STAR FLOOD

Strengthening and Redesigning European Flood Risk Practices
Towards Appropriate and Resilient Flood Risk Governance Arrangements

Researching Flood Risk Governance in Europe: a framework and methodology for assessing Flood Risk Governance

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Preface

This report is a deliverable of the EU 7th Framework Project STAR-FLOOD (www.starflood.eu). STAR-FLOOD focuses on Flood Risk Governance. The project investigates strategies for dealing with flood risks in 18 vulnerable urban regions in six European countries: England and Scotland in the UK, Belgium, France, The Netherlands, Poland and Sweden. The project assesses the institutional embedding of these strategies from a combined public administration and legal perspective, with the aim to make European regions more resilient to flood risks.

Together with the report entitled "Researching Flood Risk Governance in Europe: background theories" this report constitutes Deliverable D2.2, the main deliverable of Work Package 2. Whereas Work Package 1 provided an extended problem analysis related to Flood Risk Governance in Europe, Work Package 2 focuses on how Flood Risk Governance in Europe can be researched.

The current report lays down an assessment framework and methodology for the empirical analyses that will be carried out within the STAR-FLOOD project. It focuses on providing guidance for researchers on how to do the empirical analyses. The assessment framework is, however, based on a thorough review of social scientific, legal and economic literature relevant for Flood Risk Governance. A more detailed elaboration of this literature is given in the report "Researching Flood Risk Governance in Europe: background theories". The two reports together focus on how stability and dynamics in Flood Risk Governance, at the country level, can be analysed, explained and evaluated. The reports furthermore lay down a strategy for the empirical research.

The two reports of Deliverable D2.2 provide an extended elaboration on how the STAR-FLOOD researchers should go about the empirical research in order to maximise the scientific quality of the work as well as its societal relevance. The reports should be seen as working documents. Throughout the empirical research, further conceptual refinement as well as further operationalisation of STAR-FLOOD's key concepts will take place. It is also expected that the consortium's insights in how country-specific results can be compared and subsequently translated into good practices will progress in the course of the empirical work.

We trust that the current report is of interest for a broad readership. Besides the young researchers within the STAR-FLOOD consortium, the content of this report may also inspire other researchers and professionals with an interest in social scientific and legal research into Flood Risk Management, Disaster Risk Reduction or climate change adaptation.

Yours sincerely,

Prof. Corinne Larrue
Leader of WP2

Prof. Peter Driessen
STAR-FLOOD Project Coordinator

Executive Summary

This report, together with the report “Researching Flood Risk Governance in Europe: background theories" forms the main deliverable for the Second Work Package of the EU 7th Framework Project STAR-FLOOD. The current report lays down a methodological approach for assessing Flood Risk Governance in the six STAR-FLOOD consortium countries. The purpose of the Deliverable is to build a common approach for all the members of the consortium and provide a methodology for answering the questions raised during WP1. The report clarifies the three main steps of analysing, explaining and evaluating Flood Risk Governance and presents a methodology for the empirical research.

Chapter 2 elaborates the three main analytical challenges that have been distinguished. First, the three levels of analysis that will be used to assess Flood Risk Governance will be discussed, being the context, the National Flood Policies and Regulations domain and the case study level. Second, the chapter discusses the challenges and opportunities of combining and integrating public administration and legal expertise. Legal scholars and policy analysts have their own methods, theories and way of seeing things but these can enrich and complement each other. Third, the chapter discusses how the STAR-FLOOD researchers, within the chosen focus on vulnerable urban agglomerations, can pay sufficient attention to trans-boundary issues, that is, issues that transcend this geographical scale. Finally, the chapter introduces the Policy Arrangements Approach. It defines the four dimensions composing the PAA: actors and their coalitions, resources and powers, rules of the game and discourses.

Chapter 3 operationalizes the Policy Arrangements Approach (PAA) and provides guidance on how the approach can be applied in empirical research. It is argued that by using the Policy Arrangements Approach, researchers can perform analyses at the level of the National Flood Policies and Regulations domain and the level of the case studies, adequately taking context factors into account. This analysis provides insight in the presence or absence of shifts in Flood Risk Governance at both the NFPR and the case study level as well as insights in the extent to which Flood Risk Governance Arrangements enable or constrain certain Flood Risk Management Strategies. Furthermore, the PAA allows for combining and integrating public administration and legal expertise.

Chapter 4 provides a framework for explaining stability and dynamics in Flood Risk Governance Arrangements. Such an explanatory framework is needed to be able, in a later stage, to identify design principles for appropriate and resilient Flood Risk Governance. The latter can only be done if one can plausibly argue that certain actions have been the cause of certain outcomes. The chapter starts off by denominating the explanandum, being *the presence or absence of dynamics in Flood Risk Governance Arrangements in the various STAR-FLOOD consortium countries, at the country level* (the National Flood Policies and Regulations Domain, NFPR) . To acquire insight in what happens at this level, in-depth studies of three case studies within each country will be carried out. It is expected that change sometimes can be evaluated positively and sometimes negatively (see chapter 5), that the margins for establishing change are generally small but that some levers for achieving (but also for blocking) change can be found.
After identifying the explanandum, chapter four identifies five potential explanatory factors: i) physical circumstances, ii) physical and social infrastructure, iii) structural factors, iv) agency and v) shock events. All these factors can be expected to be recognisable and relevant both for policy analysts and legal scholars. Both disciplines will have on offer complementary perspectives on each explanatory factor. In empirical reality, the five factors will be interrelated en in most cases explaining stability and dynamics in Flood Risk Governance requires an elaboration of how several factors together have produced a certain outcome. To be able to make explanations, in Work Package 3 time is reserved for discussing the empirical results within the consortium as well as in workshops with policymakers and practitioners.

Chapter 5 provides a framework for evaluating FRGAs. Based on our initial assumptions, one purpose of evaluation is to assess the extent to which FRGAs facilitate the assembly of diverse, multi-layered and appropriate FRM strategies; the successful delivery of which is assumed to enhance the resilience of urban areas to flooding. Secondly, we seek to challenge our starting assumptions; with the view that these combined insights can inform principles of Flood Risk Governance best practice. The two principal criteria of *Resilience* and *Appropriateness* are proposed for evaluating FRGAs.
The selection of resilience is justified through the necessity for evaluating governance arrangements in terms of both whether they enable or constrain the delivery of diverse and multi-layered FRMSs (process-resilience) and that they enhance the overall resilience of the system (outcome-resilience). As part of the resilience criterion, FRGAs should ideally display adaptive capacity, with scope for learning and innovation; as well as the capability to adjust to changing environmental and social conditions.

The choice of *Appropriateness* is based on the assumption that the implementation of a diverse (and resilient) set of FRMSs in a certain area is only possible if these strategies and their coordination are appropriate (legitimate, effective and efficient), i.e. properly institutionally embedded given the opportunities and constraints of their physical and social context. In the evaluation of this concept we are adhering to the context-specific perspective on March and Olsen's 'Logic of Appropriateness' and are thus avoiding classical distinctions of good or bad governance. In this regard, Appropriateness can be considered to be a relative term which is further divided into the sub-criteria of: *Effectiveness, Efficiency* and *Legitimacy.* Within this framework we fully acknowledge opportunities for learning and provide the flexibility for additional evaluation criteria to emerge during the research process.

Chapter 6 elaborates on the methodology for the empirical research. This concerns an assessment at the level of the National Flood Policies and Regulations domain (NFPR) in The Netherlands, Belgium, Sweden, Poland, France and The United Kingdom, combined with three case studies in each country. These are urban agglomerations that can potentially be flooded by rivers. The researchers may zoom in on specific policy initiatives and projects in these regions. The case studies serve to find out how the NFPR level "works". The context level is also assessed, to the extent that this is necessary and relevant for understanding developments at NFPR level. The 24 months of the empirical research (1 October 2013 - 1 October 2015), will consist of the following steps: i) a country analysis (3 months); ii) three case studies (4 months each); iii) wrapping up the empirical research (2 months); iv) case comparison (3 months); v) drafting explanations and evaluations (3 months); vi) case workshops (1 month).

Throughout the process, the young researchers in each STAR-FLOOD country will produce comparable milestones every three months and discuss these with the whole consortium (also in the framework of the steps of explanation and evaluation). It will be the young researchers' responsibility to write a detailed methodology for their own country. Chapter 6 of this report provides guidance for this. The chapter lists some potential data collection methods as well as their pros and cons: *desk research*, *interviews*, focus groups action research; *legal historical research; positive law study and comparative law study*. It is expected that at least the methods listed in italic will be used in each consortium country. The data collection methods are not explained in detail, but reference to relevant textbooks is given. The chapter also provides guidance on how chains of evidence between data and broader findings can be constructed. The consortium will strive to make the results relevant for the EC as a whole, amongst other things through planned discussions of the results in international workshops in Work Package 4. Work Package 3 will lead to 6 country specific reports with the empirical results per country as well as a report on the case study workshops.

Chapter 7, finally, looks back on the assessment framework and methodology and provides an outlook on the next steps of the STAR-FLOOD project. It is concluded that the report provides a good starting point and working procedure for the empirical research in Work Package 3. Throughout the execution of the empirical research, further operationalisations and conceptual refinements will be made. This may in some cases lead to the addition of additional concepts. The chapter closes with an initial overview of potential issues to take into account when doing the country comparison in WP4. These include similarities and differences in terms of: the presence of and dynamics in Flood Risk Management Strategies and Flood Risk Governance Arrangements that can be found in the countries and cases; the governance challenges that actors in the countries encounter; the applicability of certain good practices; barriers to the implementation of the Floods Directive; and the effectiveness and efficiency of flood related policies.

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1. Introduction

Corinne Larrue and Marie Fournier

1.1 The STAR-FLOOD project

This report is a deliverable of the EU 7th Framework Project STAR-FLOOD (see www.starflood.eu for an outline of the project). STAR-FLOOD focuses on Flood Risk Governance. The project investigates strategies for dealing with flood risks in 18 vulnerable urban regions in six European countries: England and Scotland in the UK, Belgium, France, The Netherlands, Poland and Sweden. The project is assessing the institutional embedding of these strategies from a combined public administration and legal perspective, with the aim to make European regions more resilient to flood risks.

