

‘A dive into Floods’

**Assessment of factors influencing the
implementation of the EU Flood Directive
in the Netherlands**

Marjolein van Eerd, June 2013



'A dive into floods'

*Assessment of factors influencing the implementation of
the EU Flood Directive in the Netherlands.*

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Enjoy reading,

Marjolein van Eerd, *Utrecht, June 2013*



Executive English and Dutch summary

English version

Flood risks in Europe are increasing due to for instance climate change. Those flood risks can cause immense damage to people, animals, nature and the economy of Europe. Especially, in the Dutch delta-area it is important to manage flood risks appropriately in order to protect the society from disasters. The European Union did establish a framework for the assessment and management of flood risks in order to reduce the adverse consequences of floods in the EU community, which is called the EU Flood Directive. For a down-stream country, like the Netherlands, an important advantage of this Directive is the solidarity principle that forbids the passing of flood risks towards other Member States. The Flood Directive requires each Member State to execute a preliminary flood risk assessment, to produce flood risk and hazard maps for vulnerable regions and to write a flood risk management plan.

EU Directives, like the Flood Directive, only reach their objectives when they are appropriately implemented by individual Member States and have impact on the ground. This implementation is often a complicated and iterative process, influenced by various hindering and stimulating factors. There is a scientific knowledge gap concerning the implementation of EU Directives and factors that have an effect on this implementation process. Even less is acquainted regarding the implementation of the Flood Directive. To improve future flood risk management, the implementation of the Flood Directive and EU policies in general, it is important to understand the progress of the Flood Directive’s implementation and to be aware of factors that have an effect on this process. Therefore, this research studies the implementation process of the Flood Directive in the Netherlands and will contribute to solving the knowledge gap. The purpose of this research is to *distinguish factors that have hindered and/or stimulated the implementation process of the EU Flood Directive in the Netherlands to formulate recommendations for future implementation*. In order to reach this objective, the following central research question should be answered: *Which factors hinder or stimulate the implementation of the EU Flood Directive in the Netherlands?*

Various research steps were taken in order to answer the main research question appropriately and to meet the research objective. Firstly, a literature research was executed to distinguish factors that could possibly influence the implementation process. Most factors were selected from three policy implementation theories: traditional (domestic) implementation literature, rational choice and social normative institutionalism and institutional processual approach. Influential factors were also derived from orientation interviews with key actors. Those factors were aggregated in a conceptual model, forming the research basis. Secondly, a content analysis of the Flood Directive was executed to understand the implications for the Netherlands and to operationalize the dependent variable, which is the *level of policy implementation of the Flood Directive in the Netherlands*. After that, all selected factors (independent variables) were operationalized and hypotheses were made regarding their expected influence on the implementation process. Those hypotheses and the influence of distinguished factors were researched by executing a comparative case-study research. In the Meuse and Rhine-west case-study area, all governmental levels involved were interviewed. Also overarching actors in both areas were interviewed. In total, 35 interviews were performed, giving a reliable insight in the implementation process. The generalizability of the case-study research outcomes were tested during a survey research with 47 respondents, covering all types of important and relevant actors involved with the Flood Directive’s implementation.

This research showed that the Netherlands is on schedule regarding the implementation of the Flood Directive and that in general many positive lessons can be learned from this process. However, the process was also iterative, complex and sometimes even slow. This is caused by several factors influencing the implementation process of the Flood Directive in a variety of ways. It is interesting that the case-study actors, umbrella organizations and survey respondents have overall, largely similar experiences. Some important hindering factors that have played a role are the complex division of responsibilities, content of the Flood Directive, low willingness of regional organizations, negative image of the EU, low availability of resources on regional level, low cooperation of municipalities and safety regions, negative experiences with the Water Framework Directive and restricted coordination of the national government. On the other hand, some clear stimulating factors distinguished are the goodness of fit, coordination of provinces, self-interest and goals, political power of the EU, and cooperation. Various factors had both negative and positive effects, accentuating the complexity of the implementation process. It is also interesting that some factors distinguished in literature did not play a role at all during the implementation of the Flood Directive and also additional factors became clear. It is also notable, that the chosen implementation ambition level played a significant role during the process.

Based on those factors hindering and stimulating the implementation process, recommendations can be made. Those recommendations are formulated for all actors involved and the most important recommendations of this study are:

- More clarification of the EU at the start of the process and clearer formulation of the Directive.
- More active coordination and steering of the national government to overcome ambiguities.
- Stimulation of participation of regional parties, by showing the benefits of the Directive, by changing information supply and organizing diffused meetings among the country et cetera.
- More time and an assessment at the start of the implementation process should be taken, to understand and overcome possible barriers early in time.
- Better explanation of differences between the Flood Directive and the Water Framework Directive is necessary, to overcome difficulties related to negative experiences.
- Participation of safety regions should be stimulated.
- Careful alignment between the Flood Directive, 'Deltaprogramma' and other water policies is necessary.
- Stimulate more political attention towards the Flood Directive, in order to increase for instance capacity on the regional level.
- A development plan for flood risk management could be established based on the reporting overview of the Flood Directive.
- A risk communication plan for citizens should be developed.

Nederlandse versie

Klimaatverandering en andere activiteiten zorgen ervoor dat de overstromingsrisico's in Europa de laatste jaren toegenomen zijn. Deze toenemende kans op overstromingen vergroot het risico op schade aan natuur, milieu, de economie en kan zelfs leiden tot menselijke en dierlijke slachtoffers. In het kwetsbare Nederlandse deltagebied is het beheren van deze risico's van zeer groot belang. Ook de Europese Unie zag het belang van uniform beheren van overstromingsrisico's voor de Europese gemeenschap en heeft daarom een kader ontwikkeld voor het in kaart brengen en beheren van overstromingsrisico's. Dit kader is vastgesteld in 2007, genaamd de Europese Richtlijn Overstromingsrisico's, dat ook vaak wordt afgekort als de ROR. Deze richtlijn is in het bijzonder voor een benedenstrooms land als Nederland erg belangrijk door het meegenomen afwentelprincipe

(solidariteits principe). Dit principe verbiedt het afwentelen van overstromingsrisico's naar andere lidstaten. De ROR vraagt van iedere lidstaat om een voorlopige risicobeoordeling uit te voeren betreffende overstromingen, om overstromingsrisico en overstromingsgevaar kaarten te maken voor kwetsbare gebieden en om een overstromingsrisicobeheerplan te maken voor elk stroomgebied.

Richtlijnen, zoals de ROR, hebben alleen het gewenste effect wanneer ze goed worden geïmplementeerd door iedere lidstaat. Dit implementatie proces is vaak lastig, complex en iteratief en wordt beïnvloed door verschillende factoren. Er is een kennis hiaat in de wetenschap betreffende de implementatie van Europese richtlijnen en factoren die een invloed hebben op deze implementatie. Vooral over de ROR en de implementatie van de ROR is nog weinig wetenschappelijke kennis beschikbaar. Het is belangrijk om dit implementatieproces en de effecten van factoren in kaart te brengen en te begrijpen, om het toekomstige beheer van overstromingsrisico's en de implementatie van de ROR en andere richtlijnen te verbeteren. Dit is de reden waarom in deze scriptie de implementatie van de ROR in Nederland wordt bestudeerd en daarmee de kennis hiaat verkleind wordt. Het doel van dit master onderzoek is om: *factoren te onderscheiden die een hinderende en/of stimulerende invloed hebben gehad op het implementatie proces van de ROR in Nederland en op deze manier aanbevelingen te kunnen doen voor de toekomstige implementatie*. Om dit onderzoeksdoel te bereiken zal de volgende onderzoeksvraag centraal staan: *Welke factoren hinderen en/of stimuleren de implementatie van de ROR in Nederland?*

Verschiedende onderzoek stappen zijn gevolgd om de onderzoeksvraag adequaat te beantwoorden en daarmee te voldoen aan het onderzoeksdoel. De eerste onderzoek stap was een literatuur onderzoek naar factoren die waarschijnlijk een stimulerende of hinderende invloed hebben op de implementatie van richtlijnen. Factoren zijn voornamelijk geselecteerd uit drie wetenschappelijke stromen: traditional (domestic) implementation literature, rational choice and social normative institutionalism and institutional processual approach. Daarnaast is deze lijst met geselecteerde factoren aangevuld met factoren die benoemd werden door sleutelfiguren in het implementatie proces van de ROR. Alle geselecteerde factoren en de verwachte effecten op het implementatie niveau zijn samengevoegd in een conceptueel model. Dit model vormt de basis van het uitgevoerde onderzoeksproject. Vervolgens is een inhoudelijke analyse uitgevoerd om de implicaties van de ROR voor Nederland duidelijk te krijgen en de afhankelijke onderzoeks variabele te operationaliseren (*niveau van implementatie van de ROR in Nederland*). Vervolgens zijn de geselecteerde factoren (onafhankelijke variabelen) geoperationaliseerd en zijn hypothesen gevormd over hun waarschijnlijke invloed. Daarna zijn deze allemaal getest tijdens een case-study onderzoek in het Maas en Rijn-west stroomgebied. In beide gebieden zijn 35 betrokken geïnterviewd, zodat een adequaat overzicht is verkregen over het verloop van het implementatieproces en de hinderende en stimulerende factoren in Nederland. Om de generaliseerbaarheid van de onderzoeksresultaten te waarborgen is er ook een enquête onderzoek uitgevoerd onder 47 respondenten. Binnen deze respondentengroep zijn alle relevante actorengroepen in Nederland vertegenwoordigd.

Tijdens dit onderzoek is gebleken dat Nederland al vergevorderd is met de implementatie van de ROR en dat het proces volgens schema verloopt. Wel waren er moeilijkheden tijdens het proces, waardoor het iteratief, complex en soms langzaam verliep. Er kan worden geconcludeerd dat meerdere factoren op verschillende manieren het proces significant hebben beïnvloedt. Het is interessant om te zien dat actoren in de case-study gebieden, overkoepelende actoren en de survey respondenten grotendeels gelijke ervaringen hebben. Een aantal belangrijke hinderende factoren waren bijvoorbeeld de complexe taakverdeling, de inhoud van de richtlijn, de lage medewerkingsbereidheid van regionale organisaties, het negatieve imago van de EU, tekort aan

middelen op regionaal niveau, de lage participatie van gemeenten en veiligheidsregio's, negatieve ervaringen met de implementatie van de Kader Richtlijn Water en de beperkte coördinatie van de nationale overheid. Aan de andere kant waren er ook stimulerende factoren van belang, zoals de overlap met bestaand beleid, de coördinatie van provincies, de overlap met Nederlandse interesses en doelen, de invloed en macht van de EU en de samenwerking tussen belanghebbenden. Daarnaast waren er verschillende factoren die zowel een negatief als positief effect hadden op het implementatieproces. Dit onderstreept de complexiteit van het implementatie proces van de ROR. Ook is het interessant dat sommige factoren die onderscheiden werden in literatuur geen rol speelden in het implementatieproces van de ROR, daarentegen kwamen er ook factoren naar voren die niet genoemd worden in wetenschappelijke literatuur. Bovendien is een opvallende uitkomst dat de keuze voor het sobere en doelmatige implementatieniveau een erg belangrijke rol heeft gespeeld gedurende het gehele implementatieproces.

Verschillende aanbevelingen kunnen gedaan worden gebaseerd op deze hinderende en stimulerende factoren. Deze aanbevelingen kunnen gebruikt worden door verschillende actoren die betrokken zijn bij de implementatie van de ROR. De belangrijkste aanbevelingen van dit onderzoek zijn:

- De EU had aan het begin van het proces duidelijker kunnen zijn over haar eisen en daarnaast hadden ze de richtlijn beter en duidelijker kunnen formuleren.
- Actievere coördinatie en sturing vanuit de nationale overheid had onduidelijkheden en discussies kunnen voorkomen en regionale partijen hadden beter bij het implementatieproces betrokken moeten worden. Dit had gedaan kunnen worden door de voordelen van de richtlijn duidelijker te schetsen, de informatie voorziening anders in te richten, vergaderingen en bijeenkomsten over het gehele land te laten plaatsvinden enzovoorts.
- Aan het begin van het implementatieproces had meer tijd genomen kunnen worden en een schatting gemaakt kunnen worden om mogelijke barrières te begrijpen en op te lossen.
- Het verschil tussen de ROR en de Kader Richtlijn Water had duidelijker gemaakt moeten worden, om de negatieve ervaringen van deze richtlijn minder van invloed te laten zijn.
- De participatie van veiligheidsregio's zou gestimuleerd moeten worden.
- Betere afstemming tussen de ROR, het Deltaprogramma en ander water beleid is gewenst.
- Meer bestuurlijke aandacht voor de ROR is noodzakelijk.
- Een risico communicatieplan naar burgers moet ontwikkeld worden.
- Leemten die naar voren komen uit de ROR kunnen leiden tot een ontwikkelpunten plan.

Abbreviations and figures

List of abbreviations

DGRW	Dictorate-General for spatial development and water affairs
EC	European Commission
EU	European Union
EXCIMAP	European Exchange Circle on Flood Mapping
GBO	Gemeenschappelijke Beheer Organisatie provincies
IMPRO	Interbestuurlijke Projectgroep Implementatie Richtlijn Overstromingsrisico's
IPO	Inter Provinciaal Overleg
RBO	Regionaal Bestuurlijk Overleg
UvW	Unie van Waterschappen
VNG	Vereniging Nederlandse Gemeenten
VNR	Vereniging Nederlandse Riviergemeenten
WFD	Water Framework Directive
Workgroup F	EU workgroup on floods

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1. Introduction

1.1 Flood risks in Europe and the Netherlands

The last decades, damage due to floods increased worldwide (Kundzewicz et al., 2010, p.2633). Between 1998 and 2009, Europe suffered from approximately 213 major damaging floods, which caused approximately 1126 deaths and around 52 billion euros of economic losses. This number of high-impact floods is predicted to occur more frequently in the future as a result of climatic changes (European Commission, 2012a; Kundzewicz et al., 2010, p.2634; Mostert and Junier, 2009, p.4962). The Netherlands is an example where the rivers the Rhine and Meuse had to deal with extreme water discharges in 1993 and 1995, leading to evacuations and almost to floods in both areas (van de Glind, 2009, p.27). Yet, during the 90's there were also years of an extreme low drainage of water, resulting in damage in the form of droughts (Ministerie van Verkeer en Waterstaat, 2000, p.11). The Netherlands is located in a delta-area with four medium, international rivers that mouth into the North Sea. Most of the land area is lying below sea-level and is densely populated. Therefore, the Netherlands is one of the most vulnerable areas in Europe concerning floods. Traditionally, Dutch water governance is mainly focused on prevention of floods (Atsma, 2011, pp. 5-7).

The flooding of rivers is a complex event, which can be affected by changes due to terrestrial, socio-economic and climatic systems (Kundzewicz et al., 2010, p.2633). Floods can lead to enormous damage to the environment, economic activities and livelihoods and can thereby cause human victims. Especially the growing density of business areas and living spaces in vulnerable regions, often located below sea-level, increases the possible intensity of the impact (Directive 2007/60/EC, 2007). Furthermore, human activities are contributing to an increasing chance for floods, such as types of land-use that influence rainwater absorption or activities contributing to anthropogenic climate change. Those activities lead for instance to rising sea-levels, increasing water drainage of rivers and changing rainfall patterns, leading to ever-increasing flood risks (Houghton, 2009, pp.1-14,176-187; Kundzewicz et al., 2010, pp.2634-2635; Ministerie van Verkeer en Waterstaat, 2000, pp.12,14). Also the current soil subsidence in the Netherlands increases the chance on floods (Ministerie van Verkeer en Waterstaat, 2000, p.11). The increasing chance on floods gained attention in Europe and the general opinion arose regarding the necessity of flood prevention in the future. For example action plans were developed for both the rivers Rhine and Meuse. In 2002 the European Union (EU) organized a first international flood conference in Berlin. During this conference, the creation of an EU-wide approach to manage flood risks was proposed for the first time (van de Glind, 2009, p.27).

1.2 Water policies in the Netherlands

The Netherlands has a long history with water and flood risk management. Excavations even show signs of interruptions in the water system dating back years before this era started. Humans intervened since this delta area is attractive for living, working and recreating, however it also induces flood risks. Therefore, a characteristic of the Dutch history is *'the battle against water'* (Ministerie van Verkeer en Waterstaat, 2000, p.21; Rijkswaterstaat, 2011, p.13). Water management in the Netherlands is of significant importance, because *'if there were no dikes in the Netherlands, about 65 per cent would be flooded'* (van de Ven, 2004, p.1). Between 800 and 1250 there was an enormous loss of land and people started to build dykes to decrease the influence of the sea. This reclamation was organized by the first regional water boards, which are the first examples of democratic partnerships between citizens in the Netherlands (Ibid, p.101). The Middle Age was characterized by technical developments, such as the introduction of drainage by windmills and the construction of sluices (Ibid, p.141). The period between 1600 and 1800 was mainly focusing on technical innovations, the reclamation of lake areas and the safety of the province of Holland as the

political and economic heart of the Republic (Ibid, p.191). Since 1800 the Netherlands has developed a modern infrastructure of bridges, dikes and channels. Nowadays the attention has shifted from construction to maintenance of this infrastructure and planning and coordination between responsible institutions gained more importance (Ibid, p.253). In 1953 a huge storm surged, with a lot of victims and damage, leading to the installation of the Delta-Commission. This is the start of recent water management practices in the Netherlands. For instance, safety standards were established for dykes, which was not a full risk approach, but rather a flood defence approach (Klijn et al., 2008, pp.316-317). Due to the high quality of water management in the Netherlands, this delta is now the safest delta area as seen from a global perspective (Raad Landelijk Gebied et al., 2011, p.5). Distinctive, impressive and famous examples are the 'Deltawerken' and the 'Afsluitdijk' (Rijkswaterstaat, 2011, p.16-17). However, recent studies show that the Netherlands has become more vulnerable towards flood risks and that the current protection will not be sufficient in the future (Raad Landelijk Gebied et al., 2011, p.5).

The Netherlands consists of four river basin areas: the Scheldt, Meuse, Rhine and Ems, corresponding only partly to the governance zoning in the Netherlands (e.g. 'dijkringen'). Besides, the responsibilities for water management are divided among various governmental levels, since the Netherlands is a decentralized unity state. Levels concerned with water governance are the national level (minister, ministries, Rijkswaterstaat), provinces, water boards, safety regions and municipalities (Ministerie van Verkeer en Waterstaat: DG Water, 2008, pp. 26-27; van de Ven, 2004, p.34). The national government is responsible for the main water system and sets legal protection standards (Atsma, 2011, p.7). This division of responsibilities makes it difficult to understand the total water system, to ensure coherence of water management and overcome overlap or gaps (Rijkswaterstaat, 2011, p.7). Distinctive for Dutch water management are the so called water boards ('waterschappen'), originating from the 13th century. In early times hundreds of water boards governed the water, which is reduced to 24 water boards in 2013. They are responsible for the management of dams, regional water management and purification of water (Rijkswaterstaat, 2011, p.18; Unie van Waterschappen, 2012a). Water management is regulated in the Dutch law via the 'Wet Ruimtelijke Ordening', the 'Waterwet (Waterbesluit)' and the 'Wet op Veiligheidsregio's'. Examples of recent projects are 'Ruimte voor de Rivier', the 'Delta programma' and 'Zwakke Schakels aan de Kust'. Also, the 'Taskforce Management Overstromingen en Veiligheid Nederland in kaart' are established (Leskens et al., 2009; Raad Landelijk Gebied et al., 2011, p.6). A complete overview of existing plans and programs in the Netherlands is provided in appendix 1.

1.3 The EU Flood Directive

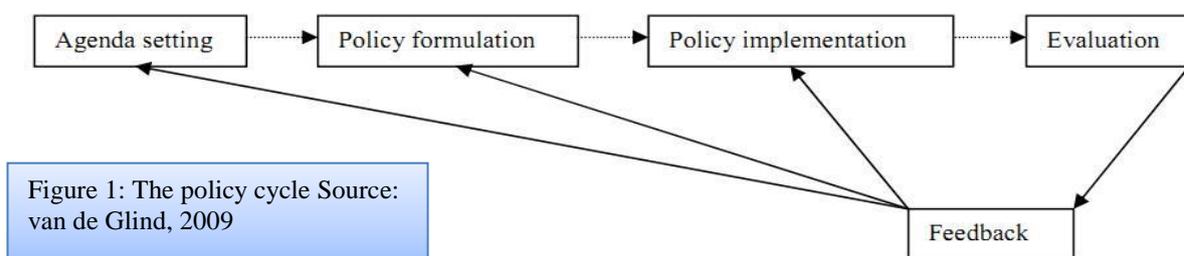
In this research the implementation of the EU Flood Directive will be assessed. The EU developed the Flood Directive due to the conception shift from flood prevention towards flood management, the increasing chance for floodings and the willingness to reduce future victims and financial damage (EurLex, 2012; Mostert and Junier, 2009, p.4962; Schelfaut et al., 2011, p.825). The EU Council reached a political agreement on June 27th 2006 concerning a draft Directive for the assessment and management of flood risks, which entered into force on November 26th 2007. The full name of this Directive is: '*Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks*'. The purpose is to establish a framework for the assessment and management of flood risks and to reduce the adverse consequences of floods (European Commission, 2012a; Klijn et al., 2008, p.307; Mostert and Junier, 2009, p.4963). This Directive is applicable to the whole community, concerning flood risk management in both river and coastal areas (Klijn et al., 2008, p.307). The first requirement of the Directive entails that Member States should carry out a preliminary assessment by 2011, to identify areas at risk of flooding. The second requirement encompasses that for such zones, flood risks and hazard maps should be

developed by 2013. Moreover, the third requirement contains that flood risk management plans should be established by 2015 (European Commission, 2012a,b; hkv, 2012; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.9-10). The Directive is based on prevention, protection, preparedness, emergency response, recovery and lessons learned (European Commission, 2012b).

In general, EU Directives are used to bring national laws of Member States in line with each other (European Commission, 2012c). The implementation of Directives can cause difficulties, because they are directing Member States to legislate or take action and are binding in terms of reaching the objective. Solely, Member States should determine the detailed arrangements and methods for putting a Directive into practice. As a result, Directives are flexible to be adjusted to national circumstances, related to the EU subsidiarity principle: *'decisions should be made at the lowest possible governmental level to ensure legislation that fits the area specific circumstances'* (Bursens, 2002, p.179; Europa, 2012a). Furthermore, EU enforcement towards Directives is not top-down, but informal and often weak. For instance, the European Commission could take action against noncompliant states, based on Article 169 of the EU Treaty. However, this Treaty leaves open the manner of case processing and even the European Court has no power to enforce its decisions (European Commission, 2012c; Jordan, 1999, p.74,78; Lampinen and Uusikylä, 1998, p.235).

1.4 The implementation process

Policy making in the EU is a complicated process (Lampinen and Uusikylä, 1998, p.232). An important concept regarding the policy-making process is the policy cycle (figure 1), which gives a simplified overview of this process. According to this theory, the process is not straight forward, but iterative caused by for example feedback moments (van de Glind, 2009, p.17). This research focuses on step three of the policy cycle: the policy implementation step. Policy implementation is one of several necessary steps in the policy-making process (de Leon and de Leon, 2002, p.467).



As described before, the EU Flood Directive needs to be implemented on all governmental levels in the Netherlands. According to scholars, the transposition of EU-rules in the past did not go as smooth as the process described in the policy (Dimitrova and Rhinard, 2005, p.3; Mastenbroek, 2005, p.1104). So, implementation is not a rational follow-up of decision-making (Beunen et al., 2009, p.58). The implementation of EU policies is experienced as a challenge by responsible authorities (Beunen et al., 2009, p.57; Bursens, 2002, p.173). Moreover, policy making and implementation are often intertwined (Jordan, 1999, p.72). Poor implementation and the growing implementation gap is an important issue in Europe, because the success of EU-policies depends on the impacts they have on the ground (Ibid, p.69). The transposition of Directives is a complex process, involving several stages of interaction between for example officials and administrators (Dimitrova and Rhinard, 2005, p.3). However, in the past the Netherlands have been one of the most successful implementers of EU legislation (Lampinen and Uusikylä, 1998, p.235).

In this research, the current implementation level of the EU Flood Directive in the Netherlands will be assessed (*dependent variable*). The level of policy implementation will be analysed by the following

criteria: ‘Do the agencies comply with the Directive and do they reach the established objectives of the Directive?’ (Matland, 1995, p.154). Effective policy implementation is in this research defined as ‘the degree to which both the formal transposition and the practical application of supranational measures at the national level correspond to the objectives specified in the European legislation’ (Knill and Lenschow, 1998, p.595). This means that implementation implies in this research ‘the whole of actions exercised by various relevant authorities of a Member State in order to effect European legislation within that Member State’ (Bursens, 2002, p.175).

1.5 Knowledge gap

Environmental governance scientific literature focuses on themes such as (environmental) policy making and governance. On the other hand, implementation of environmental policies is under-researched. Analysing the impact of European rules is a subfield of political research, often referred to as Europeanization research. This type of research is becoming a popular theme (Zwaan, 2012, pp.11-12). Within Europeanization research, the subject of implementation has developed as a subfield and literature about perspectives on EU policy implementation is plentiful (Treib, 2008).

Regarding the EU Flood Directive and current flood risk management practices in Europe, various general information is obtainable. However, scientific literature is sparsely available because the Directive under study just recently entered into force. There are scientific articles accessible relating to expectations and possible implications of the Flood Directive (Cobby, 2009) and there are some comparisons available concerning the Water Framework Directive (WFD) (Earle, 2011). Furthermore, there are a few scientific articles available related to the implementation of the EU Flood Directive in other European Member States, e.g. for Germany and the Czech Republic (Drab, 2010; Heintz, 2011). In conclusion, there is a scientific knowledge gap concerning the implementation of the Flood Directive. Besides, it can be concluded that the Netherlands has become more vulnerable towards flood risks, and research shows that the influence of EU policies, like the Flood Directive, is growing (van de Glind, 2009, p.10; Raad et al., 2011, p.5). This research helps to decrease this knowledge gap by developing scientific knowledge concerning the current implementation-state of the Flood Directive in the Netherlands and by distinguishing factors that hinder or stimulate this implementation process. The research outcomes will contribute to the international theoretical debate on governance and implementation of environmental EU policies in the Member States, which is related to Europeanization research focused on implementation studies. Therefore, this research is topical and of significant importance to manage future flood risks in the Netherlands and to understand the implementation process of EU policies.

1.6 Research objective and framework

Considering the described knowledge gap and related scientific relevance, it is interesting and of significant importance to empirically investigate the implementation of the EU Flood Directive in the Netherlands. The following steps are undertaken to investigate the implementation process appropriately, which will be explained later in more detail: analysing the content and implications of the Flood Directive for the Netherlands, studying the current implementation state of the Flood Directive in the Netherlands, gaining an understanding of factors that hinder or stimulate the implementation process of the Flood Directive in the Netherlands and eventually learning lessons for the future implementation of the Flood Directive and other Directives in general. Therefore, the main research objective of this study is formulated in terms of: *to distinguish factors that have hindered and/or stimulated the implementation process of the EU Flood Directive in the Netherlands to formulate recommendations for future implementation.*

It is of societal relevance to achieve this research objective, since the Dutch delta area is vulnerable towards floods risks, making it necessary to focus on flood risk reduction. The research outcomes will be immediately useful for decision-makers and other stakeholders on national and regional level concerned with the implementation of the Flood Directive. Moreover, lessons learned in this study can be utilized for all relevant governing levels to improve the implementation of flood related policies and could help to implement other EU Directives as well. Furthermore, it is important for effective governance and implementation to understand factors influencing policy implementation.

To achieve the research objective, the main research question that will be answered is: *Which factors hinder or stimulate the implementation of the EU Flood Directive in the Netherlands?*

In figure 2 the research framework is presented, clearly showing the eight research steps that should be taken to realize the research objective and to answer the main research question as described above. The research is divided into eight research steps and for each step, one or more sub-questions are steering and structuring the research activities to answer the central research question efficiently.

In this paragraph all steps of the research framework and corresponding research questions will be described. Additionally, methods used to execute the research steps are explained, because in order to achieve the research objective, a triangulation of complementary research strategies and data collection methods is used to ensure reliability, generalizability and acceptability of the research outcomes and to overcome limitations of the methods individually. In this way both breadth and depth of the research are secured, mainly qualitative data is derived and a combination of empirical and desk research is applied. This practice-oriented research is meant to provide knowledge and information that contributes to a successful intervention in the implementation cycle of the Flood Directive (visualization research place in the implementation process is shown in appendix 2). Therefore, the research is intervention-oriented, whereby bottlenecks and opportunities that occur during the implementation process will be monitored and recommendations for corrections will be made (Verschuren and Doorewaard, 2010, pp.45,57-58,156-157).

Studying implementation involves a lot more than simply comparing the intended with the actual consequences of a policy (Jordan, 1995 ,p.2). Therefore, this research will assess factors influencing policy implementation derived from scientific theories. Hence, the first research step will include a desk research concerning three policy implementation theories and a few orientation interviews with experts to distinguish factors that could probably influence the implementation of the EU Flood Directive. This step is conducted in chapter two and the selected factors will form a conceptual model (step two), applied in the following research steps.

Moreover, in step two a content analysis of the Flood Directive is executed, also mainly carried out by applying desk research. This content analysis will give an overview of the implications of the Directive for the Netherlands. This overview is necessary in order to operationalize the implementation level as dependent variable. For the desk research in both step one and two, scientific articles are studied, which were found in Scopus, Omega and Google Scholar by using the following search terms: *flood directive, policy implementation, successful policy implementation, factors influencing/ hindering/ stimulating policy implementation, implementation EU Directives* etcetera. Reference lists of the articles found were also scanned to find supplementary titles. Besides, a document study is applied for the content analysis concerning the Flood Directive. Those documents are derived via contacts with actors such as the EU and via official websites from for instance the Dutch government.

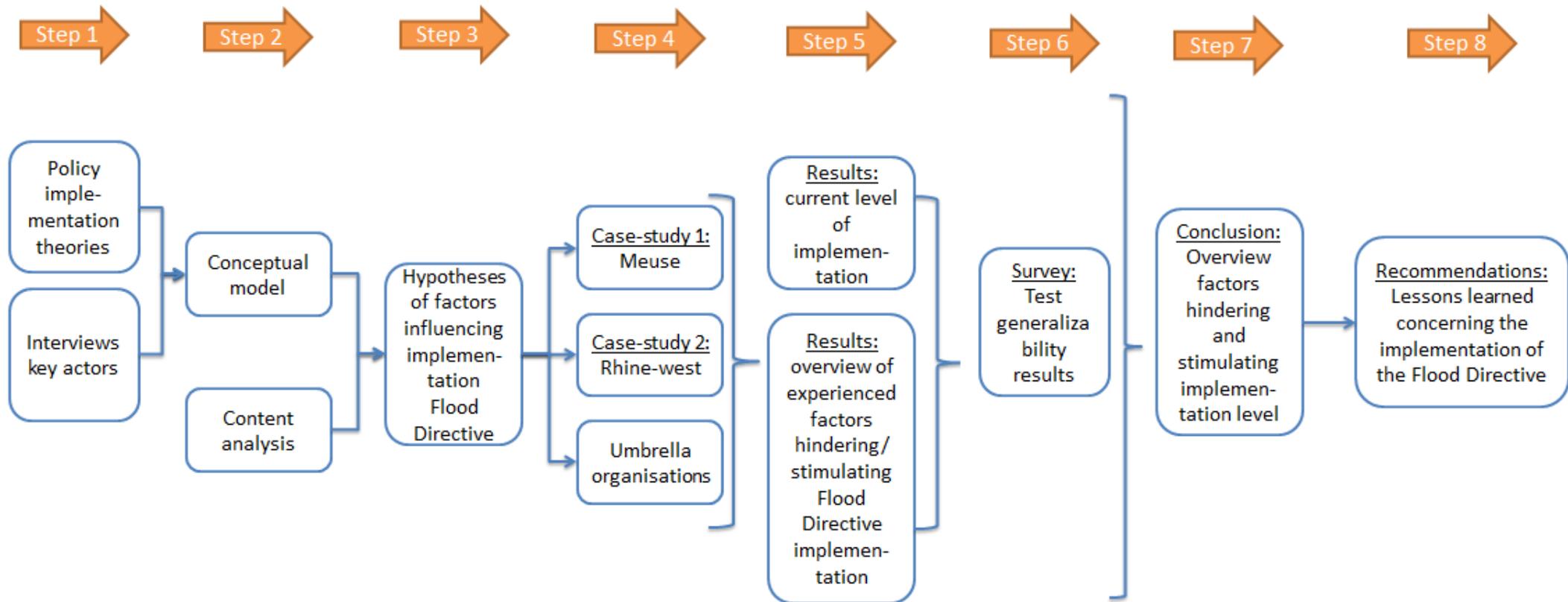


Figure 2: Research framework: overview of the research steps followed in this study to realize the research objective and answer the central research question. The sub-questions on page 21 will steer those steps.

The outcomes of research step one and two are applied in research step three, where the selected factors are operationalized and hypotheses are derived concerning factors that will probably influence the level of implementation of the Flood Directive in the Netherlands.

After that, those hypotheses are tested in two case-study areas and among umbrella organizations that are involved in both case-study areas (step four). The case-study areas are the Meuse and Rhine-west river basin, which selection is described in the following paragraph. This comparative case-study research is executed to apply the theoretical conceptual model (step two and three) of hindering and/or stimulating factors in two sampling areas. A case-study is *‘an intensive study of a single unit with the aim to generalize across a larger set of units’* (Gerring, 2004). The unit-of-analysis in this study are the governmental levels responsible for implementation of the EU Flood Directive within the Netherlands and the cases are the two river basin areas. A cross-comparative method between the two cases will be applied to include spatial variation in the research, increasing the studies generalizability (Verschuren and Doorewaard, 2010, pp.181-184). Additionally, a within-case comparison of all governmental levels is executed. It is not possible to include temporal variation, due to the limited research scope. A limitation of this approach is external validity, however the internal validity of the case-study research will be high (van Laerhoven, 2012). In this case-study research experiences and opinions of stakeholders in the field are obtained via semi-structured interviews, displayed in appendix 3. Those interviews consist of general questions concerning for instance the progress of the implementation process and advantages experienced. Yet, those general aspects are not anchored in theory, since they are only applied to gain a general understanding of the implementation process. The second part of the interview consists of questions related to the factors selected and operationalized by the theoretical analysis, which will form the basis to answer the main research question. 35 stakeholders were interviewed face-to-face and an overview of those stakeholders is presented in appendix 4. Those actors cover all important stakeholder groups involved with the Flood Directive’s implementation.

The comparative case-study research step will provide two types of results (step five): an overview of the current implementation level of the Flood Directive in the Netherlands and an overview of factors hindering and/or stimulating the implementation process as experienced by actors on multiple levels. Besides, differences and similarities between areas and organizations will become clear.

To overcome the internal validity disadvantage of the case-study research, a cross-sectional survey research on national level will be carried out in step six (Verschuren and Doorewaard, 2010, pp.161-163). The survey’s point in time is the start of 2013, when the implementation of requirement two and three is still in progress. Via this survey it is possible to gather data from a large number of research units that constitute the survey group: *all relevant actors in the Netherlands concerned with the Flood Directives’ implementation*. The survey is based on the outcomes of the desk- and case-study research and will check if those empirical outcomes are generalizable for the whole research population in the Netherlands. The question list is electronically distributed among all Dutch actors involved and can be found in appendix 5. Closed questions were used in this survey, to structure the data collection and facilitate the data analysis. The questions are simple, neutral and address only one subject at a time (Baarde and de Goede, 2006). The advantage of this research method is the scope, because the large ‘n’ comparison can be statistically analyzed by using SPSS descriptive statistics and the Kruskal Wallis test to ordain significant differences between groups, increasing the research’ external validity. The study should contain at least 30 research units to ensure precise

results and reliable research outcomes (de Vocht, 2007). This number was reached, since 47 respondents filled in the questionnaires.

In step seven of the research framework (the conclusion), both the outcomes of the content analysis, desk research, case-study and survey research will be combined to answer the central research question: *Which factors hinder or stimulate the implementation of the EU Flood Directive in the Netherlands?*

Finally, the eight research steps will comply with the main research objective and consist of recommendations. Those recommendations will be based on the conclusions made concerning factors influencing the implementation process of the Flood Directive.

By executing those eight research steps, the following sub research questions will be answered:

1. *Which factors that possibly influence the policy implementation process of the Flood Directive, are distinguished by scientific theories related to Europeanization research? (Step 1, literature study).*
2. *What does the EU Flood Directive encompass, looking at its history, policy theory and content? (Step 2, content analysis).*
3. *How can the implementation level of the EU Flood Directive be operationalized as dependent research variable, based on the content analysis?(Step 2, operationalization)*
4. *How can the factors selected by literature (independent variables) be operationalized? (Step 3, operationalization)*
5. *What is the current implementation level of the EU Flood Directive in the Netherlands? (Step 4, comparative case-study research)*
6. *Which factors hinder and/or stimulate the implementation process of the Flood Directive as experienced by regional organizations in the Meuse area? (Step 4, comparative case-study research)*
7. *Which factors hinder and/or stimulate the implementation process of the Flood Directive as experienced by regional organizations in the Rhine-west area? (Step 4, comparative case-study research)*
8. *What are the similarities and differences of the influential factors between the Rhine-west and Meuse case-study area? (Step 4, comparative case-study research)*
9. *Which factors, influencing the Flood Directive's implementation process, are distinguished by overarching organizations that pose a helicopter view on the Flood Directive? (Step 4, comparative case-study research)*
10. *Which differences and similarities can be distinguished between factors experienced by organizations on the national level and on the regional level? (Step 4, comparative case-study research)*
11. *Do Dutch stakeholders that are involved in the implementation process, in general agree with the results gained during the comparative case-study research or do they consider other factors as influential? (Step 6, survey research)*
12. *What are the differences and similarities between the survey and case-study results (Step 6)*
13. *Which lessons can be learned regarding the implementation process of the EU Flood Directive and other Directives in general? (Step 8)*

1.7 Case selection

As described above, two cases are studied in step four. The selection of cases is not random, since this is based on elements of variation and existing governance boundaries. The latter is related to the shift in water policies from territorial governing, to holistic, integrated and cross boundary management for the entire river basin (Jaspers, 2003; Meijerink and Wiering, 2009). The EU Flood Directive ordains, similarly to the requirements of the WFD, that the implementation should be based on river basin areas as system units. The Netherlands consists of four river basin areas: Meuse, Rhine, Scheldt and Ems and the Rhine-area is divided in four subareas (figure 3) (Unie van Waterschappen, 2012b; Watervragen, 2012). Therefore, the selected cases are based on the river basin governance boundaries.

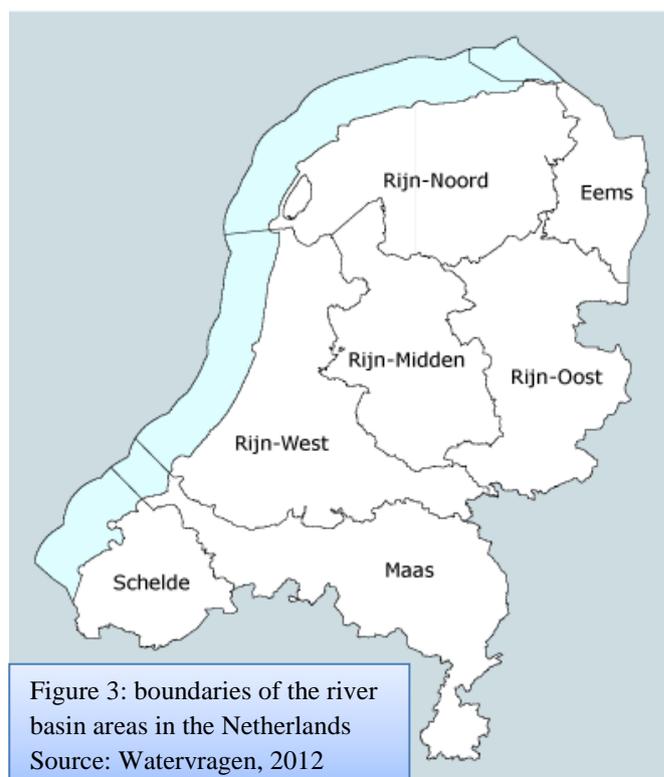


Figure 3: boundaries of the river basin areas in the Netherlands
Source: Watervragen, 2012

This research focuses on two river basin areas that are in many aspects relevant for the implementation of the Flood Directive, namely the Meuse and Rhine-west river basins. First of all, the two case-study areas differ from each other with respect to geographical variety related to the fact that the Netherlands is located in a delta-area and deals with both coastal and river flood risks. Both types of risks should be included in the research to promote generalizability. The Rhine-West area deals more with coastal flood risks than the Meuse area and both deal with river flood risks. The two areas also differ in the type of river, since the Meuse is mainly a rain-fed river, while the Rhine river is mostly a melt water river. Besides, the Rhine has on average a higher drainage of water in comparison to the Meuse (Natuur dichtbij, 2012). Moreover, it is interesting that the Rhine river is only one and a half times as long as the Meuse, while its basin is nearly six times as big (van de Ven, 2004, p.28). Another difference is the fact that the Rhine area has a higher level of economic activity in comparison with the area around the Meuse and has due to its history more experiences with cooperation (de Kruik and Silver, 2012). Due to this variation, the research outcomes of the cases will be generalizable and representative for the whole country of the Netherlands. It is also interesting that the Rotterdam harbor, agricultural areas and some large cities are located in the selected areas. Similarities between both river basin areas are the fact that the size of the basins are medium and that both have lost most of their original, natural character (Natuur dichtbij, 2012). In both basins the peak discharges occur during winter months, when much rain and snow falls in the European mountain areas. However, the Rhine also has a second high discharge in summer due to melting ice in the Alps (van de Ven, 2004, p.31). Furthermore, in recent times the two selected case-study areas have dealt with floods, namely in 1993 and 1995 (Stichting EnToen.nu, 2012; Rijkswaterstaat, 2012).

1.8 Outline of the report

This paper is composed of eleven chapters. The next chapter explains the theoretical background of this research by introducing three schools of policy implementation literature. Factors influencing policy implementation are selected to answer the first sub-research question and will form the story line. Chapter 3 describes the Flood Directive in more detail by answering the second sub-research question and executing a content analysis. In this chapter also the dependent variable will be operationalized by answering sub-question 3. In chapter 4, policy implementation literature will be linked to the content analysis of the Flood Directive, influencing factors will be operationalized and hypotheses formulated (sub-question 4). In chapter 5, the implementation level of the Flood Directive in the Netherlands will be described (sub-question 5). Chapter 6 will answer sub-question 6 by presenting and analyzing the results of the Meuse case study, followed by a comparable chapter 7 of the Rhine-west case-study (sub-question 7). In chapter 8 the interview results of umbrella organizations will be described (sub-question 10). After that, the results of the survey research will be presented in chapter 9 (sub-question 11). The study will be discussed in chapter 10 (discussion) by answering sub-question 8, 10 and 12. And chapter 11 will wrap up the research by answering the main research question. Finally, this concluding chapter will also give recommendations for a positive policy implementation of the Flood Directive and other Directives, based upon the research outcomes (sub-question 13).

