policy arrangement dimensions. This policy maturity can be explained by applicable definitions created by external research and evaluation of the MLS concept; for example research and recommendations by the Deltaprogram. The applicability of these definitions is formed through the possibility to apply the definition in local conditions of most Provinces and Municipalities. Limitations on maturity of discourse are created by lack of organisational capacity and limited contact with the Deltaprogram.

Third there is very small variation in overall maturity of MLS in the case study areas. This points out little variation in effects on integration by different subprograms of the Deltaprogram. This can be affected by two effects. The first effect can be actual little differences in MLS maturity in the subprograms themselves. The second effect could be that there is a considerable difference between the policy maturity between subprograms but a contrary success in transfer of knowledge to Provinces and Municipalities neutralize this difference.

Fourth it can be concluded that Provinces are slightly more matured in integrating MLS policy than Municipalities. By this small difference showing no clear connection on maturity in difference of governmental level because the Municipality of Krimpen aan den IJssel is the biggest contributor to this gap and is likely explained by the lesser organisational capacity compared to the other organisations. Only the superior maturity on the coalition of actors dimension shows an increased

integration of MLS by Provinces. Causality of this increased integration in the coalition of actors by Provinces could be experience and knowledge of Provinces in involving relevant actors in policy integration.

Fifth the power and resources dimension is not beyond the initial level in any governmental organisation in this research. The reason of this low maturity is the unanimously expressed concerns about the lack of power and resource distribution by assignment of roles and responsibilities of government organisations in securing flood safety using MLS. The lack of any suggestion of a solution to this problem can be a serious threat for integrating MLS in Provinces and Municipalities in the future. This can also be concluded for other organisations concerned with power and resources matters towards flood safety using MLS. This research does not show limitations and effects of this lack of policy maturity at this moment. However it does point out serious concerns for the future. The determination of roles and responsibilities are crucial for integration the power and resources dimension and thereby increasing the level of policy maturity.

The state of integration of the multi-layer safety within provincial and municipal planning policy differs. Personal interest in MLS of responsible civil servants, the capacity of the governmental organisation and intensity of interaction with the Deltaprogram increase the level of policy maturity of MLS in Provinces and Municipalities. Overall the integration of MLS is on the initial and/or repeatable level. The discourse dimension shows an increasing policy maturity by local usability of definitions. The power and resources dimension has only initial maturity because the absence of clear direction on roles and responsibilities for governmental organisations concerning flood safety policy.

5.2 Discussion

This discussion gives insight in the theoretical framework, the results and the conclusion in this thesis. The discussion addresses consecutively the policy maturity model as an evaluation model, multi-layer safety as a concept and the integration of multi-layer safety in Provinces and Municipalities. The discussion is closed with discussing shortcomings of the research as a starting point for recommendations.

5.2.1 The evaluation model

The capacity maturity table created in this thesis was proven functional. This means that all dimensions of the policy arrangement model are evaluated successfully. This connotes that for this research the model was applicable and capable of measuring a correct scoring of maturity level for the governmental organisations. The model is proved comprehensive, consisting out of the four policy dimensions; discourse, coalition of actors, power and resources and rules of the game. This is based on the fitness when analysing of the data from interviews and policy documents. Using this model to analyse the case study data gave a broad understanding on the state of integration of MLS in the cases.

5.2.2 Multi-layer safety

This thesis evaluated the integration of multi-layer safety. The MLS concept is relatively new and therefore usefulness in flood safety management is still uncertain. Although local solutions and pilot studies are executed at this moment, evaluation of the concept within the Deltaprogram is not yet completed. Preferences for flood safety strategies will be made in 2014. In 2014 the House of Representatives will choose preferred strategies as called ‘Delta Decisions’. Therefore preference of integrating MLS as a concept in flood safety is not expressed yet. This uncertainty is a risk to the relevance of this thesis. Although still uncertain, recent statements directs to the suggestion that MLS,

as the risk approach, will be a preferred strategy. The minister of Infrastructure and the Environment recently stated:

'I am in favour of the risk approach. In this the probability of flooding and the possible consequences of a flood are looked at. ... considering ... prevention ... flood safety tasks ... and future spatial development.'