1.2 Position of this report

1.2.1 STAR-FLOOD: where are we after Work Package 1?

Deliverables for Work Package 1 proposed an extended problem analysis related to Flood Risk Governance in Europe. The different reports discussed the actual flood risks in the STAR-FLOOD consortium countries (report no D1.1.1, Green *et al*. 2013), the governance challenges related to Flood Risk Management (report no D1.1.2, Dieperink *et al*. 2013), European flood regulation (report no D1.1.3, Bakker *et al*. 2013) and the similarities and differences between the STAR-FLOOD consortium countries (report no D1.1.4, Hegger *et al*. 2013). In so doing, they gave a further specification of the scope of the STAR-FLOOD project and raised some preliminary conclusions, expectations and assumptions to be challenged in the subsequent Work Packages of the project.

More specifically, Work Package 1 clarified the main objective of the STAR-FLOOD project: the analysis of Flood Risk Management Strategies (FRMSs) and the Flood Risk Governance Arrangements (FRGAs) within which they are embedded. FRGAs can be defined as "the constellation resulting from a dynamic interplay between actors and actor coalitions involved in all policy domains relevant for Flood Risk Management – including water management, spatial planning and disaster management; their dominant discourses; formal and informal rules of the game; and the power and resource base of the actors involved" (Report D1.1.4: Hegger *et al*. 2013). This definition stresses that FRGAs have an actor dimension, a rule dimension, a power and resource dimension and a discursive dimension. By focusing on FRGAs, the STAR FLOOD consortium wants to get a better insight into the societal aspects of FRMSs and the way they are institutionally embedded in a broad sense. The concept allows insights from policy scientists and legal scholars to be combined and enables researchers to assess Flood Risk Governance from a combined perspective.

1.2.2 Aim and scope of Work Package 2

This report forms the main deliverable of the second Work Package of STAR-FLOOD. Whereas the first Work Package provided an extended problem analysis related to Flood Risk Governance in Europe, the focus of the second Work Package is on how Flood Risk Governance in Europe should be researched. The current report lays down an assessment framework and methodology for the empirical analyses that will be carried out within the STAR-FLOOD project.

Box 1.1 lists the research questions that are being addressed in the STAR-FLOOD project. The assessment framework and methodology in this report are meant to enable sub-questions 5-9 to be answered in a consistent way in Work Package 3. Question 1-3 have been addressed in Work Package

1. Question 4 has been addressed in Work Package 1 and will be further addressed in Work Package 3. Question 10 will be addressed in Work Package 5.

Box 1.1: Research questions of the STAR-FLOOD project

i) Sub-goal 'identifying':

1. What are the main trends in and challenges for Flood Risk Governance in Europe?
2. What are the key elements of FRSs discussed in literature?
3. What kind of FRGAs are characterised as 'good practice' in scientific and policy literature?
4. Which FRSs are developed and applied in different urban agglomerations in the selected countries?

ii) Sub-goal 'analysing':

5. What are the *historical dynamics* (or the absence thereof) of FRGAs in the selected EU member states?

iii) Sub-goal 'explaining':

6. Which factors *explain* the FRGAs and their dynamics and what is the relative importance of each factor?

iv) Sub-goal 'evaluating':

7. What are the main building blocks to specify the meta-criteria of appropriateness and resilience into an assessment framework for FRGAs, what kind of indicators could be derived from these building blocks and how can these indicators be measured?
8. What are the strengths, weaknesses, opportunities and threats of FRGAs in the selected EU member states in terms of their appropriateness (legitimacy, efficiency and effectiveness) and resilience?
9. What are the main similarities and differences between the selected EU Member States in terms of development and performance of FRGAs? What is the scientific and societal importance of these similarities and differences?

v) Main goal 'designing':

10. Which *design principles* can be derived from the analysis, explanation and evaluation of our cases?

1.2.3 Process followed in Work Package 2

This document is the result of a six-month process of contributions, discussions, and exchanges of views between all the members of the STAR FLOOD consortium. As such, it benefits from the contribution of all the researchers involved in the project (both senior and junior researchers, from different academic backgrounds and countries).

For several months, the construction of this approach has been an on-going process with important milestones. Apart from the everyday exchanges and discussions which took place between the different members of the consortium, several events have been organised: teleconferences (30/05/2013), meetings of young researchers (First and Second Academic Master Classes on the STAR-FLOOD project: 6 and 7th of June 2013, 2nd and 3rd of October 2013), Management Team Meeting (2nd of July 2013) and a plenary consortium meeting (3rd and 4th of October 2013). These events have been important moments for discussion, revision and clarification of the document.

1.3 Headlines of the conceptual and methodological approach

STAR-FLOOD's conceptual and methodological approach should enable the empirical research to contribute to the identification of good practices for Flood Risk Governance in Europe as well as

guidelines regarding their applicability in different contexts. To reach this goal, the assessment framework includes the following main elements:

- An **analytical framework**, specifying how stability and dynamics in Flood Risk Governance Arrangements can be analysed using the four dimensions of the Policy Arrangements Approach (actors; discourses; rules; resources) (chapter 2 and 3 of this report);
- An **explanatory framework**, indicating which factors might explain the mergence, dominance and dynamics of current FRGAs (chapter 4 of this report);
- An **evaluation framework**, elaborating on how STAR-FLOOD's evaluation criteria of appropriateness and resilience can be translated into measurable indicators (chapter 5 of this report).

Put in other words, the three steps of analysing, explaining and evaluating should enable us to assess what types of Flood Risk Governance Arrangements are in place, why and to what effect? The main object of analysis is the National Flood Policies and Regulations domain (NFPR) in each of the six STAR-FLOOD consortium countries. This domain concerns all flood-relevant policies at the national level. As will be argued in subsequent chapters, a thorough understanding of this level requires an empirical study not only of this level, but also of three case studies (urban agglomerations) in each country.

The empirical assessment should be done in a comparable way in all countries and cases, to enable country comparison in Work Package 4 and the identification of design principles in Work Package 5. To this end, chapter 6 of this report provides a general approach for the empirical research, including a working procedure that ensures that all researchers in all countries produce comparable products at regular intervals.

Although much conceptual work has been done, conceptual refinement as well as operationalization of the concepts will continue during the subsequent Work Packages of STAR-FLOOD. In that sense, this report should be seen as a working document that may be subject to subsequent iterations. Also during WP3, it will be necessary to further elaborate the terms according to which the country comparison in WP4 will be done.

In parallel, the STAR-FLOOD consortium is developing a glossary of key terms. This document provides an overview of potential definitions for the main concepts of the analytical framework laid down in this report, accompanied with guidelines on when to use which definition of a concept. The document is expected to facilitate the researchers throughout the remaining Work Packages of STAR-FLOOD. By providing an overview of definitions found in literature and guidelines on their use, the glossary will stimulate transparency in writing and improve the quality of the interdisciplinary exchanges between policy analysts and legal scholars. At the time of writing, a draft glossary has been prepared which is expected to be finalised by April 2014.

1.4 Outline of the report and guide for the reader

The subsequent chapters of this report correspond to the main steps as outlined in the previous section.

Chapter 2, Analysing Flood Risk Governance Arrangements introduces the Policy Arrangements Approach which will be used as a framework for conducting the analysis. It furthermore tackles the following issues: dealing with multiple levels of analysis in Flood Risk Governance, combining and integrating public administration and legal perspectives and taking into account the trans-boundary effects of floods in the analysis of FRMSs and FRGAs.

Chapter 3: Operationalizing the Policy Arrangements Approach for Flood Risk Governance operationalises each of the four dimensions of the Policy Arrangement Approach: actors and their coalitions, resources and power, rules of the game and discourses and subsequently elaborates on how the four dimensions can be combined into a typology of Flood Risk Governance Arrangements and the dynamics therein.

Chapter 4: Explaining policy change provides clarification on how explaining stability and dynamics in FRGAs can be explained. For making explanations, policy analytical and legal literature is used. Based on this literature, various types of explanations are distinguished.

Chapter 5: Evaluation framework reflects on the evaluation framework which should be used for our project. It stresses some important conceptual challenges for evaluation in the STAR-FLOOD project (ex ante/ex post evaluation, links with the PAA, etc.), identifies evaluation criteria and the theoretical assumptions underlying them. Finally, it stresses some important elements which should be taken into account in our procedure (complementarities between criteria, scales of evaluation).

Chapter 6: Methods for the empirical research proposes a method for the empirical research both at the level of the National Flood Policies and Regulations domain and at the level of the three case studies in each country.

Chapter 7: *Conclusion and outlook* concludes this report and provides an outlook on the subsequent Work Packages, being Work Package 3 (country analysis) and Work Package 4 (country comparison).

Throughout this report, reference is made to the report entitled "Researching Flood Risk Governance in Europe: background theories". The latter report provides background and further grounding of the content of the current report as well as an overview of detailed questions that can be used as a starting point to further operationalise the assessment framework. The content of this report (providing guidance) and the other report (backing up and providing further elaboration) is equally important, but probably in different stages of the research process.

2. Analysing Flood Risk Governance Arrangements

Corinne Larrue, Mathilde Gralepois, Ann Crabbé, Dries Hegger, Marloes Bakker

2.1 Introduction

STARFLOOD focuses on Flood Risk Governance. The term governance is used to refer to multi-level forms of collaboration, decision processes and control, between public and private actors, beyond the traditional features of government (Lange *et al*. 2013). Lange *et al*. define governance as "a process of – more or less institutionalised – interaction between public and/or private entities ultimately aiming at the realisation of collective goals" (ibid: 4). As was explained in the introduction chapter, within STAR-FLOOD, the term Flood Risk Governance Arrangements (FRGA) is used to refer to the content and the organisation of flood-related policy domains constituted by four dimensions: actors, discourses, rules and resources. We assume that Flood Risk Governance Arrangements can both enable and constrain the development and implementation of the five Flood Risk Management Strategies (FRMSs) that have been identified initially within STARFLOOD (Flood Risk Prevention, Flood Defence, Flood Risk Mitigation, Flood Preparation, Flood Recovery). This and the subsequent chapter will lay down an approach for identifying and analysing stability and dynamics in these Flood Risk Governance Arrangements.