2. Policy implementation theories and EU Directives

2.1 Introduction

This chapter describes the theoretical background of this research. The focus will be on the selection of factors that stimulate or hinder the implementation level of an EU Directive. Thus sub-question 1 will be answered: *'Which factors that possibly influence the policy implementation process of the Flood Directive, are distinguished by scientific theories related to Europeanization research?'* To answer this research question correctly, first general background information concerning policy implementation theories will be assessed. Secondly, the vertical and horizontal governance shift will be described, since this influences power relations between governmental levels responsible for policy implementation. In the third paragraph, three scientific policy implementation schools are studied, specifically the traditional (domestic) implementation approach, rational choice and social normative institutionalism and the institutional processual approach. Those theories distinguish relevant factors (*independent variables*) that possibly influence the level of policy implementation (*dependent variable*). Those factors will be used for further research and are presented in a conceptual model.

2.2 Policy implementation in the EU

Implementation of EU Directives was neglected throughout the first decades of European environmental policy, decreasing the effectiveness of those Directives (O'Toole, 2000, p.264; Jordan, 1995, p.1; Jordan, 1999, p.70). Since the mid-1980s the issue of policy implementation came on the political agenda in Europe, for instance due to the institutional crisis, enormous growth of the European environmental acquis, the greater unity of purpose and rulings by the European Court (Jordan, 1999, p.75). According to the European Commission, implementation is an important issue, because the success of EU-policies depends on the impact they have on the ground (Ibid, p.69). Implementation involves intense political interaction between those who framed the policy and those charged with implementation. Policy making and implementation are interconnected, especially within the EU, because Member States are simultaneously the policy makers and most important agents for implementation (Ibid, pp.71-72). The EU has the power to develop and adopt legislation, however, Member States attain the exclusive right to determine the implementation (Jordan, 1995, p.2).

Implementing an EU directive into national policies and practice is not a rational follow-up of decision-making or an automatic process: formal rules do not implement or apply themselves. Implementation can be a difficult exercise, whereby different actors compete over for example the meaning and consequences of a policy. For instance, the struggle over ideas that characterize a policy formulation does not stop once a policy is drawn up, but continues during the implementation phase. There is not one explanation for variations in the implementation process of rules and legislation (Beunen et al., 2009, p.58; Falkner et al., 2005), because there are a lot of factors and various actors that could be influencing, making this process a potentially troublesome exercise (Zwaan, 2012, pp.11-20). Policy implementation is even called *'the most devilish of all wicked problems'* (De Leon and de Leon, 2002, p.468). Therefore, studying implementation involves a lot more than simply comparing the intended with the actual consequences of a policy (Jordan, 1995, p.2). Various stimulating and/or hindering factors for the implementation of a Directive can be distinguished from scientific literature (Zwaan, 2012, p.22, 25). And a combination of those different (mediating)

variables must be taken into account to explain the implementation process of policies (Falkner et al., 2005; Zwaan, 2012, p.15).

2.3 Horizontal and vertical governance shift

In the last decade, a shift from 'government to governance' is observed in the field of environmental policy. This shift indicates that solving societal and environmental problems is not only a task for the central government. The term 'government' is generally associated with a more hierarchical or vertical style of policy making in which public actors dominate, while 'governance' means that policy is formulated and implemented in a dynamic context of interaction between multiple actors on multiple levels. Attention is given to interaction between the state and private actors or between private actors. Although there is a shift towards multi-level and multi-actor governance, the central government still plays a significant role concerning policy implementation (Driessen et al., 2012; Zwaan, 2012, p.2). For policy implementation this horizontal shift is not that significant, since public actors still have full responsibility for the implementation of most policies. For instance, the national government is eventually responsible for the implementation of the Flood Directive and plays an important role through formal legislation and grants (Hajer and Wagenaar, 2003, p.3; Pierre and Peters, 2000, p.18). No private actors are responsible for the implementation process of the Flood Directive (de Kruik and Silver, 2012). In this research therefore, especially public actors on all governmental levels will be included. Nevertheless, due to the horizontal shift public and private actors work more closely together on multiple levels, both types of governing exist next to each other and are intertwined (Jordan et al., 2005, p.484). Consequently, interactions with private actors could also be influencing the outcomes of this study.

Besides the horizontal shift from 'government towards governance', a vertical shift in governance is also observed by scholars. It is clear that there is a vertical power shift towards international and supranational governance levels, for instance due to the establishment of the EU or the World Trade Organization (van Tatenhove et al., 2006, p.10). Because of this vertical shift, nation states experience political pressures from supra-national organizations. For example formal rules of the EU might decrease the autonomy and governance capacity of Member States (Zwaan, 2012, p.4). The Flood Directive is an example of a traditional legal EU instrument that influences the governance in its Member States. This vertical shift is important to recognize, because the research is focussing on vertical relations between the EU and the Netherlands. Moreover, the main focus will be on vertical, hierarchical relations within the Dutch government, because all governmental levels in the Netherlands are partly responsible for the implementation of the Flood Directive. Hence, power relations between the EU, the Netherlands and between governmental levels within the Netherlands are taken into account during this study.

2.4 Factors influencing the implementation process

Since the late 1980's political scientists have started to research daily politics in the EU. After the Single European Act in 1986, scholars paid increasing attention to the impact of Europe as a governmental authority. This theme became more popular in political science by the late 1990s and is named as Europeanization research. The term Europeanization is in this research used as '*the study towards the effects of the EU on the domestic level*' (Zwaan, 2012, pp.11-12) and as '*a process by which domestic policy areas become increasingly subject to European policy-making*' (Börzel, 1999, p.574). The impact of an EU formal rule can be rather different across Member States (Héritier et al., 2001). To understand the different effects of EU rules on the Member State level, research on the

implementation of EU formal rules and policies has developed as an important subfield (Treib, 2008). From literature it becomes clear that various implementation theories form the scientific basis for Europeanization research, inter alia traditional (domestic) implementation literature, rational choice institutionalism, social normative institutionalism and the institutional processual approach. Those theories differ for example on the study of policy implementation as a top-down or bottom-up subject (de Leon and de Leon, 2002, p.468). All theories are necessary to explain difficulties and to distinguish an exhaustive and as complete as possible combination of factors that stimulate and/or hinder the implementation level. Those factors that could influence the implementation level are described in the following section.

2.4.1 Traditional (domestic) implementation literature

In political sciences there is a long-standing tradition to examine implementation processes at the national level. This tradition started after a study of Pressman and Wildavsky (1973) and continued until the late 1990s. This field of policy implementation science is called *traditional (domestic) implementation literature*, understanding implementation foremost as an administrative, a-political execution of decisions. This policy implementation theory assumes that implementers are in principle willing to conform and that national administrations, structures and the role of other administrative variables can facilitate the implementation level (Matland, 1995; O'Toole, 2000; Siedentopf et al., 1988; Zwaan, 2012, p.13).

Traditional (domestic) implementation literature distinguishes the *goodness of fit or misfit* with domestic policies and structures as a factor that could hinder or stimulate the implementation of EU formal rules. This factor states that differences in the degree of fit or misfit between a Directive and existing national practices, formal and informal rules, existing institutional, political and administrative structure and traditions affect the ease and speed of implementation (Zwaan, 2012, pp.13-14, 37). In case of a fit, the implementation of EU rules in Member States can be expected to be smooth and relatively unproblematic. However, if the EU policy does not fit existing, domestic institutional and political traditions, then implementation can be expected to be problematic, leading to delays or non-conformity. This can be explained because a misfit will increase additional implementation costs. A policy misfit needs to be solved by adaptation, the higher the misfit the more adaptation is needed, decreasing the chance for a smooth implementation (Börzel, 2003, pp.35, 37; Hartlapp, 2009, p.471; Knill and Lenschow, 1998, pp.595-596). Besides the fit with the administrative structure, the efficiency of this structure will also influence the implementation process (Hartlap, 2009, p.473).

The following factors influence the degree of fit with domestic policies:

- The existing *political culture* within the Member State will influence the implementation process. According to literature, a mixture of governance modes will steer the implementation of a Directive (Lampinen and Uusikylä, 1998, p.231; Jordan, 1995, pp.5-7, 16-17). Moreover, the national government should play an active role to steer the implementation process (Lampinen and Uusikylä, 1998, p.234).
- A hindering factor could be a *fragmented institutional structure*, leading to an unclear and complex division of responsibilities (Börzel, 2003, p.33). Especially, the predominantly sectorial orientation of all policy levels can form an implementation barrier (Beunen et al., 2009, p.63). Moreover, fragmentation within the water policy field could hinder the implementation of the Flood Directive (Ministerie van Verkeer en Waterstaat, 2000, p.13). If the internal division of competencies is complex, then the transposition of an EU Directive can be seriously hampered (Bursens, 2002, p.181).

- *Coordination*. The complexity of implementing an Directive increases when the number of actors involved rises (Beunen et al., 2009, p.63). Internal coordination problems could be another related factor that influences the implementation process (Krislov et al., 1986; Mastenbroek, 2005, p.1108). Coordination is essential for effective flood risk management (Bursens, 2002, p. 180; Schelfaut et al., 2011, p.828).
- *Cooperation* possibilities on national level might stimulate the implementation process of the Directive. Successful implementation of international rules requires linkages to be built between various actors, whose cooperation is needed to turn the Directive into action (Jordan, 1999, p.70; Pressman and Wildavsky, 1973).
- An additional factor that influences the implementation process is the *flexibility* of a Member State to adapt to changes. Flexibility is determined by aspects such as embeddedness of national institutions and policy context (Mastenbroek, 2005, p.1110). In general it can be stated that due to existing national institutions, change can only happen slowly and incrementally (Bursens, 2002, pp.180-181).

Another factor influencing implementation, distinguished by traditional domestic implementation literature are *external pushing or pulling pressures* that can stimulate or hinder the implementation of a policy (this factor is related to the push-pull model, see figure 4). Pushing or pulling pressures towards implementation are mediating factors that influence the implementation process despite of its degree of fit with domestic policies. Examples of pressures are the mobilization of public opinion at the Member State level, monitoring and enforcement from the European Commission or incentives provided by third actors (Börzel, 2003, p.36; Hartlapp, 2009, p.471; Zwaan, 2012, pp.14-16). For example, monitoring and sanctioning of the EU makes non-conformity a less attractive option for Member States. Besides, pressures of domestic actors can also contribute to overcome a misfit with domestic policies (Mastenbroek, 2005, p.1111).

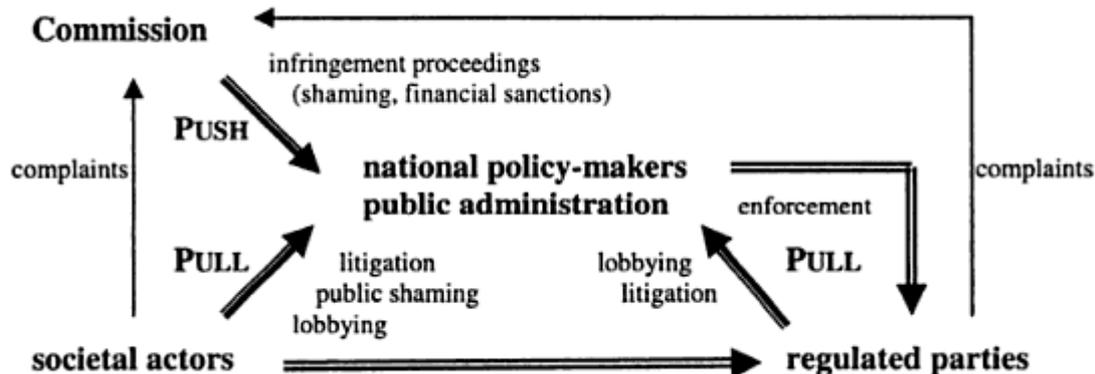


Figure 4: push and pull model
Source: Börzel, 2003.

Various pressures can be distinguished, such as:

- *Political and societal support*. According to scholars, political and societal support is necessary for a smooth implementation process (Sabatier, 1986, p.25). A lack of political will can cause difficulties for the implementation process (Beunen et al., 2009, p.58). Also mass opinion is highly influential in politics. For instance, protest from the society and interest groups can hinder the implementation process (Lampinen and Uusikylä, 1998, p.238).

- *The political power of the EU* is also a pressure that influences the ease and speed of implementation in a Member State. For instance, the EU has supra-national power and Member States have sole implementation responsibilities, which is both significant for analyzing the implementation process (Jordan, 1995, p.3). When it comes to implementation issues, the EU often does not have the political nor legal resources to substantially delve into national affairs (Jordan, 1999, p. 70). Enforcement and sanctioning power is weak and often informal (Jordan, 1999, p.78). Moreover, the EU lacks a common political culture and opinion. Another related point that has an influence on the implementation process, is that the structural imbalance between EU main bodies dissociate the EU geographically and politically from daily practices in the Member States (Jordan, 1999, pp.70-71, 77). Therefore, this factor is mostly hindering the implementation process.

The interaction with other (national) policies is also a factor distinguished within this school of research. The necessary coordination and interaction with existing policies could influence the implementation process of a Directive. Coordination with for example the WFD and other policies will be a challenge during the implementation process (Walker, 2002, p.279). In general the proposed integration of EU Directives makes the implementation more complex, since for example objectives of Directives can conflict and time frames differ (Beunen et al., 2009, pp.64-65).

Besides that, traditional (domestic) implementation literature distinguishes also the *content (complexity and quality) of Directives* as an important influencing factor. The content of European Directives influences the transposition, for instance in terms of clarity, consistency and the degree of technicality (Bursens, 2002, p.180). In other words: the higher the quality of the Directive the better the implementation. Furthermore, the level of complexity of the Directive makes implementation more difficult (Krislov et al., 1986; Mastenbroek, 2005). Complexity is often mentioned as one of the reasons for a failing implementation of EU rules (Lampinen and Uusikylä, 1998, p.233). And clarity and understandability of the Directive influences also the implementation process. For instance, clear and consistent objectives will positively influence the implementation process (Sabatier, 1986, pp.25-26), but often the objectives of Directives are vague or contradictory (Jordan, 1999, p.78). Besides that, interpretation difficulties will hinder the process (de Kruik and Silver, 2012). The meaning of Directives often arises in a complex struggle between different actors (Beunen et al., 2009, p.63). Furthermore, the causal policy theory behind the Directive should be clear to Member States and adequate for solving the problem (Sabatier, 1986, p.23). Besides, EU regulation is often highly ambitious concerning for example integration of policies, which could also influence the implementation process (Jordan, 1999, pp.70-71).

2.4.2 Rational choice and social normative institutionalism

Another stream within policy implementation research has critically questioned the willingness of actors to conform to EU rules, which is taken as granted in the earlier described theory. This stream is characterized by more theoretical elaboration and specification and explicitly theorizes the role of actors preferences, values and interactions between actors, often affected by the wider institutional setting (Treib, 2008; Mastenbroek; 2005, Zwaan, 2012, p.15). This stream can be divided in rational choice institutionalism and sociological institutional literature. The *rational choice institutionalism* approach assumes actors to act as self-interested stakeholders, making calculated decisions on how to react to formal rules of the EU, whereby the reaction of actors is guided by the logic of consequentiality (March and Olson, 1989, p.39; Zwaan, 2012, p.16). Furthermore, *social (normative)*

institutional literature assumes that actors' decisions to conform depend on their ideas on what is morally right (Dimitrova and Rhinard, 2005; Zwaan, 2012, p.18).

Rational choice and social normative institutionalism distinguish the *willingness of actors (Member States) to conform to EU rules* as a factor that influences the implementation process. The willingness is determined by the role of actors' preferences, values and interactions. All are often affected by the wider institutional setting (Mastenbroek, 2005; Zwaan, 2012, p.15). According to those theories, both private and public actors should be taken into account. The following factors determine the willingness of an actor to comply:

- *Interactions between domestic actors.* Horizontal interactions between domestic actors influence the ease of implementing formal rules (Zwaan, 2012, p.15). This does not only account for interactions between governmental levels (public actors). Also interactions with private actors may influence implementation levels. For instance, powerful players such as interest groups can play an important role (Falkner et al., 2005). This factor expresses many similarities with the cooperation factor distinguished in traditional (domestic) implementation literature. Therefore, in the execution of this research both factors are combined.
- *The actors' self-interest and goals.* The response of an actor to a formal EU rule will be determined by among others, a consideration of their own self-interests and domestic goals (both material and political) (March and Olson, 1989, p.39; Zwaan, 2012, p.16). Governments assess the usefulness of a Directive on basis of their political preferences (Falkner et al., 2005). If the policy fails to fit the national interest, than Member States will resist the implementation (Jordan, 1999, p.71).
- *Logic of appropriateness.* According to sociological institutional literature, Member States will take into account if rule conformity is morally the right thing to do. Rules will be followed when they are valued as natural, rightful and legitimate (March and Olsen, 2004, p.2). The appropriateness of rules includes both cognitive and normative components (March and Olson, 1995, pp.30-31; 2004, p.3) and will be influenced by the actor's identity, domestic norms, the surrounding situation and the motivation of the actor to act appropriately. A high amount of actors involved on the domestic level, will lead to various opinions about morality, possibly leading to a lower logic of appropriateness, making the implementation process less smooth (March and Olson, 1989; Zwaan, 2012, pp.18, 33-34). It should be taken into account that standards of appropriateness within a Member State can change over time, leading indirectly to evolvement of the implementation (Finnemore and Sikkink, 1998, p.888).
- *Existing view on the EU.* The image of the EU for each Member State will be determined by for example the authority of the regulator and the legitimacy of the Directive's procedure. If the image about the EU is positive and the Member State shares the EU identity, then the implementation process will be stimulated. Moreover, the provisions of the EU on the Directive should be clear and consistent to overcome implementation problems (Dimitrova and Rhinard, 2005, p.4; Falkner et al, 2005; Zwaan, 2012, p.19).

This school of research also distinguishes *external pressures* as a significant factor pulling or pushing for implementation as described in paragraph 2.4.1. For instance, monitoring and enforcement of the EU and the effects of veto points and players are mentioned as important aspects (Zwaan, 2012, pp.16-18). Moreover, *the political power of the Member State* to influence the decision making process of the Directive is distinguished as an external pressing factor. If a Member State has a lot of power to influence EU decision-making processes (for instance via veto-players), then they will

mostly agree with the content of the Directive, leading to an easier implementation process (Hartlapp, 2009, p.472; Mastenbroek, 2005, p.1108).

2.4.3 Institutional processual approach

The *institutional processual approach* also explains how actors respond to EU formal rules. According to this theory, social mechanisms and contextual factors determine the response of a Member State towards a rule, influencing its level of implementation (Zwaan, 2012, pp.42-43).

Firstly, contextual factors are related to institutions, which are overlapping with the factor goodness of fit with the institutional structure (paragraph 2.4.1). Moreover, contextual factors are also related to the *activities of other actors* (other domestic actors, as well as other Member States), which can be distinguished as another factor influencing the implementation process. This is an important factor, since Member States do not operate in a social-political vacuum and will be influenced by the responses of other Member States (Zwaan, 2012, p.38). An example could be that the Netherlands is influenced by how other countries implement, interpret and execute the Directive (de Kruik and Silver, 2012). Similarly, domestic authorities will be influenced by the activities of other institutions.

Secondly, this theory also distinguishes social mechanisms as factors influencing the policy implementation process. Some of the social mechanisms applied, addresses factors that are related to the *willingness of actors to conform* (paragraph 2.4.2). According to this approach the following factors influence this willingness:

- *Attribution of opportunity or threat*, which relates to if the actor interprets the Directive as an opportunity or as a threat for the realization of its goals (McAdam et al., 2001; Zwaan, 2012, p.34). Related to the attribution of opportunity is the work of Kingdon (1995), whereby is perceived that a window of opportunity may open when the three streams of the policy system come together (problems, policies and politics). When those streams come together the chance for adaption and implementation of the policy will increase (Zahariadis, 2007, pp.65-71).
- *Logic of appropriateness*. Is already explained in detail in paragraph 2.4.2.
- *The attribution of success and/or failure*. This means that the actor undertakes action regarding the Directive based on their observations and inferences from direct ongoing experiences. If the Directive is associated with success or failure, then this will influence the response of an actor and the implementation of the Directive. The latter relates to the fact how an actor interprets for example the outcomes of other Directives and if they expect repetition of results, which can be seen as a learning process (Levitt and March, 1988; Zwaan, 2012, p.35).

2.4.4 Additional factors

Besides factors from the theories described above, there are other factors mentioned in scientific literature that influence the implementation level of policies, but which do not belong to a specific school. Those factors are:

- *Uncertainty* about the effects and impact of the Directive hinders the implementation process (Beunen et al., 2009, p.65). Besides that, uncertainties regarding future flood risks (e.g. because of climate change) can cause difficulties (Pieterse et al., 2009, pp.35-38). Competent authorities are forced to make decisions based on the Directive, while the issue is complex, not all required information is available and part of the information

contains uncertainties. There are different types of uncertainties, such as normative and informational uncertainty (Newig et al., 2005, pp.333-336). The hindering effect of this factor could be decreased by the following influencing factors:

- *Science*. Science influences the implementation process, since it can decrease uncertainties, which is especially significant for complex environmental issues such as climate change and flood risks. Appropriate scientific responses and transfers of knowledge influence the implementation of policies positively. However, often a lack of communication and missing coordination between science and policy lead to research outputs not being used by politicians. Those inefficient, not integrated science-policy relationships influence the implementation process negatively (Quevauviller et al., 2005, pp.203-205). The development and sharing of knowledge is not only important to reduce uncertainty levels, it also increases the quality of the water policies in general (Ministerie van Verkeer en Waterstaat, 2000, pp.49-50).
- *Participation level*. Some uncertainties cannot be reduced and need to be managed properly. An instrument to manage is to stimulate participation of the broader public and interested parties, by making uncertainties clear for everyone, so they can be accepted or that more stakeholders can give input and knowledge. More participation of both private and public actors is an opportunity to achieve better informed decisions and to implement a Directive more effectively (Newig et al., 2005, pp.333, 338-340).
- *(Lack of) available resources*. The availability of resources in a Member State will probably also hinder or stimulate the implementation process of a Directive (Mastenbroek, 2005). An example of a factor that could be both hindering and stimulating the implementation is the administrative capacity (Börzel, 2003, p.33). Administrative inefficiencies or difficulties will hinder policy implementation (Hartlapp, 2009, p.472). Lacking administrative resources will delay the implementation of an EU Directive (Falkner et al., 2005). Another example is related to time resources: the more time consuming the implementation is, the less actors are willing to comply (Mastenbroek, 2005, p.1112). Moreover, manpower to implement the Directive is an important resource. For instance, skilled and committed implementation agents are necessary for a smooth implementation process (Sabatier, 1986, pp.25-26).
- *Economic variables*. The level of socio-economic development of an actor (Member State) hinders or stimulates the level of implementation. E.g. high implementation costs of the Directive related to for instance administration, monitoring and intervention actions will form a barrier (Beunen et al., 2009, p.63; Börzel, 2003, p.30). Also, major economic disturbances will hinder the implementation process of a Directive (Sabatier, 1986, pp.25-26). This factor contains similarities with the last factor described and therefore, both are combined in the execution of this research.

2.5 Conclusion and conceptual model

From this overview of policy implementation theories, it becomes clear that there are various factors influencing the policy implementation process and that there could be overlap between those factors. It should also be taken into account that interactions between different factors could influence the implementation process of EU Directives (Falkner et al., 2005, p.17; Zwaan, 2012, p.20). All selected and probable influencing factors from literature are summarized in a conceptual model (figure 5). This model gives an overview of the probable stimulating (+) and/or hindering (-) effect of factors described in last paragraphs. This conceptual model will form the basis for the comparative case-study and survey research applied in following chapters. It should be noted that this model is not complete since other factors could be also influential, yet which were not distinguished during the literature research.

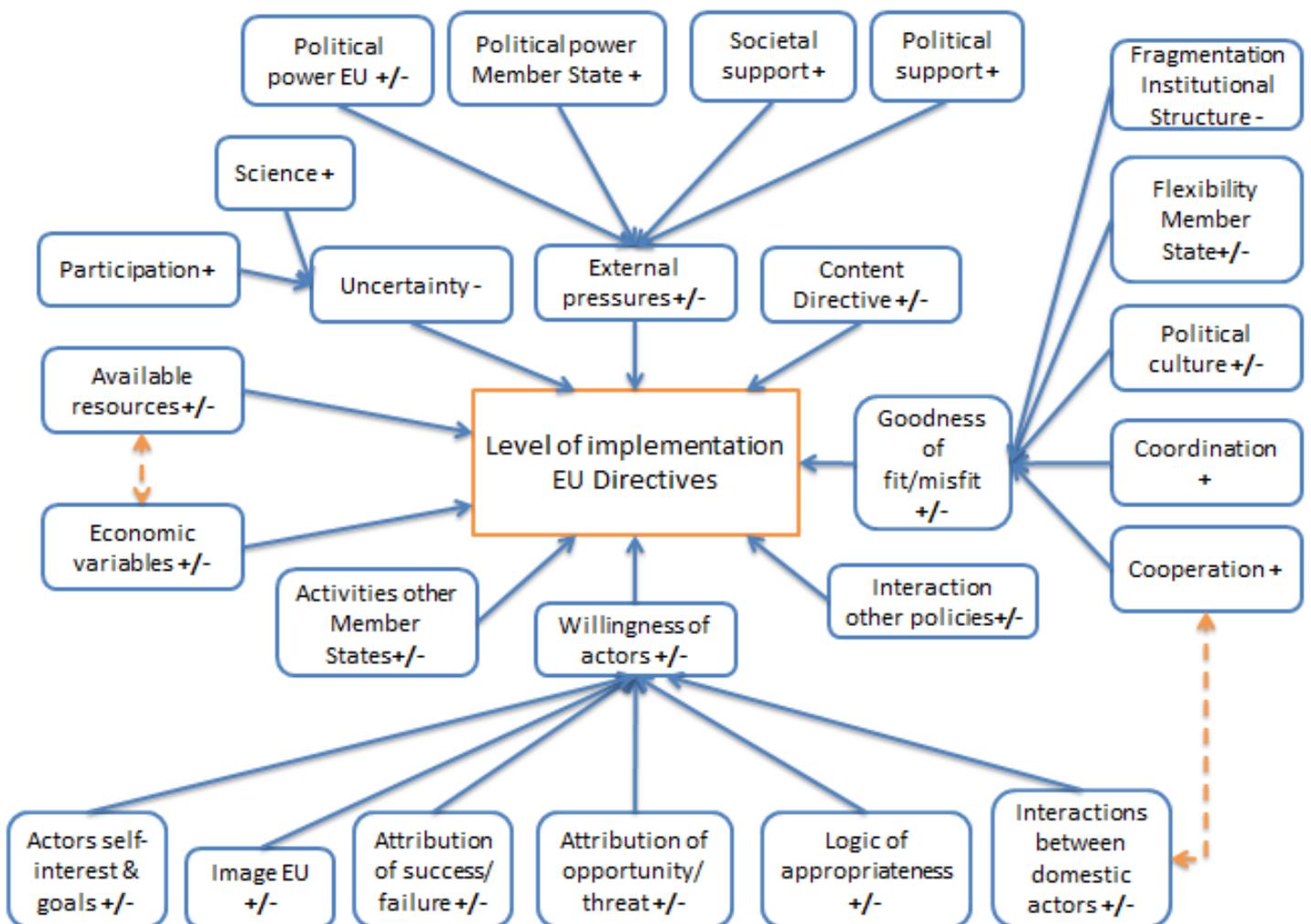


Figure 5: Conceptual model: factors influencing the level of implementation

3. Operationalization implementation level

3.1 Introduction

In this section a content analysis concerning the Flood Directive is executed to answer the second sub-research question: *What does the EU Flood Directive encompass, looking at its history, policy theory and content?* To answer this question, firstly the establishment of this Directive is explained and in paragraph 3.3 the content and policy theory behind this Directive are described in detail. In the conclusion, the implementation level of the Flood Directive as dependent variable will be operationalized by answering the third sub-research question: *How can the implementation level of the EU Flood Directive be operationalized as dependent research variable, based on the content analysis?*

3.2 Establishment of the Flood Directive

In 2003, the Netherlands and France jointly put the importance of floods on the political agenda of the EU in Brussels and addressed the issue of precautionary and sustainable flood management. The incentive for this joined initiative was to improve international cooperation related to floods and to manage flood risks in the European community in the long term (Dworak and Görlach, 2005, p.97; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.7). Besides, an important incentive was to positively present the Dutch secretary of that moment (Melanie Schultz van Haegen) on the European level (Dekker, 2008).

At the beginning, the interest of other Member States for such type of regulation was relatively low (Schout and Nollen, 2011, p.2) and during the process even the position of the Netherlands changed more negatively towards the Flood Directive (van de Glind, 2009, p.40-41). Still the Flood Directive was established, since floods are in the interest of the EU. This is because *'flooding's have the potential to cause facilities, displacement of people and damage to the environment, to severely compromise economic development and to undermine the economic activities of the community'* (Directive 2007/60EC, 2007, p.27). Moreover, the development of a common Directive on this subject is important since 40 out of the 110 river basin areas in Europe are shared among more than one Member State, stressing the need for a legal instrument to address transboundary flood risk management even more. Furthermore, citizens and business across the EU should have the same rights concerning flood risk management (Hörmandinger, 2010). According to the Flood Directive, it is feasible and desirable to reduce the adverse consequences associated with floods (Directive 2007/60EC, 2007, p.27).

On the 27th of June 2006 the European Council reached a political agreement on the draft Directive concerning the assessment and management of flood risks (Klijn et al., 2008, p.307). In 2007 the EU Flood Directive entered into force and each Member State should have translated this Directive into national law before 2009 (van den Berg and Slager, 2012; European Commission, 2012d; Helpdesk Water, 2012a; Ministerie van Infrastructuur en Milieu, 2010; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.9).

The Netherlands had three main intentions as first mover regarding this Directive: implementing the solidarity principle, the standardization of the river basin approach and the establishment of effective funding possibilities to prevent floods. The first two incentives were met, only the latter was not. One

of the explanations is that other Member States were against the funding of flood measures. So in general, it can be concluded that the intentions of the Netherlands were approved, although they were saddled with some extra requirements (van de Glind, 2009, pp.30, 45-48; Dekker, 2008).

3.3 Content Flood Directive

It is interesting that this Directive is the first Directive that explicitly focuses on floods. The main purpose of the Flood Directive is *‘to establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage, and economic activity associated with floods in the Community’* (Directive 2007/60EC, 2007, art. 1, p.29). In order to reach this main purpose, the Flood Directive stimulates Member States to gain information and to have consultation and planning on both the regional, national and international level. In this way a twofold purpose will be reached, namely improving flood protection and making the risks on floods more visible and transparent for citizens, business and governmental organizations within the EU (Helpdesk Water, 2012a; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.8; Schout and Nollen, 2011, p.3).

The general rationale or policy theory posterior to the Flood Directive is reducing the damage of flood risks in the EU. The focus is on reducing damage since floods are natural phenomena, which cannot be prevented, yet they can be managed. Human activities and climate change can increase the chance for floods in the future, while the EU and its Member States are responsible for the safety of its citizens. Another important aspect is that in the 90’s some huge floods raised the attention towards flood risk management. Therefore, common regulations should be made to, where possible, reduce or manage flood risks in the community (D’Haeseleer et al., 2006, p.4; Directive 2007/60/EC, 2007, p.27; Linsen, 2012; Silver, 2012). Those regulations need to be transnational, due to the transboundary character of rivers. So, international cooperation in the form of the Flood Directive was necessary (European Commission, 2003, pp.2-5). Furthermore, the precautionary principle is related to the policy theory behind the Flood Directive to overcome possible impacts of floods (European Commission, 2003, p.3). Besides, it became clear that the approach to deal with natural hazards in Europe needed a paradigm shift from defensive action against hazards to management of flood risks. This shift is included in the Flood Directive (European Commission, 2003, p.2). Lastly, this Directive is used to streamline current disaster management in Europe and to complement existing environmental EU legislation (Linsen, 2012).

The objectives of the Flood Directive are only procedural agreements, since the Directive is focused on the process instead of quantified objectives and measures (Leskens et al., 2009; Rijksoverheid, 2010). The focus on procedural aspects offers the opportunity to jointly address problems applicable to the entire river basin and leaves flexibility for practical implications (Dworak and Görlach, 2005, p.100). This flexibility is necessary to make the Directive adaptable to all river basins (van de Glind, 2009, p.42). However, the descriptions in the Directive are often vague. The combination of flexibility and vagueness leaves opportunities for differences in interpretation and implementation (Schout and Nollen, 2011, p.3). An example of a difficulty is that a flood in this Directive is defined as *‘temporary covering by water of land not normally covered by water’* and a flood risk is defined as *‘the combination of the probability of a flood event and the potential adverse consequences for human health, the environment, cultural heritage and economic activity associated with a flood event’* (Directive 2007/60EC, 2007, art. 2, p.29). Both definitions have various interpretation possibilities. Financing of the implications of this Directive should be arranged by the Member States, since there is no special fund or instrument provided by the EU (Schout and Nollen, 2011, p.5).

The Flood Directive contains various requirements, which can be divided in three main obligations, principles concerning the implementation and process requirements (Ministerie van Infrastructuur en Milieu, 2010). All three aspects will be explained in the following sections.

3.3.1 Main obligations

To achieve the main objectives, the Flood Directive is based on a three stage approach (figure 6).

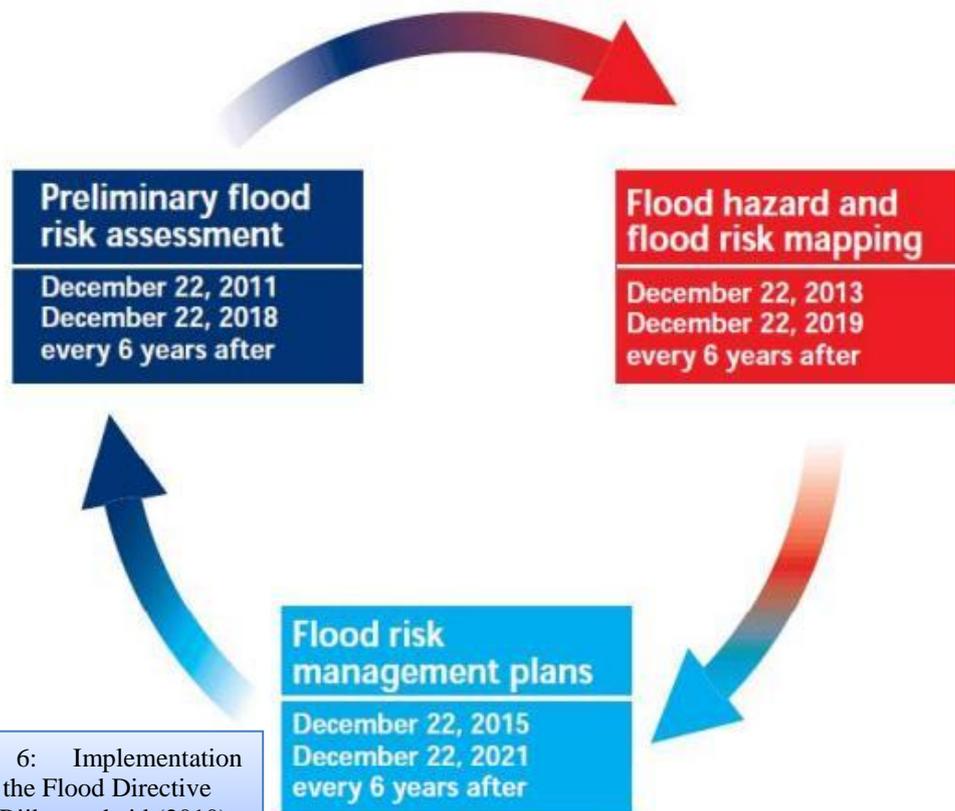


Figure 6: Implementation cycle of the Flood Directive
Source: Rijksoverheid (2010)

Firstly, a preliminary flood risk assessment should have been carried out before 22 December 2011. In this preliminary assessment, areas with a potential significant risk on floods were identified. According to the Directive, this contains both current and expected risks (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.19). This first stage was necessary to judge the risk level of all regions in the Member State and to identify regions for which maps and plans should be established in the following steps (Hagemeier-Klose and Wagner, 2009, p.563; Helpdesk Water, 2012a; Hörmandinger, 2010; Rijksoverheid, 2010). The term significant potential flood risk is not explained in the Directive and should be defined in detail by each Member State separately. Each Member State should report how the term 'significant potential flood risk' is interpreted, yet the Directive mentions: '*flood risks in certain areas within the Community could be considered not to be significant, for example in thinly populated or unpopulated areas or in areas with limited economic assets or ecological value*' (Directive 2007/60EC, 2007, p.28; STOWA, 2011, p.1). Moreover, in the Directive no difference is made between main national, regional or local water systems (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.17).

The second stage of the implementation is concerned with flood mapping and should be finished before December 22 2013. In this stage flood risk and hazard maps should be made to show potential flood scenarios and the possible consequences of floods (Hagemeier-Klose and Wagner, 2009, pp.563-564; Hörmandinger, 2010; Rijksoverheid, 2010). Flood risk maps show the potential consequences of floods in an area, while flood hazard maps show the physical features of floods (Helpdesk Water, 2012b; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.6; Rijksoverheid, 2010). Those maps are an effective tool for information dissemination, priority setting and policy-making regarding flood risk management, since the maps show potential adverse consequences of different flood scenarios and Member States should assess activities that have an effect on increasing flood risks (Directive 2007/60EC, 2007, p.28). In this way the maps form the foundation for the development of an approach to deal with flood risks. Besides, an important aspect of creating those maps is that the flood risks become more visible for society, which creates awareness (Alberts, Kors and Linsen, 2012; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.6). The maps should meet the demands of various types of user groups, like citizens, businesses, spatial planners, risk managers, water managers etcetera (Hagemeier-Kloser and Wagner, 2009, p.563; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.21).

The last requirement of the Flood Directive, the production of flood risk management plans, is required before December 22 2015 (Rijksoverheid, 2010). The plans should address all aspects of flood risk management, with a special focus on prevention, protection and preparedness. Moreover, the plans should focus on avoiding and reducing potential adverse impacts of floods in the area (Directive 2007/60EC, 2007, p.28; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.39; Mostert and Junier, 2009, p.4966). The Flood Directive is only a procedural Directive, however each Member State should define adequate objectives and necessary measurements in the flood risk management plans (Mostert and Junier, 2009, p.4966; Raad Landelijk Gebied et al., 2011, p.43). Eventually, the plans will be a tool for coordinated planning of all aspects related to floods.

The main aim of producing maps and plans is to prevent the further build-up of risks, to reduce existing risks and to adapt in time to changing risk factors (EXCIMAP, 2007, p.6). Both assessments, plans and maps should be based on the '*best practices*' and '*best available techniques*' (Directive 2007/60EC, 2007, p.28). Moreover, the Directive states that all maps and plans should be reviewed and updated every six years thereafter (figure 6) (Hörmandinger, 2010; Rijksoverheid, 2010, p.8). In the follow-up cycles of the Flood Directive (2021), also the progress of realizing measurements and goals will be reported towards Brussels. The European Commission will check if there is enough progress concerning the goals and measures reported in the plans and maps of 2013 and 2015 (Silver, 2013a).

3.3.2 Implementation principles

In the last section it became clear that the Flood Directive requires three main products from each of the Member States. Besides those mandatory products, the Flood Directive requires several binding principles that should be followed during the implementation process. Those principles should be taken into account during the production of the flood risk and hazard maps and flood risk management plans (Rijksoverheid, 2010). The principles are:

- *River basin management.* Firstly, the Flood Directive requires an implementation and governance structure based on river basin districts as main units: '*Flood risk management plans should therefore take into account coordination throughout a river basin*' (Directive

2007/60EC, 2007, p.27; EEA, 2012). So, flood risks should be taken into account for each river basin area (Rijksoverheid, 2010). The definition of a river basin is defined in article three of the WFD as: *'the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly lakes into the sea at a single river mouth, estuary or delta'* (Directive 2000/60/EC, 2000, p.6).

- *Safety chain*. This principle is related to the Dutch concept of 'meerlaagsveiligheid'. According to this principle the Flood Directive should be implemented based on the concepts of prevention, protection and preparedness (Rijksoverheid, 2010; STOWA, 2011, p.4). An integral approach to deal with risks should be applied according to the chain of responsibility (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.12).
- *Risk approximation*. According to this principle, the objectives and measures will be based on a risk assessment and an assessment of the potential consequences of a flood (Rijksoverheid, 2010; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.12).
- *Sustainability*. This principle implies that the concept of sustainability, all EU environmental Directives and the effects of climate change should be taken into account during all stages of the implementation of the Flood Directive (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.12; Rijksoverheid, 2010).
- *Solidarity*. This principle states that Member States should not take any measures that increase the flood risks in other Member States, unless those measures are coordinated and both Member States agreed upon the measures (Rijksoverheid, 2010). *'In the interests of solidarity, flood risk management plans established in one Member State, shall not include measures which, by their extent and impact, significantly increase flood risks upstream or downstream'* (Directive 2007/60EC, p.31). So, it is forbidden to pass any risk to other Member States (Ministerie van Verkeer en Waterstaat: DG Water, 2008, pp.12-13). Moreover, *'Member States should be encouraged to seek for a fair sharing of responsibilities, when measures are jointly decided for the common benefit, as regard to flood risk management'* (Directive 2007/60EC, 2007, p.28). Especially this policy theory is important for the Netherlands as a downstream country, since it provides an instrument to make formal transboundary agreements concerning flood risk management (Leskens et al., 2009). One of the Dutch incentives was the prohibition of passing flood risks, because the Netherlands had already a lot of regulation and measurements concerning flood risk management, however, flood risks in the Netherlands increased due to the fact that other Member States had less strict regulations and measurement systems (Alberts, Kors and Linsen, 2012; Silver, 2012). Moreover, other Member States required financial support of the EU after some flood events. According to the Netherlands this was unfair, since the Netherlands invested more in flood risk management than countries who asked for financial support to overcome the damage. The Flood Directive requires that other countries invest more in flood management, which will probably lower the demand for financial support in case of flood damage. So, boundaries are set for financial funds (Linsen, 2012; Silver, 2012).
- *Subsidiarity*. This principle is applicable to all EU Directives and states that *'in the view of existing capabilities of Member States, considerable flexibility should be left to the local and regional levels'* (Directive 2007/60EC, 2007, p.29). This principle ensures that decisions are taken as closely as possible to the level of citizens. So the Union does not take action and only controls the Member State, unless action of the EU is more relevant than action on national, regional or local level (Europa, 2012b). This means that each Member State should individually define objectives and relevant measurements for the management of flood risks (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.11).

3.3.3 Process requirements

Not only product requirements and implementation principles are important, since the Flood Directive also contains process requirements. One of the process requirements is international coordination, since the Directive states that coordination and information exchange between all EU Member States is required at all steps of the implementation process. This requirement is associated to the solidarity principle, explained in the section before (Directive 2007/60EC, 2007, p.28; Hörmandinger, 2010). Besides cooperation and coordination between Member States, also cooperation with third countries is necessary to ensure effective flood prevention and mitigation in the Community (Directive 2007/60EC, 2007, p.27). International coordination and alignment concerning the Directive is possible within workgroup F, which is an EU platform for Member States to share knowledge and experiences related to the implementation of the Flood Directive. This workgroup ensures a uniform implementation among the EU Community. Besides this workgroup, international river basin commissions and bilateral consultancies stimulate international coordination (Helpdesk Water, 2012c; Rijksoverheid, 2010). Another example of a program, established by the EU that supports international coordination and alignment is EXCIMAP. This is an European exchange circle on flood mapping and they gather all existing information and know-how in Europe to improve the production of flood mapping. Therefore, EXCIMAP increases the exchange of knowledge and communication between EU Member States (EXCIMAP, 2007, p.5).