(Schultz van Haegen, 2013, p. 6)

Apart from this insecurity and governmental statements pronounced after the start of this thesis, the initial choice of conducting this thesis at this moment of the integration of a new policy concept is crucial in the consideration. The author considers the relevance of the knowledge, referring to the evaluation of the integration state itself and as a basis for new research, is most usable in this stage of integration. At this initial level of integration the knowledge acquired by this research can be most functional for researchers, decision makers, civil servants and others. Because anticipation on insights and recommendations in this research can be a starting point for improving MLS integration. Apart from this, the interviewees and policy documents state the importance of evaluating MLS. Interviewees made clear statements on their positive consideration on the potential functionality of the concept in provincial and municipal policy. This is an important optimistic indication on the possibility of future use of the concept and gives a positive prospect on the usability of this thesis.

Separately from the uncertainty of MLS being a strategic preferred concept or not, the concept of MLS itself have some critical features. At first the concept demands an increased institutional complexity. The interplay of the three layers of MLS request collaboration of different governmental levels and domains. For example structure visions should be created with consideration of the flood chances of certain flood barriers and vice versa. Therefore an addition of complexity was indicated and confirmed in the interviews. The interviewees unanimously stated this concern; with a special focus on the division of roles and responsibilities on flood safety management in the governmental organisation of the Netherlands. This increasing complexity should not be taken lightly, because the research concluded the current state of flood safety management in the Netherlands as a complex multi-level co-governance. In which effectiveness and efficiency can be limited by increasing complexity. This concern is confirmed by recent statements made by the minister of Infrastructure and the Environment in April. She stressed the importance of improvement of cooperation between water affairs and spatial planning to secure flood safety (Schultz van Haegen, 2013). Second, another critical feature is the usability of sustainable spatial development and disaster management. Interviewees and policy documents have stated a limited usefulness of these 2 layers in especially dense populated, large areas or areas with high valued assets. The suggestion is that investing in prevention is often much cheaper than investing in reduction of consequences. For example heightening a dike can be cheaper than flood proofing and evacuation training a dense populated area. Recent pilot studies and research often show that cost efficiency for impact reduction versus risk reduction is minimal when expected flood impact is high. Recognizing this is useful in focussing on potential promising areas for implementation of MLS.

5.2.3 The integration process of multi-layer safety

The state of contemporary MLS integration in provincial and municipal planning policy is not just a problem indication. The integration of MLS was not expected to score in a high matured policy level. However recognition of this initial level of MLS policy maturity, especially the state of the four dimensions separately, is useful. Since identifying the state can be used as input for the decision for preferring, or not preferring, the MLS as a preferred strategy within future flood safety policy. When

MLS is preferred, this research can be used as a starting point for future integration of MLS in the case studies and other Provinces and Municipalities. Signalling points of concern as for example the indication this thesis gives on low integration of power and resources. This suggests the need of extra attention to governance issues regarding power, responsibility and resources distribution for MLS. When MLS is not preferred, the research can be used to show limitations of the concept. Therefore choosing to reject or adjust the concept.

Again, this research is no solely a problem indication. Although the minimal integration of (some) governmental organisations would suggest that this is the case. Integration of MLS by all organisations is maybe not a crucial necessity at this point. At first because the concept itself is not fully developed and need time to be executed and evaluated in for example the pilot study of the 'Water Resilient City' in Amsterdam. Second because not all, especially smaller organisations, can and have to prioritize the integration of MLS at this moment. The Municipality of Krimpen aan den IJssel is not included in the subprogram steering committee. This results in less familiarity with the concept, but then again maybe this is not a problem at this moment. The demanding manpower and thereby capacity of smaller organisations can be considered not necessarily appointed to act on MLS integration now. A useful strategy to minimize the consequences of MLS integration lag can be a solution. Develop an integration plan for these smaller organisations that gives possibilities to catch up with larger organisations when preferences are expressed in the Delta Decisions 2014.