The current chapter sketches the main analytical challenges that we encounter in the process of developing a framework for assessing Flood Risk Governance and subsequently introduces the Policy Arrangements Approach which will be used as a framework for conducting the analysis. The three analytical challenges that we distinguish are the following:

- Dealing with multiple levels of analysis. It will be argued that to take into account the different scales at which flood policies and regulations are made, an analytical distinction between three levels is in order: the context, the National Flood Policies and Regulations Domain (NFPR) and the case study level;
- Integrating public administration and legal expertise. Combining and integrating the work of policy analysts and legal scholars can be challenging. At the same time, it is expected to enrich the analysis;
- Taking into account the trans-boundary nature of floods. Within the chosen focus on vulnerable urban agglomerations, the STAR-FLOOD researchers should pay sufficient attention to issues that transcend this geographical scale. For instance, in deliverable report D1.1.1 (Green *et al*. 2013), the importance of considering the whole catchment in scholarly analyses was stressed.

The outline of this chapter is as follows. Section 2.2 introduces the three analytical levels of the context, the National Flood Policies and Regulations domain (NFPR) and the case study as well as their mutual relationships. Section 2.3 highlights the challenges and opportunities of combining and integrating public administration and legal expertise. The section will also show the overlaps of and complementarities between policy and legal analyses. Section 2.4 discusses the challenge of paying sufficient attention to the trans-boundary nature of floods. In section 2.5, the headlines of the Policy Arrangements Approach (PAA) being the foundation of the analytical framework, will be introduced. A more detailed elaboration of the approach and its adaptation and operationalisation in the context of STAR-FLOOD is reserved for chapter 3. Finally, section 2.6 concludes this chapter.

2.2 Three level of analysis: context, National Flood Policies and Regulations domain and case studies

2.2.1 Introduction

Flood Risk Governance is shaped by dynamics at several scales. These may include the local area, the municipality, the regional level – which can be a province in Federal State or a group of countries in other contexts such as Scandinavia or the Balkans – the national, the bi-national, the multi-national and the European level. Obviously, several scales are relevant at the same time while the boundaries of administrative, institutional and political scales do not always coincide with geographical scales such as the scale of the river basin. Also, there are large differences between countries in terms of what the boundaries of jurisdictions look like, how important a certain administrative level is and even if a certain level is present at all. For instance, in case of unitary states, the role of the regional level might be less important than is the case in federalised countries. In the latter type of countries, regional levels might have more authority than the national level in dealing with flood risks (D1.1.4, Hegger *et al*. 2013).

STAR-FLOOD should adequately conceptualise the fact that Flood Risk Governance is shaped by dynamics at several levels. To this end, analytical distinctions should be made as sharply as possible while keeping in mind the relationships between the levels. This will enable the researchers to take multi-level dynamics into account in their analyses, explanations and evaluations, to make the explanandum as clear as possible and ultimately to allow for cross country-comparison in chapter 4.

To this end, the current section proposes an analytical distinction between three levels: the general context, the National Flood Policies and Regulations domain (NFPR) and the case studies. We will subsequently introduce these (2.2.2, 2.2.3 and 2.2.4) and close off with an overview of the levels and their expected mean features (2.2.5).

2.2.2 Context

The context level comprises all developments that are not directly related to Flood Risk Governance but do have an influence on it. This analytical level includes physical circumstances of a country, important historical events and related responses, the country's administrative structure, its political and administrative culture, major socio-economic developments and the legal context both at the country and supra national level. These context-factors will be taken into account to the extent necessary for being able to understand the developments taking place at STAR-FLOOD's main level of analysis, that of the National Flood Policies and regulations domain (NFPR).

2.2.3 National Flood Policies and Regulations domain (NFPR)

As the name suggests, the National Flood Policies and Regulations domain (NFPR) includes all flood-related policies and regulations at the national level. As presented in the D.1.1.2 report (Green *et al.* 2013), at the level of the NFPR Flood Risk Governance is undertaken by multiple actors in multiple sectors and at multiple levels. In most countries, the domain will encompass not one but several sectors of public policymaking as well as activities of private actors. It may include public works (for water engineering works), spatial planning, environmental and nature conservation policies, interior affairs (risk/disaster management) etc. For example, Flood Risk Prevention requires cooperation between water management and spatial planning domains. This necessitates actors within these and sectors to cooperate and align their visions, policy goals and perceptions. In several countries efforts at integration between policy domains are on-going (D1.1.4, Hegger *et al*. 2013). We also witness institutionalization of new modes of multi-sector governance with joint policy instruments or joint policy initiatives.

Even if the discourse on integration of policies, especially those of flood policies and planning policies is very present in several countries, sectoral fragmentation still resists. Each sector has its own way of operating, past expertise, dedicated instruments, specific actors being involved, specific discourses and so on. In some cases, cooperation between these sectors is poorly organized, contributing to inefficient compartmentalization [in Dutch: *verkokering*] of the public domain. This might be the case when, for example, spatial planners choose to ignore the importance of Room for the River, advocated by water managers or when water engineers from the public works department are not likely to fit in bypasses for fish in technical flood defence constructions.

It is an empirical question to what extent the NFPR supports "classical" ways of dealing with flood risks and to what extent shifts towards new ways of dealing with these risks can be discerned. In many cases, the NFPR may be supporting the classical way of dealing with flood risks: using a hazard-based approach, with the underlying hypothesis that risks are objective, real, existing and calculable. In classic flood defence strategies, sound science enables sound knowledge of the risks, which can then be prioritized in a cost-benefit model. We assume that this classical approach is challenged by a vulnerability framework (or risk based approach) and by the high uncertainties of flood risks. Actors at the level of the NFPR are obliged to rethink their risk management strategies, e.g. by introducing other new Flood Risk Management Strategies such as safety management systems, disaster and emergency plans, land-use planning, increased public information and communication amongst actors. In the vulnerability approach risks are considered to be a social construction, influenced by social values and cultural preferences, which drives towards another way of conceptualizing and dealing with flood risks.

Another empirical question is to what extent change in the National Flood Policies and Regulations domain is necessary and possible. As will be discussed in subsequent chapters, in many cases changes might be necessary to ensure that Flood Risk Governance in a certain country is both appropriate and resilient. But change is not inherently good. An NFPR will probably also need some degree of stability. As chapter 4 will discuss in somewhat more detail, in general the NFPR can be expected to be resistant to change and the margins for establishing change will in many cases be small. Changes are bound to compete with vested interests, dominant discourses, stable coalitions and other stabilizing factors both in the physical environment and in social institutions.

The NFPR is constructed and maintained by acts of various interlinked actors. Even if these actors operate relatively separately, they are typically gathered in micro-social groups. By "micro-social groups", we define the sub-social groups supporting the same basic, sharing the same goals, values, problem perceptions or visions. In public policy analysis, professional micro-social groups – for instance politicians, civil servants, scientists, industrials and NGO officers – are central. Actors in such groups read the same literature, meet during conferences and exchange good practices. They advocate the same kind of policy measures (Paredis 2009). These groups of actors contribute to coherence, mutual dependency and thus to sharing common rules (so-called meta coordination, Geels 2004). Micro-social groups have a relative autonomy, but they are also interdependent because they need the support of other groups to reach places of powers and control on rules. So, different micro-social groups have gradually aligned their problem perceptions, visions or policy goals.

At the level of the NFPR, STAR-FLOOD will point out the diversity of actors as well as the different micro-social groups and their means of action in the field of Flood Risk Governance, that is their discourses and discursive power, the resources they have at their disposal and the extent to which rules of the game enable or constrain the actions of these groups. This will lead to an overview of the different components of the NFPR, also in terms of the political-administrative arrangement of the NFPR, which "*represents the structured group of public and para-state actors who are responsible for its implementation*" (Knoepfel *et al*. 2007: 171).

2.2.4 Case study level

The case studies are situated at the level of the urban agglomeration. Each country has chosen three urban agglomerations (so 18 in total) in which case studies will be analysed. A focus on urban agglomerations will enable a comprehensive analysis of all relevant opportunities and barriers for improving Flood Risk Governance, including the interactions between urban and rural areas, interactions with upstream and downstream regions, interactions between public authorities, and the role of private companies and civil society. It will be investigated whether, at the urban level, we witness indications of a gradual transition from a hazard-based approach towards a vulnerability-based approach, indicated by diversification in the use of the five Flood Risk Management Strategies (FRMSs) proposed by the STAR-FLOOD team.

An important assumption in STAR-FLOOD is that the scale of the case studies, i.e. vulnerable urban agglomerations, is really important. As chapter 6 will explain in more detail, within the case study approach it will be possible to zoom in on specific local policy initiatives and projects. Such initiatives and projects contribute to tailor-made and flexible solutions. In some cities Flood Risk Management Strategies have emerged through the initiative of local actors, without guidance or support from higher levels of government. In other cities, taking action without the involvement of regional or national levels of government is not on the agenda, due to the dominant role of these higher levels of government. It is expected that the cases will provide in-depth insights that can be translated to the level of the NFPR and, furthermore, that interactions between case and NFPR level take place continuously.

2.2.5 Inter-relations between the three analytical levels

The three cases studies per country, encompassing urban agglomerations, is the level at which we expect to analyse how the NFPR works in practice. As can be read in chapter 6, the empirical analysis will start with getting an overview of the NFPR level. Subsequently, the three cases are analysed in detail with the aim of enriching and refining our understanding of the NFPR level. Table 2.1 below gives an overview of the three levels which have been selected and sketches some expected main features of them. Of course, what we will find in empirical research may be different. For instance, although we expect implementation processes to take place mainly at the case study level, this need not always be the case. Agenda setting and problem framing may also take place at the case study level and at the level of the NFPR etcetera.

Table2.1: Overview and expected main features of the three analytical levels

	Context	National Flood Policies and Regulations domain	Case study
Definitions	Level of global governance, influenced by political and socio-cultural developments, even if not directly related to flood governance but which have an influence on it.	Flood Risk Governance Arrangements incorporating policies connected to the five Flood Risk Management Strategies distinguished in STAR-FLOOD	The five Flood Risk Management Strategies and related Flood Risk Governance Arrangements in urban agglomeration
Spatial scale	International (UN / EU), national and regional scales	National and regional basin level	Urban agglomeration: in some countries it refers to one authority, in others to several.
Policy processes	Agenda setting / framing	Output of the formulation processes	Implementation processes
Legal component	International treaties, European Directives, National constitutions	European legislation, National legislation and regional basin legislation	Local or regional legal authority

2.3 Combining and integrating public administration and legal expertise

2.3.1 Policy analysis and legal studies: two complementary perspectives

The disciplines of public administration and legal studies constitute two different, sometimes complementary and sometimes overlapping perspectives. Even if historically political sciences come from legal studies, they are nowadays two different disciplines. We can expect this sometimes to be challenging, but at the same time also enriching. Of course, policy analysts and legal scholars have the common goal to analyse institutional and social evolutions of Flood Risk Governance jointly.