The Flood Directive also requires coordination and synchronization with the WFD and other EU Directives. For example the Flood Directive should make efficient use of existing structures of the WFD, like flood risk management plans should be integrated in the river basin management plans of the WFD (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.13; Mostert and Junier, 2009, p.4967; STOWA, 2011, p.4). Although the Flood Directive contains clear links to other Directives, real integration of objectives should be done in the Member States (Beuen et al., 2009, p.64).

Another process requirement of the Flood Directive is public participation (Hagemeyer-Klose and Wagner, 2009, p.564). This implies that Member States should '*encourage active involvement of interested parties in the production, review and implementation of the flood risk management plans*' (Directive 2007/60EC, 2007art. 10.2). This means for instance that stakeholders should be involved actively in the developing, reviewing and improving process of the flood risk management plans (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.13; Rijksoverheid, 2010). However, the Directive does not clearly define the terms '*active involvement*' and '*interested party*', leading to interpretation difficulties. According to the guidance on public participation, those terms signify more than only consultation and indicates that all actors who are interested, affected or have directly or indirectly a stake in the issue, are invited to contribute throughout the whole implementation process (Mostert and Junier, 2009, pp.4968-4969). This process requirement can be reached by for example making all maps and plans available to the public (Hagemeyer-Klose and Wagner, 2009, p.564; Hörmandinger, 2010; Rijksoverheid, 2010; STOWA, 2011, p.4). Public involvement is necessary to make inhabitants more aware of the responsibility for their own protection (Hagemeyer-Klose and Wagner, 2009, p.572).

3.4 Conclusion

From this overview of requirements it becomes clear, that Member States are flexible to decide how to implement the Flood Directive and to reach the objectives (Leskens et al., 2009). Another interesting aspect is that the European Commission has less power to enforce the Flood Directive’s requirements in comparison with for example the WFD (Schout and Nollen, 2011, p.4). In this research the implementation level of the EU Flood Directive by January 2013 is studied as the dependent variable. Policy implementation in this study is defined as: *‘the degree to which both the formal transposition and the practical application of supranational measures at the national level correspond to the objectives specified in the European legislation’* (Knill and Lenschow, 1998, p.595). This means that implementation implies *‘the whole of actions exercised by various relevant authorities of a Member State in order to effect European legislation within that Member State’* (Bursens, 2002, p.175). Based on the content analysis described above, the level of policy implementation of the Flood Directive is measured by the degree in which the Netherlands meets the main obligations, the process requirements and the implementation principles as described in the EU Flood Directive. This is estimated during the research by asking various general questions to each actor throughout the interviews, concerning for example the status of implementation in their governing area, their experiences with the progress of the implementation process and experienced added value of the Flood Directive. An overview of all questions formulated to measure the implementation level can be found in appendix 3.

4. Operationalization of influencing factors

4.1 Introduction

In this chapter, step three of the research framework will be executed: the stimulating and hindering factors concerning the level of implementation selected in literature (chapter 2) are linked to the content of the Flood Directive (chapter 3). By linking both, hypotheses can be derived concerning expected outcomes of the case-study and survey research. Moreover, all factors are operationalized. Thus sub-question 4 will be answered: *How can the factors selected by literature (independent variables) be operationalized?* An overview is presented in figure 7 and each of the factors will be described in more detail in paragraph 4.2. It should be mentioned that the selected factors '*do not have a status of a defined set of variables that can be systemized and operationalized to serve as explanatory factors*' (Scharpf, 1997, p.29-30). Therefore, this chapter provides an overview of how the factors are interpreted and operationalized by the researcher. However, the exact way in which those factors are specified will be answered empirically by the interviewed actors that are directly involved in the implementation process of the Flood Directive. The operationalization in this chapter provides thus a handgrip for the research, while the real operationalization of the factors will be based on the actors' interpretation and knowledge of the context. The related interview questions for each factor are presented in appendix 3.

4.2 Independent variables

Figure 7 provides an overview of both hindering and stimulating factors influencing the level of implementation, their operationalization and the related hypotheses. Each factor will be explained in more detail in the text below. Besides, each factor will be measured in the case-study research by asking one or more questions, which are summarized in appendix 3.

Factor	Operationalization	Hypothesis
Goodness of fit or misfit (+)	The extent to which the Flood Directive fits existing national practices and rules in the Netherlands and the degree of influence (stimulating/hindering) of this fit or misfit on the level of implementation	Due to the existing, advantaged flood risk management policies in the Netherlands and the procedural focus of the Directive, the fit with the Flood Directive will be quite high which stimulates the policy implementation
Political culture (+)	Political values, norms and ideas that are present in a country and that influence the implementation of policies	The Dutch political culture is, according to history, in favor of water policies, which will probably stimulate the implementation of the Flood Directive
Fragmentation of the institutional structure (-)	Dispersion of implementation responsibilities between the governance system in a Member State	The complex division of responsibilities concerning the implementation of the Flood Directive in the Netherlands, could hinder the implementation process
Coordination (+)	Organization, coordination and alignment between public actors for the implementation of the Flood Directive	The high level of coordination between public actors (on EU and national level) will stimulate the

		implementation of the Flood Directive
Cooperation (+)	Collaboration between parties to implement the Flood Directive correct and in-time	Various cooperation possibilities on national and international level stimulate the implementation of the Flood Directive
Flexibility (-)	The possibilities of a Member State to react upon and adapt to changes in the policy field	The embeddedness of flood risk management in Dutch policies and institutions will decrease the flexibility and possibly hinder the implementation process
Political and societal support (+)	The acceptance of the Flood Directive by Dutch politicians and society	High awareness of the Dutch society and politicians for flood risks will stimulate the implementation of the Flood Directive, while a low attention will hinder the process.
Political power EU (-)	The enforcement and sanctioning power of the EU	The relatively low political power of the EU could hinder the implementation process of the Flood Directive
Interaction with other policies (-)	The way in which existing national and international policies influence the implementation of the Flood Directive	The implementation process is more complex, due to the high level of existing water policies that will interact with the Flood Directive.
Content Directive (-)	The clarity, consistency, understandability, quality and complexity of the Flood Directive	Interpretation difficulties and complexity of the Flood Directive will hinder its implementation
Willingness of actors (+)	Implies if an actor is eager to act upon the requirements of the Flood Directive	Based on the pro-active role of the Dutch government it can be expected that the willingness to conform to the Flood Directive is present and will stimulate the implementation process
Actors self-interest and goals (+)	A Member State will compare the consequences of the Flood Directive to its own political and material interests	The Flood Directive fits mainly the interests and goals of the Dutch government, which will stimulate the implementation process of the Flood Directive
Logic of appropriateness (+)	The actor determines if following the requirements of the Flood Directive is the right thing to do, based on their situation and identity	The Netherlands values the requirements of the Flood Directive as the right thing to do, which will stimulate the implementation process
Image EU (+/-)	The existing image regarding the EU in a Member State	When the image of the EU is positive in the Netherlands, than the implementation process will be more smooth
Political power Member State (+)	Participation and influence that a Member State has during the policy	The Netherlands participated highly during the policy making, so their

	making process of the Flood Directive	political power was high which will stimulate the implementation process
Activities of other Member States (+/-)	The response of other Member States towards the Flood Directive concerning for example the execution, interpretation and implementation	If other Member States are very ambitious, than this will influence the implementation in the Netherlands positively
Attribution of opportunity (+) or threat (-)	The process by which an actor interprets the Flood Directive as an opportunity or as a threat	If Dutch organizations perceive the Flood Directive as an opportunity, than this will stimulate its implementation and vice versa
Attribution of success (+) or failure (-)	The way an actor experienced the implementation of earlier Directives (as a success or failure) will influence the implementation level of the Flood Directive	If an organization experienced the implementation of other Directives as a success, than this will influence the implementation process positively and vice versa
Uncertainty (-)	Implies the doubts an actor could have related to all aspects of the Flood Directive	The higher an actor experiences uncertainties related to the Flood Directive, the more this will hinder the implementation process
Science (+)	Scientific research that contributes to knowledge necessary for a smooth implementation of the Flood Directive	Scientific research will stimulate the implementation of the Flood Directive
Participation (+)	The involvement of stakeholders during the implementation process	The process requirement of participation will increase the level of participation, which will stimulate the implementation process
Available resources (-)	Available resources are defined in this study as financial means, administrative means and manpower	The higher the availability of resources, the more easy the implementation process will be

Figure 7: Overview of factors possibly influencing the implementation process of the Flood Directive, their operationalization and the related hypotheses. (+ means a probable positive influence on the implementation process and – means a possible negative influence)

The first factor distinguished in the theoretical analysis was the *goodness of fit or misfit* with domestic policies. In this research this factor implies the extent to which the Flood Directive fits existing national practices and rules in the Netherlands. As can be derived from the content analysis, the Flood Directive does not require new norms which could conflict with domestic legislation. The Flood Directive only obliges procedural requirements and the main objective of managing future flood risks. Besides that, the Netherlands has already a lot of policies concerning risk management and they even already develop risk maps. However, those existing policies and plans should be adapted to the specific requirements of the Flood Directive. Although, in general it can be expected that due to the existing, advantaged risk management policies in the Netherlands and the procedural focus of the Directive, the fit with the Flood Directive will be quite high. This factor will be operationalized by the degree of fit or misfit of the Flood Directive with the Dutch regulatory

structure and the degree of influence (stimulating/hindering) of this fit or misfit on the level of implementation.

The goodness of fit or misfit is influenced by various factors, such as the *political culture* in a Member State. Political culture can be defined as the political values, norms and ideas in a country (Lampinen and Uusikylä, 1998, p.239). In this research it is argued that the political attitude of a country influences the implementation of the Flood Directive. The Flood Directive is a flexible, procedural Directive, leaving opportunities to adapt to the political culture of a Member State. Another important aspect according to political culture is that the Netherlands has a long history with water policies and all governmental levels are (partly) responsible for water management. It became clear that the Flood Directive requirements were very soon implemented in existing Dutch legislation (e.g. the ‘Waterwet’). Both are examples of the embeddedness of water policies in the Dutch political culture. Due to this embeddedness and the flexibility of the Flood Directive, the Dutch political culture will possibly influence the implementation of the Flood Directive positively.

Also the *fragmentation of the institutional structure* influences the goodness of fit or misfit. In this research the institutional structure is defined as the governance system in a Member State and fragmentation is defined as the degree of responsibilities dispersed between the different governmental actors (Börzel, 2003, p.33). It is assumed in literature that the more efficient the political institutions in a Member State are, the better they will succeed in implementing policy theories (Lampinen and Uusikylä, 1998, p.240). In the Netherlands the division of responsibilities to implement the Flood Directive is divided among multiple governmental levels. The division of the responsibilities is clearly described in plans of the Dutch national government and Rijkswaterstaat, however there is overlap and the division is complex. It can be expected that the complex division of responsibilities among various governmental levels, could hinder the implementation process of the Flood Directive (de Kruik and Silver, 2012).

Furthermore, the factor of *coordination* is influencing the goodness of fit or misfit and therefore also the policy implementation process. Coordination is defined in this research as ‘organization and alignment between actors for the implementation of the Flood Directive’. The Flood Directive requires and supports coordination between Member States, for instance due to the provision of a platform like Workgroup F. The complexity of implementation in the Netherlands is high, since various actors are involved. Coordination on national level is organized in several ways and will also stimulate the implementation of the Flood Directive. Existing organizations like Rijkswaterstaat and IPO support coordination. Some groups are also established to coordinate implementation, such as IMPRO. Therefore, it can be expected that the coordination in the Netherlands is well organized, which will stimulate the implementation level of the Flood Directive.

The factor *cooperation* will probably influence the level of implementation. Cooperation implies in this research the collaboration between governmental levels and other parties to implement the Flood Directive correct and in-time. The higher the cooperation between actors involved, the more smooth the implementation process will be. It is clear that there are some cooperation possibilities in the Netherlands, such as IPO (cooperation platform between provinces), Unie van Waterschappen (UvW) (cooperation platform for water boards), Vereniging van Nederlandse (rivier-) gemeenten (VNG, VNR) (platform for municipalities) and safety regions (platform between various parties). Furthermore, it is stated that the Flood Directive stimulates cooperation via workgroup F and via river basin commissions. So the hypothesis can be derived that various cooperation possibilities on

international and national level will stimulate the implementation of the Flood Directive in the Netherlands.

The last factor influencing the goodness of fit or misfit is the *flexibility* of the Member State. Flexibility is in this research defined as the possibility of a Member State to adapt to changes. The higher the flexibility, the easier a Member State can adapt to new EU policies and therefore, the implementation process will be smoother. Water policies are embedded in the Dutch national institutions and therefore the flexibility is expected to be low, which could hinder the implementation process.

Secondly, another main factor influencing policy implementation is *external pressures* that pull for or push against implementation of the Flood Directive. This factor is influenced by various factors, such as *political and societal support*, which is defined in this research as the acceptance of the Flood Directive by politicians and society. The Dutch government was one of the initiators for this Directive, which is an indication for high political support on national level. When looking at history, the Dutch society is aware of the risks of floods. According to this awareness, the political and societal support will probably be relatively high, stimulating the implementation of the Flood Directive. Yet, if support is relatively low, than it will be hindering the implementation process.

The political power from the EU is an external pressure that influences the implementation of the Flood Directive. Political power is determined in this research by the enforcement and sanctioning power of the EU. It can be assumed that the political power of the EU is relatively low and therefore, the hypothesis can be formulated that this could hinder the implementation of the Flood Directive.

Another probable influential factor is the *interaction with other policies*. This factor implies in this study the interaction of the Flood Directive with existing national and international regulations. Interaction is defined as the way in which other policies influence the implementation of the Flood Directive in the Netherlands. On international and European level there are already a lot of environmental regulations and water policies, like the WFD. The Flood Directive needs to be synchronized with other Directives, as is stated in the process requirements. In total, the Netherlands has various relevant water policies on multiple governmental levels, which will also influence the implementation process of the Flood Directive. Besides that, other general policies can affect the implementation. Therefore the hypothesis can be made that: due to the high level of existing water policies interacting in several ways with the Flood Directive on national and international level, the implementation process will become more complex.

The *content of Directives* is another factor expected to influence policy implementation. This factor relates in this research to the clarity, consistency, quality, understandability and complexity of the content of the Directive. The Flood Directive is mainly procedural and has quite vague objectives which can be interpreted in several ways. Interpretation difficulties and complexity of the Flood Directive will hinder its implementation.

The *willingness of actors* to conform to EU rules is distinguished as another factor influencing the implementation process of the Flood Directive. This factor implies if an actor is eager to act upon the requirements of the Flood Directive. It can be expected that the Netherlands is willing to conform, since they initiated the Directive and the requirements are in their interest. The willingness of actors on lower governmental levels should be derived from empirical research. Based on the pro-active

role of the Dutch government it can be expected that the willingness to conform to the Flood Directive is present and therefore will stimulate the implementation process.

There are various factors influencing the willingness of actors, such as the factor of *interactions between domestic actors*, which is in this research incorporated with the factor *cooperation*.

Another related factor is the *actors’ self-interest and goals*. This factor implies that a Member State will compare the consequences of the Flood Directive to its own political and material interests. The Flood Directive fits the interests of the Netherlands, for instance due to the solidarity principle and the fact that the Netherlands will be better equipped to floods. Therefore, the hypothesis can be derived that the Flood Directive fits mainly the interests and goals of the Dutch government, stimulating the implementation process of the Flood Directive.

Furthermore, the factor of *logic of appropriateness* was selected. This factor means in this study that an actor determines if following the requirements of the Flood Directive is the right thing to do, based on their situation and identity. The Netherlands agreed upon the Flood Directive and made various similar national regulations. Consequently it can be expected that the Netherlands values the requirements of the Flood Directive as the right thing to do, which will stimulate the implementation process.

The factor of the present *image* of the *EU* will also stimulate or hinder the implementation process of the Flood Directive. This factor relates to the existing image of the EU in a Member State. A positive experienced image of the EU will stimulate the implementation of the Flood Directive.

Also the *political power* of the *Member State* to influence the decision-making process of the Directive is a factor that influences the eventual implementation. This factor implies the participation and influence that a Member State had during the policy making process. The higher the political power to influence the Directive in the first stages, the higher the probable satisfaction of the Member State, so the higher the compliance and the smoother the implementation possibly will be. The Netherlands initiated this Directive and participated during the whole process, therefore the hypothesis will be that the political power during the decision-making process was relatively high, which will stimulate the implementation of the Flood Directive in the Netherlands.

Activities of other Member States can also influence the implementation process. In this study activities of other Member States are defined as the response of other Member States towards the Flood Directive for example concerning the execution, interpretation and implementation. If other Member States are very ambitious to meet the requirements of the Flood Directive, it can be expected that this will influence the implementation in the Netherlands positively. On the other hand, a slow response of other Member States could influence the implementation of the Flood Directive negatively.

The factor *attribution of opportunity or threat* was further distinguished. This factor is related to the process by which an actor interprets the Flood Directive as an opportunity or threat for realizing its own goals. It can be stated that the Dutch national government perceives the Flood Directive as an opportunity to manage transboundary issues based on the solidarity principle, which will stimulate the implementation process. The attribution of lower governmental levels should become clear during the empirical research phase.

A related factor that was selected is the *attribution of success or failure*. This factor implies that the way an actor experienced the implementation of earlier Directives (as a success or failure) will influence the implementation level of the Flood Directive. In general, the Netherlands successfully implemented other Directives and were seen as a frontrunner for environmental legislation, however, this is slightly changing during last years (Rood et al., 2005, p.3). The hypothesis can be made that if an organization experienced the implementation of other Directives as a success, then this will influence the implementation process positively.

Also *uncertainty* was selected as a factor that could hinder the implementation process. This factor implies the doubts an actor could have related to all aspects of the Flood Directive, such as interpretation uncertainties or uncertainties concerning the impact of climate change. The higher an actor experiences uncertainties related to the Flood Directive, the more this will hinder the implementation process.

This hindering factor of uncertainties can be limited by the factor of *science* via the provision of new knowledge. This factor is understood in this study as scientific research that contributes to knowledge necessary for a smooth implementation of the Flood Directive. More and reliable information will stimulate the implementation of the Flood Directive.

Also the factor *participation* is distinguished as factor that can reduce uncertainties and in general will stimulate the implementation process of the Flood Directive. Participation is defined in this research as the involvement of stakeholders (parties who have an interest in the Flood Directive and its requirements) during the implementation process. The Flood Directive requires broad and active public participation in all Member States. This process requirement will increase the level of participation, which will stimulate the implementation process of the Flood Directive.

Finally, the *available resources* of an actor will influence the implementation process. Available resources are defined in this study as financial means, administrative means and manpower. The EU will not make any type of resources available for Member States concerning the implementation of the Flood Directive. It can be stated that the higher the availability of resources, the more easy the implementation process will be. Related to the last factor, is the factor of *economic variables* and therefore they are combined in this research.

4.3 Conclusion

In this chapter the by literature research selected independent variables are operationalized and hypotheses are made concerning the expected outcomes of the survey and case-study research. It can be concluded that those factors almost certainly have both stimulated and hindered the implementation process. Yet the degree and type of influence differs probably. An overview of all selected factors, hypotheses and operationalization was presented in figure 7. The interview questions related to each factor are presented in the questionnaire in appendix 3 and the survey theorems in appendix 5. The first consist of mainly open questions, in order to derive objective and in depth data concerning the implementation process. Besides the questions concerning the factors selected, also open questions were asked regarding general aspects, such as experienced advantages and future expectations. Those aspects are not operationalized and provide only a general view regarding the attitude of the actor towards the Flood Directive. The survey consists only of closed

theorems to structure data processing and analysis, since the purpose is to test the generalizability of the case-study outcomes.

It should be stated that in this research the distinction between the selected factors is analytical, since in practice there will probably be interaction and coherence between factors that influence the implementation process. However, this will not be taken into account in this research.

Lastly, the importance of the factors is also an interesting research subject, since some factors will have a more significant effect on the level of policy implementation than others. The relative importance of stimulating and hindering factors will be operationalized during the interviews. Based on the answers of the respondent, the importance of each factor is visualized on a scale from 0 to 2. Whereby 0 implies no significant importance concerning the implementation process of the Flood Directive, 1 a significant influence and 2 a highly important factor regarding the determination of the policy implementation of the Flood Directive (appendix 3).

5. Implementation Flood Directive in the Netherlands

5.1 Introduction

This chapter focusses on the Flood Directive's level of implementation (dependent variable) and will answer the fifth sub-research question: *What is the current implementation level of the EU Flood Directive in the Netherlands?* To answer this question appropriately, general questions were asked during the interviews with stakeholders of the case-study research, which are summarized in appendix 3. Those questions are for example focusing on the progress of the implementation process, the implementation manner and the current implementation status. Firstly, the manner of implementation applied in the Netherlands is described in paragraph 5.2. After that, the current implementation status of the Flood Directive in the Netherlands is explained in paragraph 5.3. Finally, a conclusion is made regarding the current level of implementation at January 2013.

5.2 Mode of implementation in the Netherlands

The Flood Directive is in the Netherlands regarded as an instrument to decrease and manage future flood risks and as an important juridical instrument for international cooperation and alignment between Member States. The latter is especially important, since the Netherlands is the delta-area of Europe and is often called the '*drain of Europe*' (Rijksoverheid, 2010; van den Berg and Slager, 2012). Hence, the Netherlands occupy a proactive position in international river basin governance (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.27-28). Due to the fact that this Directive is mainly procedural, the requirements do not have a direct influence on the existing safety norms for flood risks in the Netherlands (van den Berg and Slager, 2012). The current division of responsibilities and administrative and political power in the water management field in the Netherlands will be pursued for the implementation of the Flood Directive (Rijksoverheid, 2010, p.35). This implies that both the national government (Ministerie van Infrastructuur en Milieu, Ministerie van Veiligheid en Justitie, Rijkswaterstaat, Inspectie Verkeer en Waterstaat and Deltacommissaris), provinces, water boards, municipalities (also VNG and VNR) and safety regions are jointly responsible for the implementation of the Flood Directive (see appendix 6 for specific roles) (STOWA, 2012, p.4). However, the minister of Infrastructuur and Milieu is the final responsible actor (Helpdesk Water, 2012d).

The Netherlands wields three principles during the implementation of the Flood Directive, namely a correct and in-time implementation of the requirements, the creation of added value for Dutch water policies and the management of flood risks (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.7; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.11). There are various opportunities to create this added value, such as the opportunity to strengthen international solidarity, to support current water policies related to flood management and to encourage coherent water policies (Ibid, p.16).

Two national teams are established to ensure a correct and in-time implementation. Namely, the Interbestuurlijke Projectgroep Implementatie Richtlijn Overstromingsrisico's (IMPRO), who is responsible for the process and administrative related alignment necessary for the implementation of the Directive in the Netherlands. IMPRO takes into consideration the interests of various actors. Moreover, they should guarantee international coordination (Alberts, 2013; Helpdesk Water, 2012d; Kors, 2013; Ministerie van Verkeer en Waterstaat: DG Water, 2008, pp.31, 45; STOWA, 2011, p.4).

Secondly, the 'coördinatiegroep nationaal and internationaal' are founded to ensure content related aspects of the implementation, such as coordinating the production of the flood management plans and maps (Helpdesk Water, 2012d; STOWA, 2011, p.4). The responsibility for the production is divided among four production groups: production team maps, plans, process and alignment (Helpdesk Water, 2012d).

5.2.1 Main obligations

The Netherlands did not execute the *first requirement*, the preliminary flood risk assessment, since the whole country can be identified as an area concerned with flood risks and possible risk areas were already identified. The decision to not execute the first requirement is based on article 13, section 1b of the Flood Directive, making it possible to skip this stage in case the relevance of flood maps and plans for an area was already clear from assessments earlier in time. Therefore, the Dutch scope of the Flood Directive is for the entire country, which is mainly based on risks from bigger water areas (e.g. North Sea, big rivers and IJsselmeer) (van den Berg and Slager, 2012; Rijksoverheid, 2010).

Main water system	Regional water system		
Rivers, sea and lakes	Small rivers	Remaining regional systems	Local systems
Area located within dike system	Transboundary	Regional weirs with standards	E.g. water on streets or due to the sewerage system
Area located outside the system of dikes	Not transboundary	Remaining weirs (without standards)	

Legend
Green: always included in plans and in principle on the maps
Light green: Included in plans when significant and in principle always included on the maps
Red: not included in both plans and maps (no significant flood risk)

Figure 8: scope ('toepassingsbereik') of the Flood Directive in the Netherlands
Original source: Ministerie van Infrastructuur en Milieu (2011)

According to the Netherlands, the scope (*'het toepassingsbereik'*) of the Flood Directive is based on the significance of potential flood risks, relating to the determination of types of flood risks that should be taken into account based on the Flood Directive. A difficulty is that the Dutch language makes a difference between 'wateroverlast' and 'overstroming', which are both covered by the English term 'flood'. 'Significant' is by the Dutch government determined from a society perspective and via various assessment characteristics, such as the chance on a flood, economical damage, potential victims, damage to the environment etcetera (Atsma, 2011; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.6; STOWA, 2011, pp.V,6,20-21). A potential significant flood risk can be defined as: *'a risk with a change on society impact and/or at least a few possible victims'* (Atsma, 2011). Hence, the Dutch government made the decision that the Flood Directive needs to be applied to three types of areas:

1. all areas that are protected by primary dikes
2. areas that are protected via standardized regional dikes
3. and unprotected areas in the neighborhood of primary dikes

Furthermore, unprotected areas within transboundary river systems should be taken into account if Belgium or Germany decide to make plans and maps for these water areas. Lastly, areas should be

taken into consideration if this will lead to a more complete and coherent map overview. An overview of this ‘toepassingsbereik’ is presented in figure 8. This determination means for example that floods from the sewer system or due to high ground water levels are not incorporated in the Dutch interpretation scope of the Flood Directive (Atsma, 2011; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.6; STOWA, 2011; van den Berg, 2013). This could be a problem if the European Commission requires a broader interpretation (Schout and Nollen, 2011, p.5).

Concerning the implementation of *requirement two* and *three* of the Flood Directive (the production of flood maps and plans), the Dutch government decided to use an inventory, sober and structural approach since the Netherlands already has various ambitious flood risk management plans and policies. On international level, the Netherlands will eradicate their ambitious water safety programs, since they are the ‘*best protected delta-area in the world*’ (Silver, 2013a). Furthermore, the Dutch government decided to implement the Flood Directive in a neutral way, which implies that the Netherlands will only conform to the minimum requirements, namely reporting only existing policies (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.25). The maps and plans will thus consist of a report of already existent information, data, policies and plans. A new aspect is the aggregation of those existing plans and policies (Alberts, Kors and Linsen, 2012; van den Berg and Slager, 2012; Rijksoverheid, 2010, p.5). At this moment, it is clear that flood maps can be used for various purposes, such as the development of new evacuation plans (van den Berg, 2013).

Basic data for the flood maps will be provided by water boards and provinces in the database Lizard Flooding, managed by IPO (Inter Provinciaal Overleg) (Rijksoverheid, 2010, p.5). The common management organization for provinces (GBO) is responsible for this database. The purpose of this database is to give citizens, administrations and organizations a better insight in flood risks. A significant advantage is that all information is uniform reported and managed for the whole country. Due to the Flood Directive, there is more time pressure to deliver data which is an opportunity (Klink, 2013). Besides this database, the Netherlands has already many modeling systems (GBO provinces, 2012; Lizard, 2012; Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.6). As well, the Dutch government made some flood risk maps on themes such as the depth of possible floods, like the Rhine Atlas. The hazard and risk maps that will be based on the Flood Directive will contain more themes. For instance, the flood hazard maps will cover the area at risk of flooding, maximum water heights, the speed of the water flow, time of arrival of first water, period of time that the water heights are rising, period of time of the flood, areas that are simultaneous vulnerable for floods and the sources of those floods. While the flood risk maps will cover the following themes: potential number of victims, type of economic activity in the area, the presence of IPPC installations, formally protected areas, potential of damage, the presence of vulnerable institutions and cultural or historical objects (Helpdesk Water, 2012b; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.37; Ministerie van Verkeer en Waterstaat: DG Water, 2010, pp.7, 15). In this way the Netherlands takes more themes into account than the mandatory themes of the Flood Directive (EXCIMAP, 2007, p.5). The Netherlands decided that the maps should especially contain a minimum of robust and trustful information for the users. However, the maps are based on modeling programs, which are a simplification of the real world and therefore, maps will always contain uncertainties (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.27). Existing participation systems, such as ‘risicokaart.nl’ will be used to publish the maps (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.8).

The Netherlands has already a lot of accurate policies, programs and plans concerned with flood risk management. To overcome duplication of work, the Netherlands decided to use existing policies,

plans and information for the flood risk management plans. The flood risk management plans will consist of an aggregation of a national and a regional part. Special attention should be paid to prevention, protection and preparedness, which can be seen as a boost for the Dutch 'meerlaagsveiligheid' plans (Rijksoverheid, 2010, p.13). Besides the national part of the plans (part B) that is written by each Member State individually, also an international part (part A) will be written for each transboundary river basin. One of the most important aspects of the plan is the measurement table, since this table expresses all Dutch measurements concerning flood risk management. After 2015, this table will form the basis for reporting and monitoring by the EU (Silver, 2013a). Besides, no new administrative consultation forums will be established for the consultation rounds of the plans, since current administrative structures of the WFD can be used, like the 'Regionale Bestuurlijke Overleggen' (RBO's) (STOWA, 2011, p.5). Besides that, an important topical Dutch development regarding flood management is the 'Deltaprogramma', which is a national program that will determine the future of Dutch flood risk management. Within this program, decisions regarding the future of Dutch flood risk management will be made around 2015 (Rijksoverheid, 2013a).

5.2.2 Implementation principles

Next to the main obligations, the Flood Directive requires implementation principles to be followed. The Netherlands is dealing with those principles in the following manner:

- *River basin management.* Current flood management in the Netherlands does not yet apply river basin management, while for example the Dutch management of water quality already applies management based on river basin districts. To conform to the Flood Directive this governance structure needs to be adapted (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.14) and the Netherlands decided to use the four river basin districts as main management units: Meuse, Rhine, Scheldt and Ems (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.27).
- *Risk approximation.* The Netherlands confirms to the principle of risk approximation, since an assessment is done concerning the potential risk areas in the Netherlands (Rijksoverheid, 2010).
- *Safety chain.* The Netherlands uses the Flood Directive requirements as an opportunity to get an overview of all layers of 'meerlaagsveiligheid' (Egas, 2013; Kors, 2013). However, not all safety layers are included in similar detail, for instance layer two and three are less included, which is a missed opportunity (Beeke, 2013).
- *Sustainability.* The Netherlands ensures the concept of sustainability and the synthesizing with other environmental Directives during the implementation of the Flood Directive (Rijksoverheid, 2010, p.10).
- The *solidarity principle* is of significant importance for the Netherlands as a downstream country and therefore the Netherlands will apply and support this principle individually and internationally in the river basin commissions, workgroup F et cetera (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.28).
- According to the *subsidiarity principle*, the Netherlands strives for retaining the flexibility to manage flood risks as provided in this Directive (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.29).

5.2.3 Process requirements

The Flood Directive obligates all Member States to consider process requirements. In this paragraph will be explained how the Netherlands deals with those requirements.

Public participation is necessary for the Netherlands to conform to the EU Flood Directive process requirements. Furthermore, public participation is useful to create enthusiasm and support for the implementation of the Flood Directive among all stakeholders. It will also create public awareness concerning the risks of floods. The involvement of stakeholders in the Netherlands is arranged by the ‘Algemene Wet Bestuursrecht’, the website ‘risicokaart.nl’ and ‘Helpdesk Water’. National and regional meetings are used to provide information concerning the Flood Directive and to create a broad involvement (Rijksoverheid, 2010, pp.24-25).

At this moment the development of plans based on the Flood Directive and WFD are still separate, however content related aspects are integrated. Furthermore, the cycles of both Directives cover similarly a six year program (Rijksoverheid, 2010, p.10; STOWA, 2011). River basin and risk management plans can be integrated after 2015 (Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.27).

To meet the process requirement of international coordination and alignment, the Netherlands is involved in various river basin commissions and platforms. For instance the Rhine commission, which can be seen as an example of good cooperation for the other river basin areas in the Netherlands (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.37).

5.3 Current implementation level in the Netherlands

Actors interviewed did not experience significant differences between parties or regions concerning the implementation state of the Flood Directive in the Netherlands. This paragraph describes the implementation state of the Flood Directive in the Netherlands by January 2013, and is based on the implementation level of the national part of the plans (part B), since the international parts (A) will pass along another trajectory, coordinated by the international river basin commissions (Silver, 2013a). There are small differences between parties on aspects of the implementation (van Berkel, 2013; Witter, 2013). For instance, the provinces of Overijssel, Zeeland, Zuid-Holland and Gelderland should still report some additional data, while other provinces did complete the provision of data (Productieteam kaarten, 2013). Specific cases that differ from the general state described in this paragraph will be addressed in chapter 6, 7 and 8.

By January 2013, the Flood Directive is implemented in the Dutch legislation and the responsible authorities are implementing the Directive concerning the production of flood maps and plans (Alberts, Kors and Linsen, 2012; de Kruik and Silver, 2012). The Flood Directive is implemented in the Netherlands via the ‘Waterwet’, ‘Waterbesluit’ and the ‘Regeling Risicokaart’. The responsible authorities for the production of maps and plans are determined in the ‘Waterbesluit’, part of the Dutch ‘Waterwet’ (Ministerie van Verkeer en Waterstaat: DG Water, 2010, p.8; Silver, 2013a). The requirements of this Directive are also part of the ‘Nationaal Waterplan’ (Rijksoverheid, 2010, p.11). Since 2010, the responsible governmental organizations are working together to implement the requirements of the Flood Directive (van den Berg and Slager, 2012; Helpdesk Water, 2012a; Ministerie van Infrastructuur en Milieu, 2010; Ministerie van Verkeer en Waterstaat: DG Water,

2008, p.9). Those requirements do not include new obligations for Dutch flood risk management (Silver, 2013a).

As described earlier, responsible actors within the Netherlands did not execute a preliminary flood risk assessment (*first requirement*).

Concerning the *second requirement* of the Flood Directive, the production of the flood risk and hazard maps, there are some small differences in the implementation stage, which is related to the contribution of the water boards and provinces (Segers and Bauwens, 2013). There are differences in time of data provision and in the quality of the data (Slager, 2013). Those differences are caused by for instance interest of the party, available data or the extent of the extra amount of work (van Berkel, 2013). In January 2013 the information and data for the flood maps is still in a collection phase. However, most water boards and provinces have finished the supply of data, so the maps are in a production phase (de Bijl, 2013; Robbemont, 2013; Silver, 2013b; Witter, 2013; van de Wouw, 2013). The provinces and national government are responsible for the coordination and production of the flood maps (Goudriaan, 2013; Segers and Bauwens, 2013). Deltares, an independent research institute, supports this production and secures the quality of data and maps (Slager, 2013). The consultation rounds for the maps will probably take place medio 2013, since the maps should be approved on administrative and official level before the ministry of Infrastructuur and Milieu can officially determine the maps (van Berkel, 2013; Kors, 2012; Ministerie van Infrastructuur en Milieu, 2013; Unie van Waterschappen, 2012c). It can be concluded that there is some delay in the production of the flood maps, though it is expected that the final deadline will be achieved (Silver, 2013). The maps will be made publicly available on December 22 2013, as is stated by the EU (Kors, 2012).

Especially, the flood risk management plans (*third requirement*) are for the whole country of the Netherlands in the same stage of the implementation process due to the fact that all four river basin areas follow the same time schedule (Segers and Bauwens, 2013). The formulation of plans is also easier and less work than the production of maps, since it contains only existing legislation and measurements (Krol and Piek, 2013) and the time span is longer. However, the input between parties differs on the level of detail and other aspects (van Berkel, 2013). The differences in reporting are caused by for instance interpretation and ambition of the reporter of the organization (Robbemont, 2013). All regional parties (water boards, provinces and safety regions) did summarize their goals, actions and other aspects concerning flood risk management in factsheets. The provinces coordinated this regional input and made ‘building blocks’ of set policies for the management of floods within their area. Eventually, those ‘building blocks’ form the basis for the production of the national flood risk management plans. The national government also produced a ‘building block’. The final plans are thus made by the production team plans on the national governmental level based on the input provided by regional governmental organizations (Goudriaan, 2013; Segers, 2011; Meertens and Silver, 2012; Witter, 2013), which can be seen in figure 9.

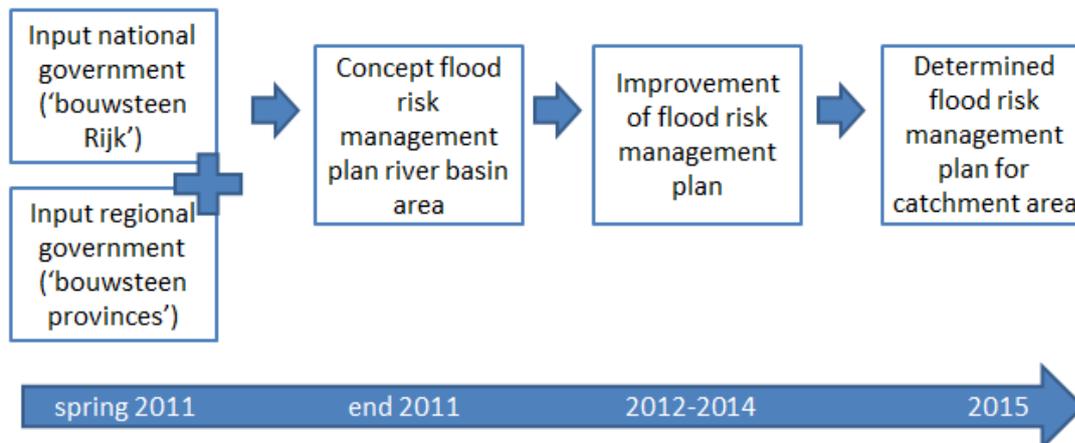


Figure 9: overview establishment trajectory of flood risk management plan
Original source: Segers, 2011, p.4

At this moment the first versions of the flood risk management plans and official consultation rounds are finished. Consultation rounds are used to check if the implementation of the Directive is on the right track and during those meetings regional parties get the opportunity to discuss the plans and control if their information is correctly reproduced (Kors, 2012; Meertens and Silver, 2012; Wondergem, 2013). During the first consultation in April 2012, regional parties (especially water boards) were critical concerning the level of detail of the plans and the volume of the reportage. Based on those critics, the production team adopted the plans. Last November and December, during the second consultation round, the critic was less and at this moment the discussions are mainly focusing on the general table of measurements, which summarizes all measurements in the Netherlands. It is not yet clear how safety regions are included in those consultation rounds. In February and March administrative consultation rounds will also take place on the flood risk management plans in the RBO's. Only the RBO Rhine-West is not willing to consult the plans of the Flood Directive, therefore the provinces in this area will take the responsibility of administrative consultation. The final plans will be publicly available for participation around January 2014 (Egas, 2013; Kors, 2012; Ministerie van Infrastructuur en Milieu, 2013; Silver, 2013a). It can be concluded that the plans are in an advanced stage and will probably be finished in time (Silver, 2013b).

Besides the main obligations, it is clear that the Netherlands also meets all implementation principles. Most process requirements are taken into account, however public participation is not yet included, since this will take place in the coming consultations (Kors, 2012).

5.4 Conclusion

In general, it can be concluded that the implementation of the Flood Directive in the Netherlands is on schedule. The current level of policy implementation is that the Flood Directive is implemented in Dutch legislation, requirement one is skipped and requirement two and three are in an advanced stage on almost all governmental levels. Only the production of the maps (requirement 2) deals with some small delays. Yet, the emerge of this implementation level is not analyzed in this chapter, because the progress of the implementation process will be described in the following chapters, taking into consideration the effects of hindering and stimulating factors selected and operationalized in earlier chapters.

6. Implementation in the Meuse catchment

6.1 Introduction

In this chapter the research outcomes of the Meuse case-study are presented. Those results are based on interviews with regional parties in the Meuse river basin, those parties are two provinces, five water boards, two safety regions and one municipality (see appendix 4 for detailed information). In this chapter firstly, the case-study area will be described. After that, general results concerning the implementation process will be presented in paragraph 3 to 7, followed by a paragraph regarding influential factors experienced by regional parties of the Meuse case-study area. Questions that were asked during the interviews to derive those research results are presented in appendix 3. In this chapter sub-question 6 will be answered: *Which factors hinder and/or stimulate the implementation process of the Flood Directive as experienced by regional organizations in the Meuse area?*

6.2 Characteristics of the Meuse area

The whole Meuse river basin area covers a part of France, Luxembourg, Belgium, Germany and the Netherlands (figure 10). The Meuse river in the Netherlands is around 250 km long and ends in the North-Sea. Cooperation agreements are made for this area due to the transboundary character of the river basin and date back from the year 1994. An example is the international Meuse Commission (Helpdesk Water, 2012e). The Dutch part of the Meuse basin consists of 7700 km², with approximately 3,5 million inhabitants (figure 11). The river basin has various functions, such as nature, recreation, agriculture and urban area. Especially, the agricultural sector is relatively highly presented (65 %) and consists largely of livestock. Besides that, the extraction of ground water in the Meuse area is of significant importance for the Netherlands (Ministerie V&W, VROM and LNV, 2009a, pp.28-29, 35). In this river basin the national government, four provinces, five regional management bodies of Rijkswaterstaat, seven water boards, safety regions and 114 municipalities are together responsible for the water governance (RBOM, 2012). The Meuse river is a rain fed river, leading to a high drainage of water in winter and a lower drainage during the summer (Natuur dichtbij, 2012; Rijkswaterstaat, 2011, p.27). Consequently, seven barrages are built to ensure minimum water heights for shipping (Ministerie V&W, VROM and LNV, 2009a, p.17; Rijkswaterstaat,

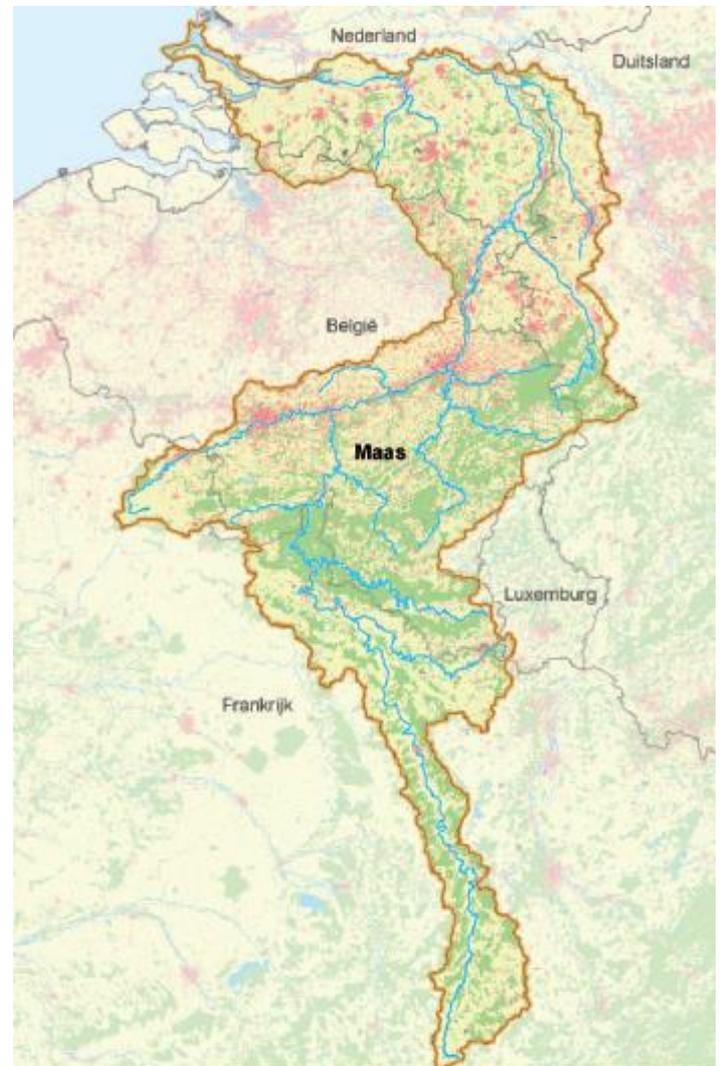


Figure 10: River basin area Meuse
Source: Ministerie V&W, VROM and LNV, 2009a, p.12

2011, p.27).