5.2.4 Shortcomings

However this research pursued absolute validation and completeness of data, it was not perfect. This research has some shortcomings. As recognizing and describing these will contribute in valuing this research and thereby improve the usability of the information and knowledge created.

The first and most important point to recognize are the interviews in the case studies. There are two matters important. First, the number of interviews was not very high. This quantitative limitation was caused by the two restrictions. Time constrains were causes by the limitation time available determined by the requirements of a master thesis. The second restriction was the limited number of specialist on MLS policy integration within the governmental organisations interviewed. These two limited validation by number of case study areas and the number of interviews per case study. Second, the interviewees selection was based on own research and suggestions given by civil servants. As extensive contact with civil servants that ought to be fit for the interview agreed for an interview or gave suggestions for better fit colleagues. Based on both methods interviewees were selected. However, absolute certainty on interviewing the civil servant with the most expertise on the research subject cannot be given, however indications on incorrectness where not specified by interviewees or other sources used. Also, in some cases, there was a contradiction in statements made in the interview and in the policy documents. Stating a different level of integration, this was solved by interpretation of the author in analysing and choosing the most accurate statement. Moreover, some interviewees did not mention certain information available in policy documents. There is a possible lack of expression on other subjects, thereby confirming the possibility of completeness. Which is not surprising as people can make 'mistakes' by forgetting information; however awareness on this possibility of incompleteness is necessary.

Second the conclusion proven the usability of the capability maturity model in evaluating the integration of MLS in provincial and municipal planning policy. This means that the model was a successful tool in this research. This creates prospects of the model for usability in other levels of integration, organisations and policy domains. Nevertheless this is only a probability. The usefulness of the level (3), 4 and 5 are unknown as only partly applicable and thereby limited tested in this

research. Also the functionality of the model in other governmental organisations is uncertain. For other policy domains this model could be functional as well.

5.3 Recommendations

Based on the results, conclusions and discussion, this research generates recommendations on the capacity maturity table, research on MLS integration, possible uses of the table and recommendations for integrating MLS.

5.3.1 Capability maturity table

For the capability maturity table there are four recommendations. First, as described in the shortcomings section, the capability maturity model is only tested for one concept in two case study areas and two governmental levels. Therefore it is recommended that more qualitative research of testing and defining the state of a broad scope of governmental organisations on MLS is conducted. This should include other important levels concerning MLS integration as the National Government (Delta program) and regional water boards. Thereby a more broad understanding of the state of all active organisations in the policy integration process is created.

Second, testing the table on other policy terrains can clarify the suitability of the model in other terrains. Also testing more matured policy concepts can assess the usefulness of highest levels of the model, thereby determining the completeness of the model in evaluation the whole integration process of policy concepts. By testing this, the generalizability of the model as a policy integration model can be evaluated.

Third, this research was conducted qualitative as an explorative study to the fitness of the model and the state of integration. The model is proven qualitatively. However transforming the interview questions in this model into closed questions can be possible. Thereby it possible to create quantitative data by surveys on a broad scope of governmental organisations. Research on this is recommended as testing a closed question survey can test and determine the state of a significant amount of organisations in a fast but also quantifiable system. Thereby statistical significance can be acquired. Thereby it is possible to make general statements on the state of MLS integration in for example the complete flood safety governance organization of the Netherlands.

Fourth the author recommends a more extensive research on the causes and reasons on the state of integration of the organisations in the research. Although this research already makes some suggestions on causes and reasons for the state of integration by data from the interviews, this list is certainly incomplete. Adding an explanatory study would contribute, as not only the state of integration is made clear, but also the causes and reasons for this certain state is analysed. This would enhance to the usefulness of results for improving the integration of MLS.

5.3.2 MLS integration research

Further research using the capability maturity table on MLS integration is recommended, because the comparative ability of the model can contribute to MLS integration. Periodic recurring examination, for example on a yearly basis, on the state of integration by the capability maturity table is recommended. Awareness on the state of integration can contribute in integration improvement plans. Thereby the maturity level of MLS in governmental organisations can be increased.