As will be shown in the next chapter, in some cases the types of questions that legal scholars and policy analysts intend to address are quite similar. For instance, both disciplines will be interested in the question of which public authorities in a certain region have a formal role in flood-related issues, and from what they derive their formal authority. An important difference in approaches seems to be – with some risk of over-simplification – that legal scholars have a tendency to zoom in on details because the possibilities and pitfalls of an arrangement are in the details, whereas policy analysts have more a tendency to 'zoom out'. Of course the analysis of Flood Risk Governance Arrangements should find a balance between reductionism and holism. Also, in some cases the legal analysis will be a basis for conducting the policy analysis, helping policy analysts to understand the frame within which a policy is implemented at local and basin level. The output of the legal analysis can then allow legal scholars to compare the legal background set out for a single policy in different countries and different local contexts and at the same time stimulate a debate on comparative law. In other cases, however, policy analysts may identify interesting issues on which the legal scholars can zoom in turn.

In terms of the substantive issues on which policy analysts and legal scholars tend to focus, policy analysts can be expected to focus mainly on policy discourses, actors, actor coalitions and their interaction patterns. Legal scholars, on the other hand, are expected to focus more on rules of the game and their underlying legal principles and discourses. Their studies may include an analysis of the legal systems in different countries. Which legislation and case law in the field of Flood Risk Management is present? What do formal divisions of responsibilities of actors look like? What are the legal responsibilities, duties and rights of public and private parties and how is their role in policy

making, planning, standard setting, instruments, measures and enforcement legally embedded? How do these legal arrangements work in practice? All these legal issues come down to the overarching questions of how Flood Risk Management Strategies are legally embedded; which opportunities and barriers there would be – from a legal point of view – to broaden Flood Risk Management Strategies within the current legal framework and if not currently possible, if and how the legal framework could be changed. As part of the analysis, legal scholars also focus on accountability and look at what in legal terms is called 'duty' or 'obligation' or 'responsibility' and how it is related to 'competence' (to oblige, to take measures, to enforce). Which public authority or private party can or should do what in a certain region, river basin, province, urban environment etc.? Seen in this way, from a legal point of view the rules are closely related to the actors (who are competent authorities and private parties) and the resources, i.e. competences, financing powers or symbolic capital of actors.

The legal analysis will thus provide a detailed knowledge of the rules and their influence on:

- The type of actors able, according to the regulatory framework and their formal competences, to intervene within the policy process (potential actor network);
- The resources and power at the disposal of these actors;
- The rules of the game which these actors adhere to and the interactions between different actor groups; and
- The discourses and programmes that these actors are producing. Discourses and programmes are based on normative approaches as well as leading policy and legal principles. Legal studies can bring to light any potential contradictions between discourses and rules of the game.

2.3.2 Scales of analysis: some reflection on the scope of policy analysis and legal studies

The three analytical levels of context, National Flood Policies and Regulations domain and case study are relevant both for policy analysts and legal scholars. Carrying out empirical analyses at different levels simultaneously is, however, less common practice for legal scholars than it is for policy analysts. This merits a short reflection on what might be the specific role of a legal analysis vis-a-vis the role of policy analysts.

It is expected that at the context level legal scholars will address more general questions about the legal system and power divisions in a country. More specific aspects of flood related policies and regulations belong, of course, to the National Flood Policies and Regulations domain. These may include for instance distributional effects and insurance issues. At the NFPR level, questions can also be addressed about the implementation of the Floods Directive in different countries and general questions about different Flood Risk Management Strategies. At the case study level questions of the different strategies and questions about the integration of strategies are also important. Table 2.2 below provides a detailed depiction of the legal issues that may be addressed at each level, both for policy analysts and legal scholars.

As the reader may note, the three levels of analysis, although they have been derived from policy analytical theories, are not very different from the levels with which legal scholars tend to be more familiar: the international level, the national level, the district/regional/basin level (if applicable in a certain country) and the local level. Chapter 3 and its annexes provide a detailed overview of questions to be addressed by policy analysts and legal scholars at each level.

Table2.2: Role of legal analyses at each analytical level

Level	Types of policy analytical issues to be addressed	Types of legal issues to be addressed
Context	-physical circumstances -historical events and related responses -administrative structure -political and administrative culture	- legal systems - administrative structure - scope of the public task in flood risk management - general topics from administrative and private law (access to the courts, scope of the dispute at the courts, compensation regimes)
National Flood Policies and Regulations domain	- actors and actor coalitions/opposition - resources and power - policy discourses, policy plans, paradigms - policy instruments -public-private cooperation	- implementation of international regulation - relevant flood related legislation, jurisprudence etc. (predominantly national level or, e.g. in Belgium, regional level)
Case study	- actors and actor coalitions related to specific projects and policy initiatives - specific resources and power divisions - roles of policy entrepreneurs at the regional level - specific examples of the implementation of policy instruments and of forms of public-private cooperation	- questions on the different strategies and questions about the integration of strategies - specific rules and regulations at the level of e.g. province, municipality etc. (case specific things) - questions about enforceability, effective legal protection

2.3.3 Combining the perspectives: towards an integrated analysis

The perspectives policy analysts and legal scholars have to offer on Flood Risk Governance need to be combined and integrated. To allow for such integration, it is planned to carry out the empirical research as follows:

- In each STAR-FLOOD consortium country policy analysts and legal scholars are present. They will carry out the empirical work in close cooperation with one another. Although both disciplines can and will to some extent work independently, the products they present to partners from other countries as well as others from outside the consortium will always be joint products;
- As will be explained in section 2.4 and chapter 3, the Policy Arrangements Approach will be used as a theoretical backbone to integrate the contributions of both disciplines at a theoretical level;
- As is further detailed in chapter 6, all young STAR-FLOOD researchers will meet each other at regular intervals to discuss and compare country-specific products and to learn from one another.

Before going into more details of the Policy Arrangements Approach and its operationalisation, a last research challenge needs to be highlighted: the necessity to take into account the trans-boundary nature of Floods.

2.4 Taking into account the trans-boundary nature of floods

2.4.1 Trans-boundary Flood Risk Governance: a demanding activity

The original STAR-FLOOD research proposal does not explicitly state the importance of trans-boundary issues, i.e. issues that originate in one country or jurisdiction and then propagate downstream to another country or jurisdiction, when it comes to Flood Risk Management, or Flood

Risk Governance, nor are any attempts made to distil research challenges in this field. However, during recent face-to-face discussions with the entire consortium, it became apparent that trans-boundary Flood Risk Management deserves explicit attention for the remainder of this project.

The main question to be addressed here is: which variety of policy and legal frameworks as well as tools for improving Flood Risk Management exist at the trans-boundary level and offer a sound basis for the implementation of Flood Risk Management in all case study countries?"
Despite the fact that floods pose a real risk for downstream riparian nations and are expected to increase in frequency and intensity in some regions as a result of climate change, floods are often still ignored in trans-boundary water management. Yet, the failure to manage these risks can have catastrophic consequences; Bakker (2009) found that flood losses were higher in shared basins that lacked the institutional capacity (i.e., international water bodies and freshwater treaties) for managing these events. In other words, an integrated approach to Flood Risk Management, recognizing not only the opportunities provided by floodplains for development but also the importance of managing the associated risks, can save lives and reduce economic losses considerably. Moreover, cooperation helps to strengthen the knowledge and information base and expand the set of legitimate, efficient, cost-effective and effective Flood Risk Management strategies. Finally, disaster management is highly dependent on information for their early warning systems and models and needs data and forecasts from the entire basin (Basher 2006).

In certain European river basins, trans-boundary water resources management has a long history (e.g., the Rhine and the Danube), but trans-boundary Flood Risk Management is a long process and requires concerted efforts from riparian countries. Successful trans-boundary cooperation depends above all on understanding and respecting the problems and needs of trans-boundary partners as well as the causes of these problems with respect to natural and social processes. For progress to occur, common goals and agreed strategies are needed, as well as in some cases, compensation mechanisms to balance advantages and burdens (see report D1.1.3, Bakker *et al*. 2013). These can be reached only if the partners get to know each other by working frequently together and have shared access to all relevant information, thus creating the necessary level of trust.

The hydrological features of a trans-boundary river basin have implications for Flood Risk Governance, the most obvious one being the physical interdependency between the riparian countries: activities in an upstream country have actual (or potential) implications for the downstream countries (or country). One important issue that should be kept in mind is the hydro-hegemony thesis: 'hegemony is expressed in ever more subtle forms of control over water' (Warner 2011), the theory that control over water resources is achieved through power-related tactics and strategies, and where the upstream riparian is more often than not the most powerful of all riparians in a shared river basin. Examples of power play can be found all over the world, but often described are the situations in the Tigris-Euphrates basin (for instance Warner 2004) and the West-Bank of the Jordan River (see for instance Wolf 2000).

2.4.2 Successful trans-boundary cooperation

Bernauer (2002) stresses that next to technical expertise and innovation, the political processes in which institutional arrangements are designed and implemented are crucial for the success of international efforts to solve trans-boundary river management problems such as trans-boundary floods. In that same light, as Wiering and Verwijmeren conclude (2012), trans-boundary governance will be more successful when the policy structures and discourses of the involved parties are more comparable; when the policy actors involved, the legislative frameworks, the political cultures and the power relationships as well as the policy conceptions are more or less similar. Cooperation between the parties involved will be less complex than when these institutional and discursive factors differ enormously.

2.4.3 Relevance of trans-boundary issues for STAR-FLOOD

As stated above, the main question to be answered with regard to trans-boundary issues is "Which variety of policy and legal frameworks as well as tools for improving Flood Risk Management exist at the trans-boundary level and offer a sound basis for the implementation of Flood Risk Management in all case study countries?" The answer to this question will provide insight into the institutional capacities, present and necessary, to improve trans-boundary Flood Risk Management. Chapter 3 will introduce some specific issues related to trans-boundary Flood Risk Governance that researchers can take into account when analysing the case studies. In chapter 6, an overview is given of the specific activities that will be undertaken within STAR-FLOOD to take trans-boundary issues into account.