The soil of the area consists mostly of sand grounds and clay from the river and the sea. The river basin consists furthermore of a network of various tributaries and streams, such as the Dommel and the Aa (Ministerie V&W, VROM and LNV, 2009a, pp.16, 18) (figure 12). There are various protected areas in this river basin in accordance with existing EU Directives. An example is the Bird and Habitat Directive protecting 43 Dutch Natura 2000 areas in the Meuse river basin, like the 'Biesbosch', 'Hollands Diep' and 'Haringsvliet' (figure 13) (Ministerie V&W, VROM and LNV, 2009a, pp.26,31). Climate change is leading to challenges for this area. An example is the higher drainage level and the related chance on floods. It will also become more difficult to keep the freshwater in transitional areas around the coast, due to a rising sea level. Also the increase in temperature will cause difficulties concerning water quality in the Meuse river basin (Ministerie V&W, VROM and LNV, 2009a, p.18).

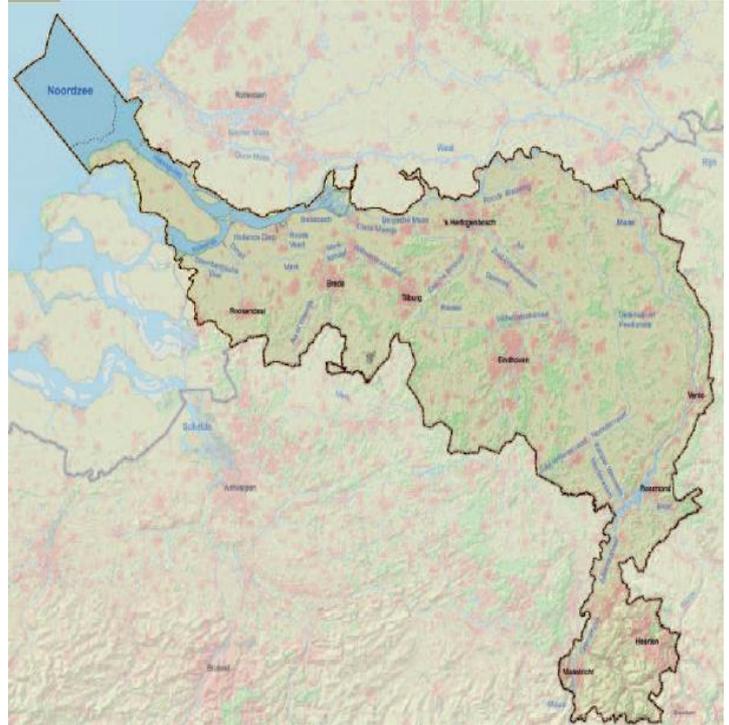


Figure 11: Dutch part river basin area Meuse
Source: Ministerie V &W, VROM and LNV, 2009a, p.16

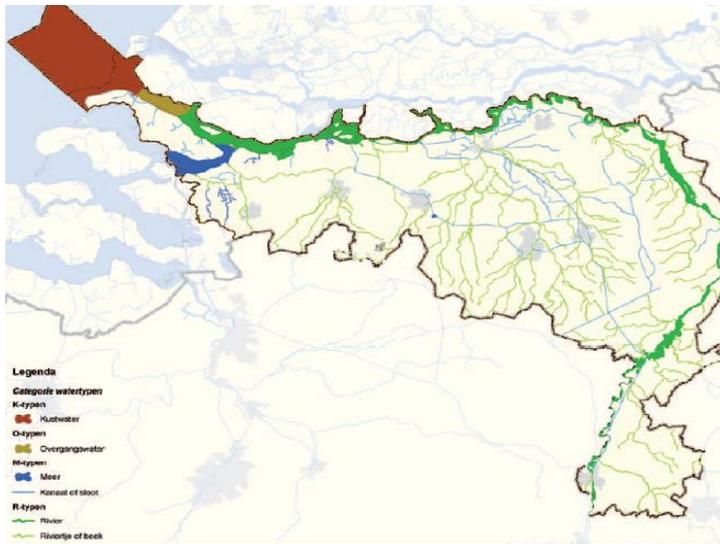


Figure 12: Type of water systems Meuse area
Source: Ministerie V&W, VROM and LNV, 2009a, p.21

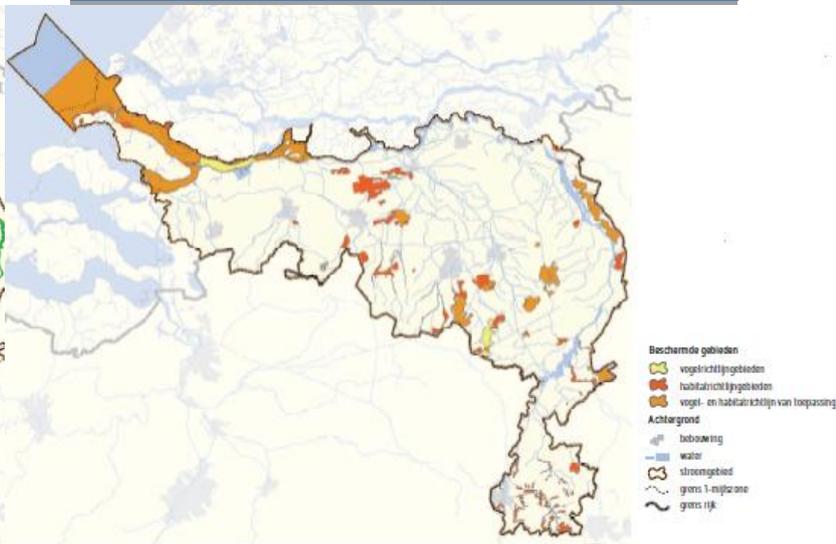


Figure 13: Habitat and Bird Directive protected area's Meuse
Source: Ministerie V&W, VROM and LNV, 2009a, p.33

6.3 Current implementation state

Concerning the current implementation state of the Flood Directive in this area, all five *water boards* have finished the input for the flood risk management plans some years ago. They have also recently finished the data provision for flood risk and hazard maps. There were some differences between water boards in time of finishing, caused by variation on the level of ambition, level of detail and the amount of data already available (de Bijl, 2013; Heijens, 2013; Taminiau and van Hal, 2013; Witter, 2013; van de Wouw, 2013). For instance, Roer en Overmaas placed all regional rivers on the map that have a potential risk for floods, while Peel en Maasvallei only mapped one regional river (Heijens, 2013; Taminiau and van Hal, 2013).

Both *provinces* in the Meuse river basin have finished the input ‘building block’ for the flood risk management plans some time ago (Goudriaan, 2013; Segers and Bauwens, 2013). This ‘building block’ as an in between step is experienced by water board Aa en Maas as ‘*not efficient and a duplication of work*’ (de Bijl, 2013). According to the province of Noord-Brabant, the production of the maps is going well regarding appointments that were made and they are at this moment assimilating the input of regional parties (Segers and Bauwens, 2013). The Province of Limburg has already finished the concept maps for the regional waters. The development of maps for the primary waters (Meuse) is the responsibility of Rijkswaterstaat (Goudriaan, 2013).

During the interviews with the *safety regions*, it became clear that they only have contributed by providing input for the ‘building blocks’ of the flood management plans. This input consists of a stock tacking on available measures and plans (Thissen, 2013).

6.4 Relevant actors and their roles

The role that regional governmental organizations play in the implementation of the Flood Directive varies. Firstly, it becomes clear that *municipalities* do not have any formal responsibility in the implementation process, however they have an interest in the process outcomes. During the whole implementation process the municipalities were scarcely involved, due to their low concerns and capacities (Gijzel, 2013; van Vliet and Tax, 2013). It is logical that municipalities do not have many responsibilities concerning flood risk management, because they execute only a facilitating and informative role regarding floods, focussing on practical measures such as the provision of sand bags and informing of inhabitants (van Vliet and Tax, 2013).

Furthermore, the formal responsibilities of *safety regions* are low regarding the implementation of the Flood Directive. This is related to the fact that safety regions execute a reactive role in flood risk management and are focussing on the third part of ‘*meerlaagsveiligheid*’: the control of disasters. Safety regions have a lot of expertise and knowledge on dealing with floods, producing flood risk maps and producing plans on dealing with floods (Bloemers, 2013; Thissen, 2013). Most contingency plans of safety regions are taken into account in the regional ‘building blocks’, like the plans of Brabant Midden West (Thissen, 2013). However, not all safety regions contributed to those ‘building blocks’, such as Limburg Noord. This is caused due to time and capacity constraints, since Limburg Noord and various other regions are still focussing on improving the organizational aspects of the recently established safety region structure (Bloemers, 2013). Interviewed safety regions see options to contribute more to the implementation of the Flood Directive. For instance, safety region Brabant Midden-West thinks that they should be more included in the network of partners. This should partly

be reached by more deployment of safety regions and via more active involvement organised by the national government and provinces (Thissen, 2013). Currently, there are contacts between the national government and the umbrella organization of the safety regions ('Landelijk Platform Risicoprofiel van de Veiligheidsregio's') to find an appropriate way to increase their participation level in the implementation process (Kors, 2013; Ministerie van Infrastructuur en Milieu, 2013). Similarly to municipalities, safety regions are focussing on local aspect of floods. Therefore, the relevance of reporting to the EU is lower for those organizations (de Bijl, 2013).

The formal role of *water boards* is elaborating the Flood Directive in order to provide information for the flood risk management plans and to provide data concerning regional waters for the production of the maps. Water boards also played a role during the start of the implementation process and had opportunities for participation in national discussions concerning the interpretation and scope of the Flood Directive (de Bijl, 2013; Witter, 2013). Not all water boards fully took this advantage, such as Roer en Overmaas and Peel en Maasvallei, who could not be present at all meetings due to a lack of time, capacities and travel distance (Heijens, 2013; Taminau and van Hal, 2013). However, their input is taken into consideration in meetings on provincial level. Another outcome is that water boards state that there is a lot of information available on for instance Viadesk to proactively follow the developments of the implementation process. Though, some water boards mention that this information is too general and too much, making it impossible to read all (Taminau and van Hal, 2013). Another reason for doing only the necessary actions is when the impact of the Flood Directive is considerably low for an area, which is the case for de Dommel, since they have only 20 km for which they should undertake action (van de Wouw, 2013). At this moment, water boards still have a role in the implementation process, due to the possibility to participate in consultation rounds concerning both maps and plans. However, again not all water boards are present at those meetings. Some water boards judge their role as minuscule, relating to the fact that only existing policies are reported, low ambitions of the water board or low capacities (Heijens, 2013; Taminau and van Hal, 2013). Water boards that took a more active role often had more interest in this Directive, due to for instance the presence of trans boundary waters (Witter, 2013).

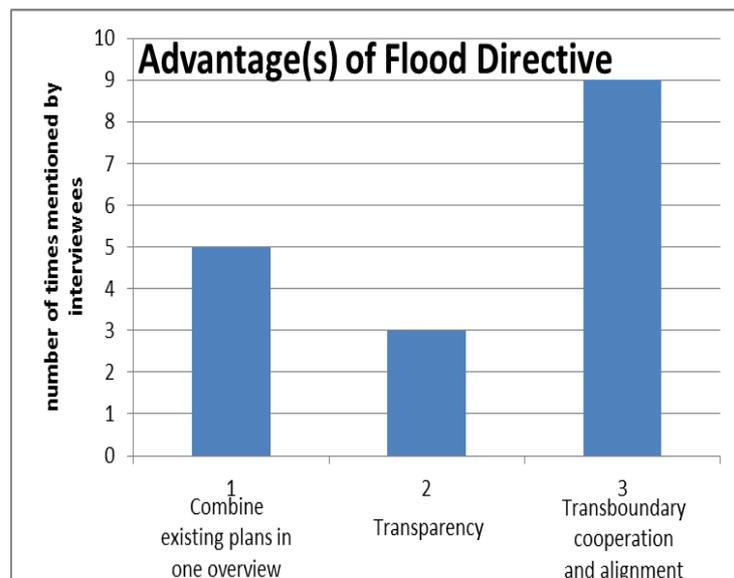
The *provinces* of Noord-Brabant and Limburg both played an important coordination role between regional parties and the national government. They are formally responsible for the collection of information and data for the 'building blocks' and the flood maps. Besides, they help to produce the flood risk and hazard maps. Both also attended to national meetings and organized information meetings on provincial level (Goudriaan, 2013; Segers and Bauwens, 2013). In this implementation process the province of Noord-Brabant played a special role as chairman of all provinces, in order to advocate the provinces' point of view (Segers and Bauwens, 2013). The province of Limburg played a special role too, since they were already involved during the creation of the Directive, due to their high interest regarding the effects of transboundary rivers (Goudriaan, 2013).

6.5 Experienced added value

In general, most regional parties are realizing the advantages of the Flood Directive for the Netherlands. The main aim of the Flood Directive, the solidarity principle to not pass any flood risks to other areas is mentioned very often (9 times) as becomes visible in figure 14 (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013;

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Figure 14: Added value of the Flood Directive as experienced by regional parties of the Meuse river basin.



Taminiau and van Hal, 2013; van Vliet and Tax, 2013; Witter, 2013; van de Wouw, 2013). Another positive advantage mentioned often by the interviewees, is that existing policies are summarized in one plan, which can give a clear overview on Dutch flood water policies, on actions of various organizations (Goudriaan, 2013; Heijens, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013) and could give an insight in possible gaps (de Bijl, 2013). Several parties also mention that another added value is the growing transparency towards society (Goudriaan, 2013; Witter, 2013). This could possibly increase awareness concerning flood risks (Witter, 2013).

Although, some parties do not experience advantages for their organization, such as water board Peel en Maasvallei (Taminiau and van Hal, 2013). An interesting outcome is the fact that safety regions Limburg Noord and Brabant Midden-West both see the added value of the maps and plans for their daily work, yet their role is relatively low. For instance, maps could give a better insight in flood risks and the plans an overview of what is already going on in the field (Bloemers, 2013; Heijens, 2013; Thissen, 2013)

6.6 Experienced progress of the implementation process

The progress of the implementation of the Flood Directive is assessed differently by regional parties. Most regional parties, like Province Limburg, Province Noord-Brabant, Brabantse Delta and Aa en Maas, are satisfied regarding the progress of the implementation (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013; Witter, 2013). Though, they mention that the process was not linear and delays were caused by for instance discussions on how the Directive should be implemented (de Bijl, 2013; Goudriaan, 2013; Witter, 2013). Various consultations did overcome ambiguities and also positive is the early start of the implementation process (Segers and Bauwens, 2013). Water boards Roer en Overmaas and de Dommel state that the development of the implementation process was suboptimal, caused by ambiguities at especially the start of the process and the one-sided choices made on national level. Those choices were made too far from the regional, practical level and are therefore often too abstract (Heijens, 2013; van der Wouw, 2013). Water board Peel en Maasvallei is not positive at all regarding the process: they experience the process as confusing due to ambiguities on for example the inclusion of regional waters, the overlap with current policies, national control and the low ambition level (Taminiau and van Hal, 2013).

6.7 Experienced cooperation and alignment with Member States

One of the Flood Directive's goals is to increase cooperation and alignment between Member States, to increase solidarity and decrease the passing of flood risks. According to water board Aa en Maas, international cooperation improved last years, however, this is not only caused by the Flood Directive since it is part of an already existing trend. Just recently Rijkswaterstaat, and indirectly the water boards, received information on water heights from France. Also EU interreg projects like AMICE and international river basin commissions contributed to the goal of international cooperation. This opinion is shared with the province Noord-Brabant, Brabantse Delta and Peel en Maasvallei, who state that mostly existing contacts are used for alignment concerning the Flood Directive (de Bijl, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013; Witter, 2013). An interesting outcome is that most regional institutions with direct transboundary regional waters, such as province Limburg, de Dommel and Roer en Overmaas, experience the Flood Directive as the main cause for an increase in cooperation with Belgium and Germany (Goudriaan, 2013; Heijens, 2013; van der Wouw, 2013). In particular, the interreg project FLOODWISE, initiated as test case for the Flood Directive, improved network contacts and sharing of models and knowledge. From this

project direct lessons are learned for the implementation of the Flood Directive (FLOODWISE, 2012; Heijens, 2013). Yet, there are also difficulties in cooperation with other Member States, caused by for instance a different division of governmental responsibilities, differences in standardization and varying interests (de Bijl, 2013; Segers and Bauwens, 2013; van der Wouw, 2013).

6.8 Expectations concerning the future

Regional parties in this case-study are overall positive regarding the future of the Flood Directive. Almost all institutions expect that the implementation process will be finished correctly and in time (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013; Witter, 2013). Both provinces state that communication and participation towards citizens needs to develop in the coming years (Goudriaan, 2013; Segers and Bauwens, 2013). Various parties also mention that it is still unclear how the plans and maps will be judged and enforced by the EU, causing uncertainties (de Bijl, 2013; van der Wouw). After finishing the plans and maps, probably lessons can be learned from other Member States (Witter, 2013). In future implementation cycles more uniformity between existing Dutch programs, the WFD and the Flood Directive is desirable (Witter, 2013; van der Wouw, 2013). Also, the inclusion of positive sharing of effects and financial exchanges between countries is hoped-for (Goudriaan, 2013; Heijens, 2013).

6.9 Factors influencing the implementation process

During the interviews, the regional parties of the Meuse case-study mentioned various factors that have influenced the implementation process in their opinion. The factors that came forward delayed or stimulated the process or influenced the choice for a relative low ambition level for the implementation, and have similarities with the factors distinguished in the earlier chapters. In figure 15 all factors distinguished in literature are summarized. With colours and numbers is illustrated how regional parties experienced the influence of those factors. From figure 15 it becomes clear that available resources, the attribution of other Directives' implementation as a failure, the willingness of organizations and the content of the Flood Directive were the most influential barriers. While the most influential stimulating factors were cooperation between parties involved, the similarity of interests of the organization and the Directive, the pressure of the EU and the degree of fit. In the text below all factors will be shortly summarized.

6.9.1 Description of hindering and stimulating factors

Figure 15 shows that all regional parties experienced that the extent to which the Flood Directive *fits existing national practices and the regional system* is highly influential for the implementation process. All mention that this is related towards the huge amount of existing policies and programmes in the Netherlands. Most parties state that this goodness of fit has stimulated the implementation process since this decreased the number of bottlenecks or problems (de Bijl, 2013; Goudriaan, 2013; Heijens, 2013; Witter, 2013). It is interesting to see that some of the parties experienced this fit with the Dutch regulation system as a hindering factor, since this has influenced the low, sober and efficient ambition level (Taminiau and van Hal, 2013; van der Wouw, 2013), leading to the fact that some parties experience the Flood Directive as a duplication of work (Segers and Bauwens, 2013). This is experienced as '*Dutch arrogance*', because there are still improvements possible so this implementation level is a missed opportunity (van der Wouw, 2013).

'A dive into Floods'

factor/regional party muese	water board Aa en Maas	water board Brabantse Delta	water board de Dommel	water board Peel en Maasvallei	water board Roer en Overmaas	province Limurg	province Noord-Brabant
degree of fit/misfit	2	1	2	2	2	2	1
political culture	x	x	x	x	x	2	1
fragmentation institutional structure	1	1	2	1	1	1	1
coordination	1	1	1	1	1	1	1
cooperation	1	1	1	1	1	2	1
flexibility	x	x	x	x	x	x	x
political support	1	1	2	1	x	1	1
societal support	0	1	x	x	x	0	0
political power of EU	x	1	2	1	x	1	1
interaction with other (national policies)	x	x	2	x	0	x	1
content Directive	1	1	1	2	2	1	1
willingness to conform	1	x	1	1	2	1	1
actors self-interst and goals	1	2	x	1	1	2	2
logic of appropriateness	2	x	x	x	x	x	x
image EU	x	x	x	x	1	1	2
political power NL	0	x	1	x	x	1	1
activities of other Member States	1	x	0	0	1	1	1
attribution of oppportunity/threat	1	x	x	1	1	2	x
attribution of succes/failure	2	2	2	2	2	2	2
uncertainty	x	1	x	x	x	x	x
science	x	x	x	x	1	x	x
public participation level	0	1	x	x	x	1	0
available resources	x	0	2	2	2	1	2

Legend	Differentiation between colors and numbers: both combined is one answer
stimulating factor	0= no or little influence on the implementation process
both stimulating/hindering or effect not clear	1= influence on the implementation process
hindering factor	2= strong influence on the implementation process
	x= inapplicable, no answer

Figure 15: factors influencing the implementation process (as distinguished from literature research) presented by how they are experienced by regional parties in the Meuse river basin.

The factor of *political culture* is only identified by the two interviewed provinces and both differ in their valuation of this factor as hindering or stimulating. The province of Noord-Brabant values the fact that the Netherlands has a long history with water policies as stimulating for the implementation (Segers and Bauwens, 2013), while the province of Limburg associates this political culture with the choice for a sober implementation level, hindering the implementation (Goudriaan, 2013).

According to the interviews the *fragmentation of the institutional structure* has definitely had a middling influence on the implementation process. However, this influence is experienced as both hindering and stimulating (figure 15). Some parties value the division of responsibilities as very successful (Witter, 2013). Stimulating is for instance that in this way various parties can give critical feedback to each other, that data is derived from the relevant levels which is time saving just like the division of work and that all water related issues are historically managed in this way (Goudriaan, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013). A negative aspect is the fact that various parties involved increase the complexity of the process and the number of discussions which is hindering (Goudriaan, 2013; Heijens, 2013; van der Wouw, 2013). Also within organizations, such as the Rijkswaterstaat 'waterdienst', various parties are involved, which could have caused the prolonged implementation process (Heijens, 2013). Another difficulty is that the boundaries of regional parties do not fit within each other. For instance, water board Rivierenland is located in four provinces (Segers and Bauwens, 2013).

Figure 15 shows that regional parties value *coordination* as influential on the implementation process, both in a positive and a negative way. In general, regional parties in the Meuse case-study state that the division of coordination between the national government and provinces stimulated the implementation (Goudriaan, 2013; Heijens, 2013; Taminiau and van Hal, 2013; Witter, 2013; van der Wouw, 2013). For instance, the province of Limburg has put a lot of effort in clarifying the implementation for water boards and other parties involved (Goudriaan, 2013; Heijens, 2013). Also the IMPRO project group has tried to keep every party on track and to clarify ambiguities (Segers and Bauwens, 2013; Witter, 2013). Furthermore, IPO and UvW have played an important, positive role in informing and coordinating their followers (Heijens, 2013; van de Wouw, 2013). Although, most parties mention also the difficulties of coordinating multiple organizations, which was hindering the implementation process (Witter, 2013). An example is that the national government focussed too much on the Directive's obligations, the international aspects and the format for reporting, instead of focussing on the consequences on national and regional level. This leads to top-down decision-making with missing practical aspects (Heijens, 2013; van der Wouw, 2013). For instance, Rijkswaterstaat could have created more awareness among regional parties regarding the consequences of the reporting towards Brussels and the benefits of the Directive (de Bijl, 2013). Also the fact that implementation was flexible for regional parties led to ambiguities among water boards, which could have been overcome by more control on the national level (Taminiau and van Hal, 2013). According to the province of Noord-Brabant, those small coordination problems are inherent to a first implementation round (Segers and Bauwens, 2013).

A related factor is *cooperation*. Figure 15 shows that all regional parties think this factor has generally had a positive influence on the implementation process. Most water boards and provinces value their mutual cooperation as positive (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013; Witter, 2013; van der Wouw, 2013). Moreover, the province of Limburg indicates all cooperation with parties involved (Rijkswaterstaat, IPO, water boards and safety regions) as above par (Goudriaan, 2013). Also the province of Noord-Brabant is positive concerning cooperation (Segers and Bauwens, 2013). Nevertheless, water boards indicate that there was not much direct cooperation between water boards and the national government (Witter, 2013).

Another interesting fact is that water boards hardly reciprocally cooperated during the implementation process, which was in their opinion not necessary since alignments were made via provincial meetings or meetings organized by the UvW (de Bijl, 2013; Heijens, 2013; Taminiau and van Hal, 2013; van der Wouw, 2013). Several parties mention that cooperation with safety regions and municipalities was very limited (Heijens, 2013; Segers and Bauwens, 2013). On the contrary, both type of organizations state that cooperation is going very well via for example working groups or covenants (Bloemers, 2013; Thissen, 2013; van Vliet and Tax, 2013).

The factor *political support* is valued by regional parties in the Meuse area as middling influential and partly as a barrier (figure 15). On the contrary, water board de Dommel and Brabantse Delta think that the political support was a positive drive to participate in the implementation of the Flood Directive (Witter, 2013; van de Wouw, 2013). Other interviews show that the political will was high at the start of the process, since the Netherlands initiated the Directive. However, during the implementation it became clear that the Directive also led to extra work and the focus changed from the positive effects, like solidarity, international cooperation and alignment, towards negative aspects, such as the sober implementation level and duplication of work, decreasing the overall political will (Goudriaan, 2013; Segers and Bauwens, 2013). Water board Peel en Maasvallei also states that the political will to implement the Flood Directive was higher on national level than on regional level (Taminiau and van Hal, 2013). Water board Aa en Maas argues that political will could increase by showing the benefits of the Flood Directive (de Bijl, 2013).

Regional parties in the Meuse argue that the factor of *societal support* was hardly influential on the implementation process (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013; Witter, 2013). Inhabitants of the Netherlands in general assume that their safety towards floods is guaranteed by the Dutch government. Besides that, societal attention is low nowadays, since no floods occurred last years. When attention and awareness among society increases, the priorities for flood risk management will increase and probably also the ambition level of the Flood Directive (de Bijl, 2013; Segers and Bauwens, 2013; van Vliet and Tax, 2013).

In general, water boards and provinces experience *political power of the EU* as a low or medium influencing and stimulating factor (figure 15). The regional parties do not experience much pressure from the EU, but appreciate the '*stok achter de deur*' (Goudriaan, 2013; Witter, 2013; van der Wouw, 2013). Also, '*The fact that it has an EU Directive status prioritizes flood management*' (Taminiau en van Hal, 2013). The province of Noord-Brabant argues that this could also be hindering, when reporting is negatively influenced by fearing enforcement (Segers and Bauwens, 2013).

The Flood Directive *interacts with other Dutch policies*, such as 'Nationaal Waterplan' (NWP) and WFD. Due to the sober implementation level, there is no alignment and synergy between those policies, which is a negative aspect (van der Wouw, 2013). The Province of Noord Brabant agrees that it would be good to have more coordination between the Flood Directive and the WFD in the future (Segers and Bauwens, 2013). Besides, interviewees state that there is only a limited overlap with the 'Deltaprogramma', since this program focusses on new developments (Heijens, 2013).

According to the regional parties the influence of *political power of the Netherlands* was restricted positive. The initiative of the Netherlands for this Directive led to a lot of influence concerning the content of the Directive, however, after a while the ambition of the Dutch government decreased (Segers and Bauwens, 2013). Sometimes, a reminder towards the initiating was used to prevent an even lower ambition level (Goudriaan, 2013). Water board de Dommel points out that this influence at the start could also be a hindering aspect, when the Netherlands overestimated the quality of

their existing flood risk management and only uses this Directive to reprimand others (van der Wouw, 2013).

Figure 15 shows that overall the regional parties agree that the *content of the Directive* did influence the implementation process negatively. Both provinces and most water boards state that the Directive is not completely clear in what should be undertaken, because there are not many strict compulsory aspects, leaving room for interpretation. This flexibility caused for instance the hindering discussions and delays (Goudriaan, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013). According to water board de Dommel; those ambiguities should have been clarified better at the start of the process by the national government (van der Wouw, 2013). Another difficulty related to this factor is interpretation differences of EU terms and existing Dutch terms (de Bijl, 2013). The flexibility of the Flood Directive has also positive aspects, because this space made the implementation process easier in comparison with the strict norms of the WFD, as water boards Roer en Overmaas and Brabantse Delta argue (Heijens, 2013; Witter, 2013).

The interviewed regional parties state that *the willingness of actors* to cooperate in the implementation process formed a barrier (figure 15). The willingness was high on the national governmental level. However, on regional level and especially among water boards the willingness to implement the Flood Directive was relatively low, since they did not see the usefulness and necessity of an European reporting obligation for existing policies (de Bijl, 2013; Heijens, 2013; Segers and Bauwens, 2013). Therefore, most water boards see the Flood Directive as a must and execute only obligated aspects (Taminiau and van Hal, 2013; van der Wouw, 2013). Conversely, water boards with direct interests, for instance due to transboundary waters were more willing to cooperate and some even argued for a higher ambition level (de Bijl, 2013). An interesting outcome is that the province of Limburg thinks that organizations within their province had a high willingness to cooperate. This is probably caused by the characteristics of the area since floods have often more impact in Limburg than in other Dutch areas (Goudriaan, 2013).

The willingness is relatively low among regional parties, though almost all regional parties declare that the Flood Directive is in line with the *interests and goals of their organization*, stimulating in their opinion the implementation (de Bijl, 2013; Goudriaan, 2013; Heijens, 2013; Witter, 2013). The province of Noord-Brabant even states that the Flood Directive helps to reach internal goals (Segers and Bauwens, 2013). Only water board Peel en Maasvallei states that they do not grasp the interest and added value, regarding their organization, of this Directive at all (Taminiau and van Hal, 2013).

Concerning the factor *logic of appropriateness*, water board Aa en Maas determines that the Flood Directive is logically to follow since it fits the current trend of transboundary river basin management (de Bijl, 2013). Other parties did not answer this question.

According to some regional parties, the overall tendency concerning the *image of the EU* is that the EU is exacting, costing for instance extra amounts of work. Besides that, some negative enforcement decisions (sanctions) are fresh in the Dutch memory leading to a fear for enforcement. This image hinders the implementation process (Goudriaan, 2013; Heijens, 2013; Segers and Bauwens, 2013).

In sum, regional parties conclude that *activities of other Member States* have had a limited influence on the Dutch implementation process (Heijens, 2013; Segers and Bauwens, 2013; Taminiau and van Hal, 2013; van der Wouw, 2013). Involved actors think that the Netherlands has chosen their own way of interpretation, for example Germany's level of implementation detail is higher (Heijens, 2013). Particularly on the national level, activities of other Member States are taken into

consideration (Segers and Bauwens, 2013). Those international consultations stimulated the implementation (de Bijl, 2013). An example of influencing activities are the incorporation of some transboundary regional waters by Germany and Belgium, that otherwise would not have been included in the Dutch scope (Goudriaan, 2013; Segers and Bauwens, 2013).

Most of the regional parties attributed the Flood Directive as *an opportunity instead of a threat*. The province of Limburg reviews this Directive as a positive chance for solidarity and coordination between Member States on the level of transboundary river basins. The Flood Directive is also attributed a chance to improve transparency of flood risk management towards society (Goudriaan, 2013). Water boards Roer en Overmaas and Peel en Maasvallei agree that the Flood Directive has positive chances, however, they state that the opportunities would have been higher with a less sober ambition level (Heijens, 2013; Taminiou and van Hal, 2013). Water board Aa en Maas mentions that although the Flood Directive has certainly positive chances, most organizations experience it as a burden due to other priorities and because they think that Dutch flood management is on order (de Bijl, 2013).

Overall the interviewed regional parties state that the factor *attribution of failure* was influential since experiences with the WFD, Flora and Fauna Directive and others, are one of the main reasons behind the sober and efficient attitude of Dutch implementation (de Bijl, 2013; Goudriaan, 2013; Heijens, 2013; Segers and Bauwens, 2013). Especially, the WFD is experienced as a ‘circus’ with a too high level of detail that has cost too much effort and which is enforced very hard by the EU (de Bijl, 2013; Goudriaan, 2013; Heijens, 2013; Taminiou and van Hal, 2013). At the same time, water board Brabantse Delta passes through the negative experiences from the WFD as a positive input for the implementation of the Flood Directive, since important and stimulating lessons were learned (Witter, 2013). Contra dictionary, water board de Dommel thinks that not enough lessons are learned from the WFD implementation, because otherwise the implementation of the Flood Directive would have been smoother. An example of a lesson is more clear communication with all levels from the start of the process (van der Wouw, 2013).

Brabantse Delta states that flood modelling always contains *uncertainties*, which can be a barrier for the production of maps. Uncertainties concerning climate change did not play a role in the implementation of the Flood Directive, since various scenarios were taken into consideration (Witter, 2013). *Science* can be seen as a solution for uncertainties. However, Roer en Overmaas states that the process focus is sometimes too scientific, leading to a gap with practice (Heijens, 2013)

The factor of *public participation* had only a low influence on the implementation process of the Flood Directive, since only existing plans are reported and participation is not necessary at this stage of the process (de Bijl, 2013; Goudriaan, 2013; Segers and Bauwens, 2013; Witter, 2013). So informing of citizens and citizen groups is sufficient (de Bijl, 2013). Citizens will have an opportunity to participate in consultation rounds at the end of the process, however it is not yet clear how this will work in practice (Goudriaan, 2013; Segers and Bauwens, 2013; Witter, 2013). Moreover, the interest among citizens is relatively low (de Bijl, 2013). Nevertheless, the opinion of the public is indirectly taken into consideration via consultation rounds of institutions (Goudriaan, 2013).

The factor (*lack*) of *available resources* (in particular related to time and capacity constraints) is experienced by most parties as significant hindering the implementation process and especially regarding the choice for a sober and efficient implementation style (Heijens, 2013; Segers and Bauwens, 2013; Taminiou and van Hal, 2013; van der Wouw, 2013). Especially, safety regions could have been better involved if they had more capacities (Bloemers, 2013; Goudriaan, 2013; Thissen,

2013). The province of Limburg and water board Brabantse Delta did not experience this factor as influencing, since in their opinion not many extra resources were necessary (Goudriaan, 2013; Witter, 2013).

The final external influencing factor distinguished in literature was the *flexibility* of the Member State. None of the regional parties mentioned this factor as influential.

6.9.2 Additional factors

Other negative factors mentioned by the regional institutions in the Meuse river basin, that have influenced the implementation process, but were not distinguished from literature research are:

- River basin management is still in a start-up phase and the autonomy of individual countries counteracts on a river basin plan. When the added value of river basin management becomes more clear, than there could come more uniformity between the plans of individual countries. Related to this barrier is the positive factor that the Netherlands is eager to stimulate river basin management, since that is in the interest of this downstream country (de Bijl, 2013).
- For water board de Dommel the strict enforcement of national deadlines is partly seen as a barrier. Because new data for their area becomes available this year (2013), while the deadline to supply data was the end of 2012. Therefore, data supplied is not actual and dates back to 2005. Rigidity of focussing on the supply of data is getting more emphasis than the original purposes of the Directive (van der Wouw, 2013).
- Another hindering factor is that the criteria of neighbouring countries to take regional waters into account are not clear. Therefore, the understanding of the relevance of incorporation is missing (Taminiau and van Hal, 2013).
- Many regional parties indicate that not knowing what will happen with the reported information and data in Brussels is experienced as a barrier for the implementation process (de Bijl, 2013; Taminiau and van Hal, 2013; van der Wouw, 2013).

The institutions from the Meuse river basin mentioned also two other positive factors that did not come across during the literature research. Those are:

- The maps and plans can be used for several purposes alongside of the reporting towards Brussels, such as risk communication towards citizens, on risicokaart.nl and to inform other organizations (de Bijl, 2013). However, at this moment risicokaart.nl is not yet clear enough towards citizens (van der Wouw, 2013).
- The implementation process is started betimes, so there is enough time to produce data, maps and plans (Segers and Bauwens, 2013).

6.10 Conclusion

In this chapter the research results of the Meuse case-study were presented and it can be concluded that the implementation process overall was not linear and sometimes even sub-optimal due to delays and discussions. The progress of the process was influenced by various factors that were experienced differently by the regional parties, for example some factors were valued as significant stimulating variables, while other parties valued the same factor as a hindering variable. For instance, the sober ambition level is valued by some parties as a missed opportunity, while others think that this is a logical implementation approach. From the interviews it becomes clear that this level of ambition is established due to negative experiences with mainly the WFD, a low willingness and enthusiasm of regional parties, low availability of resources and the goodness of fit with existing flood policies. Other experienced hindering factors are the information provision and restricted

coordination by the national government, the low participation level of municipalities and safety regions, low political support and the political culture, the missing synergy with other policies, fragmentation of the institutional structure, the flexibility of the Directive’s content, uncertainties, and the related ambiguities and the image of the EU. The implementation of the Flood Directive is stimulated by the following factors: coordination of the provinces, political power of the EU, goodness of fit, the attribution of opportunity, cooperation between parties involved and with neighbouring countries, various meetings, the division of responsibilities, political culture, activities of other Member States, the fact that the Netherlands initiated this Directive and the overlap with the self-interests of actors involved. The actors did not experience flexibility, logic of appropriateness, science, public participation and societal support as important influential factors. In total, most parties realize the advantages of the Flood Directive for the Netherlands, yet are missing the usefulness for their individual organization, which could also be hindering. Though, all are positive concerning the future implementation of this Directive.

7. Implementation in the Rhine-west catchment

7.1 Introduction

In this chapter the research results of the Rhine-west case-study are presented. Those outcomes are based on interviews with four provinces, eight water boards and two safety regions (appendix 4). In this chapter firstly, the case-study area will be shortly described in paragraph 7.2. After that, general results concerning the implementation process will be presented in paragraph 7.3 to 7.7, followed by a paragraph regarding influential factors experienced by regional parties of the Rhine-west case-study area (7.8). Questions that were asked to derive those research results are presented in appendix 3. In this way sub-question 7 will be answered: *Which factors hinder and/or stimulate the implementation process of the Flood Directive as experienced by regional organizations in the Rhine-west area?*

7.2 Characteristics of the Rhine-west area

The river the Rhine flows approximately 1320 kilometers from the Swiss Alps to the North-Sea, through parts of Switzerland, Liechtenstein, Austria, France, Germany and the Netherlands (figure 16) (van de Ven, 2004, p.28) and thus crosses some of the most populated and industrialized areas in Europe (Lindemann, 2008, pp.127-128). The river basin of the Rhine consists of 185.000 km² (Geolution, 2012; van de Ven, 2004). The water drainage is on average 2200 m³ per second, consisting mainly of melt water (Nederlands watermuseum, 2009). Areas within the river basin are protected based on European Directives. There are for example 110 areas protected in the Dutch part of this river basin concerning the Bird- and Habitat Directive (Ministerie V&W, VROM and LNV, 2009b, p.32). This river has a long history with water pollution and quality problems, since waste water of 50 million people and large chemical industries and mines was dumped into the river. Due to those problems, the Rhine river has an international regime cooperation that dates back to 1963: the convention on the international commission for the protection of the Rhine against pollution (Bern Convention). Since then various international cooperation structures were formed, such as the Rhine Action Program (1987) and the Rhine Convention (1998) (Lindemann, 2008, pp.127-128). Also, intensive bilateral cooperation exists between the Netherlands, Nordrhein-Westfalen and Niedersachsen (Ministerie V&W, VROM and LNV, 2009b, p.11). Various scholars state that cooperation in the Rhine river basin is an example of a success story of regime formation



Figure 16: overview river basin area Rhine
Source: Ministerie V&W, VROM and LNV, 2009b, p.12

(Lindemann, 2008). This cooperation will become even more important, because climate change will increase rainfall patterns and therefore the amount of water in the river Rhine will rise. Drainage of water towards the sea will become more difficult due to rising sea levels (Ministerie V&W, VROM and LNV, 2009b, p.17).

The Rhine enters the Netherlands at Lobith, where the highest peak discharge of the total river basin occurs (van de Ven, 2004, p.31). Since the river basin of the Rhine covers a large part of the Netherlands, it is divided into four sub governing areas. Regarding the research scope, only the Rhine-west area will be studied in this research as the second case study. Rhine-west consists of the area between Germany and the Dutch coast (figure 17) and half of the Dutch inhabitants live in this mostly urban area, which is called the 'Randstad' (Grontmij, 2012; Ministerie V&W, VROM and LNV, 2009b, p.20), and is also an important area for the Dutch economic sector (Ministerie V&W, VROM and LNV, 2009b, p.39). The institutional, responsibility structure of the Rhine-west area is divided among various national governmental parties, four provinces, eight water boards and around 200 municipalities (Helpdesk water, 2012f).



Figure 17: Sub-governing areas in the Dutch Rhine area
Source: Ministerie V&W, VROM and LNV, 2009b, p.16

7.3 Current implementation state

The current implementation state in the Rhine-west area is quite similar to the Meuse river basin. The *water boards* in this area all state that they have finished the provision of information and data for both the flood risk management plans and maps (de Groot, 2013; Komen and Boomgaard, 2013; Meertens, 2013; Neijenhuis, 2013; Robbemont, 2013; Vonk, 2013). By January 2013, they are mainly focussing on controlling and judging the content and quality of the concept maps and plans (Neijenhuis, 2013). Also the *safety regions* finished the provision of information for the flood risk management plans (Beeke, 2013; Kamps, 2013). Besides that, the *provinces* of Utrecht, Noord-Holland and Zuid-Holland also finished the input for the maps and plans (Egas, 2013; Krol and Piek, 2013; Lucas, 2013). Only, the province of Gelderland still needs to provide some data necessary to produce the flood maps. This concerns data for a few formal regional and mainly transboundary waters. The reason that the most extreme scenario's in those areas are not yet provided is because of the alignment with Germany and due to a lack of capacity to make existing data applicable for the Flood Directive (Hoppenbrouwers, 2013). Yet, according to the 'production team maps' also the province of Zuid-Holland needs to provide some additional data for regional weirs (Productieteam kaarten, 2013).