5.3.3 Recommendations for integrating MLS

There are three recommendations for integrating MLS. First it is recommended that researched case study areas and organizations use the insight on their MLS integration to the best. This is done by being aware of their state of integration on MLS and act according to this understanding. Choosing strategic approaches based on organizational ambitions, insights from current research and the evaluation available in research concerning MLS combined with the given understanding on current state of integration on MLS in this thesis.

Second it is recommended that government organizations such as the National Government, Provinces, Municipalities and regional water boards use the case study examples to try to indicate their current state of integration of MLS policy. Similarities in statements and documents can be recognized and used as preliminary assumptions on their current state of integration, creating some degree of insight. This can contribute to some extent in choosing a strategic approach, combined with other knowledge described in the first recommendation of this paragraph.

Third, it is recommended that awareness on the roles and responsibilities should be increased on a short term. Current distribution of roles and responsibilities cannot facilitate efficient and effective execution of MLS. Present responsibilities of different layers of MLS are divided between the National Government, Provinces, Municipalities and regional water boards. This creates an impasse in redistributing flood safety responsibility between the three layers of MLS that is needed. For example regional water boards are unlikely to reallocate their resources for flood prevention towards Municipalities for sustainable spatial development because the decrease of prevention costs is not certain. On the other hand Municipalities will not accept new flood safety responsibilities when appropriate financial resources are not secured. This forecasted impasse, together with the understanding of the already existing multi-level co-governance state in the Netherlands creates concerns. MLS within the flood safety policy environment faces major governance issues in the Netherlands. Until these issues are discussed and solved multi-layer safety cannot become a success.

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Appendix

Appendix 1: Interview questions

This appendix shows the interview questions used in the semi-open, qualitative interviews; used as guiding questions for the interviews in this thesis. Important to notice these guiding questions are not all literally asked during the interviews. However this was not always needed as interviewees gave a lot of additional information in other questions, already answering follow-up questions. The questions are in Dutch as all interviews were conducted in Dutch.

Vragen discourse

Persoonlijke interpretatie

1: Speelt het concept meerlaagsveiligheid binnen uw organisatie?

2: Wat is u visie aangaande meerlaagsveiligheid?

3: Hoe is uw visie aangaande meerlaagsveiligheid tot stand gekomen?

Definitie

5: Welke definitie komt het meest overeen met uw visie op het concept meerlaagsveiligheid?
A Meerlaagsveiligheid is een interessant concept in het creëren van waterveiligheid waarin naast waterkeringen ook gekeken kan worden naar ruimtelijke ordening en crisisbeheersing.
B Meerlaagsveiligheid is een concept waardoor waterkeringen, ruimtelijke ordening en crisisbeheersing samenwerken in het creëren van waterveiligheid.
C Meerlaagsveiligheid biedt handvatten voor praktische oplossingen voor waterveiligheid door ruimtelijke ordening en crisisbeheersing.

Documentatie

6: Waar is het concept meerlaagsveiligheid binnen u organisatie gedocumenteerd?
A Interne ambtelijke documenten
B Notities naar de wethouder/gedeputeerde
C Raadsnotities
D Beleidsnotities
E Raadsbesluiten
F Beleidsdocumenten
G Beleidsevaluaties

7: Waar is de (eventuele) gedeelde visie van het concept meerlaagsveiligheid binnen u organisatie gedocumenteerd?
A Interne ambtelijke documenten
B Notities naar de wethouder/gedeputeerde
C Raadsnotities
D Beleidsnotities
E Raadsbesluiten
F Beleidsdocumenten
G Beleidsevaluaties

Evaluatie

8: Heeft uw organisatie een evaluatiemodel voor het concept meerlaagsveiligheid?
A Ja, Informeel kwalitatief
B Ja, Formeel mondeling en schriftelijk kwalitatief
C Ja, Formeel mondeling en schriftelijk kwalitatief en kwantitatief
D Ja, Systematisch door een evaluatie controlesysteem
E Nee (ga door naar het volgende deel)

9: Kunt u dit evaluatiesysteem nader toelichten?