2.5 A framework for integration: the Policy Arrangements Approach (PAA)

2.5.1 Main features of the PAA

As stated above, a common analytical framework is needed to enable integration, at a theoretical level, between policy analysts and legal scholars. Such a framework should also ensure that the analyses of stability and dynamics in Flood Risk Governance in each of the six STAR-FLOOD consortium countries is carried out in a comparable way, enabling an informed comparison in Work Package 4. The Policy Arrangements Approach (PAA) will be used for this purpose.

Policy Arrangements have been defined as the temporary stabilization of the content and organization of a policy domain" (Arts *et al*. 2006). This sociologically inspired discursive-institutional approach can be used to analyse the dynamics (stability and change) of discourses and organisational institutions within a specific policy domain against a background of societal developments such as individualisation, domination, internationalisation, globalisation, sustainability, increasing threats or uncertain risks.

Policy Arrangements are analysed through four dimensions (Liefferink 2006):

- the **actors** and their coalitions involved in the policy domain;
- the division of **resources** between these actors, leading to differences in power and influence, where power refers to the mobilisation and deployment of the available resources, and influence refers to who determines policy outcomes and how;
- the **rules** of the game currently in operation, in terms of formal procedures of decision making and implementation as well as informal rules and 'routines' of interaction; and
- the current policy **discourses**, where discourses entail the views and narratives of the actors involved (norms, values, definitions of problems and approaches to solutions).

Table 2.3 below outlines the main issues to be tackled for each of the four dimensions.

Table 2.3: Operationalisation of the Flood Risk Governance Arrangements concept through the Policy Arrangements Approach (Wiering and Arts 2006; the *italic* sub-dimensions have been added to the original framework)

Actors	Discourses	Rules	Power and resources
-Public actors -Private actors -Coalitions and oppositions (*advocacy coalitions and partnerships*) -Interaction patterns -International river basin organisations	-Relevant and dominant scientific paradigms and uncertainties -Policy programmes -Policy objectives -Policy concepts -Historical metaphors/narratives *-Policy and legal values and principles*	-Legislation (including *jurisprudence/case law) on flooding, water management, spatial planning, property rights etc*. *-Constitutional, procedural and substantive norms* -Legal instruments -Legal traditions -Integration of rules *-Policy and legal principles*	-Legal authority including the right to regulate property (regulation, compensation and expropriation) -Financial power -Knowledge -Informal political networks -Interaction skills

The four dimensions of the PAA and their sub-dimensions, together, constitute Flood Risk Governance Arrangements (FRGAs) which are expected to enable some Flood Risk Management Strategies and underlying measures and to constrain others depending on the specific context in which we find them. It is an empirical question how the different dimensions interrelate, if the dimensions of the PAA could be combined into a typology of FRGAs and what the role of each dimension in typifying the arrangements may be. Analysing stability and dynamics of FGRAS through the Policy Arrangements Approach will also pave the way for explanation and evaluation of Flood Risk Governance (see chapter 4 and 5 of this report).

The PAA will be used to analyse the National Flood Policies and Regulations domain (2.5.2) and to analyse FRGAs at the case study level (2.5.3).

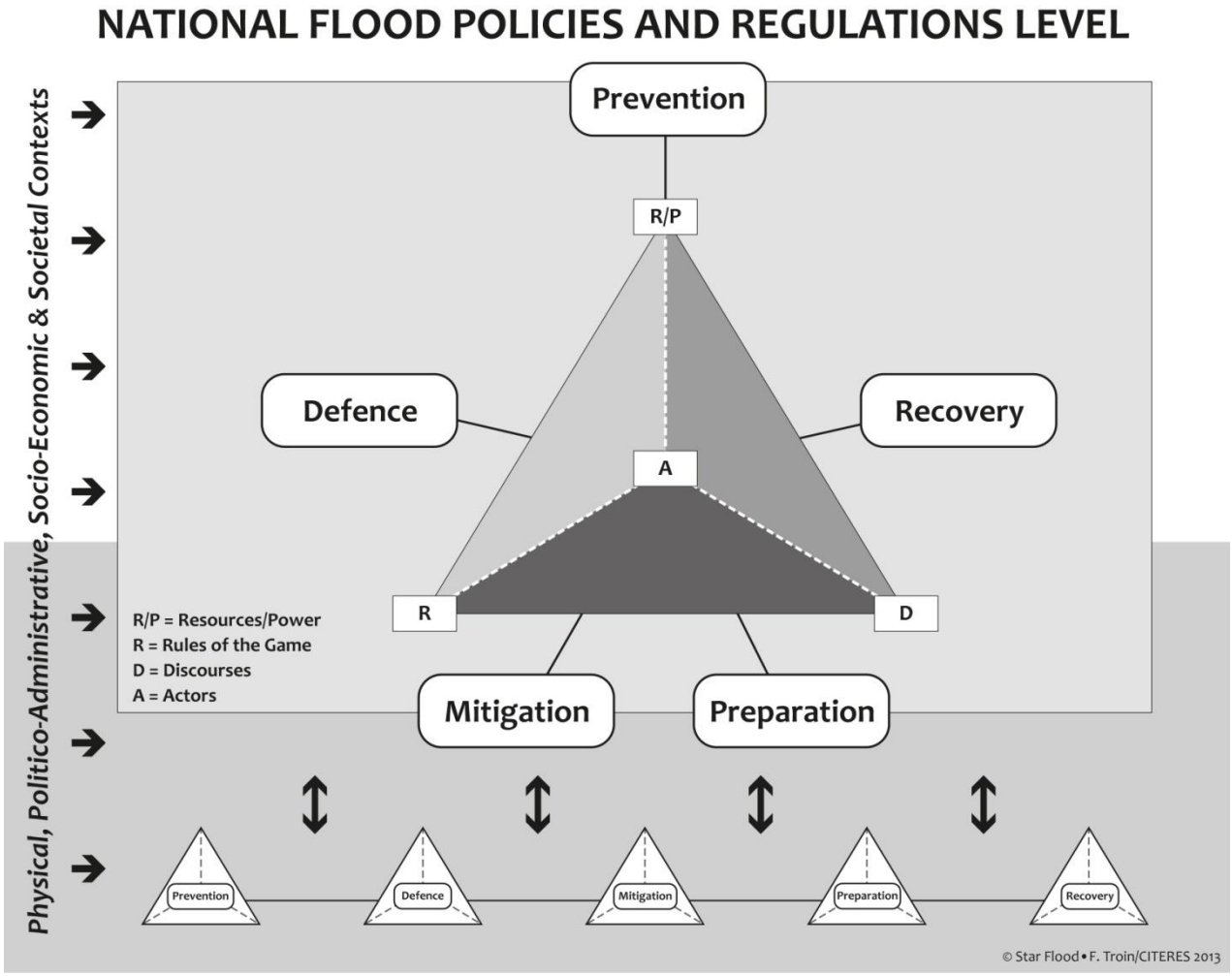
2.5.2 Analysing Flood Risk Governance at the level of the National Flood Policies and Regulations domain (NFPR)

The analysis of Flood Risk Governance Arrangements at the level of the NFPR allows the researchers the identification (or: 'making visible') of the five Flood Risk Management Strategies and their institutional embedding. Within STAR-FLOOD, existing arrangements (i.e. the arrangements 'out there', in the field) will be analysed with the help of the dimensions and sub-dimensions introduced above. The focus of the analysis will be given to the actors **(A)** at the NFPR level involved in the five strategies (FMRS 1 to 5). For each of these actors an analysis will be conducted to understand and highlight the resources and power **(R/P)** they rely upon, the rules of the game **(R)** which structure their interactions, and the discourses and programmes **(D)** they produced during the course of the formulation and implementation of the Flood policies and regulations.

Figure 2.1 provides an example of what such an analysis may look like. As is shown in the figure, the four dimensions of the PAA are linked together, which can be visualised with the help of a tetrahedron (Liefferink 2006). In the example given below, one Flood Risk Governance Arrangement can be discerned at the level of the National Flood Policies and Regulations Domain. This single governance arrangement is linked to, and enables, five different types of Flood Risk Management Strategies: Flood Risk Prevention, Flood Defence, Flood Risk Mitigation, Flood Preparation and Flood Recovery. The arrows on the left of the figure indicate that developments at the level of the NFPR are influenced by wider developments at the context level.

Of course the figure depicts one specific situation (one arrangement linked to five strategies) that may be found in empirical reality (for example in England, see D1.1.4, Hegger *et al*. 2013). In other situations, things may be different and researchers may find different arrangements for different strategies, or even multiple arrangements behind a single strategy.