7.4 Relevant actors and their roles

The role of *municipalities and safety regions* is relatively small, similar to the description in the Meuse chapter. In general, safety regions only provided the necessary information for the flood risk

management plans towards the provinces and executed a background role (Beeke, 2013; Kamps, 2013). The safety region of Utrecht played a more extensive role, since they represented the regions in the 'productieteam plannen' (Beeke, 2013). The role of safety regions could have been more extensive, if advantages were higher and expectations more clear (Beeke, 2013; Kamps, 2013).

Also in this case-study, *water boards* mainly executed the formal role of providing information and data on measures, policies and flood risks in their area. Water board van Rijnland and Delfland perceive this as their only role. Nevertheless, water boards also had a role during the start of the implementation process, by representing their interests and opinion via the UvW (de Groot, 2013; Komen and Boomgaard, 2013; Meertens, 2013; Neijenhuis, 2013; Nurmohamed, 2013; Robbemont, 2013; Vonk, 2013). By January 2013, water boards of Rhine-west still participate through consultation rounds (Robbemont, 2013; Meertens, 2013), however according to Stichtse Rijnlanden this influence is relatively low because many parties are involved and the process is already in an advantaged stage (Neijenhuis, 2013). During those rounds, water boards check for example if maps and plans fulfil their expectations, if data is correctly assimilated and if it is practical for the future (Vonc, 2013). Waternet mentions as well that the role of water boards varied highly based on their level of involvement and participation (Meertens, 2013).

The *provinces* in this area also executed a role of data and information provision towards the national government. However, their main task was similar to the Meuse provinces: to coordinate the regional water managers and to aggregate their information into one 'building block' necessary for the national flood risk management plans. Therefore, the provinces can be seen as coordinators of the regional parties (Egas, 2013; Hoppenbrouwers, 2013; Krol and Piek, 2013; Lucas, 2013). The provinces still have a role in the consultation rounds, yet this is relatively low in comparison with the years before. The province of Utrecht played a special role, representing the provinces and IPO in various teams (Egas, 2013).

7.5 Experienced added value

Safety region Utrecht mentions that none of the safety regions in the Netherlands experience the usefulness and necessity of the Flood Directive, because of the sober implementation level (Beeke, 2013). Gelderland Zuid agrees that the added value for safety regions is very low (Kamps, 2013). Also water board van Delfland and the provinces of Utrecht and Zuid-Holland agree that the added value is limited, also because the Netherlands had already high quality flood risk management (Egas, 2013; Krol and Piek, 2013; Nurmohamed, 2013). All other regional parties are more positive on the advantages of the Flood Directive for the Netherlands, though most water boards and some provinces mention that the added value for organizations individually is relatively low (de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Neijenhuis, 2013; Yska, 2013; Vonk, 2013). It is interesting to note that these are mainly parties that have no or only a few transboundary water issues.

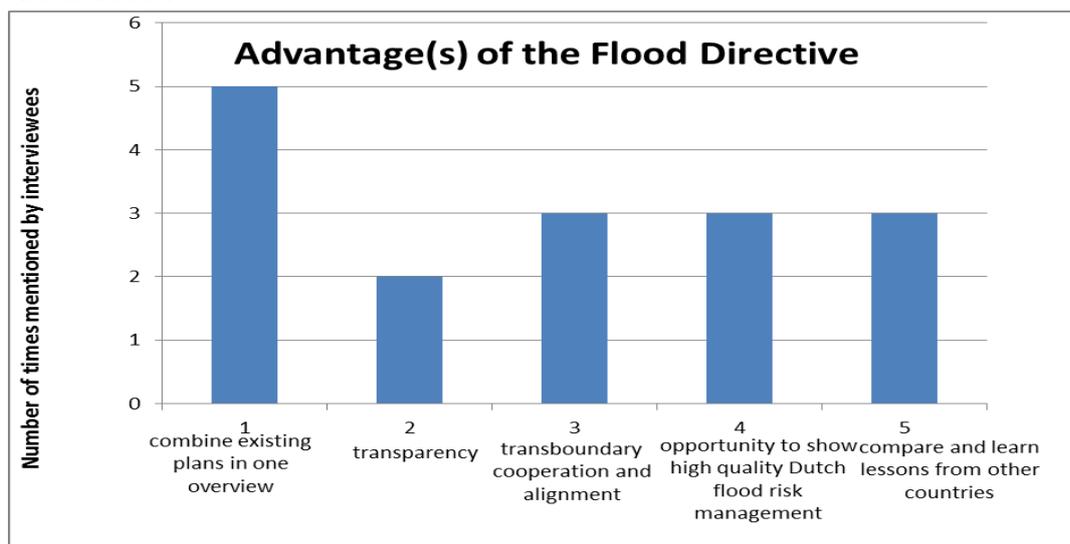


Figure 18:
Experienced advantages Flood Directive in Rhine-west case-study area

In figure 18 the experienced advantages of the regional Rhine-west parties concerning the Flood Directive are shown. The most often mentioned advantage of the Flood Directive is that reporting of existing policies provides a clear overview on the current state of Dutch flood risk management, which creates awareness (Komen and Boomgaard, 2013; Lucas, 2013; Meertens, 2013). Concerning this aspect, especially the national database is seen as a significant advantage (Hoppenbrouwers, 2013; Vonk, 2013). It is interesting that the main objective of the Directive, namely the solidarity principle, is only experienced as a positive contribution by three out of fourteen interviewed actors (de Groot, 2013; Yska 2013; Vonk, 2013). However, three more parties state that lessons can be learned from other Member States. Yet, if and how this alignment will take place is not yet clear (Komen and Boomgaard, 2013; Neijenhuis, 2013; Vonk, 2013). Another added value of the Flood Directive experienced by two regional parties is communication and transparency towards citizens (de Groot, 2013; Meertens, 2013). It is interesting that some parties value the Flood Directive mainly as an opportunity for the international appearance of the Netherlands, showing Dutch high quality water governance (Komen and Boomgaard, 2013; Nurmohamed, 2013; Robbemont, 2013). Additionally, water board Hollands Noorderkwartier states that a positive aspect is that this Directive pushes the execution of flood risk management policies (Komen and Boomgaard, 2013). Another outcome is that some parties, like water board Hollandse Delta, state that there would probably be more advantages if the Netherlands had chosen for a higher implementation ambition level (Robbemont, 2013). The added value could still become higher in the opinion of the province of Utrecht, if the gaps and possibilities that become clear from the flood risk management plans are tackled in for instance the ‘Deltaprogramma’ (Egas, 2013).

7.6 Experienced progress of the implementation process

An interesting outcome is that most regional parties in the Rhine-west area value the implementation process negatively: as slow, laborious and *‘a searching process with many (unnecessary) recurring discussions’* (de Groot, 2013; Hoppenbrouwers, 2013; Kamps, 2013; Komen and Boomgaard, 2013; Meertens, 2012; Meertens, 2013; Neijenhuis, 2013; Nurmohamed, 2013; Vonk, 2013). The process was iterative and had ups and downs, which is inherent to the implementation of a new Directive (Komen and Boomgaard, 2013; Robbemont, 2013). Water board Stichtse Rijnlanden points also to the fact that the process was fragmented (Neijenhuis, 2013). Water boards Hollands Noorderkwartier and Rivierenland emphasize that not all developments and decisions in the process were clear, there were a lot of ambiguities among water managers and that an overview was missing. Nevertheless, they state that there were enough opportunities to be better informed concerning the process for example via Viadesk, yet this was too much time consuming (Kamps, 2013; Komen and Boomgaard, 2013; Vonk). Safety region Utrecht even describes the implementation process as *‘a huge dark, grey cloud floating above us, while we don’t know the current and final destination’* (Beeke, 2013). The province of Gelderland states that the tang of the iterative, searching implementation process is still perceptible in the final implementation stage, such as in the discussions regarding the table of measurements (Hoppenbrouwers, 2013). The province of Noord-Holland mentions also the positive effects of the slow implementation process, namely that the process is carefully performed (Lucas, 2013). Only the province of Zuid-Holland is mainly positive on the implementation process and argues that agreements regarding the implementation were clear (Krol and Piek, 2013).

7.7 Experienced cooperation and alignment with Member States

For most parties within the Rhine-west region, the Flood Directive’s goal of improving cooperation and alignment with other Member States is not really important, because the effects of passing flood risks are not directly perceptible in their governing areas, such as in the polders in the North-West.

Therefore, the Flood Directive did not influence cooperation of most institutions in this area with parties in neighbouring countries. Still cooperation on European level is valued as positive, since most parties agree that lessons can be learned from other countries and that transboundary governance is highly significant in the Dutch borderland (Komen and Boomgaard, 2013; Neijenhuis, 2013; Robbemont, 2013). Water board Rivierenland also mentions that the contacts with Germany concerning flood risk management were already present (Vonk, 2013).

7.8 Expectations concerning the future

All interviewed actors think that the flood risk maps and plans will be reported to Brussels in time and no new threats are expected (Egas, 2013; de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Lucas, 2013; Meertens, 2013; Neijenhuis, 2013; Yska, 2013). Most of the work still needs to be done for the flood maps (Lucas, 2013). Many parties even state that the next implementation cycle can be used to include more in the flood risk management plans (Lucas, 2013; Vonk, 2013). For instance, the Flood Directive could be used to adjust multiple, overlapping water policies in the Netherlands (Robbemont, 2013). Also, the 'Deltabesluiten' from the 'Deltaprogramma' in 2015 could be incorporated in the follow up cycles (de Groot, 2013; Meertens, 2013). Regional parties are curious regarding the maintenance of the maps and plans by the EU (de Groot, 2013; Meertens, 2013) and how they will be used by water managers in Europe (Hoppenbrouwers, 2013).

7.9 Factors influencing the implementation process

Regional parties in the Rhine-west river basin experienced various hindering and stimulating factors during the implementation process. In figure 19 all factors distinguished in literature are summarized and with colours and numbers is illustrated how the regional parties experienced the influence of those factors. From this figure it becomes clear that the most important barriers in the implementation process were the interaction of the Flood Directive with other policies, content of the Directive, image of the EU, attribution of threat and failure and a lack of available resources. On the other hand, the most significant stimulating factors experienced were the degree of fit with Dutch policies, cooperation during the implementation process and similarities of interests and goals. Factors that had both a high positive and negative influence were the fragmentation of the institutional structure, coordination and political support.

7.9.1 Description of hindering and stimulating factors

All Rhine-west regional parties describe that the Netherlands has already a lot of policies which are largely in line with the Flood Directive. From figure 19 it becomes clear that all regional parties think that this *goodness of fit* has had a relative high influence on the implementation process. Most of the interviewed actors state that this factor had a positive, stimulating effect on the implementation, since our water history facilitated the implementation process and no new, time-consuming policies were made. This goodness of fit makes the Netherlands eager to show their water management qualities (de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Krol and Piek, 2013; Lucas, 2013; Robbemont, 2013; Vonk, 2013; Yska, 2013). The province of Noord-Holland and Zuid-Holland state that this fit indeed caused the described positive effects, while on the other hand it also had a hindering influence. The large amount of existing policies and programs led for instance to diverse definitions, facilitating the hindering and delaying discussions (Lucas, 2013; Neijenhuis, 2013). For instance, there are differences between definitions applied by the Flood Directive and by the Dutch strategy 'Meerlaagsveiligheid' (STOWA, 2011, p.3). There was also a *misfit* between Dutch policies and the Flood Directive, since the latter is focussing on river basin management, while the Dutch water governing system is based on historical governing boundaries such as 'dijkkringen' (Krol and Piek, 2013; Ministerie van Verkeer en Waterstaat: DG Water, 2008, p.26). Another aspect is that

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factor/regional party	Rhine-west	water board van Delfland	water board Hollands Noorderkwartier	water board Hollandse Delta	water board van Rijnland	water board Rivierenland	water board Schieland en Krimpenerwaard	water board Stichtse Rijnlanden	water board Waternet	province Gelderland	province Noord-Holland	province Utrecht	province Zuid-Holland
degree of fit/misfit	1	2	2	1	2	2	1	1	1	2	1	1	2
political culture	x	x	x	x	x	x	x	x	x	x	x	x	x
fragmentation institutional structure	1	2	2	2	2	1	x	2	1	2	x	x	1
coordination	1	x	1	1	1	1	1	1	1	1	2	1	2
cooperation	x	2	1	2	1	1	1	2	1	2	2	2	1
flexibility	x	x	x	x	x	x	x	x	x	x	x	x	x
political support	x	0	x	1	1	1	x	1	1	1	1	1	1
societal support	x	x	x	x	x	x	x	x	x	x	x	x	x
political power of EU	1	2	1	0	1	1	x	2	1	1	x	1	x
interaction with other (national policies)	x	x	x	x	1	1	x	1	1	1	x	1	1
content Directive	1	2	1	2	2	1	x	2	2	0	2	2	x
willingness to conform	2	1	1	1	1	1	x	1	x	x	1	1	1
actors self-interest and goals	x	1	1	1	1	1	x	1	x	1	1	1	1
logic of appropriateness	x	x	x	x	x	x	x	x	x	x	x	x	x
image EU	x	x	1	1	1	1	x	1	1	0	x	2	x
political power NL	x	2	1	1	0	x	1	0	1	1	0	0	0
activities of other Member States	x	0	0	0	0	0	x	x	0	1	x	1	x
attribution of opportunity/threat	1	1	1	x	x	1	1	1	x	x	x	1	x
attribution of succes/failure	x	2	2	2	0	x	2	x	2	2	2	2	x
uncertainty	x	x	x	x	x	x	x	x	x	x	x	x	x
science	x	x	x	x	x	x	x	x	x	x	x	x	x
public participation level	x	x	x	x	x	x	x	x	x	x	x	x	x
available resources	x	x	2	x	0	x	1	1	2	2	2	0	0

Legend	Differentiation between colors and numbers: both combined is one answer
stimulating factor	0= no or little influence on the implementation process
both stimulating/hindering or effect not clear	1= influence on the implementation process
hindering factor	2= strong influence on the implementation process
	x= inapplicable, no answer

Figure 19: factors influencing the implementation process (as distinguished from literature research) presented by how they are experienced by regional parties in the Rhine-west river basin.

some water boards are located in the governing area of more than one province (Hoppenbrouwers, 2013). Furthermore, some regional parties state that the fit has had a negative influence, because the idea that we already have enough flood risk management policies caused the sober and low ambition level (Egas, 2013; Meertens, 2013; Nurmohamed, 2013).

According to the regional Rhine-west parties, the complex division of responsibilities (*fragmentation of institutional structure*) had a middling unto strong influence on the implementation process of the Flood Directive. This influence had positive effects, because it created participation and indirectly broad support for the Directive, knowledge exchange and mutual understanding among multiple parties (Komen and Boomgaard, 2013; Neijenhuis, 2013), the historical responsibilities of each party were respected (Hoppenbrouwers, 2013; Robbemont, 2013) and it ensured that regional policies were appropriately incorporated in the plans and maps (Neijenhuis, 2013). Also the safety regions agree that a positive aspect of the process is the forgathering of multiple governmental parties (Kamps, 2013). The province of Zuid-Holland states that the institutional structure is not fragmented, since the division of responsibilities is clear from history, which is a positive aspect of Dutch water governance (Krol and Piek, 2013). The regional parties also experienced negative effects regarding the involvement of several parties, such as the huge variation in interpretation of the Directive, interests and opinions that have caused discussions and delayed the iterative implementation process (de Groot, 2013; Hoppenbrouwer, 2013; Komen and Boomgaard, 2013; Nurmohamed, 2013; Robbemont, 2013). This factor increased the difficulty to aggregate all input into one flood risk management plan for each river basin (Neijenhuis, 2013) and the overview on the parties was lost during the process (Meertens, 2013). The distance from regional parties to the production of maps and plans is also seen as a negative aspect of the involvement of numerous institutions (Vonk, 2013).

Figure 19 illustrates that most interviewed actors value the factor *coordination* as influencing the implementation process. Opinions concerning its hindering or stimulating effect are distributed and most parties even state that this factor was influential in both ways. Water boards Hollands Noorderkwartier and Hollandse Delta state that coordination meetings organised by the national government were a stimulating factor (Komen and Boomgaard, 2013; Robbemont, 2013). Various regional parties state that an other stimulating effect was the clear structure of coordination; especially the regional coordination of the provinces is valued as a positive effect (Egas, 2013; de Groot, 2013; Krol and Piek, 2013; Lucas, 2013; Neijenhuis, 2013). On the other hand, particularly water boards state that not all agreements about the progress of the process were clear, which could have been solved by better communication and coordination (Neijenhuis 2013; Vonk, 2013). Some parties think that the process could have been coordinated better on a national level to overcome the iterative and confusing process and the negative attitude of some parties involved (Beeke, 2013; Egas, 2013; Hoppenbrouwers, 2013; Meertens, 2013; Neijenhuis, 2013; Vonk, 2013). This negative effect is partly caused by changes in project managers on the national level (de Groot, 2013; Meertens, 2013; Vonk, 2013).

All regional parties value the factor *cooperation* as a stimulating factor in the implementation process (figure 19), yet there are always some small negative conflicts between cooperating parties (Robbemont, 2013). Especially, cooperation between provinces and water boards reciprocally is valued as positive (Egas, 2013; de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Krol and Piek, 2013; Lucas, 2013; Meertens, 2013; Neijenhuis, 2013). The province of Utrecht appreciates the Flood Directive as a 'vehicle' to connect parties (Egas, 2013). Though, other actors state that this positive cooperation was already present before the Flood Directive (de Groot, 2013; Hoppenbrouwers, 2013; Krol and Piek, 2013). On the other hand, cooperation with safety regions is valued as less positive, since they are often not present at meetings (Komen and Boomgaard, 2013),

they are coordinated by municipalities, have other priorities (Lucas, 2013) or other organizational structures (Neijenhuis, 2013). According to the safety regions, this is because the distance towards the process is too big, advantages are missing and other parties do not understand their way of working (Beeke, 2013; Kamps, 2013). Safety region Utrecht is in comparison with other regions, more active and cooperated more effectively in the implementation process (Beeke, 2013; Egas, 2013).

The province of Zuid-Holland mentions that *political support* is certainly present, because the Netherlands initiated this Directive. However, most other parties state that the political attention was relatively low due to the sober ambition level that influenced the implementation process both in a positive and negative way (Meertens, 2013). The hindering aspect was that the Flood Directive did not become a hot issue and focusses on today's practices, while for instance the 'Deltaprogramma' focusses on the more interesting future (Meertens, 2012; Meertens, 2013). Therefore, it was more difficult to get priority, time, capacity and attention within organizations for the implementation of the Flood Directive (Egas, 2013; Hoppenbrouwers, 2013). Some parties state that this factor was not hindering, because the Netherlands is only reporting existing policies that do not need political attention (Komen and Boomgaard, 2013), since there were no political barriers that needed to be solved (Vonk, 2013). A positive effect of the low political support is that time-consuming processes are skipped (Lucas, 2013). During the upcoming consultation rounds the political attention and support for the Flood Directive will probably increase (Komen and Boomgaard, 2013; Lucas, 2013; Neijenhuis, 2013; Robbemont, 2013).

Political power from the EU is experienced by various parties as a stimulating pressure to implement the Flood Directive (Egas, 2013; Nurmohamed, 2013; Robbemont, 2013). Yet, deadlines for reporting are long, so pressure and urgency is not perceptible on all governmental levels (de Groot, 2013; Hoppenbrouwers, 2013). The official reporting of measurements to Brussels is experienced as driving force to really act upon those plans (Komen and Boomgaard, 2013; Neijenhuis, 2013). This aspect also complicates the implementation process since reports will be enforced by the EU, making organizations more carefully reporting (Meertens, 2013; Vonk, 2013).

According to the regional parties of the Rhine-west area, the *interaction of the Flood Directive with other (national) policies* has rather hindered the implementation process. Especially, the 'Deltaprogramma' is mentioned often, since this new and interesting program is getting a lot of attention from water managers. Therefore, existing policies, like the Flood Directive are getting on the background (Egas, 2013; Hoppenbrouwers, 2013; Krol and Piek, 2013; Meertens, 2013; Neijenhuis, 2013). The Delta-decisions from 2015, will even make the flood risk management plans of 2015 immediately outdated (Hoppenbrouwers, 2013). Some actors state that more interaction would be better (Meertens, 2013), while others agree upon the separation between both programs since only official decisions should be reported to Brussels. The Delta-decisions could be integrated in upcoming cycles (de Groot, 2013; Komen and Boomgaard, 2013; Neijenhuis, 2013). Another example of hindering interactions with other policies are regulations that address different waters than the Flood Directive, such as the WFD (Krol and Piek, 2013).

The following factor is related to the *content of the Directive*, which hindered the implementation process seriously, because the Directive's flexibility made interpretation differences and ambiguities possible. Leading to the long and delaying discussions during the implementation process, like the discussions concerning the 'toepassingsbereik' (de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Lucas, 2013; Meertens, 2012; Meertens, 2013; Neijenhuis, 2013; Nurmohamed, 2013; Robbemont, 2013). Also safety regions experienced those ambiguities as confusing (Kamps, 2013). Moreover, there are differences between terminology applied in Dutch water policies and the

Flood Directive, causing even more ambiguities (Robbemont, 2013; Vonk, 2013). On the other hand, it is argued that less flexibility and more strict norms would make the implementation process even more complex (Egas, 2013; Lucas, 2013).

From figure 19, it becomes clear that the *willingness to conform* factor has also influenced the implementation process. Various parties value this factor as positive and argue that the willingness was present, because of the low implementation profile and the simple fact that it is obligated to conform to a Directive (de Groot, 2013; Nurmohamed, 2013; Neijenhuis, 2013; Vonk, 2013). Even so, the low willingness to be ambitious of in particular water boards has induced this sober and appropriate ambition level and therefore had a negative influence (Komen and Boomgaard, 2013; Lucas, 2013; Neijenhuis, 2013). This low ambition level decreased the enthusiasm, necessity and willingness of organizations to cooperate even more (Egas, 2013). The willingness of organizations differs highly induced by the attitude of persons within the organization (Egas, 2013; Komen and Boomgaard, 2013).

The *interests and goals* of Dutch actors have certainly influenced the implementation process (figure 19). Approximately half of the interviewees values this influence as positive, because the Netherlands as a down-stream country has a high interest in the Flood Directive (Komen and Boomgaard, 2013; Hoppenbrouwers, 2013; Krol and Piek, 2013; Robbemont, 2013; Vonk, 2013). It is interesting that parties with a higher interest, for instance those who deal with transboundary governing issues, do not automatically implement the Flood Directive better or more ambitious (Robbemont, 2013). Another interesting outcome is that most parties mention the overall interest of the Netherlands, while they state that their individual interest is low (de Groot, 2013). Especially, water boards do not realize their individual interest, affecting negatively the implementation process (Lucas, 2013). The province of Utrecht even states that the interest of organizations would have been higher and therefore the implementation smoother, when the level of ambition would have been less sober (Egas, 2013). Moreover, conflicting interests between national and regional governmental levels has muddled the implementation process (Neijenhuis, 2013).

Almost half of the interviewed actors argue that the *image of the EU* influenced the implementation process negatively. For instance, the feeling is present that once more a supra national organization is interfering with national policies. Moreover, this Directive is perceived as obligation that should cost as less deployment as possible (Egas, 2013; de Groot, 2013; Meertens, 2013; Robbemont, 2013; Vonk, 2013).

Many regional parties think that the Dutch initiating of this Directive had a small, positive influence on the implementation process. Because *the political power of the Netherlands* has influenced the content of the Directive and therefore, the Netherlands want to show their high quality water governance system, trying to be *‘the best boy of the European class’* (de Groot, 2013; Komen and Boomgaard, 2013; Lucas, 2013; Robbemont, 2013; Vonk, 2013). Regional parties argue that this was mainly the feeling on national level, while the regional level was more reserved (Hoppenbrouwers, 2013; Vonk, 2013). According to the province of Noord-Holland this had also a negative effect, since it made the implementation process more complex (Lucas, 2013). Moreover, the province of Utrecht argues that the initiative of the Netherlands could have been used more as a positive drive to implement the Flood Directive more ambitious (Egas, 2013). Furthermore, Waternet states that the positive initiating image of the Directive disappeared due to the extra work (Meertens, 2013).

Implementation *activities of other Member States* were hardly influencing the implementation process in the Netherlands, as experienced by the regional parties of the Rhine-west area. Most

actors argue that there were various consultations with other Member States, mainly on the national level, though the Netherlands did choose for their own way of implementing (de Groot, 2013; Komen and Boomgaard, 2013; Krol and Piek, 2013; Meertens, 2013; Robbemont, 2013; Vonk, 2013). Probably, those consultations even ensured that neighbouring countries persisted the same implementation structure as the Netherlands (Krol and Piek, 2013). Contra dictionary, the province of Gelderland states that activities of Germany and Belgium were influential in case of the ‘toepassingsbereik’, since this is the main reason for the inclusion of some transboundary regional waters in the Netherlands (Hoppenbrouwers, 2013).

The factor *attribution of opportunity/threat* is experienced by half of the interviewed actors as negatively influential. Those parties considered the Flood Directive as a threat: an obligation of reporting ancient policies that have none or only small advantages for their organization (Komen and Boomgaard, 2013; Neijenhuis, 2013; Nurmohamed, 2013; Yska, 2013). Hence, many regional organizations execute only the obligated implementation steps and are not enthusiastic (Robbemont, 2013). The province of Utrecht states that at the start more parties were enthusiastic and saw the Flood Directive as an opportunity, nonetheless this changed due to the chosen manner of implementation (Egas, 2013).

All parties experience the *attribution of failure* as highly influential on the implementation process. Especially the negative experiences with the WFD implementation process, ‘*reporting fear*’ and the fright for another ‘*circus*’ did cause the sober implementation process and can be judged as an important barrier (Egas, 2013; de Groot, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Lucas, 2013; Neijenhuis, 2013; Robbemont, 2013). However, it depends on the ambition and point of view of the individual parties if this is valued as a positive or negative outcome, most regional parties state that the choice for reporting only valid policies was positive (de Groot, 2013; Lucas, 2013; Neijenhuis, 2013). Besides, even a sober implementation is still very ambitious in comparison with other EU Member States (de Groot, 2013). Though, some parties state that the lessons learned from the WFD are too limited, because other persons with different disciplines are involved in the implementation process (water safety versus water quality) (Komen and Boomgaard, 2013; Neijenhuis, 2013).

During the implementation process the *availability of resources*, mainly manpower, was quite low due to low political attention, the reporting of only existing policies and because much capacity was necessary for the ‘Deltaprogramma’. Overall, this had a small hindering effect on the implementation of the Flood Directive, mainly for the regional parties (Egas, 2013; Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Lucas, 2013; Meertens, 2013; Neijenhuis, 2013; Robbemont, 2013). Various parties argue that availability of resources would have been a bigger issue when the Flood Directive was not implemented in a sober way (Krol and Piek, 2013; Vonk, 2013)

An interesting outcome is that none of the regional parties of the Rhine-west area experienced the factors *political culture, logic of appropriateness, uncertainty and flexibility* as influential on the implementation process. Also the factor of *societal support* is not mentioned as influencing, because the process is mainly taking place among officials. Besides, most Dutch citizens assume that the government will take care of their safety concerning water issues (Krol and Piek, 2013). The factor of *science* is not experienced as influential, yet the province of Gelderland states that there is a lot of research available on for instance the difference between a flood risk and water nuisance. However this research has not been used during the implementation process (Hoppenbrouwers, 2013). Also, the factor of *public participation* is not experienced as influencing. Nevertheless, various parties mention the advantage of more transparency towards citizens through risicokaart.nl, though there

are also doubts to which extent the flood risk maps are understandable for the average citizen (Egas, 2013; Meertens, 2013; Neijenhuis, 2013; Robbemont, 2013).

7.9.2 Additional factors

Other negative factors mentioned by the regional institutions in the Rhine-west river basin, that have influenced the implementation process, but were not distinguished from the literature research are:

- Due to the widespread planning (start 2009 and finish in 2015), time pressure was missing and other programs were given priority, leading to delays in the process (de Groot, 2013; Komen and Boomgaard, 2013; Neijenhuis, 2013).
- The implementation of a new Directive is always an iterative process (Hoppenbrouwers, 2013; Komen and Boomgaard, 2013; Nurmohamed, 2013; Robbemont, 2013).
- Information supply of the ‘Rijk’ was not always optimal (de Groot, 2013).
- It is tough to aggregate regional input into national plans (Neijenhuis, 2013).
- Cooperation with neighbouring countries concerning transboundary waters takes a lot of time, leading to delays in the information and data provision (Hoppenbrouwers, 2013).
- The discussions concerning the establishment of the ‘toepassingsbereik’ are by all parties experienced as a significant barrier (Lucas, 2013).
- The late start of the ‘productieteam kaarten’ (Lucas, 2013).

7.10 Conclusion

The implementation process of the Flood Directive is in general judged negatively by the regional parties of the Rhine-west case-study, since they experience the process as slow and containing many ambiguities. Moreover, the main aim of the Flood Directive, increasing transboundary governance and solidarity, did not change due to this Directive. Yet, most actors are positive concerning the future of the Directive and the correct and in-time reporting of the Netherlands. Various hindering factors have caused the slow implementation process, such as the low political attention leading to a low availability of resources and capacities, the interaction with other policies like the ‘Deltaprogramma’, the unclear content of the Flood Directive, missing time pressure, the image of the EU, the attribution of threat of for instance extra work and the attribution of failure caused by the experiences with the WFD. Overall, actors were positive concerning the sober implementation level, which is still ambitious in comparison with other Member States. The sober ambition level is determined due to the factors of low willingness of regional organizations, experiences with the WFD and the fact that the Flood Directive is not attributed as an opportunity. Most barriers could have been solved by better coordination of the national government via more communication and steering. Though, there were also factors that overall positively influenced the implementation process, like the goodness of fit and the low political attention leading to an easier implementation, overlap with interest and goals, political pressure of the EU, political influence of the Netherlands, cooperation, coordination of the provinces and the division of responsibilities.

8. Perceptions of key actors

8.1 Introduction

In this chapter the research results concerning the implementation process of the Flood Directive experienced by key actors are presented. Key actors are understood in this research as parties overarching the case-study areas, who have a helicopter view regarding the implementation process. Therefore, they could have different insights regarding the process and stimulating or hindering factors, making their incorporation in this research of significant relevance. Those organizations are the EU, ministry of Infrastructure and Environment, Rijkswaterstaat, IPO, UvW, VNR and Deltares. Details concerning the interviews are presented in appendix 3 and 4. Firstly, general research outcomes will be presented in paragraph 8.2 to 8.6. After that sub-question 9 will be answered in paragraph 8.7: *Which factors, influencing the Flood Directive implementation process, are distinguished by overarching organizations that pose a helicopter view on the Flood Directive?* A conclusion is given in paragraph 8.8.

8.2 Relevant actors and their roles

The roles of umbrella organizations interviewed differ highly and will now be shortly explained:

- The EU is an important actor, since they are the formal legislator and after 2015 the enforcer of the Flood Directive. The analysis of the EU in this paragraph is based on an interview with Maria Brättemark (2013). At this stage the EU role is quite small, since they are mainly facilitating the dialogue between Member States. This is done via workgroup F, where Member States are requested to discuss problems and create a common understanding of the Directive.
- The Netherlands has eleven ministries that together form the political and official national government of the Netherlands (Rijksoverheid, 2013b). The Flood Directive is a task of the Ministry of Infrastructure and Environment. The analysis of the ministry is based on two interviews with Bob Dekker (2013) and William van Berkel (2013). The minister and ministry have an important role, since they are finally responsible for the implementation of the Flood Directive in the Netherlands, because each Member State is represented on EU level by their minister. The Dutch 'Waterwet' administers the responsibility to produce flood risks maps and plans to the ministry and gives the ministry competence to obligate other organizations to share data and information. The ministry also represents the Netherlands in international consultations concerning the Flood Directive.
- Rijkswaterstaat is an organization that develops and manages the Dutch infrastructure: both roads and waterways, commissioned by the Ministry of Infrastructure and Environment (Rijkswaterstaat, 2013a). Rijkswaterstaat is responsible for a safe, clean and user-oriented water system and for the protection of the Netherlands towards floods (Rijkswaterstaat, 2013b). The analysis of Rijkswaterstaat is based on interviews with Max Linsen, Frank Alberts and Arthur Kors (2012 and 2013). Rijkswaterstaat executed two roles during the implementation. The first is that they are a water manager, so they did executive work, like the provision of information and data concerning the main water system (IPO et al., 2011, p.13). The second role is that Rijkswaterstaat also performs a role as policy supporter for the Directorate-General for Spatial Development and Water Affairs (*DGRW*). For instance, Rijkswaterstaat is chairing the coordination team of the Flood Directive and they represent the Netherlands in the EU workgroup F (Helpdesk Water, 2012d).
- The IPO (Inter Provinciaal Overleg) is a Dutch umbrella organization looking after the interests of the twelve Dutch provinces on the national and European level. IPO shares



information and knowledge with provinces, stimulates innovation and advises provinces on many aspects. Via this platform, provinces are easily able to consult each other (IPO, 2013). The analysis of IPO, is based on an interview with Cees Kamphuis (2013). The main task of the IPO in the implementation process of the Flood Directive is to represent the opinion of the provinces. This was difficult, since there was a large differentiation in interests. Eventually, together with the water boards and some municipalities the decision is made to assert a limited implementation. IPO had a relative high influence on the implementation, since they executed pressure in various national consultation groups like IMPRO. The IT section of IPO (IPO GBO) still plays an important role by administering the database for the flood maps. Overall, the provinces experienced the role of IPO as positive. Their coordination ensured that all provinces applied the same structure for the 'building blocks', they induced efficient consultation on national level and they executed lobbying and facilitated the implementation (Egas, 2013; Goudriaan, 2013; Lucas, 2013).

- All 24 water boards in the Netherlands are united in one association: the 'Unie van Waterschappen' (UvW). This organization looks after the interests of water boards on national and international level and supports knowledge exchange and cooperation between water boards (Unie van Waterschappen, 2013). The analysis of the UvW is based on interviews with Henk de Kruijk and Efrath Silver (2012, 2013). Their main task is to represent the opinion of water boards. Overall, a joined opinion was shaped quite fast, since most water boards preferred a sober and simple implementation with no extra work. Furthermore, the UvW was an intermediary between the national government and water boards. Also the recent official consultation rounds for water boards are organised by the UvW. Overall, water boards are pleased concerning the contribution of the UvW. They appreciate the organized possibilities for consultation and alignment between water boards, that the UvW informed them on all details and that the UvW represented their opinion in various consultations (de Groot, 2013; Heijens, 2013; Komen and Boomgaard, 2013; Robbemont, 2013; Witter, 2013). The role of the UvW has improved during the process, partly due to the change in project leader (Meertens, 2013; Slager, 2013).
- The VNR is an association related to the VNG. The VNR assembles approximately 80 municipalities and forms a knowledge and information exchange network of water managers from river municipalities. Moreover, this association forms a common opinion on issues and represents this opinion in various debates on national and international level (Gijzel, 2013; Vereniging Nederlandse Riviergemeenten, 2013). The analysis of VNR is based on an interview with Teus Gijzel (2013). Also in the implementation process of the Flood Directive, the VNR represented the ideas and opinion of river municipalities. Municipalities do not have responsibilities concerning the Flood Directive's implementation, however they have certainly an interest. The VNR stimulated the process and acted mainly on the background.
- Deltares is an independent research institute that focuses mainly on water, infrastructure and soil issues. Deltares operates internationally and searches for innovations, solutions and applications concerning the environment, society and humans. Deltares' speciality is their knowledge concerning delta and river basin areas (Deltares, 2013). An interview with Kymo Slager (2013) is used for this analysis. Deltares performs in this process mainly an advising role towards governmental organizations, primarily on technical aspects. Examples are advising how data should be administered, what should be included in the 'toepassingsbereik' and how maps should be presented visually. Deltares is especially involved in the production of the flood maps, since they execute the role of quality assurance concerning the provided data.



8.3 Experienced added value

There are different visions among stakeholders about the added value of the Flood Directive. Overall, most interviewed umbrella actors value the advantages of the Flood Directive as predominantly positive. The most often mentioned advantage is the solidarity principle. For the Netherlands, as a down-stream country it is a positive development that agreements within the river basin now acquire a formal status (Alberts, 2013; van Berkel, 2013; Brättemark, 2013; Dekker, 2013; Gijzel, 2013; Kors, 2013; de Kruik and Silver, 2013; Linsen, Alberts and Kors, 2012; Silver, 2013). An advantage for the Netherlands internal is that all organizations concerned with water management on both the horizontal and vertical level, are forced to cooperate on this subject. Moreover, this Directive ensures more transparency and better communication towards citizens by providing a clear overview of current flood risk management policies (van Berkel, 2013; Dekker, 2013). Besides, an important advantage is that all programs and plans in the Netherlands are now combined in one plan that gives an overview on existing policies, gaps and possibilities for the future. (Alberts, 2013; Gijzel, 2013; Kamphuis, 2013; Kors, 2013; de Kruik and Silver, 2012; Linsen, Alberts and Kors, 2012; Silver, 2013; Slager, 2013). Other advantages mentioned are the requirement of public consultation, the enforcement to develop flood risk management (Brättemark, 2013), the opportunity to combine the three layers of ‘meerlaagsveiligheid’ (Linsen, Alberts, Kors, 2012), regional risks will become more visible and that the Directive can be used for agenda setting (Slager, 2013). Yet, the EU as supra-national organization looks more to the interest for the whole union and underlines advantages such as the establishment of one common flood risk management approach for the whole union, the coordination with other EU Directives and that flood policies are made publicly available for all EU citizens (Brättemark, 2013). Contra dictionary, IPO is the only actor that negatively values the Flood Directive, by stating that the added value of the Flood Directive is low for the Netherlands, due to the choice for a sober and appropriate ambition implementation level.

8.4 Experienced progress of the implementation process

On the European level, the EU did already check if all Member States complied to the first requirement (preliminary flood risk assessment) and concluded that there is some variation in the compliance rate (European Commission, 2013). However, most Member States did submit the first requirement properly and are now working on the second and third requirement. The EU also mentions that there are differences between the implementation processes within Member States, caused by varying interpretation (Brättemark, 2013).

On the Dutch national level, the implementation of the Flood Directive in the Netherlands is on schedule, yet, the Netherlands also started betimes with the implementation. The ministry states that the process went fine, for instance, the transposition towards national legislation and the international consultation proceeded very decent. Yet, there were also difficulties, such as the determination of the ‘toepassingsbereik’ and the production of one flood risk management plan for each river basin (van Berkel, 2013; Dekker, 2013). Other overarching organizations are less positive concerning the progress of the implementation process and state that the process was iterative. IPO even states that the process was very sluggish, confusing and slow (Kamphuis, 2013). Especially at the start, the process was not smooth, slow and laborious due to various reasons, such as delaying discussions, hindering parties like water boards, varying interpretation possibilities, no time pressure, low participation and capacity of regional parties, not enough control to steer the process and not enough coordination of the national government. Yet, in general the process is so far properly completed (Alberts, 2013; Gijzel, 2013; Kamphuis, 2013; Kors, 2013; de Kruik and Silver, 2012; Linsen, Alberts, Kors, 2012; Silver, 2013). Eventually, political pressure and a decision regarding the

implementation scope from the secretary was a breakthrough in the process and all parties resigned to this decision. At this moment the process is evolving very well (Gijzel, 2013).

8.5 Experienced cooperation and alignment with Member States

International cooperation for the main transboundary river basins was already present in the Netherlands due to river basin commissions like the Rhine and Meuse and good historical relations with neighbour countries (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Gijzel, 2013; Kors, 2013; de Kruik and Silver, 2012; Linsen, Alberts, Kors, 2012; Silver, 2013). Nonetheless, according to the ministry, the Flood Directive has improved the interaction between Member States concerning the subject of flood management (van Berkel, 2013; Dekker, 2013). UvW and Rijkswaterstaat state that it is difficult to determine this change in cooperation, yet they argue that the formal status of transboundary cooperation due to the Flood Directive, is a positive advantage (Alberts, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012; Silver, 2013). Moreover, cooperation relating to transboundary regional waters is now stimulated, which was earlier seen as a side issue. Though, this was also one of the difficulties during the implementation process, because those small basins did not yet have organizational structures to deal with international cooperation. Cooperation within the EU workgroup F has positively stimulated the implementation of the Flood Directive, since Member States are facilitated to discuss interpretation and elaboration difficulties and to exchange knowledge and best practices (van Berkel, 2013; Dekker, 2013).

8.6 Expectations concerning the future

Most of the discussions and struggles of the implementation process are solved by January 2013, also the official consultation rounds did not concretize major problems and the implementation process is on schedule. Therefore, no difficulties are expected to accomplish the deadlines in time and correctly (Alberts, 2013; Kors, 2013; Linsen, Alberts and Kors, 2012; Slager, 2013). At this moment, it is not yet clear how the EU will check the Member States' reporting of the Flood Directive, however lessons can be learned from the enforcement of the WFD (van Berkel, 2013; Dekker, 2013; Gijzel, 2013; Silver, 2013). For the future it is not presumable that the implementation ambition level within the Netherlands will change, though it is already clear that the number of themes will be extended by the EU. For instance, the European Commission wants to give more attention towards the themes of climate change and the third layer of the safety chain. Some aspects could be improved in future cycles, such as more participation of safety regions and municipalities and the aggregation of the 'Deltaprogramma'. Another possible development could be that the requirement to coordinate flood management will be enlarged towards adaption or harmonising. In this manner, it is possible to produce flood risk management maps and plans for the whole river basin area. Another possibility is that the Flood Directive will be integrated with other Directives, such as the WFD (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Kors, 2013; Linsen, Alberts and Kors, 2012). Furthermore, in the future it is important to carry out an evaluation concerning the implementation process, since the same cycle will be followed in the upcoming six years. Besides, it is expectable that Deltares will also play a quality assurance role in the following cycles. Hopefully, the data from the database will become more sustainable and perhaps even publicly available to increase the usage of data (Slager, 2013).

8.7 Factors influencing the implementation process

Overarching organizations experienced various hindering and stimulating factors that are summarized in figure 20. Each of the factors is described in detail in the subsequent text.

8.7.1 Description of hindering and stimulating factors

Figure 20 shows that most actors experienced the factor *goodness of fit* as strongly and positive influential on the implementation. This factor stimulates and eases the implementation, because the Netherlands has already high quality flood risk management and a long history with water management (Alberts, 2013; van Berkel, 2013; Brättemark, 2013; Dekker, 2013; Gijzel, 2013; Kamphuis, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012; Slager, 2013). Rijkswaterstaat and UvW also mention the negative impact of this factor, since this was the reason to choose for the sober implementation level, leading to a decrease in sense of urgency experienced by regional parties, like water boards (Alberts, 2013; Kors, 2013; de Kruik and Silver, 2012; Linsen, Alberts, Kors, 2012; Silver, 2013).

The factor of *political culture* is only answered by the ministry of Infrastructure and Environment who state that the political culture within the Netherlands did scarcely influence the implementation process (van Berkel, 2013).

Fragmentation of the institutional structure is by most actors experienced as a hindering factor. Because within the Netherlands, many parties with varying interests are concerned with this Directive, making it difficult and complex to plan the process, to make the process efficient and to combine all regional input recognizable and correctly in common plans. With hindsight, this could have been better facilitated by the ministry since variations in organizations and methods is making for instance more deliberation necessary. On the other hand, the division of responsibilities in Dutch water governance is historically organized and therefore a logical structure to choose (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Gijzel, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012; Silver, 2013). Rijkswaterstaat argues also that it is positive that all participating parties could provide input. Yet, sometimes this factor caused ambiguities during the process (Alberts, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012).