Vragen coalition of actors

Coalitie documentatie

1: Met welke actoren werkt jullie organisatie samen binnen het concept meerlaagsveiligheid?

2: Hoe is deze coalitie van actoren tot stand gekomen?
A Door het initiatief van mijn organisatie
B Door het initiatief van een van de andere actoren
C Door een bestaand samenwerkingsverband
D Het is een combinatie van de eerdergenoemde, namelijk ...
E Anders, namelijk

3: Hoe is deze coalitie gedocumenteerd? (meerdere antwoorden mogelijk)
A Deze is gedocumenteerd in politieke en/of beleidsdocumenten, namelijk
...
B Deze is gedocumenteerd in interne stukken, namelijk
...
C Deze is bekend bij de personen werkzaam op dit gebied binnen de organisatie
D Deze is niet specifiek gedefinieerd

Rollen en verantwoordelijkheden

4: Zijn de rollen en verantwoordelijkheden van actoren gedefinieerd?
A Ja
B Nee (ga door naar 6)

5: Wat zijn de rollen en verantwoordelijkheden van de genoemde actoren?

6: Kunt u de rollen en verantwoordelijkheden per actoren nader toelichten?

Evaluatie

7: Op wat voor manier wordt de coalitie van actoren, rollen en verantwoordelijkheden aangaande meerlaagsveiligheid geëvalueerd in uw organisatie?
0 Niet
0 Informeel kwalitatief
0 Formeel mondeling/schriftelijk kwalitatief
0 Formeel mondeling/schriftelijk kwalitatief en kwantitatief
0 Systematisch door een controlesysteem

8: Kunt u dit evaluatiesysteem nader toelichten?

Vragen power and resources

Macht

1: Waarop is de operationalisatie van meerlaagsveiligheid gebaseerd?
A Het operationaliseren van meerlaagsveiligheid is gebaseerd op individuele vaardigheden, kennis en motivatie
B Het operationaliseren van meerlaagsveiligheid is gebaseerd op ervaring
C Het operationaliseren van meerlaagsveiligheid is gebaseerd op documentatie door ervaring of training over meerlaagsveiligheid
D Het operationaliseren van meerlaagsveiligheid is gebaseerd op training van medewerkers door de organisatie heen

Middelen

2: Wat zijn de kennisbronnen aangaande meerlaagsveiligheid binnen de organisatie?

3: Hoe is de kennis aangaande meerlaagsveiligheid erkend binnen de organisatie?
A Er zijn geen kennisbronnen aangaande meerlaagsveiligheid geformuleerd
B Er zijn kennisbronnen aangaande meerlaagsveiligheid geformuleerd
C Er zijn kennisbronnen aangaande meerlaagsveiligheid geformuleerd en deze zijn erkend binnen de organisatie

D Er zijn kennisbronnen aangaande meerlaagsveiligheid geformuleerd en medewerkers binnen de organisatie voor wie meerlaagsveiligheid relevant is, zijn getraind om hun toegewezen taken te vervullen

4: Wat zijn de instrumenten aangaande meerlaagsveiligheid erkend binnen de organisatie?

5: Hoe zijn de instrumenten aangaande meerlaagsveiligheid erkend binnen de organisatie?
A Er zijn geen instrumenten aangaande meerlaagsveiligheid geformuleerd
B Er zijn instrumenten aangaande meerlaagsveiligheid geformuleerd
C Er zijn instrumenten aangaande meerlaagsveiligheid geformuleerd en deze zijn erkend binnen de organisatie
D Er zijn instrumenten aangaande meerlaagsveiligheid geformuleerd en medewerkers binnen de organisatie voor wie meerlaagsveiligheid relevant is, zijn getraind om hun toegewezen taken te vervullen

Beleidsdoelen

6: Wat zijn de beleidsdoelen aangaande meerlaagsveiligheid binnen de organisatie?