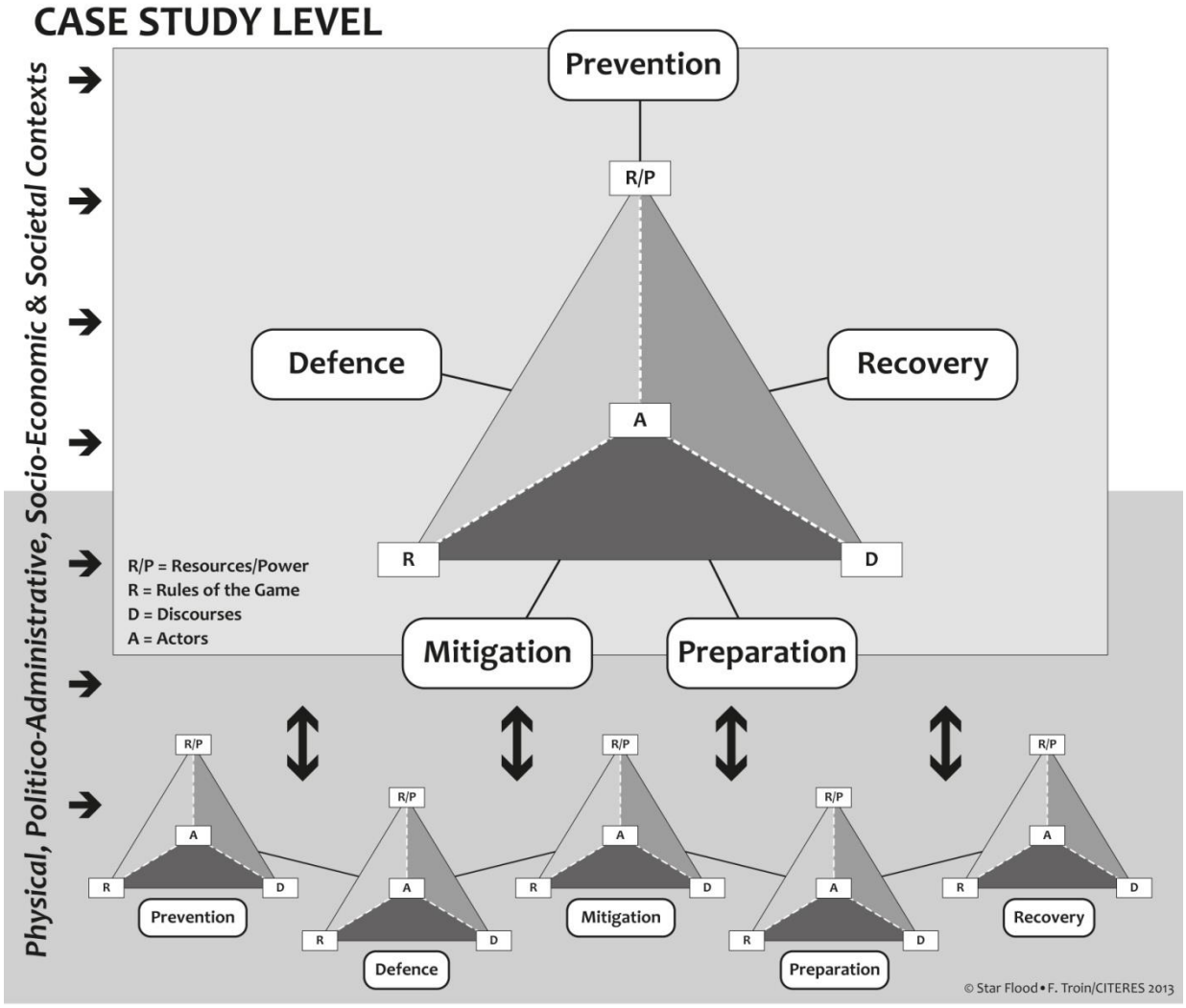
Figure 2.1: Flood Risk Governance Arrangements and Flood Risk Management Strategies at the NFPR level: a potential empirical situation



2.5.3 Analysing Flood Risk Governance at case study level

At the case study level, the Flood Risk Governance Arrangement(s) present at the level of urban agglomerations will be analysed. Figure 2.2 portrays again a potential empirical situation that we may encounter. In this case study again five different Flood Risk Management Strategies are present. Each of these strategies has its own, relatively separate, Flood Risk Governance Arrangement. However, the strategies are to some extend linked together and aligned, as visualised by the connectors between the strategies and by the depiction of one, overarching, FRGA for the case study area as a whole. Again, the figure is just one depiction of a potential empirical situation.

Figure 2.2: Flood Risk Governance Arrangements and Flood Risk Management Strategies at the case study level: a potential empirical situation



2.5 Conclusion

This chapter has introduced some analytical challenges to be expected in STAR-FLOOD's empirical research: taking into account dynamics at different levels; combining and integrating public administration and legal expertise; and taking into account the trans-boundary nature of floods. To address these challenges, this chapter proposed an analytical distinction between three different levels: the context, the National Flood Policies and Regulations domain (NFPR) and the case study level, the NFPR level being STAR-FLOOD's main unit of analysis. As we have shown, this distinction allows for analysing multi-level dynamics both by policy analysts and legal scholars. When doing the case study research, the researchers will look for relevant trans-boundary issues and take these into account. Finally, the chapter has introduced the main features of STAR-FLOOD's analytical framework, the Policy Arrangements Approach. It can be expected that this approach allows for the inclusion, combination and integration of both policy analytical and legal perspectives in the analysis.

For the researchers to be able to do the analysis of Flood Risk Governance Arrangements, the next chapter provides further guidance on how the PAA can be operationalised. The chapter will also show how the results of a detailed analysis of sub-dimensions of the PAA can be combined into more general statements on the question whether, to what extent and how shifts have occurred in Flood Risk Governance. This presence or absence of shifts in Flood Risk Governance is what should subsequently be *explained* (see chapter 4) and *evaluated* (see chapter 5).

3. Operationalising the Policy Arrangements Approach for Flood Risk Governance

Corinne Larrue, Marie Fournier, Mathilde Gralepois, Corinne Manson, Jean Baptiste Trémorin, Mark Wiering, Willemijn van Doorn-Hoekveld, Marleen van Rijswick, Dries Hegger

3.1 Introduction

To be able to analyse Flood Risk Governance, the Policy Arrangements Approach introduced in the previous chapter needs to be further operationalised. For this purpose, the four dimensions of the PAA, actors, discourses, rules and resources, can be disentangled and specific sub-dimensions can be studied in detail, both by policy analysts and legal scholars. Subsequently, however, the results of these detailed analyses need to be brought together to be able to make more general statements on the question whether, to what extent and how shifts have occurred in Flood Risk Governance in a particular National Flood Policies and Regulations domain and/or at the case study level.

The current chapter intends to provide guidance on how to do this analysis. For each analytical level distinguished in the previous chapter, this chapter lists specific items that can be analysed in detail. Section 3.2 provides guidance on how the context level can be taken into account. Section 3.3 focuses on the National Flood Policies and Regulations domain. Section 3.4 focuses on the case study level. Subsequently, in section 3.5, based on existing literature, some preliminary ideas on how to move from a reductionist towards a more holistic analysis of Flood Risk Governance Arrangements are provided. As the section argues, some further empirical work as well as confrontation of the empirical findings with the theory is needed to be able to say more on how FRGAs can be typified and how shifts therein can best be conceptualised. Finally, section 3.6 concludes this chapter and provides an outlook on the subsequent chapters.

3.2 Setting the context: characterising countries, cases and the nature of floods therein

As was explained in the previous chapter, at the context level a wide variety of issues can be discerned that are not part of the National Flood Policies and Regulations domain but do have an influence on it. These may include physical circumstances; historical events as far ranging as major floods, economic crises etc.; a country's administrative structure as well as its political and administrative culture; and the general legal context. It will be clear that it is undoable, within the limited time frame of the STAR-FLOOD project, to analyse all such items in great detail. Moreover, several of these items have been documented in literature already, so analysing them again would be reinventing the wheel.

It will be the responsibility of the young researchers in each STAR-FLOOD consortium country to determine which context-related issues are relevant and to what extent they should be studied to take them appropriately into account. The list below should be seen in this light. It aims to provide some ideas and guidance on this issue, but the list is not exhaustive. Neither is it compulsory to address all issues in the list. Some of them may be irrelevant in a specific country or case. A more detailed list of questions that can be potentially addressed at the context level is given in table A.3.1 and A.3.2 in the appendix.

The items that can be explored by the scholars at the context level are as follows:

- **Physical circumstances**: social scientific and legal studies should take into account the contextual elements linked to the physical circumstances such as meteorological events, rainfall patterns etc;
- **Culture**: the cultural context can be used as a basis to explain some trends in how water management is considered. Politico-administrative elements, specificities of Western countries, long-term diachronic evolutions or the historical context, state building process, etc. are all aspects of potential relevance for analysing Flood Risk Governance. Some aspects might be relevant for all STARFLOOD countries whereas some others might not. It is important to make relevant elements explicit by writing them down, so they can be discussed within the consortium;
- **Major socio-economic developments**: it is crucial to have a good understanding of the economic situation in each country. The current economic crisis and its outcomes, the shared will of the EU Member States to reduce their public expenses etc. are elements that are contextual and can be expected to directly influence Flood Risk Governance;
- **Risk perception/construction**: risk, as a socio-cultural construct, is not understood in the same way amongst the different actors' institutions. Risk perception and construction is subject to differences or similarities between the STARFLOOD countries;
- **Historical events**: these can pertain to the main events that occurred and that might have directly influenced Flood Risk Management in each country. Identifying those events as a contextual element can help in understanding their potential influence when the explanation of Flood Risk Governance (chapter 4) is taken up;
- **Legal system**: from a political point of view, the legal system can be analysed as a framework that occupies a specific place in dealing with floods. Legislation, case law, doctrine etc. are a way of producing knowledge but also rules and powers. The legal system has specific characteristics that answer to a political model. It can be responsive or preventive according to each country's political tradition. Legal scholars can undertake some more detailed analyses of specific topics at the context level:
    - *International legal context*: the international legal context is mostly made of juridical international agreements and treaties. They are more or less legally binding and might not have been ratified by all the STARFLOOD countries. Knowing this juridical international environment is essential to understand the legal context level. The level of integration and implementation of these international norms in the internal legal framework of each country has to be analysed too;
    - *European context*: most of the European context is made of treaties, agreements, directives that have a direct influence on the internal law of each country. Their transposition process should be considered, but legal scholars can also focus on the common European legislation shared (or not) by all consortium Member States. Moreover, European law is a mix of different national legal traditions and identifying the ones that are dominant can help to understand this context level;
    - *Characteristics of the legal system*: This item addresses the main characteristics of a national legal system. Most countries can be classified according to some basic juridical distinctions such as centralised/decentralised, Common law/written law etc. This legal background has to be explicated by legal scholars even though it might seem very obvious from a national point of view. It might not be obvious to other countries and making the effort to understand the legal frameworks in all consortium countries will facilitate conducting comparative law studies (see chapter 6);
    - *Main legal principles*: for each country, legal principles can be used as a basis for implementing new FRGAs and FRMSs. These principles are most likely to be seen as some general notions that underlie each country's legal tradition. Many of these notions are of wider relevance than flood-related policies only. It is also important to bear in

mind the legal status (constitutional, primary law, secondary law etc.) of these principles and how they might influence Flood Risk Governance;

- *Administrative structure*: this deals with the organisation of the state in general, of its administration at a federal/regional/local level. It also tackles the division of competences between different public authorities and between public and private actors;
- *Legal protection*: to what extent does legislation protect citizens against floods and how?
- *Liability*: this concept is very important as each country has its specific ways of dealing with responsibility. Liability regimes, that is the extent to which public or private actors can be held accountable for acting or not in the field of flood management, differ widely between countries. The liability regime in each STAR-FLOOD country can also be linked to historical and political elements. It will also influence directly the two following items: compensation and insurance policies;
- *Compensation*: the compensation regime includes the principles that are at stake, the financial basis taken into account for compensation etc. For each country the compensation is linked to some specific criteria;
- *Insurance*: the insurance regime also differs between countries. Policy analysts and legal scholars can describe insurance as a whole, its principles, its mandatory status, or not, its importance according to each country, amongst others;
- *Enforcement*: legal enforcement deals with the frequency and the amount of control of the juridical norms. Control of legally binding documents can be made at every level, ex post or ex ante.