The overarching organizations on national level value *coordination* mainly as a positive influencing factor. The ministry states that a mix of top-down and bottom-up governance is used and overall this coordination structure was clear and adequate. Yet, there are improvements possible since during the implementation several adjustments of the national government were necessary. Also the coordinative role of the provinces caused some difficulties (van Berkel, 2013). Rijkswaterstaat and UvW agree that the national government certainly took their coordination responsibility, though sometimes they could have intervened earlier during complications (Alberts, 2013; Kors, 2013). Besides, UvW states that regional coordination of the provinces positively stimulated the implementation of the Flood Directive (Silver, 2013). Only IPO values this factor as negatively influential, because the national government should have taken a more prominent role in the coordination of the implementation process in order to steer the discussions (Kamphuis, 2013).

Cooperation is experienced by almost all umbrella organizations as a stimulating factor. Overall, cooperation between all parties is valued as positive and is even stimulated by the Flood Directive (Alberts, 2013; van Berkel, 2013; Brättemark, 2013; Gijzel, 2013; Kors, 2013; Slager, 2013). Especially, cooperation between provinces and water boards was positive, which has a historical origin (Kamphuis, 2013). However, there were struggles since some organizations experienced the Flood Directive mostly as a must and burden. An example is that safety regions and municipalities hardly cooperated (Alberts, 2013; Kamphuis, 2013; Kors, 2013) and that regional organizations tried to shift work towards Deltares (Slager, 2013). Though, the ministry states that safety regions and

factor	Deltares	EU	IPO	Ministry I&M	Rijkswaterstaat	UvW	VNR
degree of fit/misfit	2	1	1	1	2	1	2
political culture	x	x	x	0	x	x	x
fragmentation institutional structure	x	x	x	1	2	2	1
coordination	x	x	2	1	1	1	x
cooperation	x	1	1	1	1	1	1
flexibility	x	x	x	x	x	x	x
political support	2	x	1	1	1	1	x
societal support	x	1	0	0	x	x	x
political power EU	x	1	x	1	0	0	x
interaction with other (national) policies	x	x	2	0	x	1	1
content Directive	1	2	1	1	1	2	1
willingness to conform	1	x	1	1	1	1	x
actors self-interest and goals	x	x	x	x	x	1	2
logic of appropriateness	x	x	x	1	x	x	x
image EU	x	x	1	1	1	x	1
political power NL	x	x	0	1	2	1	1
activities of other Member States	x	x	0	1	0	x	x
attribution of opportunity/threat	x	x	x	x	1	x	x
attribution of succes/failure	x	x	2	2	2	1	2
uncertainty	0	x	0	x	x	x	x
science	x	x	1	x	x	x	x
public participation level	1	x	1	0	1	x	x
available resources	2	1	1	1	1	x	2

Legend	Differentiation between colors and numbers: both combined is one answer
stimulating factor	0= no or little influence on the implementation process
both stimulating/hindering or effect not clear	1= influence on the implementation process
hindering factor	2= strong influence on the implementation process
	x= inapplicable, no answer

Figure 20: Factors influencing the Dutch implementation process of the Flood Directive (as distinguished from literature research) experienced by overarching organizations.

municipalities were involved in the process, for example via umbrella organizations (van Berkel, 2013). The UvW states that cooperation with the national government was difficult and hindering, due to for instance changes in staff at the ministry. Nowadays, this cooperation has improved (de Kruik and Silver, 2012).

None of the overarching organizations did mention *flexibility* as an influential factor.

As becomes clear from figure 20, almost all actors did experience the strong and hindering effect of the factor *political support* on the implementation process. At the start of the implementation process the political will was high, since the Flood Directive was initiated by the Netherlands. During the implementation process this political support shifted negatively due to changes in priorities and discussions concerning for instance the amount of work and efficiency (van Berkel, 2013). The political attention and support for this Directive is low, since only existing policies and plans are reported (Alberts, 2013; Kamphuis, 2013; Kors, 2013). Low political attention was leading to low priority and capacities among regional organizations (Slager, 2013). If there had been more political attention for this Directive, the implementation would have been smoother (Kamphuis, 2013; de Kruik and Silver, 2012; Silver, 2013). The ministry agrees that a political impulse will always positively increase the attention towards a program and the national government could have put more effort in gaining political attention for this Directive (Alberts, 2013; Berkel, 2013; Kors, 2013). However, political attention is increasing due to the consultation rounds and an increasing awareness concerning the official determination of the plans and maps (Silver, 2013a).

Societal support is valued as having a hardly, hindering effect on the implementation by only three actors. The EU states that a barrier for the implementation of the Flood Directive could be the relative low attention and awareness concerning flood risks within the European Union. This could be an obstacle for policy makers and a way to overcome this barrier is by the provision of information regarding flood risks (Brättemark, 2013). Yet, the ministry and IPO argue that this was not influencing the process, since the implementation is only executed in the public sector (van Berkel, 2013; Kamphuis, 2013).

From figure 20 it becomes clear that political power of the EU is overall experienced as having a positive effect on the implementation process, since the Flood Directive contains strict deadlines and requirements (Brättemark, 2013). It is clear that all measures in the flood risk management plans should be executed and will be enforced by the EU (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Kors, 2013). Yet, overall the political pressure from the EU is not experienced as highly influential in the Netherlands (Alberts, 2013; Kors, 2013) and UvW even thinks that this factor did not influence the implementation of the Flood Directive (Silver, 2013).

The factor *interaction with other (national) policies* has hindered the implementation process as experienced by IPO and UvW. They state that at this moment a lot of attention of Dutch water managers is going towards the ‘Deltaprogramma’, which is conflicting with the implementation process of the Flood Directive (Kamphuis, 2013; Silver, 2013). ‘*The Flood Directive has lost the competition battle with the Deltaprogramma*’ (Kamphuis, 2013). Also, coordination between the Flood Directive and WFD is still challenging (Silver, 2013). But, the ministry states that this did not influence the implementation, since the Directive is converted in Dutch legislation (van Berkel, 2013).

Figure 20 illustrates that all actors experience the *content of the Flood Directive* as predominantly hindering. Only the EU states that this factor is stimulating the implementation, because the Flood Directive is not very complex and mainly procedural in comparison with other Directives. Besides, the

Directive is flexible and can be adjusted to the Member States' circumstances, which will make the implementation process easier (Brättemark, 2013). The ministry, IPO, UvW and Rijkswaterstaat agree regarding those arguments, but state also that this has caused discussions, ambiguities and interpretation difficulties leading to the iterative implementation process (Alberts, 2013; van Berkel, 2013; Gijzel, 2013; Kamphuis, 2013; Kors, 2013; de Kruik and Silver, 2012; Silver, 2013; Slager, 2013). Besides, during the process the EU still continued with changing implementation requirements, like the establishment of the reporting sheets. This has also contributed to the slow implementation process. Moreover, the long time span facilitated the discussions (Kamphuis, 2013).

Also, the factor *willingness to conform* has hindered the implementation according to interviewed actors. The conception that Dutch flood management was already sufficient and adequate affected the critical and negative attitude of regional parties (van Berkel, 2013). The willingness of especially regional parties was also lacking due to missing added value (Silver, 2013; Slager, 2013) and the sober ambition level (Kamphuis, 2013). On the other hand, this low willingness was one of the reasons for the sober ambition level (Alberts, 2013; Kors, 2013). However, this willingness could have been stimulated better by the national government (de Kruik and Silver, 2012; Silver, 2013).

UvW and VNR state that the overlap between the Flood Directive and the *actor's self-interest and goals* has positively stimulated the implementation. Since the advantages of the Flood Directive, like the solidarity principle, are in the interest of the Netherlands (Gijzel, 2013; de Kruik and Silver, 2013). The ministry agrees that the Flood Directive is in line with Dutch interests and goals; however it is not clear how this has influenced the implementation process (van Berkel, 2013).

Overall, only the ministry mentioned that the Flood Directive is a logical instrument to visualize current flood risk management practices in Europe (*logic of appropriateness*).

The *image of the EU* is experienced as a hindering factor as can be seen in figure 20. Last decade, the enthusiasm for the EU is decreasing and Dutch citizens are more critical concerning EU rules. The general opinion in the Netherlands is that the EU is asking much from Member States and that EU interfering costs money and time, leading to a negative image. This formed a barrier for the implementation (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Gijzel, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012). Nevertheless, the Dutch government still wants to implement all EU rules correctly and in time (Kamphuis, 2013).

Political power of the Netherlands regarding the Flood Directive, especially caused by the Dutch initiative, stimulated the implementation process (Gijzel, 2013). This has caused a positive pressure on the implementation process, because they are triggered to implement the Directive correctly and on time (van Berkel, 2013; de Kruik and Silver, 2012; Silver, 2013). Yet, the original goals for the Dutch initiative are nowadays not the main goals of the Dutch implementation (Kamphuis, 2013).

Activities of other Member States did hardly influence the implementation in the Netherlands according to Rijkswaterstaat and IPO, yet the Netherlands did coordinate the implementation (Alberts, 2013; Kamphuis, 2013; Kors, 2013). Yet, this coordination did not overcome interpretation differences between countries which are already noticeable (Brättemark, 2013). On the other hand, the ministry states that the Dutch implementation is highly influenced by activities of other Member States. For instance, more regional transboundary waters are taken into consideration, which is positive, since coordination is necessary regarding the river basin approach. Yet, there are still many differences between Member States (van Berkel, 2013).

According to Rijkswaterstaat, another hindering factor is that most of the parties involved *attribute* this Directive *as a threat* instead of an *opportunity*. This could have been prevented by making the officials of organizations realize the advantages of the Flood Directive (Alberts, 2013; Kors, 2013). Other umbrella organizations did not value this factor as influential during the interviews.

The Netherlands has experiences with earlier EU Directives, such as the WFD, the habitat and particulates Directives. Those experiences influence undoubtedly the implementation process of the Flood Directive as becomes clear from figure 20 (*attribution of success/failure*). A positive effect is that structures of the WFD are also used for the implementation of this Directive and that lessons are learned regarding for instance the regional implementation approach. On the other hand, regional water managers have mostly negative experiences with the WFD, due to high costs and effort, explaining their revealing attitude leading towards the sober implementation. Especially municipalities, water boards and provinces were tired of the implementation of the WFD and were afraid for recurrence. So the fear for a similar process, a ‘*circus*’, has hindered the implementation of the Flood Directive and is one of the causes for the sober and appropriate implementation ambition (Alberts, 2013; van Berkel, 2013; Gijzel, 2013; Kamphuis, 2013; Kors, 2013; de Kruik and Silver, 2012; Linsen, Alberts, Kors, 2012; Silver, 2013).

According to Deltares and IPO the factor of *uncertainties* due to models and systems is taken into consideration, however those uncertainties did not influence the implementation process. This is because the implementation took predominantly place in the professional circuit of water managers (*science*). Besides, climate change related uncertainties and the effects on flood risks are not taken into account (Kamphuis, 2013; Slager, 2013).

Until this moment there were not yet *public participation* possibilities, so the influence of this factor on the process is low, this will change during the consultation rounds. Yet, public participation is indirectly incorporated in the implementation process, since all plans and programs already have followed participation consultations in the past (Alberts, 2013; van Berkel, 2013; Kamphuis, 2013; Kors, 2013). The EU requires this public participation, which is valued by most parties as a positive aspect, since stakeholders are able to join decision-making (Slager, 2013). Yet, IPO mentions that the added value of public participation for this Directive is low and will have a delaying effect (Kamphuis, 2013).

The EU mentions that an important hindering factor for all Member States is funding of the implementation, which is related to the current economic situation within Europe (Brättemark, 2013). Almost all interviewed Dutch umbrella organizations agree and state that available resources and especially capacity were hindering the implementation process, even when in practice not much extra resources were necessary to implement the Flood Directive, in comparison to other Directives. Available resources were not a problem on national level, yet for many regional parties (water boards and provinces) capacities and money were the largest obstacle during the implementation process. This lack of resources was mainly caused by the sober implementation level and the low level of political attention (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Gijzel, 2013; Kors, 2013; Linsen, Alberts, Kors, 2012). Capacity shortages are causing visible differences in data delivering for the maps and plans (Slager, 2013). Yet, IPO mentions that at the start of the process many resources were available to develop for instance the database (Kamphuis, 2013).

8.7.2 Additional factors

Other hindering factors mentioned by the actors of umbrella organizations, yet who were not distinguished by literature are:

- The relative small time lag, since it takes a lot of time to take flood risk management measures (Brättemark, 2013).
- According to the ministry, it was still a challenge to update all existing materials; hence this underestimation has hindered the implementation (van Berkel, 2013).
- Coordination with neighbouring countries delayed the process (Alberts, 2013; van Berkel, 2013; Dekker, 2013; Kors, 2013).
- Looking back, there was not enough knowledge at the start of the process regarding the reporting possibilities of regional parties (van Berkel, 2013).
- Not all water managers had the skills to appropriately upload the data in Lizzard (Alberts, 2013; Kors, 2013).
- Most water managers apply different systems and models to gather data and information (Alberts, 2013; Kors, 2013).
- Other delays were caused by for instance, changes in staff, illness of staff et cetera (Kors, 2013; de Kruik and Silver, 2012; Silver, 2013).
- Not all parties started in time with assembling data and information (Kors, 2013).
- Discussions concerning the 'toepassingsbereik' have hindered the implementation process. Those could have probably been overcome by the execution of the preliminary flood risk assessment (Alberts, 2013). Not executing the preliminary flood risk assessment was the beginning of ambiguities during the implementation process (Slager, 2013).
- The decision for the sober and appropriate ambition level was a barrier per se, since this lowered the enthusiasm of parties involved (Kamphuis, 2013).

Other experienced stimulating factors are:

- Growing trend of awareness concerning safety issues within the society (van Berkel, 2013).
- IMPRO and coordination teams stimulated the implementation process (van Berkel, 2013).
- The assembling of data in one common database is a positive aspect (van Berkel, 2013; Slager, 2013).
- The establishment of production teams, such as the production team 'kaarten' and that various actors are involved in those teams (Slager, 2013).

8.8 Conclusion

In conclusion, there are many advantages mentioned by the interviewed umbrella organizations. Especially, the solidarity principle, the formal states of transboundary cooperation, the overview of existing plans and the transparency and communication towards society are mentioned as benefits. Only IPO states that the added value of the Flood Directive is low, caused by the sober implementation level. Besides, most actors agree that the Dutch implementation is on schedule. However, the progress of the process is valued as fine by the ministry, while most other parties determine the process as iterative and not smooth. IPO even criticizes the process as sluggish and slow. Though, all actors expect that deadlines will be reached and state that the manner of EU enforcement is not yet clear. The roles and interests of overarching organizations differ highly, which explains probably their different views on the implementation process.

In general, it can be concluded that there is a trend in how overarching organizations experience factors influencing the implementation process of the Flood Directive. For instance, the degree of fit, coordination, cooperation, political power EU and the initiative of the Netherlands are seen as stimulating factors. Yet, the cooperation of safety regions and municipalities is judged by most parties as too low and most actors state that afterwards more coordination of the national government would have been better. Similarities on barriers experienced are political and societal

support, content of the Directive, the overlap with goals and interests, willingness of organizations, image of the EU, attribution of the Flood Directive as a threat, experiences with the WFD, available resources, complex division of responsibilities and interaction with other policies. Yet, the EU does not value the content of the Flood Directive as a hindering factor and also experiences with the WFD are judged by some actors as positive lessons. Moreover, the opinions of helicopter organizations are dispersed concerning the influence of activities of other Member States and public participation. Variations are probably caused by different interests and backgrounds of the individual organizations.

9. Survey results

9.1 Introduction

In this chapter the research results of the survey are presented. The survey is executed to test the generalizability of the case-study research outcomes as described in last chapters. So, sub-research question 11 will be answered: *do Dutch stakeholders that are involved in the implementation process, in general agree with the results gained during the case-study research or do they consider other factors as influential?* To answer this appropriately, case-study outcomes are translated into theorems, whereof respondents' opinions are asked (appendix 5 presents the survey list). The answer neutral in the survey, which is also visible in the figures, means that the respondent does not have an opinion concerning this theorem or that the respondent does not know the answer. The answer neutral is given very often, probably indicating that respondents are not well-informed regarding the Flood Directive, which seems especially the case for safety regions. There were even safety regions that could not fill in the survey due to too less foreknowledge relating to not prioritizing the Flood Directive and too low capacities (Drenthe, 2013; Groningen, 2013). The survey is answered by 47 respondents, ensuring reliable and precise research results according to Vocht (2007). In figure 1 of appendix 7, the distribution of the respondents' organizations is presented, showing that various types of organizations are involved covering a broad spectrum of Dutch water managers. This chapter summarizes the survey research results, and specific details and figures that support those conclusions can be found in appendix 7.

9.2 Experienced added value

Most survey respondents think that the added value of the Flood Directive for the Netherlands is high, which is similar to the results of the case-study research. However, also many actors do not have an opinion concerning this theorem. It is interesting that in general water boards, safety regions and the ministry are judging the advantages of the Flood Directive higher than provinces and the UvW, since the case-study research illustrated that particularly safety regions value less advantages of the Flood Directive. Especially the advantage of transparency towards citizens and the solidarity principle are experienced as most significant benefits of the Flood Directive by survey respondents. Also, the advantage of the combination of existing policies in one overview is mentioned as a significant improvement. Overall, more respondents value internal advantages for the Netherlands, like cooperation, transparency and the creation of an overview as important in comparison with transboundary cooperation (solidarity). Only two respondents state that the Flood Directive does not have an added value at all, similarly to the outcomes of the case-studies. More than half of the respondents think that the advantages would have been higher if the Flood Directive was not implemented via the sober and adequate ambition level, which is also observed during the case-study research. Yet, it is interesting that more than three quarters of the respondents is satisfied with this ambition level. It is notable that more than half of the respondents endorse the 'toepassingsbereik', while this led to delaying discussions as became clear from the case-study research (see figures 1 to 7, appendix 7).

9.3 Experienced progress of the implementation process

The respondents judge the progress of the Flood Directive's implementation process as predominantly positive, especially the ministry, Rijkswaterstaat, provinces and water boards. Contradiction, during the case-study research it became clear that various water boards and provinces were critical concerning the implementation process. In the survey, safety regions and the UvW

judge the process as primarily negative, which is similar to the outcomes of the case-studies. Besides, the implementation process is judged on average with a mark of 6,17 out of 10. The lowest mark given was a 4 (3 times) and the highest an 8 (1 time). Besides, the mark 6 is given most frequently. There is a significant difference regarding how different groups of actors experience the implementation process, meaning that there are large differences in experiencing the elapse of the process by type of actor. This is shown in figure 8 to 11 in appendix 7.

9.4 Factors influencing the implementation process

Factors selected by scientific literature and experienced as influential by actors in the case-study research are additionally tested in the survey. Each of those factors are described in this paragraph.

9.4.1 Description of hindering and stimulating factors

Most respondents think that the implementation process is both hindered and stimulated by the fact that the Netherlands has already a high quality flood risk management (*goodness of fit/misfit*). During the case-study research the actors also argued that this factor was highly influential, mostly in a stimulating manner, due to for instance less work and less bottlenecks. Yet, also hindering effects were mentioned, because this factor partly determined the sober ambition level and led to the thoughts that the Netherlands already does enough (figure 12, appendix 7).

Also the division of responsibilities (*fragmentation institutional structure*) regarding the implementation of the Flood Directive is valued by most respondents as having both a stimulating and hindering effect on the implementation process. This supports the outcomes of the case-study research. This is mainly the opinion of water boards, the ministry, Rijkswaterstaat and safety regions, while particularly provinces state that this factor has mainly positively influenced the implementation process. The differences between those groups are significant (figure 13 to 15, appendix 7).

Respondents are positive regarding *cooperation* during the implementation process of the Flood Directive. Approximately a quarter states that cooperation has improved and more than half of the respondents encounters that cooperation within the Netherlands has partly improved due to the Flood Directive. This is similar to the case-study outcomes, where most actors value cooperation within the Netherlands as a stimulating factor. Especially, cooperation between provinces and water boards is judged as positive. Besides, from the case-study research it became clear that municipalities and most safety regions hardly cooperated. The survey respondents agree that safety regions should have participated more actively, while they disagree concerning the participation of municipalities. An interesting outcome is that most safety regions also think that they should have contributed more to the implementation of the Flood Directive. Besides, fifteen respondents state that cooperation with other Member States has improved due to the Flood Directive. The high number of neutral answers can be explained by parties that do not deal with transboundary issues and are therefore not aware of transboundary cooperation differences, which also became clear during the case-study research in Rhine-west. In general, the case-study research also showed that cooperation with other Member States did improve. Especially, overarching organizations were positive, while regional parties in the Meuse were more critical since in their opinion cooperation was already present due to other programs (see figure 16 to 19, appendix 7).

Most respondents think that the factor *coordination* has negatively influenced the implementation process. According to the respondents, steering and coordination should have been performed better on both the provincial and national governmental level. Yet, the national government (ministry) and the provinces are the respondents that value coordination as a positive stimulating

factor. In the case-study research regional parties stated both positive and negative effects of coordination and overall coordination of provinces was valued more positive in comparison with steering of the national government. Besides, national organizations were more positive concerning the coordination. Nevertheless, more than half of the respondents state that they were informed appropriately by the ministry and provinces during the implementation process. Moreover, respondents are positive concerning the contributions of IMPRO and other overarching organizations (e.g. UvW and IPO), similarly to the case-study outcomes (figure 20 to 24, appendix 7).

From the survey, it becomes clear that most respondents think that *political will and support* did not influence the implementation process at all. On the other hand, also a large group of respondents argues that the relative low political attention towards the Flood Directive hindered the implementation. However, case-study research describes that parties both experience hindering and positive effects of the low political attention (figure 25, appendix 7).

Respondents experienced *societal support* as a non-influential factor concerning the implementation of the Flood Directive. Most actors in the case-study research share the same opinion, since societal awareness regarding the Flood Directive is low (figure 26, appendix 7).

Most of the respondents who gave their opinion concerning this factor, argue that the *political power of the EU* has stimulated the implementation process. Besides, it becomes clear that also a large group of respondents thinks that this factor did not have any influence regarding the implementation process. Actors of the case-study research are also mainly positive concerning the influence of EU political power (figure 27, appendix 7).

From the case-study research it became clear that the ‘Deltaprogramma’ was mostly interacting with the Floods Directive. The survey shows that most actors think that the ‘Deltaprogramma’ did not influence or hinder the implementation process of the Flood Directive (*interaction with other (national) policies*) (figure 28, appendix 7).

A clear majority of respondents state that the factor *content of the Directive* has hindered the implementation. Only three respondents state that the flexible content stimulated the implementation process. Also, most case-study actors did experience negative effects regarding the Directives’ content, such as interpretation difficulties and ambiguities (figure 29, appendix 7).

From the survey it becomes clear that most respondents think that the relative low willingness of regional parties to participate has hindered the implementation process. Yet, also almost a quarter thinks that this factor was non-influential. It is remarkable that the respondents who experienced this factor as hindering were mostly regional actors (provinces and water boards). The case-studies also showed that the low willingness of regional parties hindered the implementation. Yet, there were differences between the willingness of regional parties caused by varying interests. Moreover, in general the willingness was higher at national organizations (figure 30 and 31, appendix 7).

The survey results demonstrate that most respondents think that the overlap of interests and goals of the Netherlands as a downstream country and the Flood Directive has positively stimulated the implementation of the Flood Directive, similarly to the outcomes of the case-studies. However, also a large amount of respondents thinks that this factor did not have any influence. It is notable that particularly water boards think that this factor was non-influential. Also interesting is that most safety regions agree that the high interest of the Netherlands has stimulated the implementation (figure 32 and 33, appendix 7).

Most respondents think that the factor *political power of the Netherlands*, for instance via the initiative for the Flood Directive, did not influence the eventual implementation process. Contradictory, actors from the case-study research stated that this factor positively influenced the implementation, but this influence was relatively low (figure 34, appendix 7).

Respondents have different opinions concerning the influences of *activities of other Member States* on the implementation process of the Flood Directive. Almost a quarter of the respondents think that the activities of others influenced the Dutch implementation, while more than a quarter states that this did not have any influence. It is notable that especially actors from Rijkswaterstaat think this was influential, which can probably be explained due to their involvement in international consultations. This is supported by a significance test. Also the case-study results describe that Dutch parties experience this influence as limited (figure 35 to 37, appendix 7).

Respondents experienced the Flood Directive as a positive opportunity for the Netherlands that therefore stimulated the implementation (*attribution of opportunity/threat*). It is interesting that most of the respondents from safety regions experience the Flood Directive as an opportunity, while they are not so seriously participating. This is similar to the results of the Meuse area and overarching organizations. Yet, a large amount of the Rhine-west actors did experience the Flood Directive partly as a negative threat (figure 38 and 39, appendix 7).

Most respondents state that the experiences with the WFD have hindered the implementation of the Flood Directive (*attribution of success/failure*). However, also a large group of respondents argues that also positive lessons were learned from the WFD implementation, which stimulated the Flood Directive's implementation. Even six respondents state that this factor did not have an influence at all. It is interesting that mainly regional parties (water boards and provinces) think that this factor had a negative influence on the process and that the differences between those groups is significant. This corresponds to the outcomes of the case-study research (figure 40, 41 and 42, appendix 7).

There was no lack of *capacity and financial resources* or this lack did not hinder the implementation process, as became clear from experiences of most respondents. Yet, for approximately 20 per cent of the organizations, a lack of capacity resources was hindering. This latter group consists of regional parties, who deal clearly more with difficulties concerning capacities. Case study research also confirms this, while overall available resources were not influencing the implementation process, mainly because of the sober implementation insertion (figure 43 to 45, appendix 7).

9.5 Conclusion

Overall, it can be concluded that most of the survey results validate the case-study research results. Only, the factors political power of the Netherlands, interaction with other policies and political support were not or only partly supported. Therefore, the conclusion can be drawn that the results of both the case-study and survey research are generalizable towards the Netherlands.

10. Discussion

10.1 Introduction

In this chapter the research results will be discussed by comparing the results of the case-study areas and survey research in order to provide a general outline of influential factors. Moreover, those outcomes will be compared with the hypotheses and literature research of chapter 2 and 4. After that, critical considerations concerning the research are made in paragraph 3 of this chapter.

10.2 Comparison research results

In this paragraph, first similarities and differences in research outcomes will be discussed regarding the case-study areas, type of actors and the interview versus survey results. This comparison will form the basis for paragraph 10.2.4, where the overall results are compared with the hypotheses made in chapter 4. As follows, subquestion 8, 10 and 12 will be answered: *what are the similarities and differences of the influential factors between the Rhine-west and Meuse case-study area? And which differences and similarities can be distinguished between factors experienced by organizations on the national level and on the regional level? And what are the differences and similarities between the survey and case-study results?*

10.2.1 Comparison Meuse and Rhine-west catchment

It can be concluded that there is a lot of overlap in the research results of the Meuse and Rhine-west case-study. Most factors are experienced similarly in both areas, for instance similar hindering factors are the low and negative participation of safety regions and municipalities, not enough coordination of the national government, negative image of the EU, experiences with the WFD, low political support, interaction with other policies, the content of the Directive and the low availability of resources. Besides, actors in both case-studies value the following factors as mainly positive: coordination by the provinces, cooperation, goodness of fit, division of responsibilities, political power EU, overlap of goals and interests, political power of the Netherlands and cooperation. Actors from both case-studies have different opinions concerning the effect of the willingness of regional organizations to cooperate, the influence of the political culture, uncertainties, participation and the interpretation of the Flood Directive as an opportunity or threat. Also, actors from the Rhine-west area assess the total implementation process more negatively, which is probably caused by the fact that they deal less with transboundary issues leading to a lower relevance and interest concerning this Directive. Therefore, the actors from Rhine-west are also more positive concerning the choice for a sober ambition level and more negative regarding the advantages of the Flood Directive. Due to the higher interest, most actors of the Meuse case-study were more ambitious and enthusiastic. In both areas, most parties did not see individual advantages, yet they realize the benefits for the Netherlands in general. Both case-studies judge transparency, solidarity and the overview of plans and programs as the most important benefits. Also the division of roles and responsibilities is similar and the implementation is in a comparable stage. Besides, both case-studies are positive regarding the future of the Flood Directive and do not expect barriers for a correct and in time implementation. However, most actors in both areas do not know how the Flood Directive will be enforced and what will happen in future cycles.

10.2.2 Comparison regional and national actors

There are many similarities between the experiences of regional and national organizations. Examples of similarities are that both experience the following factors as stimulating: goodness of fit, cooperation, political power EU and the Netherlands. However, umbrella organizations representing

regional parties are more negative concerning the implementation process than other national actors. Therefore, those parties value the sober ambition level as appropriate, while more ambitious regional parties (especially Meuse area) and national organizations (e.g. ministry) were more enthusiastic at the start of the process. This is also influenced by the attribution of the Directive as an opportunity and the judgement of its benefits. In general, almost all organizations perceive advantages for the Netherlands and the EU in general, however most provinces, water boards and safety regions miss their individual benefits from this Directive. Therefore, the willingness of regional organizations was relatively low according to both national and regional parties, leading to the sober ambition level. Yet, almost all parties state that the coordination by provinces went fine. Besides, they also value the low level of political support, image of the EU, content of the Directive, interaction with other policies, available resources and experiences with the WFD as hindering. The political will to implement the Flood Directive was higher on national than on regional level. Other differences are that umbrella organizations experience the complex division of responsibilities as hindering, while regional parties see mainly the positive effects. Besides, regional parties state that safety regions and municipalities’ participation is too low, while the national government argues that their input via umbrella organizations is adequate. Furthermore, actors disagree concerning the influence of the actor’s self-interest and goals, the attribution of opportunity or threat and activities of other Member States. Moreover, the low level of societal support is by most regional parties experienced as non-influential, while the overarching organizations judge this as a small barrier. Besides that, it is interesting that all parties expect that deadlines will be reached properly and that enforcement is still unclear.

10.2.3 Comparison interviews and survey results

Based on chapter 9, it can be concluded that there are many similarities between the survey and case-study research results. Thus the survey outcomes validate the research results of the case-study research. Research outcomes of the survey are similar concerning the hindering factors of coordination, content of the Directive, relative low willingness of regional actors and experiences with the WFD. Moreover, they are similar concerning the following stimulating factors: goodness of fit, cooperation, political power of the EU and attribution of opportunity. Both types of research methods experience the division of responsibilities as having both a positive and negative influence. Also, both show that societal support was non-influential. Yet, the outcomes of the survey and case-study differ concerning the factors of political power of the Netherlands, interaction with other policies, lack of capacity and political support.

10.2.4 Comparison research results and hypotheses

Overall, it can be concluded that the implementation process of the Flood Directive in the Netherlands is going well and generally as arranged. Yet, the process was iterative and sometimes even laborious, due to many influencing factors. In the theoretical section and chapter 4, several factors were reviewed regarding their influence on the implementation and hypotheses were derived. The analysis of the case-study and survey research shows that some of these factors did occur in practice and had the predicted type of effect as described in the hypotheses, while others were not or only partially identified in practice. In the following text, each of the factors will be described, their effects and the whether or not confirmation with the related hypothesis is found. All factors are also summarized in figure 21.

Factor	Type of effect	Hypotheses
Goodness of fit	both	partly confirmed
Political culture	limited	not confirmed
Fragmentation institutional structure	both	partly confirmed
Coordination	both	partly confirmed
Cooperation	stimulating	confirmed
Flexibility	no influence	not confirmed
Political support	both	partly confirmed
Societal support	limited	not confirmed
Political power EU	stimulating	not confirmed
Interaction with other (national) policies	hindering	confirmed
Content Directive	hindering	confirmed
Political power Netherlands	stimulating	confirmed
Willingness to conform	hindering	not confirmed
Actor's self-interest and goals	stimulating	confirmed
Logic of appropriateness	limited	not confirmed
Image EU	hindering	confirmed
Attribution of opportunity/threat	both	partly confirmed
Attribution of failure	hindering	confirmed
Uncertainties	limited	not confirmed
Science	limited	not confirmed
Activities of other Member States	both	partly confirmed
Public participation	no influence	not confirmed
Available resources	both	confirmed

Figure 21: Final overview influencing factors, their type of effect and the comparison with hypotheses

The *goodness of fit* factor is by most actors of the case-study research experienced as stimulating, since the high amount of existing flood policies in the Netherlands eased the implementation of the Flood Directive. This is similar to the outcomes of literature research, which made clear that a fit between existing rules and structures and a Directive would positively affect the ease and speed of implementation. Yet, also hindering aspects for this factor were mentioned during the research, since this fit was one of the reasons for the sober implementation level. Responses from the survey supported this claim. Therefore, the hypotheses made for this factor is largely confirmed: *The fit between existing, advantaged flood risk management policies in the Netherlands and the Flood Directive will stimulate the policy implementation.*

Political culture is only recognized by a few parties as limited influential and some hindering and stimulating aspects were noticed relating to existing political norms, ideas and values in the Netherlands. The hypotheses was made that *Dutch political culture is in favour of water policies, which will probably stimulate the implementation of the Flood Directive.* It can be concluded that this hypothesis is not confirmed since the influence of this factor was restricted.

The factor *fragmentation of institutional structure* or the division of implementation responsibilities has both hindered and stimulated the implementation process according to the case-study and survey research. Almost all actors state that overall the involvement of many responsible parties made the process complex and caused delays, yet it is also a logical and historical structure to apply. This means that the hypothesis is partly confirmed: *the complex division of responsibilities could hinder the implementation process.*

The factor *coordination* is also differently experienced by actors, because national actors were more positive than regional parties. Also the survey respondents experienced this factor as mainly negative. Especially, national coordination was hindering the process, while provincial coordination was stimulating the process. So the hypothesis of this factor is also only partly confirmed, depending on the government layer: *the high level of coordination between public actors (on EU and national level) will stimulate the implementation of the Flood Directive.*

Cooperation on national and international level is experienced as an important, stimulating factor. However, cooperation with safety regions and municipalities could improve. Therefore, the hypothesis of this factor is confirmed: *various cooperation possibilities on national and international level stimulate the implementation of the Flood Directive.*

The factor *flexibility* of Member States to adapt to changes did not come forward during this research. The following hypothesis can therefore be rejected: *the embeddedness of flood risk management in Dutch policies and institutions will decrease their flexibility and possibly hinder the implementation process.*

It can be concluded that the factor *political support* was predominantly a hindering factor based on the case-study research, especially for regional organizations. Low political attention was leading to less resources and capacity due to not prioritizing the Flood Directive. On the other hand, some parties and the survey research make clear that more political attention would have made the implementation process more complex, so low political support was a stimulating factor. Therefore, the hypothesis derived is not confirmed: *high awareness of Dutch politicians for flood risks will stimulate the implementation of the Flood Directive*

The related factor of *societal support* was hardly influential as became clear during this study, since the implementation process took mainly place in the professional circuit. Therefore, the hypothesis is not affirmed, since it was expected that *the Dutch society was highly aware of flood risks, stimulating the implementation process.*

The factor *political power of the EU* was stimulating the implementation process in the Netherlands, since it served as a pressure for implementation. So the hypothesis derived is not confirmed: *the relatively low political power of the EU hindered the implementation process of the Flood Directive.*

The interaction with other (national) policies was hindering the process, yet this influence was relatively low. Especially the impact of the ‘Deltaprogramma’ was mentioned by interviewed actors, contra dictionary the survey respondents argued that this program was not hindering or influencing the implementation of the Flood Directive. So, it can be concluded that the case-study research confirms the hypothesis of this factor: *due to the high level of existing water policies that will interact in several ways with the Flood Directive, the implementation process will become more complex.*

This study made clear that the factor *content of the Directive* has definitely hindered the implementation process. The flexibility and non-strict requirements were leading to ambiguities, interpretations difficulties and recurring discussions. However, also some actors mentioned positive effects of a flexible and procedural Directive. Surely, the hypothesis can be confirmed: *interpretation difficulties and complexity of the Flood Directive hinder its implementation.*

According to the case-study research, the factor *political power of the Netherlands* and especially the related Dutch initiative for this Directive has had a limited, but stimulating influence on the

implementation process. The survey results affirm that this effect was low or naught. This means that the hypothesis is affirmed: *the Netherlands participated highly during policy making, so their political power was high which will stimulate the implementation process of the Flood Directive.*

Overall, the willingness of organizations was relatively low, hindering the implementation process of the Flood Directive. Therefore, the hypothesis cannot be confirmed: *based on the pro-active role of the Dutch government it can be expected that the willingness to conform to the Flood Directive is present and will stimulate the implementation process.*

Actor's self-interest and goals was also distinguished as a possible influencing factor. This research showed that the Flood Directive corresponds to most goals and interests of Dutch water managers, so the implementation of the Flood Directive was stimulated. In conclusion, the hypothesis is confirmed: *the Flood Directive fits mainly the interests and goals of the Dutch government, which will stimulate the implementation process of the Flood Directive.*

This research expresses that the factor *logic of appropriateness* was not or hardly influencing the implementation process. So the hypothesis cannot be confirmed: *the Netherlands values the requirements of the Flood Directive as the right thing to do, which will stimulate the implementation.*

According to this study, the negative *image of the EU* has definitely hindered the implementation process. This corresponds to the hypothesis: *when the image of the EU is positive in the Netherlands, than the implementation process will be smoother in comparison with a negative view on the EU.*

The *attribution* of the Flood Directive as *opportunity or threat* was different among actors involved, depending on their interests as water manager. This means that this factor had both a hindering and stimulating effect and overall, the hypothesis can be confirmed: *if Dutch organizations perceive the Flood Directive as an opportunity, than this will stimulate its implementation and vice versa.*

One of the most hindering factors distinguished is *attribution of failure* of the implementation of earlier Directives, in particular the WFD. The negative experiences with this Directive have strongly hindered the implementation process and led to the sober implementation ambition. So the hypothesis can be confirmed: *if an organization experienced the implementation of other Directives as a success, than this will influence the implementation process positively and vice versa.*

According to this research, the factors of *uncertainties and science* both had a very limited influence on the implementation process. Therefore, both hypotheses are not confirmed via this study: *the higher an actor experiences uncertainties, the more this will hinder the implementation process and scientific research and more information will stimulate the implementation of the Flood Directive.*

Actors involved in this study disagree concerning the influence of *activities of other Member States* in relation to the implementation in the Netherlands. Some state that the Netherlands have chosen for an implementation independently of other Member States, while others argue that for instance transboundary rivers are taken into account due to activities of other Member States. So the hypothesis is partly confirmed: *if other Member States are very ambitious to meet the requirements of the Flood Directive, than this will influence the implementation in the Netherlands positively.*

By analysing the implementation process so far, it becomes clear that *public participation* did not yet play an important role. This means that the hypothesis cannot be affirmed: *the requirement of public participation will increase the participation level, which will stimulate the implementation process.*

On national level the factor of *available resources* was not influencing the process. However, on regional level this was an important hindering factor, especially regarding capacity. This factor aggravated due to low political attention and enthusiasm for the Flood Directive. Yet, in comparison with other implementation trajectories, the Flood Directive did not cost much effort and resources. So the hypothesis is confirmed: *the higher the availability of resources, the easier the implementation process will be.*

To conclude, comparing theory with practice, the concurrence is larger than the discrepancy, since most theoretical variables were definitely influential during the implementation of the Flood Directive. However, many hypotheses were not confirmed. Yet, respondents did also mention factors that were not distinguished by science at all, such as the fact that a new process is always iterative and contains difficulties, unclear enforcement of the EU is hindering the process, the betimes start of the implementation process and the related missing time pressure. All both hindered and stimulated the process. Moreover, sub-optimal communication of the national government was hindering other parties involved, just like the ‘toepassingsbereik’ and the decision for not executing the preliminary flood risk assessment. Furthermore, it was a tough process to aggregate regional input in national plans, yet this regional input contains also positive effects. Also, cooperation and alignment with neighbouring countries ensures positive final effects, but was causing delays during the process. Besides, it was hindering that parties involved had varying abilities to participate and used for instance different systems and models to gather the data. Additional stimulating factors are the valuable contribution and coordination of IMPRO, the establishment of coordination and production teams and the agenda-setting possibilities of this Directive for flood risks.

10.3 Critical considerations

Although this research provides relevant findings to construct conclusions and recommendations in the following chapter, it is important to critically reflect in this paragraph upon the weaknesses and strengths of the research applied.

Firstly, it would be unrealistic to claim that the theoretical analysis is exhaustive and complete, as there might be other factors influential, yet not considered by the author, due to new scientific developments or factors that are not determined and studied at all by scientific research. However, this weakness was restricted since actors were able to supplement the list of factors during the interviews. This was asked before the list of factors was shown to the respondents, thus they were not prejudiced. Secondly, a content analysis of the Flood Directive was executed, providing an overview of its consequences. However, the studied list of documents is not exhaustive. The main research method applied was the comparative case-study, ensuring the research’ depth, whereby data was collected via 35 interviews to maximize the accuracy and reliability of the analysis. The selection of the case-study areas is motivated in chapter 1, making it possible to compare the implementation process in two representative Dutch areas. Almost all relevant actors involved in those areas participated in the research, ensuring the representation of the most important type of actors. Data is collected via semi-structured interviews to steer the research while still providing the possibility for interviewees to provide information not included in the questionnaire. The first part of the interview list contains general questions which are not related to theory, while the second part consists of questions relating to the factors selected from theoretical research. Yet, it should be mentioned that actors could have given socially desirable answers, because interviews were not anonymous, the implementation process is still continuing and it concerns a topic directly related to the relevancy of their working activities. Furthermore, interviews’ analysis is based on the researcher’s interpretation and biases present within the researcher’s own desires and opinion.

Nevertheless, it is tried to secure objectivity by recording all interviews and writing down the exact responses in transcripts. Moreover, the breadth and external validity limitation related to the case-study research was limited due to the execution of an additional survey research. Due to the large amount of prior knowledge, an efficient questionnaire with mainly theorems was made. Though, weaknesses of this questionnaire were the low answer flexibility due to pre-structuring, possible interpretation differences between actors and possible suggestive answer possibilities. Furthermore, not all factors selected in literature were incorporated in the survey, due to limited time of respondents. Only factors were included who turned out to be relevant during the case-study research. Another weakness of both the case-study and survey research is the low involvement of safety regions and particularly municipalities. This is not considered as a major problem since the findings show that their roles concerning the implementation of the Flood Directive were considerably smaller in comparison with other actors. Both the interviews and survey were conducted in an ethical way. For instance, every respondent was informed on the purpose of the study and the fact that data collected is only used for this study. Other issues that may harm the reliability and validity are related to the difficulty for finding causal relations, due to factors that interact, the influence of side-effects, the complexity of the institutional background and others.

The combination of research strategies is one of the strengths of this study since internal and external validity are maximized for the Netherlands, similar to the participation of many actors and the large amount of data collected. Another strength is that various types of organizations were included and that persons interviewed were highly involved and therefore could provide relevant information. During the whole research various important considerations were made carefully. However, it should be noticed that all conclusions are based on the experiences of actors in the field and are therefore not per se established facts or truths.