7: Hoe zijn de beleidsdoelen aangaande meerlaagsveiligheid erkend binnen de organisatie?
A Er zijn geen beleidsdoelen aangaande meerlaagsveiligheid geformuleerd
B Er zijn beleidsdoelen aangaande meerlaagsveiligheid geformuleerd
C Er zijn beleidsdoelen aangaande meerlaagsveiligheid geformuleerd en deze zijn erkend binnen de organisatie
D Er zijn beleidsdoelen aangaande meerlaagsveiligheid geformuleerd en medewerkers binnen de organisatie voor wie meerlaagsveiligheid relevant is, zijn getraind om hun toegewezen taken te vervullen

Evaluatie

8: Op wat voor manier worden de macht en middelen aangaande meerlaagsveiligheid geëvalueerd in uw organisatie?
0 Niet
0 Informeel kwalitatief
0 Formeel mondeling/schriftelijk kwalitatief
0 Formeel mondeling/schriftelijk kwalitatief en kwantitatief
0 Systematisch door een controlesysteem

9: Kunt u dit evaluatiesysteem nader toelichten?

Vragen rules of the game

Procedure

1: Is er binnen uw organisatie een procedure voor het integreren van meerlaagsveiligheid?
A Ja
B Nee (ga door naar vraag 3)

2: Kunt u deze procedure nader toelichten?

Ervaring

3: Is er binnen uw organisatie ervaring voor het integreren van meerlaagsveiligheid?
Ja
Nee (ga door naar vraag 5)

4: Kunt u deze ervaring nader toelichten?

5: Wordt deze ervaring gebruikt voor het creëren van een management systeem?
Ja
Nee (ga door naar vraag 7)

6: Kunt u dit systeem nader toelichten?

Gedragsnormen

7: Wat is de algemene houding aangaande meerlaagsveiligheid binnen uw organisatie?
A passief
B reactief
C actief
D proactief
E anders, namelijk ...

8: Is de manier van omgaan met meerlaagsveiligheid georganiseerd binnen uw organisatie?
A Ja
B Nee (ga door naar vraag 10)

9: Kunt u deze organisatie toelichten?

10: Wat zijn de gedragsnormen aangaande meerlaagsveiligheid binnen uw organisatie?
Nog geen keuzelijst voor antwoorden, wel nodig voor het coderen van de data.

Evaluatie

11: Op wat voor manier wordt de procedure aangaande de integratie van meerlaagsveiligheid geëvalueerd in uw organisatie?
0 Niet
0 Informeel kwalitatief

0 Formeel mondeling/schriftelijk kwalitatief
0 Formeel mondeling/schriftelijk kwalitatief en kwantitatief
0 Systematisch door een controlesysteem

13. Kunt u dit evaluatiesysteem nader toelichten?

Appendix 2: Interview details

Interview details of the interviews conducted in this research are given below, showing date, language and duration of the interview. Audio tapes and transcription documents are available upon request.

Interview A
Date and time: 24 June 2013
Language: Dutch
Duration: 1:10
Reference: Interviewee-A (2013) Interview a: Civil servant within the Province of Noord-Holland.

Interview B
Date and time: 7 June 2013
Language: Dutch
Duration: 1:30
Reference: Interviewee-B (2013) Interview b: Civil servant within the Municipality of Amsterdam.

Interview C
Date and time: 12 June 2013
Language: Dutch
Duration: 0:45
Reference: Interviewee-C (2013) Interview c: Civil servant within the Province of Zuid-Holland.

Interview D
Date and time: 18 June 2013
Language: Dutch
Duration: 0:35
Reference: Interviewee-D (2013) Interview d: Civil servant within the Deltaprogram.

Interview E
Date and time: 18 June 2013
Language: Dutch
Duration: 1:20
Reference: Interviewee-E (2013) Interview e: Civil servant within the Municipality of Krimpen aan den IJssel.