As the list above suggests, policy analysts and legal scholars will have to work together to determine the relevance of each item and the extent to which it should be studied in detail to do justice to its relative importance. The list also shows that often a sharp distinction between the "public administrative" and "legal" aspects of an issue cannot be made in a straightforward way. For instance, the level of integration of a European treaty can be directly linked to political trends (unpopular treaty just before a major election). And vice-versa. Some political elements such as the cultural context can be linked to a specific legal background. The legal aspect can sometimes be understood as a response to political events but it can also be considered as an initiating force, mapping out a direction that may drives societal changes.

3.3Analysing the National Flood policies and Regulations domain (NFPR)

3.3.1 Introduction

To be able to analyse the National Flood Policies and Regulations domain, the four dimensions of the PAA as well as the sub-dimensions introduced in the previous chapter should be further operationalised. The following sub-sections are structured according to the four dimensions of the PAA: Actors, Resources, Rules and Discourses. As will be shown, in some cases policy analysts and legal scholars have complementary perspectives to offer on a dimension and in some cases their perspectives are overlapping. Table A.3.3, A.3.4 in the appendix provide a more detailed list of questions related to each item.

3.3.2 Actors and actors coalitions

Actors and their coalitions are the first of the four dimensions of the Policy Arrangement Approach. Table A.3.4 in the appendix provides a detailed list of questions to be addressed with regard to this actors dimension. They all come down to the main question of identifying the actors that have a stake in Flood Risk Management and try to figure out their position, role, status, and interactions patterns. A diachronic analysis over, say, 20 years, may bring to light that actors may have appeared

or disappeared, that the actors have changed or not and that their position has become stronger or weaker. Actors involved may be public or private actors, or both. It may be useful to inventory all actors involved and describe and identify the actors' environment. Any shifts, evolutions and movement in this environment will subsequently be explained and evaluated (see chapter 4 and 5). Most of the actors can be categorized according to some criteria such as how they are organised; their positioning in the domains of state, market or civil society; the expertise held by the actors or their particular interest in Flood Risk Governance. In the course of the empirical research, it will be tried to arrive at a similar categorisation of actors amongst the different STAR-FLOOD consortium countries, to enable the comparison in WP4. Types of actors to consider are the following:

- *Actors at the national level*: these concern actors that have played an important role over a long time at the national level, including ministries, national agencies etc;
- *Public actors involved*: these can be actors both at a national, regional and local level;
- *Experts and researchers*: all researchers and holders of relevant expertise regarding Flood Risk Management;
- *Market parties*: these concern actors involved in economic decision making such as private building companies, estate agencies etc.;
- *Representatives of civil society*, including associations, NGOs, users of a floodplain, riparian, citizens, and inhabitants.

3.3.2 Resources and power

Regarding the resources and power dimension, questions can be addressed regarding the types of resources actors have at their disposal, their distribution amongst actors and their impact on the content of decisions. Some resources might be used more often by certain type of actors. Not all resources are at the disposal of each actor and some resources can counteract or forbid the use of some others. Some resources can also be exchanged between actors through formal or informal agreements. The list below explores these issues for six main types of resources: formal competences, financial resources, knowledge, infrastructure resources, technical and interaction skills and political networks. A more detailed list of questions can be found in the appendix (Table A.3.5).

Resource-related issues to be addressed at the NFPR level:

- *Formal competences.* Rules may grant public authorities certain powers, for instance the power to regulate property or to impose levies and taxes (see the next bullet point). The findings resulting from preliminary analyses of public authorities and their formal competences in the STAR-FLOOD consortium have been published in deliverable report D1.1.4 (Hegger *et al*. 2013);
- *Financial resources.* Financial resources may include subsidies, the possibility to raise taxes, levies, the creation of funds, etc. Actors may have the power to provide other actors with financial resources or not (governments financing NGOs for instance) and they may have the ability to raise some funds independently. The power and resource based can be expected to be subject to developments at the context level. For instance, the influence of the economic crisis and the reduction of budgets for public authorities can likely be observed in all STAR-FLOOD consortium countries. Legal scholars also have something to say about financial resources. Budget law may help understand how Flood Risk Governance is financed and by whom. Budget law has its own regime and exceptions and this financial context has to be analysed to understand better how Flood Risk Governance is or can be financed. As far as taxes or levies are concerned, some national issues will have to be explained in some detail. This will help us understand financing of Flood Risk Governance at a more general level;
- *Knowledge resources.* Regarding knowledge resources, the question can be posed what the knowledge base of certain experts and knowledge organisations is. Which disciplines and fields of expertise are represented (hydrology, ecology, planning)? What are important knowledge programmes in Flood Risk Management? How is information shared amongst experts as well as

between experts and policymakers? What practices regarding the sharing of information, its payment and disclosure to the public can be identified? How do actors involved look upon the legitimacy of these practices?

- *Infrastructure resources.* Regarding infrastructures, the question can be posed who has the power to decide on building or destroying it or to use it? For instance, the decision whether or not to close the Maeslantkering, one of the main sea barriers protecting the Rijnmond Area in the West of The Netherlands, is decided upon by a computer algorithm;
- *Technical and interaction skills.* It is rather hard to identify technical skills in an objective way or to quantify them. Nevertheless they can be a very important resource in the relations to actors, as some skills can be transferred or not to others. Also having the ability to communicate with other actors or with decision-makers might play a very important role in implementing a FRGA;
- *Political networks*. For specific actors, it is important to determine their embedding and relative power both in formal and in informal political networks.

3.3.3 Formal and informal rules of the game

The notion of rules of the game, according to the literature, refers to the content of public policies (substantive rules), the procedural rules and to the rules of coordination between actors. In addition, the notion refers to both the formal rule (hard law - legal means) and the informal rules as part of an organisational or political culture. When analysing these formal and informal rules of the game, it may be necessary to incorporate relevant context factors in the analysis (e.g. consensus seeking style of policymaking in The Netherlands). Table A.3.3 and to table A.3.6 provide a detailed overview of issues that can be addressed regarding the rules dimension. The current sub-section restricts itself to the headlines:

- *Legislation*. Legislation at the level of the National Flood Policies and Regulations domain can be analysed by legal scholars. It is expected that in most STAR-FLOOD consortium countries legislation is produced and adopted at the NFPR level as the framework for flood risk maps, spatial planning, emergency management etc. is usually settled by a law. It is crucial for the legal scholars to investigate this legal landscape and give an objective and exhaustive portrait of it to other researchers. The accumulation of legal documents, also called “law sedimentation”, that occurs in most Western countries produces an abstruse juridical environment that we should first try to clarify. It is by making this inventory of all the legislations adopted in the field of Flood Risk Management that some general trends can be identified, analysed and explained. Having a clear view of legislation, legislative arrangements and how they have been made by the legislators (e.g. what was the spirit of the law, what was its first goal), should help in finding if the legislation has achieved its objectives, one of the tasks to be done in the step of evaluating Flood Risk Governance (chapter 5);
- *Substantive norms.* Substantive norms, which can be phrased either in a quantitative or in a qualitative way, should first be inventoried. It will be necessary to know where these norms come from, if they are shared by all relevant actors and stakeholders, if some of them have an international status, if they are used or not used anymore and why;
- *Legal instruments*. Legal instruments are the tools that actors have at their disposal to effectuate/enforce things. Also these legal instruments should be inventoried and it should be described how they work, for which actors they were made;
- *Procedural norms.* It is important to know which procedures are used to structure and embed the development and the implementation of a policy. Country-specific aspects need to be described in some detail to allow for cross-country comparison. Some procedures, such as public participation, competitive tendering etc, come from a European level, though, and might be similar in all STAR-FLOOD countries. It will also be interesting to analyse the extent to which these procedural requirements, stemming from European law, are applied throughout the countries in the consortium;

- *Integration or coordination of rules of different policy fields.* Integration and coordination deals with the relationships between different policies that are related to Flood Risk Management. Some of the STARF-LOOD consortium countries (e.g. France) might have separate legal fields and/or policies in the NFPR. This separation of the legal system can sometimes prove to raise difficulties in integrating different policy domains. Environmental law, urban planning law or construction law can all have impacts on Flood Risk Management. The presence or absence of links between these policy domains needs to be analysed;
- *Transnational cooperation.* Like integration and coordination, transnational cooperation is also about connecting legal systems in different countries. Norms, procedures, standards, instruments etc. are mostly country-specific. However, some specific cases of cooperation can be formalised by some legal documents. It is important to describe from a legal point of view if institutions, treaties, agreements or procedures exist to integrate policies through a transnational strategy.

3.3.4 Discourses (partly based on D1.1.2, Dieperink et al. 2013 and D1.1.1, Green et al. 2013)

Discourses can be defined as 'ensembles of ideas, concepts and categories though which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices' (Hajer and Versteeg 2005 p 175). A discourse provides the basic terms for analysis, debates, agreements and disagreements (Dryzek 1997) and enables subscribers to interpret bits of information and put them together into coherent stories or accounts. Discourses can generally be about three essential questions: what is real? (ontology; epistemic paradigms) , what is right? (normative ideas- utopia's laid down in policy programs) and what is possible? (strategies, possibility of governance and policy concepts). This is reflected in the discourse dimension in Table A.3.7 in the appendix.
Discourses structure communication. How an issue is framed in communication can be intended to influence how others interpret the issue. If one framing achieves hegemonic status then it is generally adopted and ceases to be a deliberate attempt to frame the issue in a particular way, simply becoming the way in which all frame the issue.