Furthermore, it is important to mention that this research was narrowed down towards the implementation of the Flood Directive in the Netherlands due to available research time. The research results are thus not generalizable to the European level, due to differences in culture, history, political aspects and others. It would be valuable to compare countries as units of analysis in order to research if other Member States experience similar or different influential factors and what causes those differences and similarities. Such studies could contribute to a more complete analysis and thus increasing its usefulness on an EU governmental level.

11. Conclusion and recommendations

11.1 Introduction

As became clear from the first chapters, flood risks are increasing, leading to a need for appropriate management especially in the vulnerable Dutch delta area. The EU Flood Directive is established to manage flood risks uniform for the European community. The most important requirements that should be reached by each Member State according to this Directive are the execution of a preliminary risk assessment, the production of flood risk and hazard maps for significant risk areas and the establishment of flood risk management plans for each river basin. During the performing of those requirements, implementation principles and project requirements should be followed. Theory shows that the impact of the Flood Directive depends on its implementation in the Member State individually. In order to improve the impact of a Directive, it is important to understand the implementation process and to understand which factors hinder and stimulate this process. The purpose of this research is to study factors that influence the implementation of the Flood Directive in the Netherlands and learn lessons to improve this implementation process. Various research steps were undertaken and sub-research questions were answered, to answer the main research question appropriately: *which factors hinder or stimulate the implementation of the EU Flood Directive in the Netherlands?* Examples of those research steps are a content analysis of the Flood Directive, a comparative case-study research in the Meuse and Rhine-west catchment and a survey research among all actors involved in the implementation process.

11.2 Conclusion

By answering the research question it can be concluded that lots of factors influence(d) the implementation process of the Flood Directive in a variety of ways. Complex division of implementation responsibilities, the flexible and sometimes unclear content of the Flood Directive, the relative low willingness of regional organizations to confirm, the negative image of the EU among Dutch actors, the too low availability of resources for the implementation on the regional level, weak cooperation and participation of municipalities and safety regions, negative experiences with the implementation of the WFD and other Directives and the restricted coordination of the national government were the most important hindering factors concerning the implementation of the Flood Directive in the Netherlands. On the other hand, the overlap between existing flood policies in the Netherlands and the Flood Directive, the regional coordination of provinces, the overlap of the Flood Directive with actor's self-interests and goals, political power and pressure from the EU, cooperation in the Netherlands and cooperation and alignment with other Member States are distinguished in this research as the most significant stimulating factors regarding the implementation of the Flood Directive in the Netherlands. Besides, there is no consensus concerning the type and level of influence of some factors, like political support. An interesting outcome is that various factors both had hindering and stimulating effects, which highlights the complexity of the implementation process. Moreover, it is interesting that some of the factors distinguished in literature did not influence the implementation of the Flood Directive, this could be explained due to specific circumstances in the Netherlands. For example, the sober implementation level made the factor of *public participation* superfluous, since only existing policies were incorporated.

It is notable, that the chosen sober and appropriate implementation ambition level played an important role regarding the progress of the implementation process. This implementation level is both experienced as positive and negative and did influence the hindering and stimulating factors

and vice versa. Though, the Flood Directive also contains new elements instead of only existing policies and plans, such as the inclusion of regional waters.

11.3 Recommendations

Based on the previous paragraph, positive lessons can be learned. Examples are that:

- Various parties are cooperating to make common plans, so a similar way of cooperation can be applied. This cooperation can stimulate collaboration on other subjects. Besides, this cooperation ensures that input from all views is heard. Also, the incorporation of objective actors without interests regarding the implementation, such as Deltares, was positive.
- Special teams concerned with aspects of the implementation can ease the implementation process, such as production teams, coordination teams and IMPRO.
- A mixture of bottom-up and top down governance is applicable in practice. For instance, the coordination of provinces was positively steering the implementation on regional level.

Based on the conclusions, the following recommendations can be derived in order to improve the implementation process of the Flood Directive, other EU Directives and to overcome the negative barrier effects of hindering factors. Some recommendations are suitable for specific actors, while others are applicable in general. The applicability will be mentioned for each actor at the end of the recommendation. It is interesting that most recommendations are specifically focussing on the Dutch national government.

- **More discussions on ambiguities concerning the implementation and EU enforcement and knowledge exchange on European level in workgroup F** could overcome implementation difficulties in individual Member States. This could also give support to the development of one river basin approach for flood risk management. Moreover, international consultation between regional parties would also be helpful, since at this moment international cooperation takes mainly place on the level of Member States. *(EU, national government)*
- Also **more steering and clarification of the EU** could overcome ambiguities among participating parties. For instance, the reporting sheets were established while the implementation in Member States was already started. Also, **the Directive itself could have been formulated more clearly**, in order to overcome interpretation difficulties. *(EU)*
- Besides, **the Dutch national government should coordinate the process more actively and should have chosen one implementation strategy at the start of the process**. For instance, the national government should choose a clear line in discussions concerning for example the 'toepassingsbereik'. Moreover, **responsibilities, tasks and goals for each actor should be clarified better**, in order to overcome ambiguities among organizations. Regional parties should have been involved better during this clarification at the start of the process. *(national government)*
- A related advice is that **more time should have been taken at the start of the implementation process**, to overcome some of the barriers during the iterative process. For instance, an **assessment executed at the start** could have clarified some expectable problems beforehand. An example of a barrier that could have been easily provided is that possibilities of data delivering of regional parties should have been clear at the start of the process. *(general recommendation)*
- The hindering willingness and enthusiasm of regional parties to cooperate, particularly from water boards, safety regions and municipalities, could be improved by a **better presentation of their individual and common advantages of the Flood Directive by the national government**. Clear benefits will improve enthusiasm and involvement among organizations. Besides, the national government could organize **more meetings diffused among the**

country, since some actors were not able to participate actively due to travel distances. *(national government)*

- Also the **differences and separation between the WFD and Flood Directive should be made more clear** for regional parties, in order to decrease the influence of negative WFD experiences. In this way, more parties will attribute the Flood Directive as an opportunity instead of a threat, which stimulates the implementation process. Also, more **positive lessons could be learned from the implementation process of the WFD and other EU Directives**. *(general recommendation)*
- Moreover, **participation of safety regions should be supported**, since they have valuable information and experiences concerning the third layer of flood management. This could be done by the provision of capabilities by the national government and provinces. Also, participation could be stimulated via the 'Veiligheidsberaad' (umbrella organization of safety regions). Besides, safety regions should put more effort on this subject. *(safety region's and national government)*
- **Participation of municipalities can be stimulated perfectly at this stage of the implementation process**, since communication towards citizens is necessary regarding for instance the publication of flood maps. Local governments can easily contact groups within society. *(municipalities)*
- The funding problem could be solved by **using the EU regional development funds** for the implementation of the Flood Directive. Moreover, in the future **positive exchange** between Member States could be arranged in the Flood Directive to create win-win situations. *(EU and national government)*
- Another lesson that can be learned is that there should come **more careful alignment between the Flood Directive, the 'Deltaprogramma' and other flood and water policies** in the Netherlands. Since at this moment opportunities are missed. For instance, gaps determined during the establishment of the flood risk management plans could be taken into account in the decisions of the 'Deltaprogramma'. In the follow-up cycle, the Deltaprogramma could be totally integrated in the flood management plans, therefore the reporting of this first cycle can be seen as a starting point instead of a final stage. *(all governmental levels)*
- It is positive that very much information is available concerning the implementation process, yet especially regional parties are lacking capacity to range this bulk of data. Next to the overall information site Viadesk and general newsletters, regularly **summarized information could be provided each focussing on specific types of organizations**. In this way, for instance safety regions only need to read information that is meaningful for their organization and therefore, those organizations become more obtainable and probably more involved. *(national government)*
- **Attention on political level should be stimulated more actively**. For instance, at the start of the process it is important to inform administrations of all organizations, instead of only following official channels. In this way, more resources and priority are ensured. However, this should not make the implementation process too complex. *(all governmental levels)*
- Besides, it is really important to **have enthusiastic and capable people on all relevant posts**. *(general recommendation)*
- The Flood Directive can be used to **develop a frame of current gaps and possible development points**, in order to improve flood risk management in the future. In this way the reporting of existing policies will also become more usefull for actors involved. *(general recommendation)*

- At this moment a **clear communication plan** for flood risks should be developed. For instance, it should become clear which actors are responsible for the communication concerning the output of the Flood Directive towards citizens. The national government should play a leading role in the development of this plan. Especially in this phase, participation of municipalities should be stimulated, since they are formally responsible for risk communication towards society. (*national government, municipalities*)
- **Products made for the Flood Directive can be used for several purposes** instead of only reporting towards the EU. For example, flood hazard and risk maps can be used to update evacuation plans.

In conclusion, the implementation of the Flood Directive is an interesting and well evolving process. Hence, various lessons can be learned to improve this implementation and the implementation of other Directives. This research shows that efforts put in place help improve the implementation process in practice. Though, to eventually reach a common river basin flood management approach, which is the ideal behind the Flood Directive, many aspects still need to improve. It can be concluded that the Netherlands did appropriately dive into floods by implementing the Flood Directive, yet another dive should be taken to continue this process positively and to manage future flood risks adequately.

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Appendix

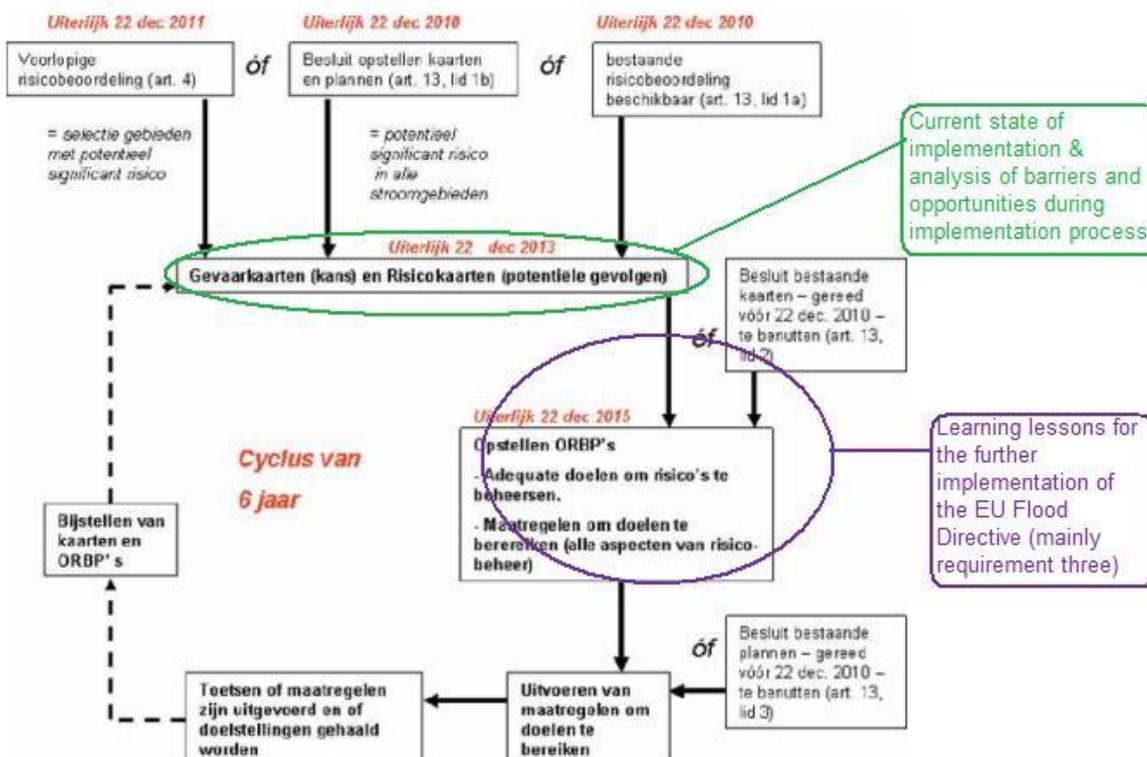
1: Overview of existing water policies and programs in the Netherlands

veiligheidsketen	pro-actie	preventie	preparatie	repressie	nazorg
wetgeving	Wet ruimtelijke ordening (Wro)	Waterwet (Wtw)	Wet op de veiligheidsregio's (Wvr)		
	Nationaal Waterplan van Verkeer en Waterstaat (Wtw)				
Rijk	Nota Ruimte van VROM (Wro)	hoogwater-beschermings-programma van Verkeer en Waterstaat (Wtw)	nationaal crisisplan hoogwater en overstromingen van Binnenlandse Zaken (Wvr)		
provincie	provinciale structuurvisie (Wro)				
	provinciaal waterplan (Wtw)				
waterschap	waterbeheerplan (Wtw)		calamiteitenplan (Wtw)		
veiligheidsregio			crisisplan (Wvr), rampbestrijdingsplan (Wvr)		
gemeente	bestemmingsplan (Wro)				

Source: Leskens et al. (2009)

2: Visualization research place in implementation process

Source original picture: Ministerie van Verkeer en Waterstaat (2008)



3: Standardized interview questions case-study research

Interview questions case-study Meuse and Rhine-west	
General interview questions (to measure dependent variable implementation level):	
What is your role within this organization?	
Which role performs your organization concerning the implementation of the Flood Directive? What are the implementation responsibilities of your organization?	
What do you think concerning the degree of involvement of your organization during all phases of the implementation (since 2007)?	
To which extent are the Flood Directives' objectives met within your region and how and in which stage of the implementation process do you think your organization is at the moment of interviewing?	
What are the advantages of the Flood Directive for your organization and for the Netherlands in general?	
What do you think regarding the implementation progress within the Meuse/Rhine-west river basin area?	
Which factors stimulating the implementation process of the Flood Directive do/did you experience?	
Which factors that hinder the implementation process do/did you experience?	
Which challenges and opportunities do you experience?	
How did the Flood Directive influence transboundary cooperation so far?	
Do you think that the Flood Directive will be implemented correctly?	
What will be future barriers and opportunities in order to implement the Flood Directive correctly and in time?	
Factors	Specific questions (to measure independent variables):
Goodness of fit/misfit	Do you think that the Flood Directive fits the existing governance, administrative and institutional structure in the Netherlands? Does (and how) this fit/misfit influences the implementation of the Flood Directive in the Netherlands?
Political culture	Is the Dutch political value and norm system in line with the requirements of the Flood Directive? Does the political culture of the Netherlands influence the implementation level? (And how?)
Fragmentation institutional structure	Do you think that the division of responsibilities concerning the implementation of the Flood Directive, did and will influence the implementation process? (and how?)
Coordination	How does your organization experiences coordination concerning the implementation of the Flood Directive? Do you think coordination has an effect on the implementation process of the Flood Directive? Are there possibilities to improve the coordination of the implementation of the Flood Directive?
Cooperation	In which way does your organization cooperate in implementation process of the Flood Directive? How do you value the cooperation in general for this implementation process? How does this influence the implementation process?
Flexibility	How flexible is your organization to adapt to changes, such as the Flood Directive? Do you think this degree of flexibility influences the implementation process, and in which way?
Political and Societal support	Is there in your opinion political support among your organization and other organizations for this Directive? Do you think that there is enough societal support for the Flood Directive? How do both influence the implementation process in your opinion?
Political power	In which way does the political power of the EU influence the implementation of

EU	the Flood Directive in the Netherlands?
Interaction with other (national) policies	How does the Flood Directive interact with other policies? Does this interaction influence the implementation process? And in which way?
Content Directive	Do you think that the complexity, quality and other content related aspects of the Flood Directive influence the implementation from the view of your organization? And in which way?
Willingness	Would your organization be willing to act upon the Flood Directive if you were not forced to do so?
Actors self-interest and goals	Does the Flood Directive fit the interest and goals of your organization? And how does this fit or misfit influences the implementation process within your organization?
Logic of appropriateness	Do you think that the requirements of the Flood Directive are the right thing to do in order to deal with future flood risks? How does this affect the implementation process?
Image EU	How would you determine the current image of the EU within your organization and how does this influence the implementation process of the Flood Directive?
Political power Netherlands	How did the Netherlands participate in the policy making process of the Flood Directive and how does this stimulate or hinder the implementation process?
Activities of other Member States	Do you think that the Netherlands takes the responses of other Member States into account and how does this affect the implementation process?
Attribution opportunity or threat	Is the Flood Directive an opportunity or a threat to realize the goals of your organization and in which way does this influence the implementation of the Flood Directive?
Attribution of success or failure	How do you/your organization perceive the implementation process of other/earlier EU Directives? Do you think that this influences the current implementation process?
Uncertainties	Do you think that uncertainties related to for example the Flood Directive, flood risk management and climate change influence the implementation process from the view of your organization?
Science	In which way does the Netherlands stimulate science related to flood risk management? And what is the influence of scientific knowledge on the implementation of the Flood Directive?
Public participation	How is society participating during the implementation of the Flood Directive? In which way do you think that this participation contributes to the implementation process of the Flood Directive?
Available resources	How do the available resources within your organization affect the implementation process of the Flood Directive?

*Besides those standardized questions, specific questions were asked related to the organization interviewed.

** Originally questions were asked in Dutch, because this is the native language of all actors (excluding the EU interview).

Measuring the relative importance of each factor	
0	This factor did not influence the implementation process.
1	This factor had an influence on the implementation process.
2	This factor strongly influenced the progress of the implementation process.

4: Overview interviewed stakeholders

Overview interviews case-study Meuse and Rhine-west				
Organization	Name	Date	Role	Case-study area
European level				
EU	Maria Brättemark	7-1-2013	Policy Officer WFD and Flood Directive	-
National level				
Deltares	Kymo Slager	12-3-2013	Project leader Flood Directive for Deltares	Both
Inter Provinciaal Overleg	Cees Kamphuis	8-1-2013	Advisor water	Both
Inter Provincial Overleg	Joyce Klink	16-4-2013	Administrator Lizzard Database	Both
Ministerie Infrastructuur en Milieu	William van Berkel	29-1-2013	Project leader Flood Directive	Both
Ministerie Infrastructuur en Milieu	Bob Dekker	21-2-2013	EU water director	Both
Rijkswaterstaat	Frank Alberts	27-11-2012, 14-2-2013	Former coordinator implementation Flood Directive	Both
Rijkswaterstaat	Arthur Kors	27-11-2013, 15-2-2013	Current coordinator implementation Flood Directive	Both
Rijkswaterstaat	Max Linsen	27-11-2012	International coordination Flood Directive, representative workgroup F EU	Both
Unie van Waterschappen	Efrath Silver	22-11-2012, 29-01-2013	Representative Flood Directive from 2011	Both
Unie van Waterschappen	Henk de Kruijk	22-11-2012	Representative Flood Directive until 2011	Both
Vereniging Nederlandse Riviergemeenten	Teus Gijzel	4-1-2013	Representative of VNR concerning the Flood Directive	Both
Provincial level				
Provincie Gelderland	Nathalie Hoppenbrouwers	4-3-2013	Dossier flood risk management	Both
Provincie Limburg	Jaap Goudriaan	10-1-2013	Policy advisor water: focus on flood risks	Meuse
Provincie Noord-Brabant	Marja Segers Jolanda Bauwens	15-1-2013	Management Ecology: surface water Integrated water projects	Meuse

Provincie Noord-Holland	Martijn Lucas	19-2-2013	Policy advisor water	Rhine-west
Provincie Utrecht	Wouter Egas	21-2-2013	Policy advisor water	Rhine-west
Provincie Zuid-Holland	Rene Piek Steven Krol	8-1-2013	Policy advisor water and green	Both
Regional level				
Municipality 's - Hertogenbosch	Jan van Vliet Sander Tax	28-1-2013	Senior specialist water Senior advisor water and sewerage	Meuse
Veiligheidsregio Brabant Midden-West	Ceriel Thissen	16-1-2013	Advisor crisis management	Meuse
Veiligheidsregio Gelderland-Zuid	Ignas Kamps	28-2-2013	collaborator	Both
Veiligheidsregio Limburg Noord	Peter Bloemers	21-1-2013	Policy advisor preparation (fire brigade)	Meuse
Veiligheidsregio Utrecht	Elsbeth Beeke	18-2-2013	Specialist risks and safety: water	Rhine-west
Waterschap Aa en Maas	Joop de Bijl	17-1-2013	Senior policy advisor water safety	Meuse
Waterschap Amstel, Gooi en Vecht	Johan de Bondt	26-3-2013	Dijkgraaf	Rhine-west
Waterschap Brabantse Delta	Victor Witter	11-1-2013	Senior policy advisor	Meuse
Waterschap de Dommel	Mark van de Wouw	22-1-2013	Hydrologist, project leader and policy advisor	Meuse
Waterschap Hollands Noorderkwartier	Sandra Komen Marcel Boomgaard		Policy developer water safety and weirs Representative Flood Directive flood maps	Rhine-west
Waterschap Hollandse Delta	Niels Robbemont	25-1-2013	Policy advisor disaster management	Both
Waterschap Peel en Maasvallei	Nila Timiniau Arjan van Hal	21-1-2013	Senior employee knowledge: hydrologist Advisor water safety and weirs	Meuse
Waterschap van Rijnland	Erwin de Groot	25-2-2013	Policy advisor	Rhine-west
Waterschap Rivierenland	Ellen Vonk	18-1-2013	Policy advisor water safety	Both
Waterschap Roer en Overmaas	Frank Heijens	23-1-2013	Team coordinator hydrology	Meuse
Waterschap	Paul Neijenhuis	18-2-2013	Policy advisor water	Rhine-west

Stichtse Rijnlanden			weirs	
Waternet	Piet Meertens	26-2-2013	Policy advisor	Rhine-west

5: Standardized survey question list

	General questions	Answer possibilities
1	Through which organization are you involved in the implementation process of the Flood Directive?	<ul style="list-style-type: none"> • Ministerie • Rijkswaterstaat • IPO • Unie van Waterschappen • Provincie • Waterschap • Veiligheidsregio • Gemeente • Other
2	The Flood Directive leads to many advantages for the Netherlands.	<ul style="list-style-type: none"> • agree • disagree • neutral
3	The most significant benefit of the Flood Directive for the Netherlands is:	<ul style="list-style-type: none"> • Internal cooperation between Dutch parties • The solidarity principle • More transparency towards society • Flood plans will provide a clear overview of existing policies • No added value • Others
4	The Netherlands implemented the Flood Directive in a sober manner. The advantages of the Flood Directive would have been higher, if another implementation ambition was chosen by the Netherlands.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
5	My organization supports the sober and appropriate implementation strategy.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
6	The Dutch secretary determined the scope ('toepassingsbereik') of the Flood Directive in 2011. My organization supports the choice for this implementation scope.	<ul style="list-style-type: none"> • Agree • Disagree (too broad scope) • Disagree (too narrow scope) • Neutral
7	I'm judging the progress of the implementation process (from 2007 until present) as:	<ul style="list-style-type: none"> • Positive • Mainly positive • Mainly negative • Negative

		<ul style="list-style-type: none"> • Neutral
8	I'll value the progress of the implementation with the following mark:	<ul style="list-style-type: none"> • From 0-10
9	My organization is appropriately informed during the implementation process.	<ul style="list-style-type: none"> • Yes • No • Neutral
10	My organization participated sufficiently during the process.	<ul style="list-style-type: none"> • Yes • No • Neutral
11	Overarching organizations (e.g. IPO and Unie van Waterschappen) positively contributed to the process.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
12	IMPRO positively contributed to the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
13	The contribution of municipalities to the implementation process should have been higher.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
14	The contribution of safety regions to the implementation process should have been higher.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
	Theorems concerning factors influencing the implementation	Answer possibilities
1	The implementation process is stimulated because of the high amount and quality of existing water policies in the Netherlands.	<ul style="list-style-type: none"> • Agree • Disagree (hindering factor) • Disagree (both positive and negative influence) • No influence • Neutral
2	The division of responsibilities concerning the implementation of the Flood Directive had a positive effect on the process.	<ul style="list-style-type: none"> • Agree • Disagree (hindering factor) • Disagree (both positive and negative influence) • No influence • Neutral
3	Cooperation between governmental organizations in the Netherlands went well regarding the implementation of the Flood Directive.	<ul style="list-style-type: none"> • Agree • Partly • Disagree • Neutral
4	Cooperation and alignment with other Member States did improve due to the Flood Directive.	<ul style="list-style-type: none"> • Agree • Disagree

		<ul style="list-style-type: none"> • Neutral
5	The coordination of the implementation process went fine.	<ul style="list-style-type: none"> • Agree • Disagree (more steering was needed from the national level) • Disagree (more steering was needed from the provincial level) • Disagree (more coordination was needed on both levels) • Neutral
6	The implementation process is hindered by the relative low political attention and support concerning the Flood Directive.	<ul style="list-style-type: none"> • Agree • Disagree (this factor stimulated the process) • No influence • Neutral
7	The implementation process is hindered by the relative low societal attention and support regarding flood risk management.	<ul style="list-style-type: none"> • Agree • Disagree (this factor stimulated the process) • No influence • Neutral
8	EU political power and pressure stimulated the implementation process in the Netherlands.	<ul style="list-style-type: none"> • Agree • Disagree (hindering factor) • No influence • Neutral
9	The Dutch initiative for the Flood Directive, has eventually also stimulated the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree (hindering factor) • No influence • Neutral
10	The interest of the Netherlands as a downstream country is relatively high, which has had a positive effect on the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree (hindering factor) • No influence • Neutral
11	Ambiguities and flexibilities in the content of the Directive have hindered the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree (this factor stimulated the process) • No influence • Neutral
12	The implementation process is hindered due to the relative low willingness of regional parties to cooperate.	<ul style="list-style-type: none"> • Agree • Disagree (this factor stimulated the process) • No influence

		<ul style="list-style-type: none"> • Neutral
13	The Dutch implementation process is influenced by the manner of implementation of other Member States.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
14	My organization attributes the Flood Directive as an opportunity.	<ul style="list-style-type: none"> • Agree • Disagree • Neutral
15	Experiences with the Water Framework Directive have negatively influenced the implementation process of the Flood Directive.	<ul style="list-style-type: none"> • Agree • Disagree (this factor stimulated the process) • No influence • Neutral
16	A lack of capacity within our organization has hindered the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree • No influence • Neutral
17	A lack of financial resources within our organization has hindered the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree • No influence • Neutral
18	The 'Deltaprogramma' hindered the implementation process.	<ul style="list-style-type: none"> • Agree • Disagree • No influence • Neutral

*Originally questions were asked in Dutch, since this is the native language of the actors involved.

6: Overview responsibilities involved actors

Schaalniveau	Partij	Rol
Internationaal niveau	Europese Commissie	Beheert richtlijn zelf en is verantwoordelijk voor implementatie van richtlijn door lidstaten en toetsing daarvan
	Duitsland, België, Engeland en Frankrijk – als partners van Nederland in de Internationale Rivier Commissies	Verantwoordelijk voor verplichte internationale afstemming op het gebied van waterveiligheid
Rijksniveau	Ministerie van Infrastructuur & Milieu	Eindverantwoordelijk voor implementatie en rapportage aan Brussel
	Rijkswaterstaat	Verantwoordelijk voor implementatie en rapportage aan Brussel
	Ministerie van Veiligheid en Justitie	Liaison namens de veiligheidsregio's
	Inspectie Verkeer & Waterstaat	Verantwoordelijk voor toetsing op beleid en regelgeving
	Deltacommissaris	Betrokkene voor klimaatverandering
Lokaal niveau	Waterschappen (UvW)	Verantwoordelijk voor het aanleveren van gegevens over onder andere primaire en secundaire keringen en regionale overstromingssimulatie
	Provincies (IPO)	1. Coördinatie op regionaal niveau; 2. Beheer risicokaarten; 3. Verantwoordelijk voor het aanleveren van gegevens over onder andere primaire en secundaire keringen en regionale overstromingssimulatie
	Vereniging Nederlandse Riviergemeenten	Aanleveren van gegevens van m.n. secundaire keringen, rampenplannen op niveau van veiligheidsregio's
	Veiligheidsregio's	Aanleveren van gegevens van m.n. rampenplannen.

Source: STOWA (2011, p.4).

7: Figures survey results

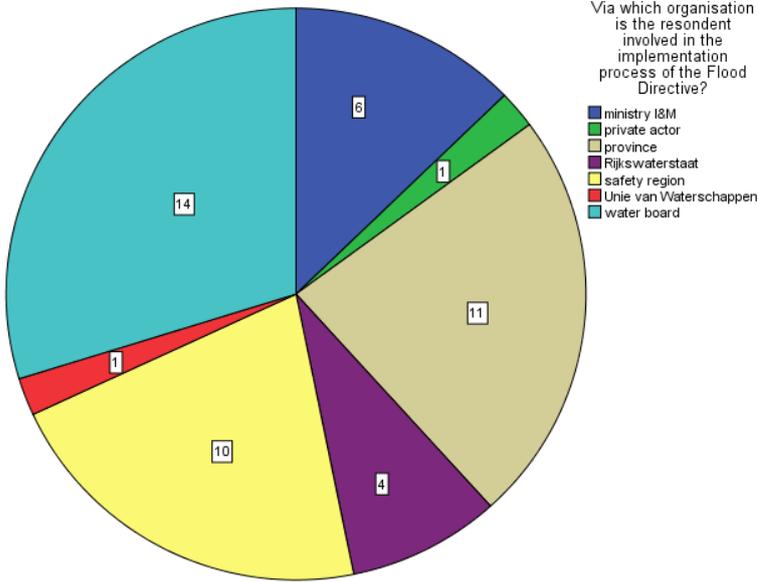
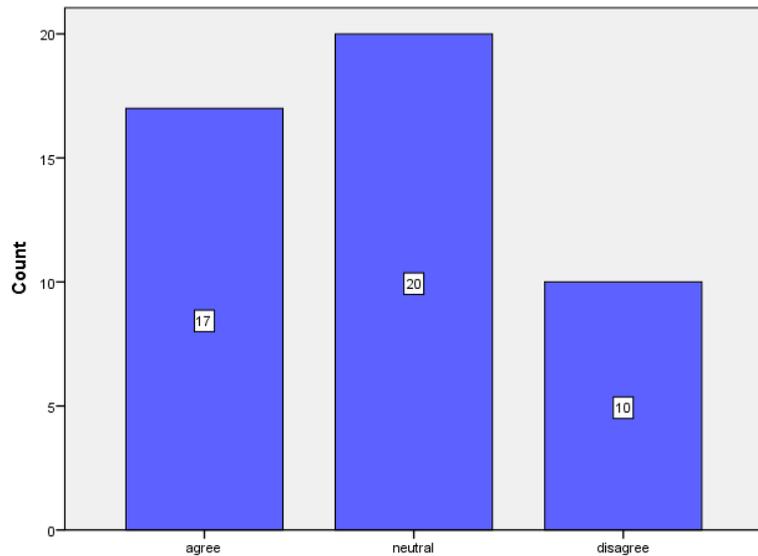


Figure 1: Overview types of organizations included in the survey research

Figure 2: The experienced added value of the Flood Directive for the Netherlands, by respondents



The experienced added value of the Flood Directive for the Netherlands is high

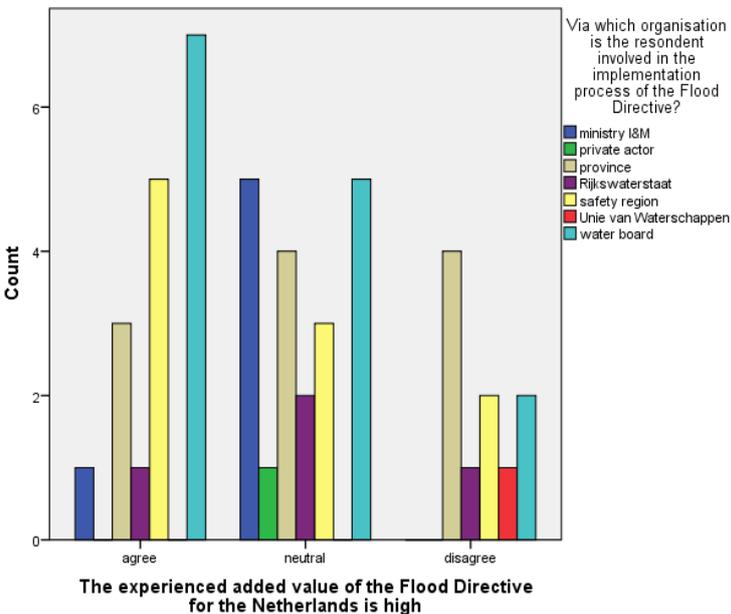
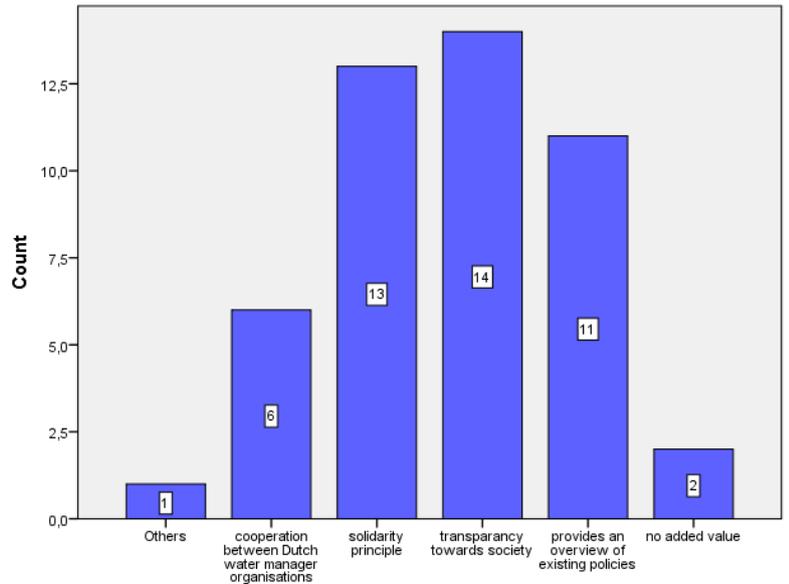
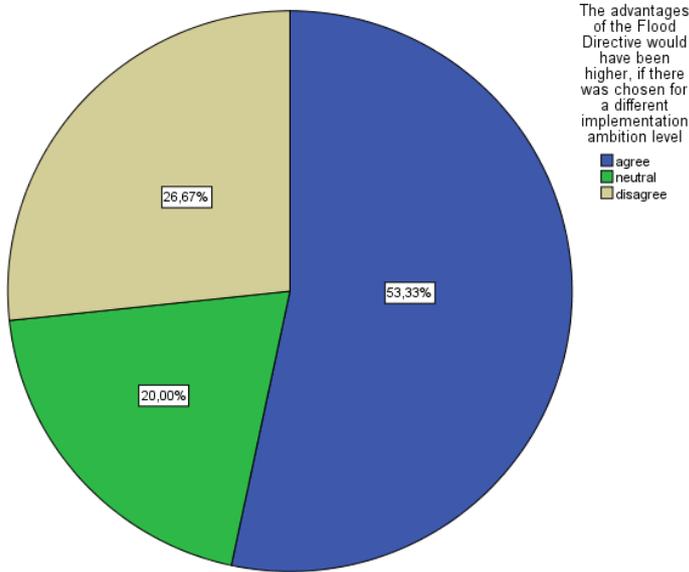


Figure 3: The added value of the Flood Directive for the Netherlands, as experienced by type of respondents

Figure 4: Most significant advantages of the Flood Directive, as experienced by respondents



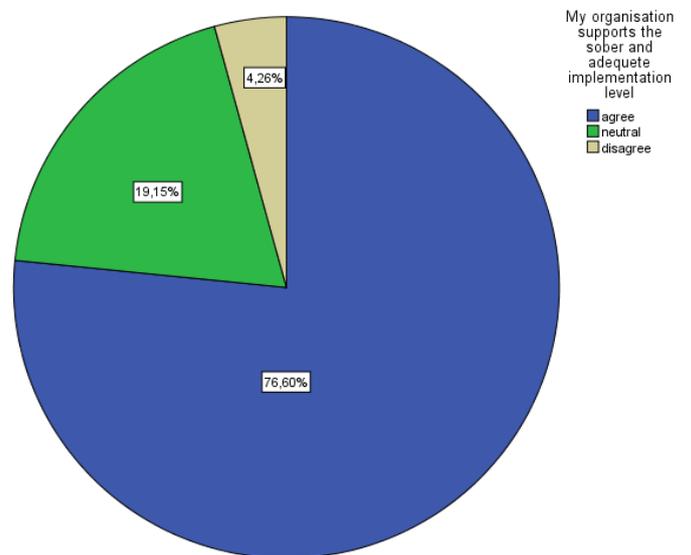
Most significant advantage of the Flood Directive for the Netherlands



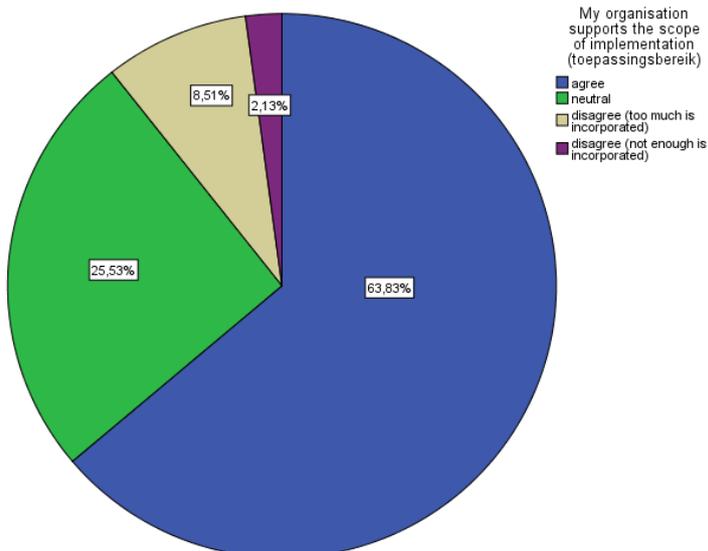
The advantages of the Flood Directive would have been higher, if there was chosen for a different implementation ambition level

Figure 5: Opinions of respondents concerning the theorem: advantage of Flood Directive would have been higher, if there was another implementation level

Figure 6: Organizations that support the sober and appropriate implementation ambition level



My organisation supports the sober and adequate implementation level



My organisation supports the scope of implementation (toepassingsbereik)

Figure 7: Organizations that support the 'toepassingsbereik'

Figure 8: Judgement of the progress of the implementation process by respondents

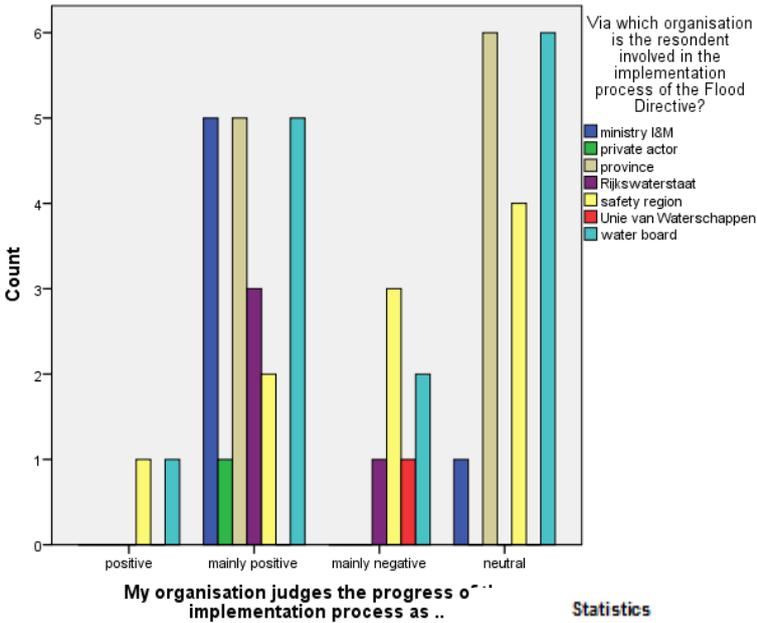
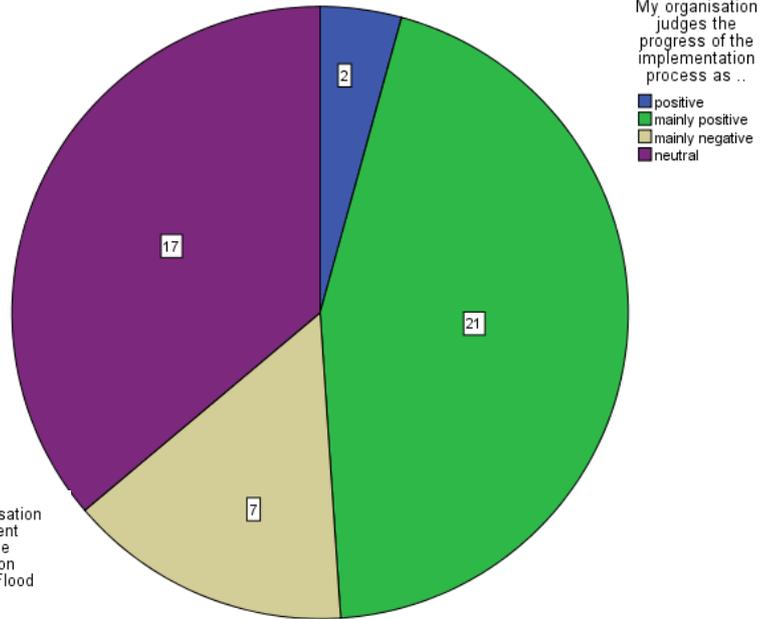


Figure 9: Judgement of the progress of the implementation process by type of organization

Figure 10: Marks given by respondents concerning the progress of the implementation process

Statistic	Value
N Valid	48
N Missing	1
Mean	6,17
Median	6,00
Mode	6
Std. Deviation	,902
Variance	,814
Range	4
Minimum	4
Maximum	8

Mark	Frequency	Percent	Valid Percent	Cumulative Percent
4	3	6,4	6,5	6,5
5	5	10,6	10,9	17,4
6	20	42,6	43,5	60,9
7	17	36,2	37,0	97,8
8	1	2,1	2,2	100,0
Total	48	97,9	100,0	
Missing	1	2,1		
Total	49	100,0		

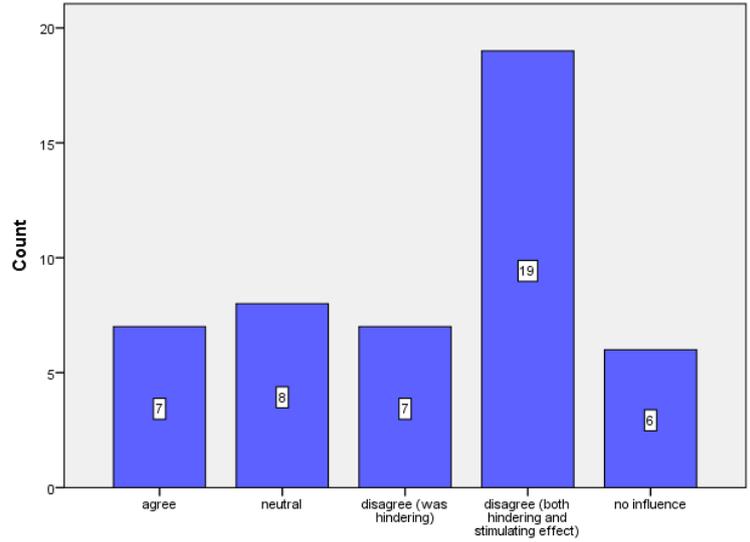
Test Statistics^{a,b}

Test	Value
Chi-Square	17,103
df	6
Asymp. Sig.	,009

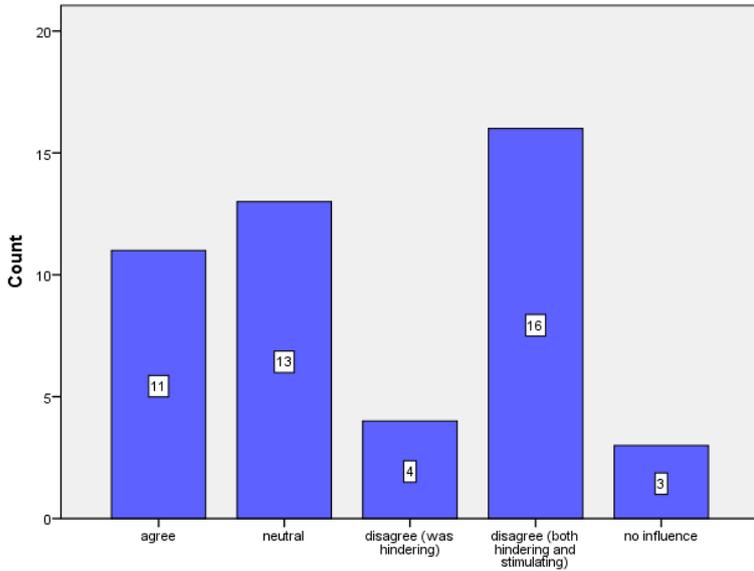
a. Kruskal Wallis Test

Figure 11: Kruskal Wallis statistical test

Figure 12: Factor goodness of fit/misfit as experienced by respondents



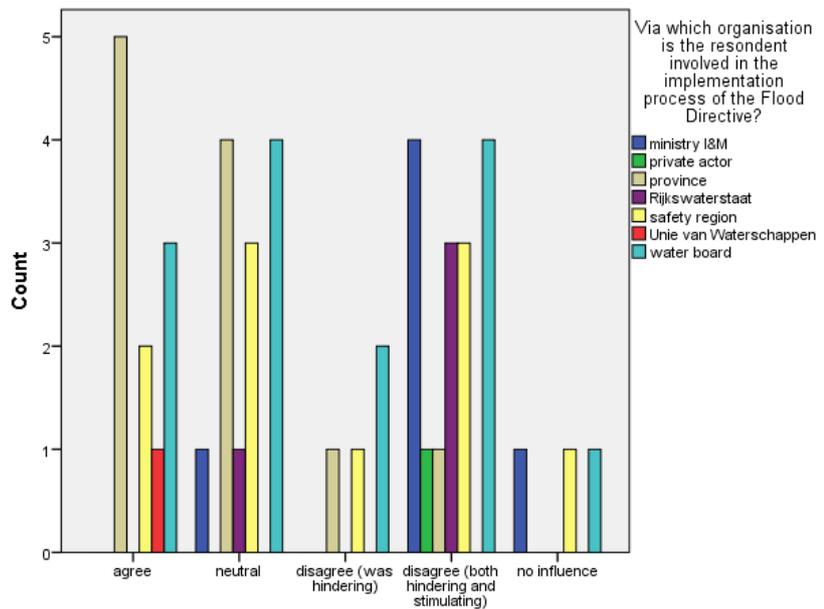
The goodness of fit of the Flood Directive with existing policies in the Netherlands stimulated the implementation process



The division of responsibilities stimulated the implementation process

Figure 13: Factor fragmentation institutional structure as experienced by respondents

Figure 14: Factor fragmentation institutional structure as experienced by type of organizations



The division of responsibilities stimulated the implementation process

Test Statistics^{a,b}

	The division of responsibilities stimulated the implementation process
Chi-Square	13,508
df	6
Asymp. Sig.	,036

a. Kruskal Wallis Test

Figure 15: Kruskal Wallis test for factor fragmentation institutional structure

'A dive into Floods'

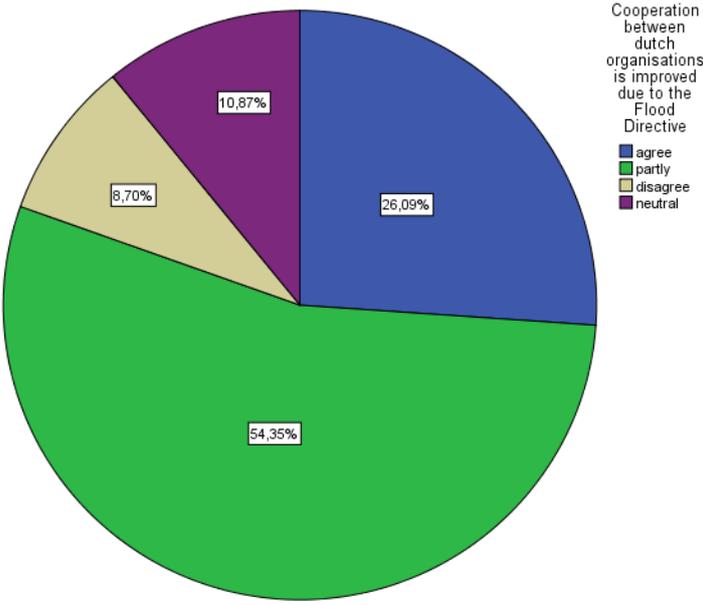
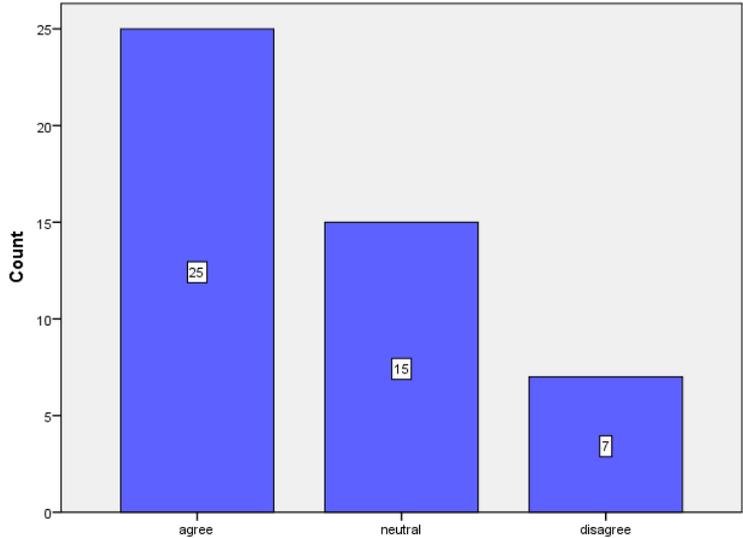


Figure 17: Experienced cooperation contribution of safety regions

Figure 16: Cooperation as experienced by respondents



The contribution of safety regions concerning the implementation process, should have been higher

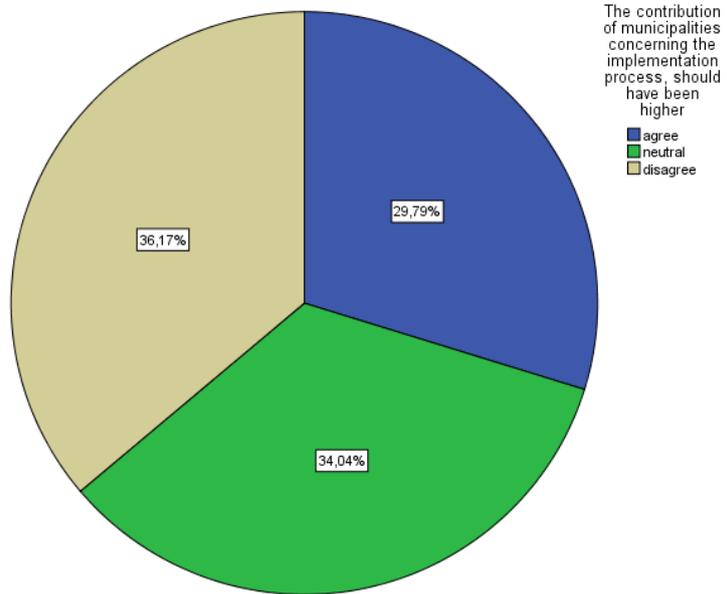
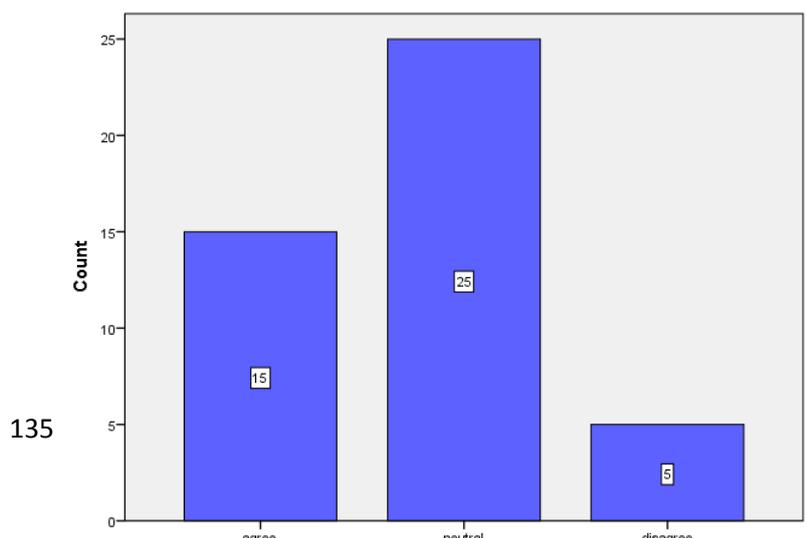


Figure 19: Experienced cooperation and alignment with other Member States

Figure 18: Experienced cooperation contribution of municipalities



Cooperation and alignment with other Member States has improved due to the Flood Directive

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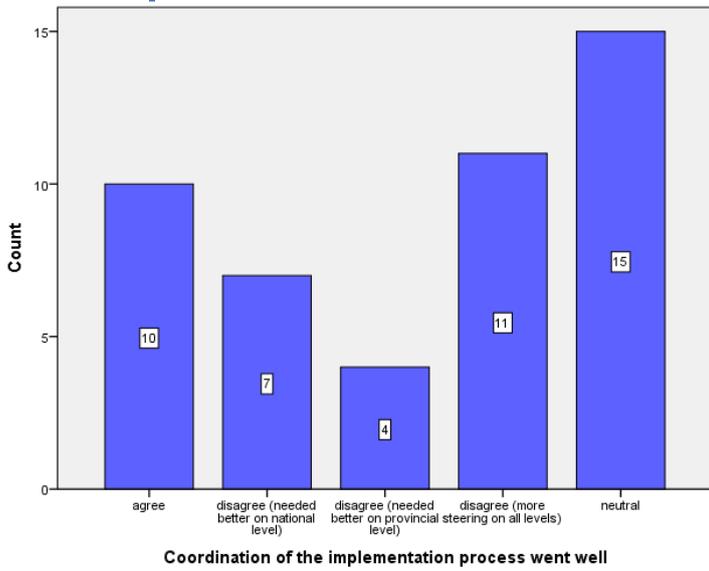


Figure 21: Experienced coordination of the implementation process by type of organization

Figure 20: Experienced coordination of the implementation process

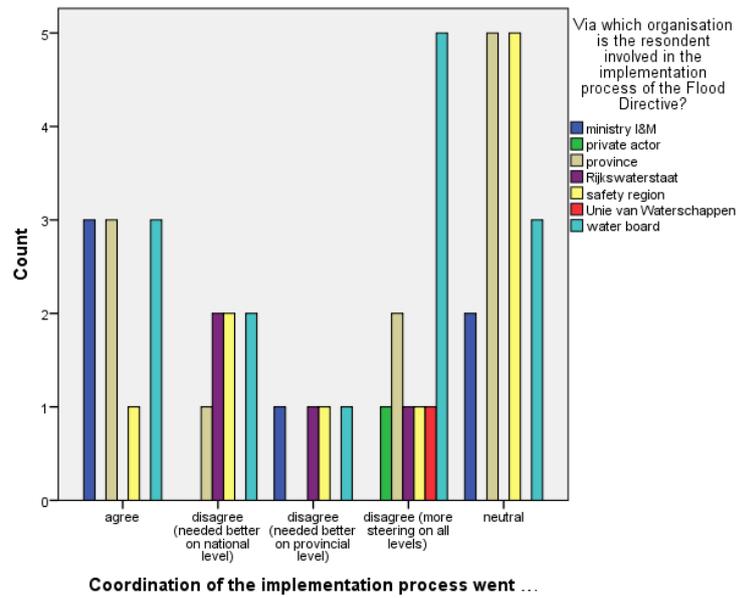


Figure 22: Experienced information provision during the implementation process

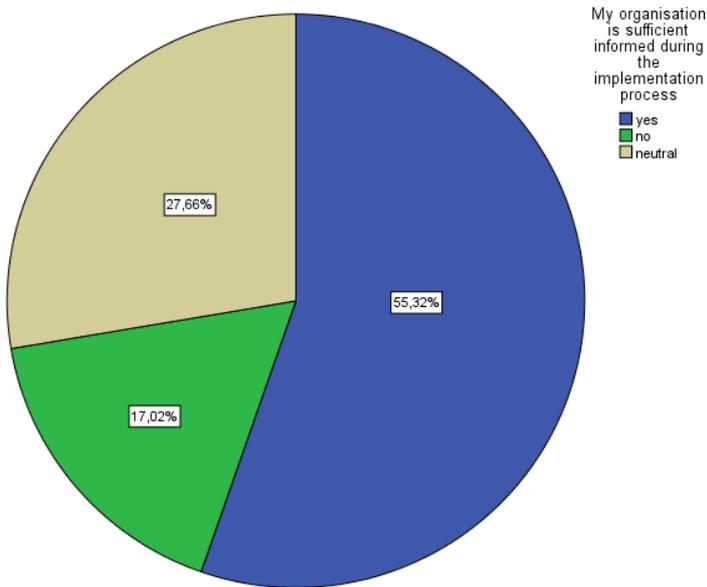
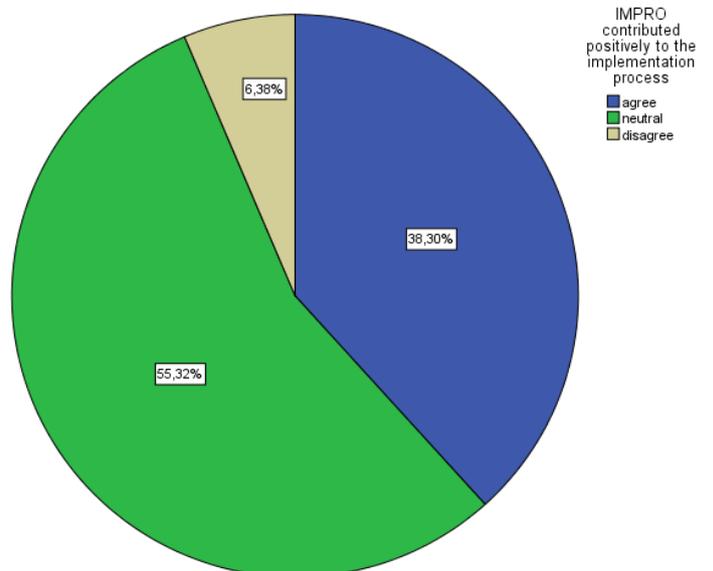


Figure 23: Experienced contribution of IPMRO



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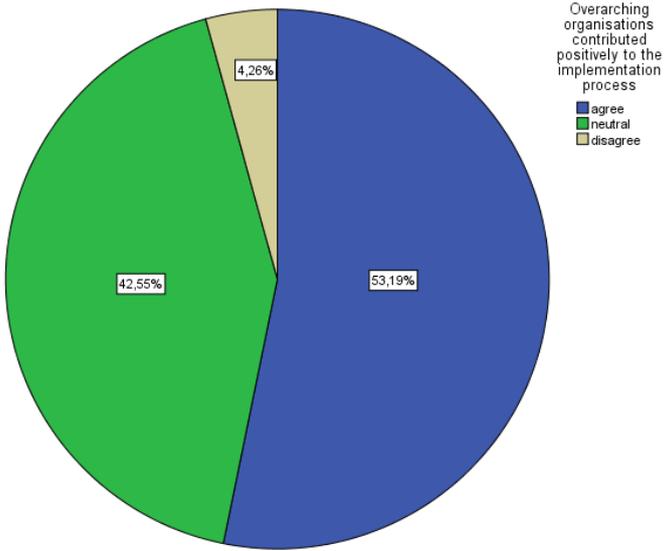


Figure 24: Experienced contribution of overarching organizations

Figure 25: Experienced political support

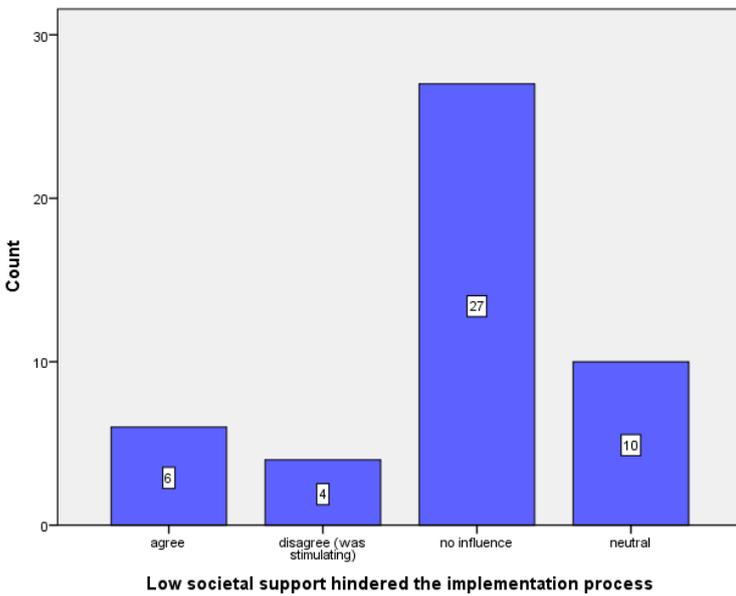
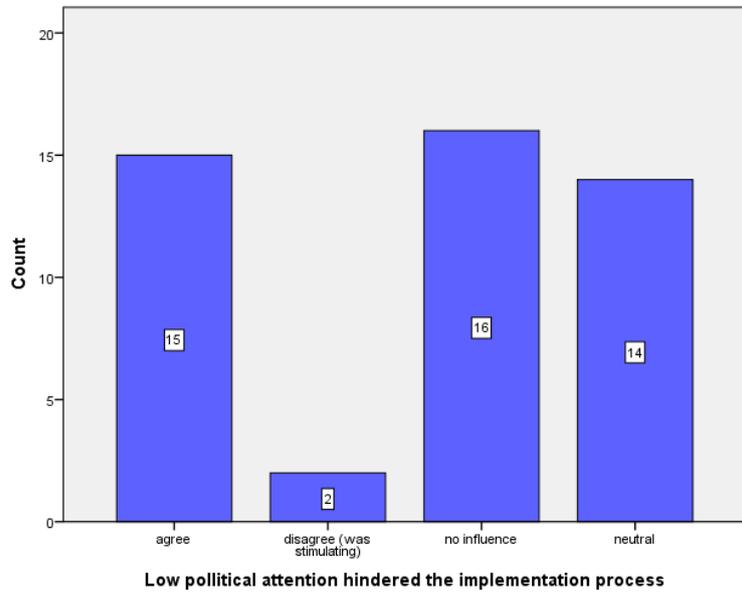
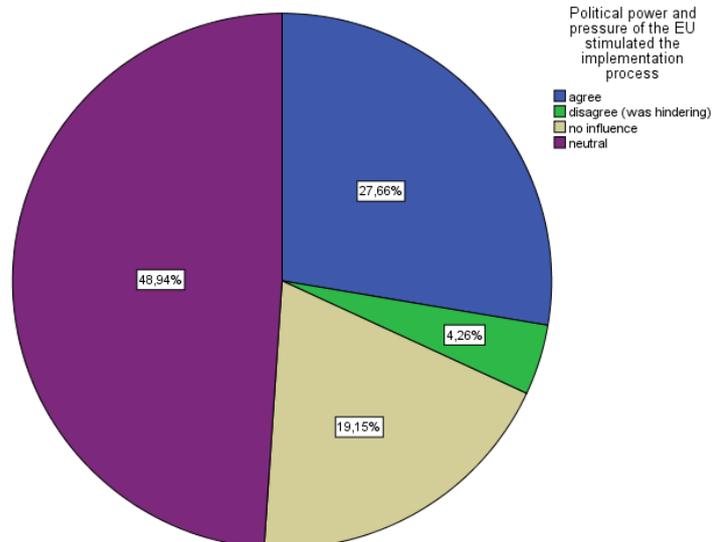


Figure 26: Experienced societal support

Figure 27: Experienced political power of the EU



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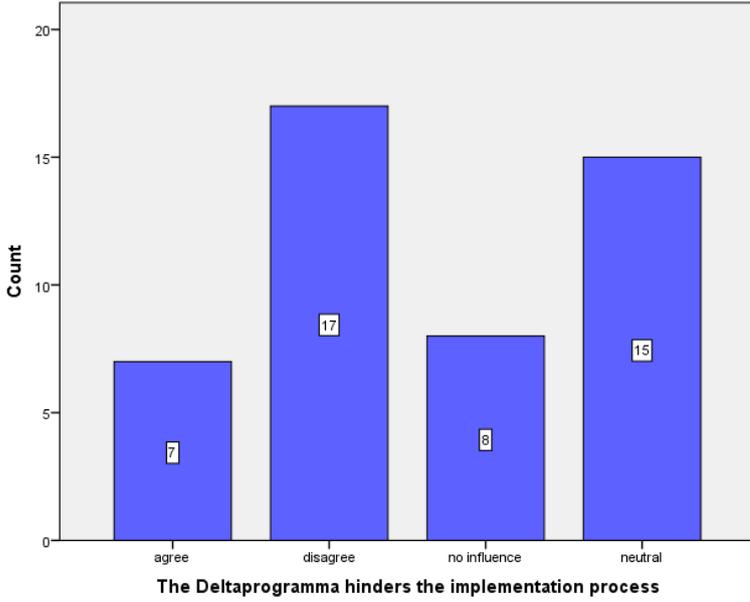


Figure 28: Experiences concerning the influence of the 'Deltaprogramma'

Figure 29: Experiences concerning the influence of the content of the Directive

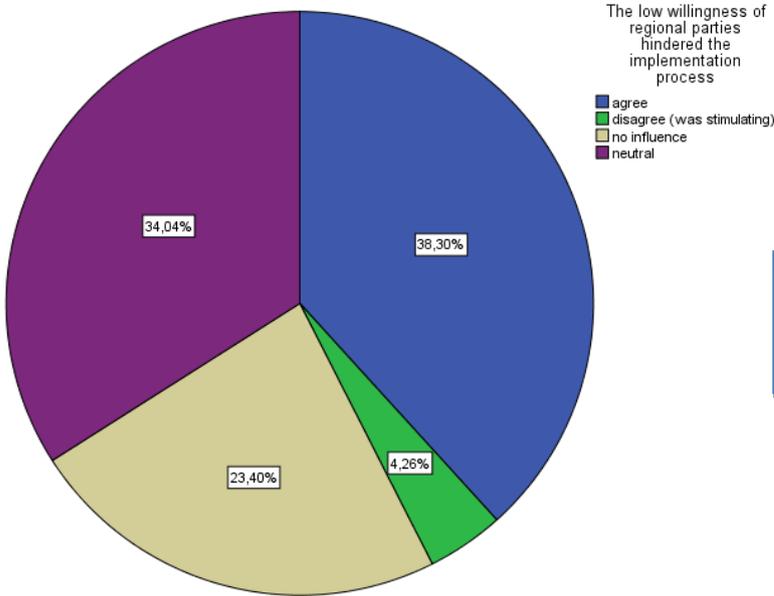
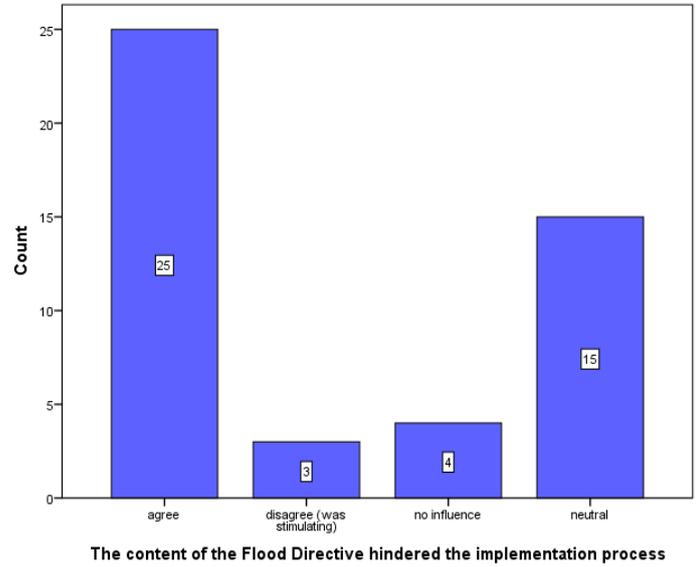
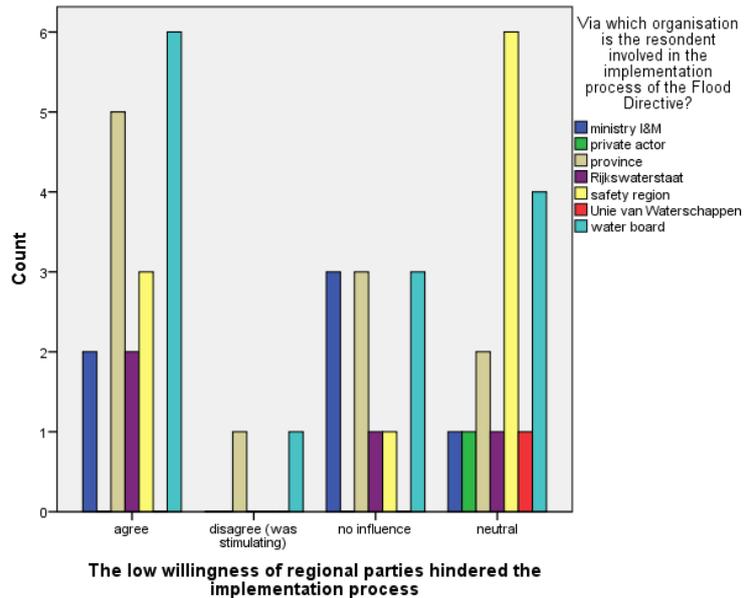


Figure 30: Experienced influence of willingness of regional parties

Figure 31: Experienced influence of willingness of regional parties by type of organization

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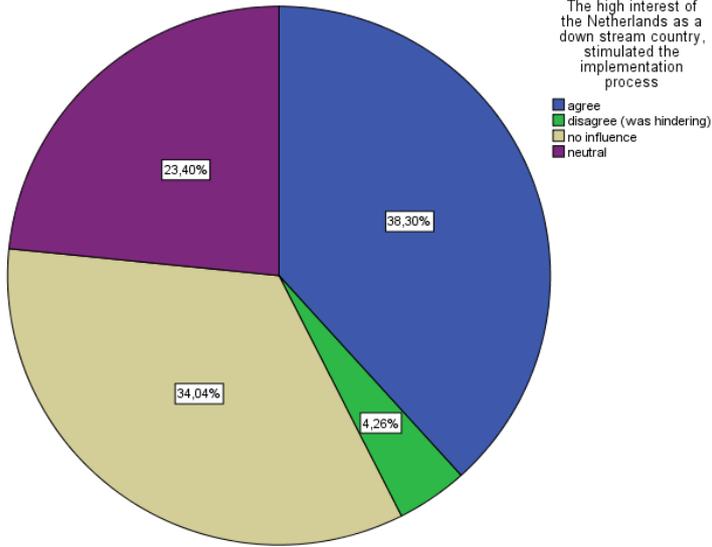
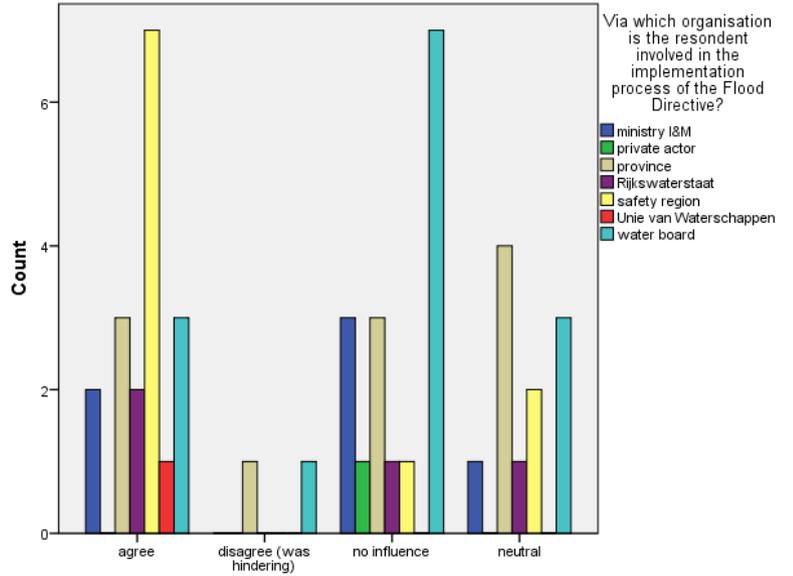


Figure 33: The interest and goals of the Netherlands did stimulate the implementation process experienced by type of organization

Figure 32: The interest and goals of the Netherlands did stimulate the implementation process



The high interest of the Netherlands as a downstream country, stimulated the implementation ...

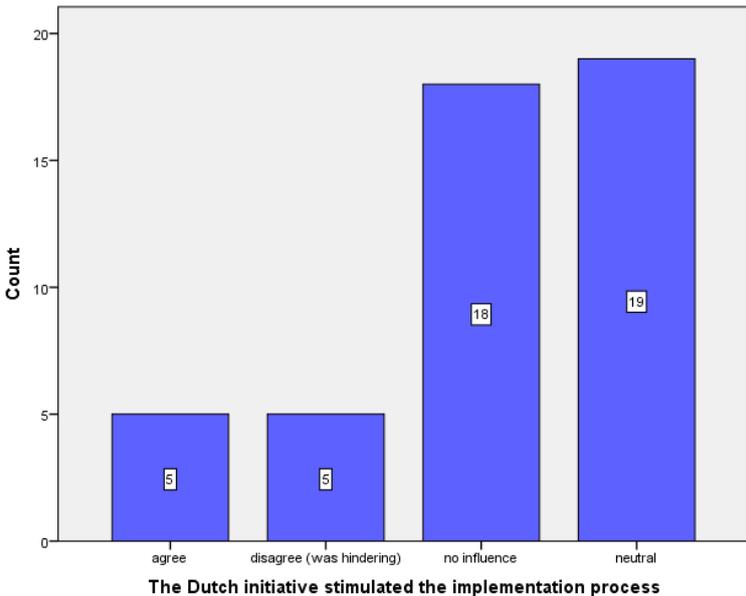
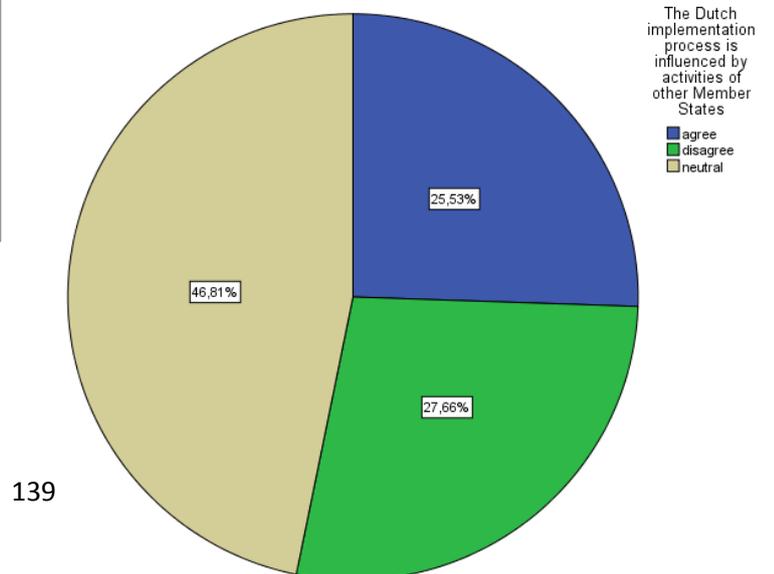


Figure 35: Experienced influence of activities of other Member States

Figure 34: Experienced influence of political power Netherlands



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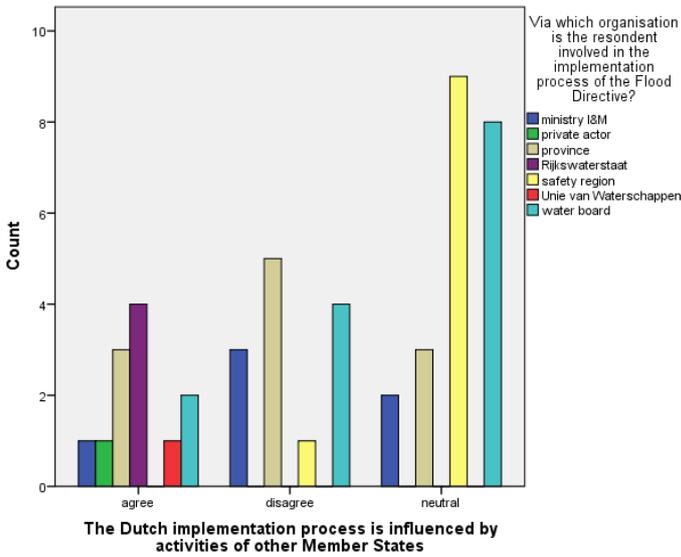


Figure 37: Kruskal Wallis test

Figure 36: Experienced influence of activities of other Member States by type of organization

Test Statistics^{a,b}

	The Dutch implementation process is influenced by activities of other Member States
Chi-Square	20,364
df	6
Asymp. Sig.	,002

a. Kruskal Wallis Test
 b. Grouping Variable: Via which organization is the respondent involved in the implementation process of the Flood Directive?

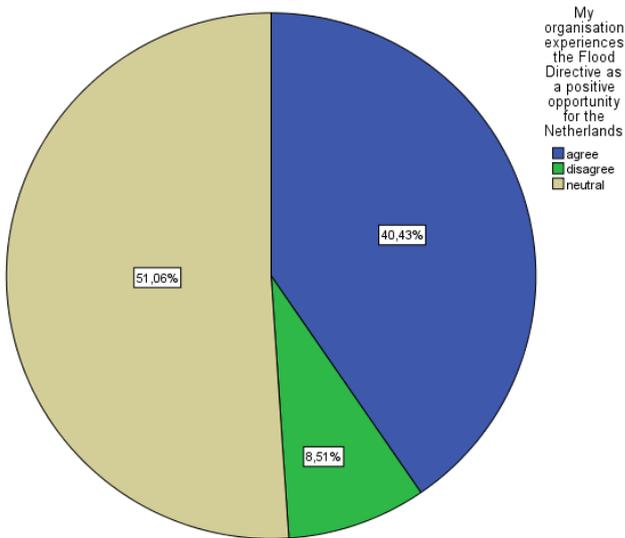
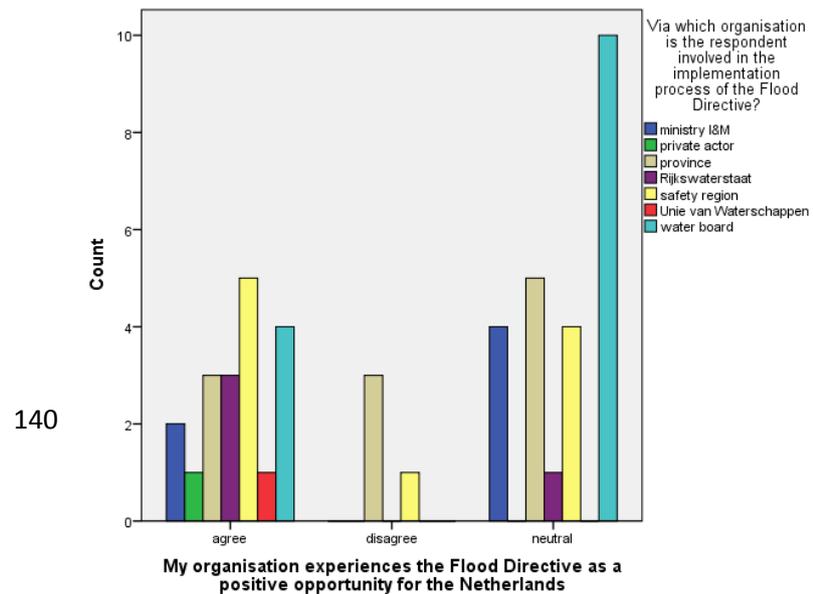


Figure 39: Experiences of the Flood Directive as opportunity/threat by type of organization

Figure 38: Experiences of the Flood Directive as opportunity/threat



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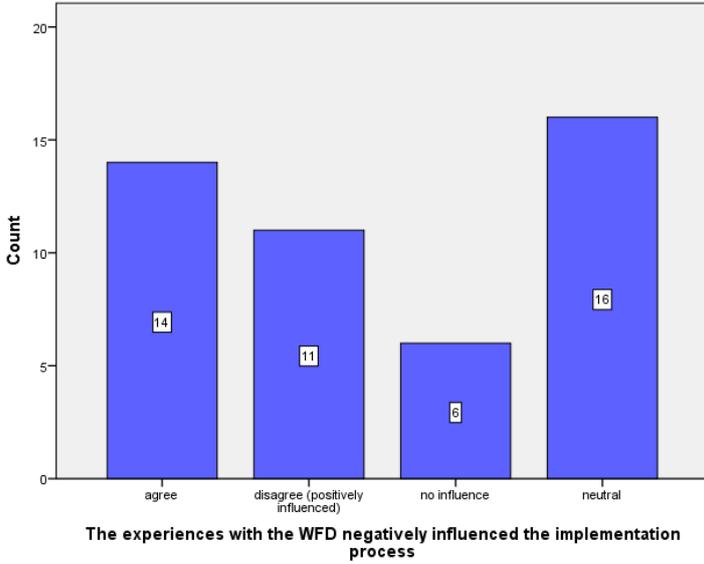
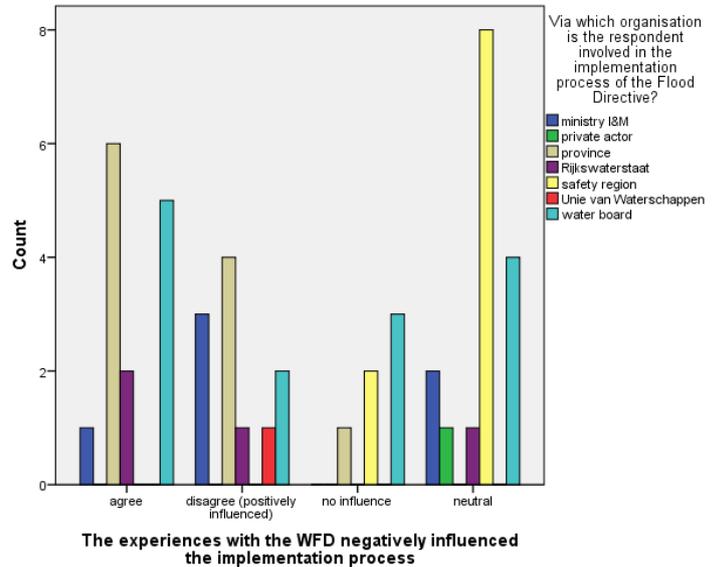


Figure 41: Experienced attribution of failure, regarding the WFD, by type of organization

Figure 40: Experienced attribution of failure, regarding the WFD



Test Statistics^{a,b}

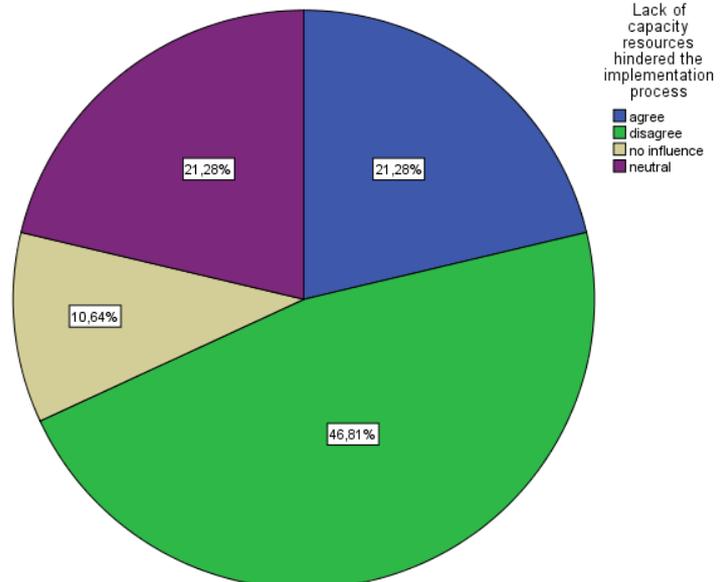
	The experiences with the WFD negatively influenced the implementation process
Chi-Square	18,901
df	6
Asymp. Sig.	,004

a. Kruskal Wallis Test

b. Grouping Variable: Via which organization is the respondent involved in the implementation process of the Flood Directive?

Figure 42: Kruskal Wallis test

Figure 43: Experienced influence available resources (capacity)



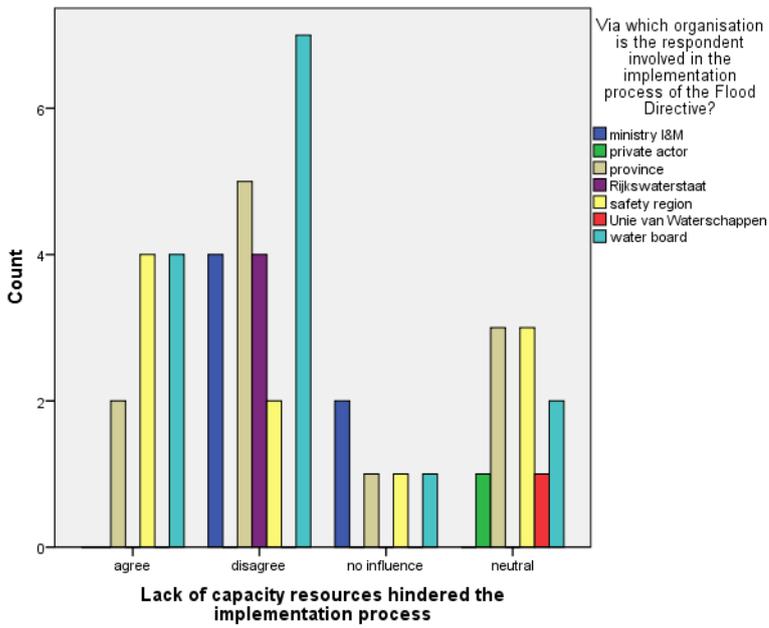


Figure 44: Experienced influence available resources (capacity) by type of organization

Figure 45: Experienced influence available resources (finance)