Issues within which different discourses may be distinguished
In WP1, report D1.1.2 and D1.1.4 (Dieperink *et al*. 2013; Hegger *et al*. 2013) eight issues have been identified within which different discourses on Flood Risk Governance may be distinguished. These topics are:

- The public private divide (the governance –discourse in general);
- The framing and communication of risks and uncertainties (varying risk approaches);
- The interpretation and translation of normative principles, including principles of who should pay (e.g. polluter pays);
- Standards of protection;
- The role of cost-benefit analysis in priority setting;
- Should FRM be based on more on engineering measures or more on natural processes; and the preferred FRM intervention strategy (varying epistemic communities).

It was concluded (Hegger *et al*. 2013) that these eight issues can be thought to be a promising entry point to start to analyse flood risk governance discourses. Furthermore, it was found that the topics differ in the extent to which they are actually debated vs. tacitly reproduced in Flood Risk Management practices. D1.1.4 has provided a first sketch of these debates and discourses, but they should be delved into more deeply in empirical research.

One can logically expect some discourses to be synergistic (e.g. the discourse on climate proofing cities) or antagonistic (e.g. the conflict between the principles of integration and subsidiarity). The importance of discourse as a way of framing the problem and as a polemic is most obviously

demonstrated by the title of the ministry having primary policy responsibility for FRM. That the name of that Ministry in England changed from the Ministry of Agriculture to the Department for the Environment, Food and Rural Affairs clearly illustrates this reframing. In doing so, responsibilities for water management which had been fragmented were also brought into a single Ministry. A related set of discourses concerns the different framing of floods, either as a free-standing problem (as in the Floods Directive), or as a water management problem (e.g. the IWRM framing) (Technical Support Unit, 2003), as one of several hazards, often specifically natural hazards (which might be argued to be the traditional French approach) or in terms of adaptation to climate change.

Different actor groups tap from and contribute to discourses. Sometimes discourses can be distinguished at the level of societies as a whole, but they can also be distinguished at the level of concrete policy domains and amongst citizens groups. Discourses can be used by coalition groups to be identified and distinguished from others. We can observe that effect with the use of a hyper-technical language, new or invented words.

Discourses are laid down in debates and controversies, but also in the content of programmes and proposed instruments in a policy domain. As far as discourse is concerned we can use linguistic discourse analysis that identifies the arguments of authority, new or invented words, political references, lexical fields, what is shown as "obvious", "certain" and also" conditional "," reversible "the use of a hyper-technical language".

Potential elements to include in a discourse analysis
When doing a discourse analysis, three specific issues can be taken into account:

- *Scientific paradigms*. Scientific paradigms relate to the background of the actors involved in a policy. It is expected to have an important role to play in the development and the implementation of the policy. Social sciences, law or natural sciences have their own discourses and their own set of values and perceptions. Identifying the ones that are dominant or frequent can help understand the positions of actors;
- *Policy programmes*. Programmes or objectives have an underlying discourse that needs to be analysed. For instance, the Netherlands policy called “room for the river”, works on some environmental concepts such as “renaturation” and spatial and ecological values;
- *Means for communicating*. The means of communication, the images, the metaphors or the analogies that are used in a discourse can help us understand what is at stake. Semantic analysis can help to provide a better view of what discourses are dominant or not.

When it comes to the development and implementation of policy programmes, a distinction between policy formulation and policy implementation is in order. At the level of policy formulation, a discourse analysis can identify the debates that are carried out within a FRGA. These debates are laid down in legislation, parliamentary reports, policy plans, evaluations of public policies, and budget discussions amongst others. These discussions should be linked to the actors carrying them and changes therein over time. A discourse analysis of policy formulation processes may include the following issues:

- The definition of the problem (and evolutions therein);
- Objectives (and their evolution);
- Instruments available (and their evolution);
- Organization of actors in charge of implementation (and its evolution);
- Procedure for formal coordination (and its evolution).

At the level of policy implementation, it is necessary to identify and analyse how local and regional level agenda setting takes place, how this has evolved over time, what instruments are available for

managing flood risks in the study area, and what types of controversies can be identified (if applicable). It is also important to identify the effect of the Floods Directive in this regard.

3.3.5 Conclusion

This section has shown that regarding each dimension of the PAA, a range of issues can be analysed in some detail. The four dimensions need to be combined to make more general statements on the number and type of FGRAs that can be discerned at the NFPR level. Section 3.5 will provide some guidance on how to do this. But before discussing this issue, it is necessary to explicate how the analysis at the case study level can enrich and refine the NFPR analysis.

3.4 Analysing cases

As mentioned before, the main object of analysis, explanation and evaluation within STAR-FLOOD is the National Flood Policies and Regulations domain. To fully capture how this domain "works" in practice, the empirical research will zoom in on the case study level. The case studies are urban agglomerations that can potentially be flooded by rivers. We expect these case studies to be exemplary for broader developments transcending this case level. Analyses at the case study level and at the NFPR level are expected to be complementary and to nourish each other.

Of course the researchers in all STAR-FLOOD consortium countries should assess how particular case studies relate to the NFPR level. For instance, are there any specific differences between both levels in terms of the nature and significance of flooding, the presence of legal exceptions or subsidies? Are the cases perhaps niches in which actors experiment with innovative Flood Risk Management Strategies, implying that they divert from the NFPR level rather than being exemplary for it? The latter is an empirical question.

In general, many of the questions addressed at the level of the NFPR are also applicable at the case study level. Only the way in which they have to be answered will differ. At the NFPR level in the Netherlands, for instance, we will find that the department of Public Works together with the regional Water Boards are important actors involved in flood protection. At case study level, we will of course not analyse Water Boards in general but specific Water Boards. Regarding spatial planning, the role of specific municipalities and specific local planning processes will be studied.

Both policy analysts and legal scholars will carry out empirical analyses at case study level. As will be shown in chapter 6, their analyses can to some extent be carried out separately, but at several points in time, they will have to be confronted with one another and integrated. Although, in principle, the object of research of policy analysts and legal scholars is similar, both disciplines will have specific emphases in their analyses.

Policy analysts may look in particular at:

- actors and actor coalitions related to specific projects and policy initiatives;
- specific resources and power divisions;
- roles of policy entrepreneurs at the regional level;
- specific examples of the implementation of policy instruments and of forms of public-private cooperation.

Legal scholars may look in particular at:

- local empowerment and legal control. The level of control and possible enforcement by public and private parties and the means given to enforcement, control ex-post or ex-ante can differ from a case study or a country to another. At the case study level, legal scholars can try to examine what the tools, procedures and instruments are that local authorities and parties have to control the application of certain norms or legal obligations. Moreover, bypassing some legal

arrangements or being on the verge of legality can also be a way to fulfill political needs at the case study level. On this matter, in the case of France, control of legality is an aspect that legal scholars should analyse at the case study level together with policy analysts;

- jurisprudence. This can appear to be more or less pertinent at the case study level as the judiciary is not organised in the same way in each STAR-FLOOD country. Some legal analysis might prove to be useful on this aspect at the case study level but can be hard to compare if the gap is too wide between each national judiciary. Table A3.8 in the appendix is organised according to each FRMS and provides more detailed and practical questions for analysing case studies from a legal perspective.

At this level of analysis, the level of detail in terms of the type of data to be collected will be relatively high especially for legal scholars. For instance, in The Netherlands a legal analysis at the case study level may entail a detailed analysis of local spatial zoning plans and the public consultations related to them. The relative amount of legal issues to be addressed at the case study level may, however, differ amongst the countries, since countries differ in the extent to which local and regional governmental actors have legislative powers.

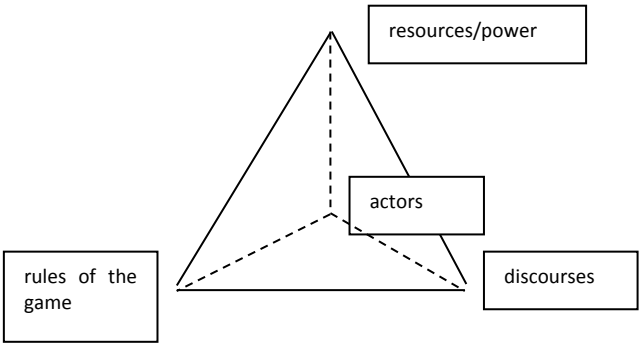
As chapter 6 will show, the case studies differ in terms of the Flood Risk Management Strategies that are applied, their degree of institutionalisation and the number and types of Flood Risk Governance Arrangements that enable or constrain the strategies. For each strategy that is identified in a case study area, its embedding in one or more Flood Risk Governance Arrangements will have to be determined. In so doing, it will become clear to what extent certain strategies are present, to what extent they have been integrated and combined (or alternatively: have developed autonomously) and what the relative weight of flood management policies is vis-a-vis other policies, especially territorial development policies and crisis management.

3.5 Towards a typology of stability and dynamics in Flood Risk Governance Arrangements

The previous sections aimed to provide guidance to researchers on the type of empirical data to be collected to be able to analyse stability and dynamics in Flood Risk Governance. In line with Liefferink (2006) we argue, however, that the four dimensions of the PAA do not just sum up to define a policy arrangement. The dimensions are inextricably interwoven. Liefferink has proposed the image of a tetrahedron to symbolise this interconnectedness (see figure 3.1).

As Liefferink (2006: 46) puts it: "The symbol of the tetrahedron visualises that any change in one of the dimensions may induce change in other dimensions. The appearance of new actors or a change in the composition of coalitions, for instance, may add new elements to the prevalent discourse or lead to another distribution of resources. Similarly, the introduction of extra resources (e.g. subsidies, knowledge, skills) or their withdrawal may attract new actors, exclude others or instigate new coalitions. A change in formal procedures, such as rules of participation or voting, may have similar effects. Finally, new ideas may enter the tetrahedron [FRGA in our research] through the dimension of discourse. Examples are concepts like ‘public-private partnership’ or ‘sustainable development’. If successful, such concepts may mobilise new types of expertise or legitimacy (i.e. resources) or form the nucleus of new coalitions. As a consequence of the indissoluble interrelatedness of the four dimensions, repercussions across dimensions are likely to occur – even though they do not necessarily have to do so in each and every case. Therefore, the analysis of a policy arrangement should in principle address the entire tetrahedron."

Figure 3.1: The tetrahedron, symbolising the interconnectedness of the four dimensions of a policy arrangement [Flood Risk Governance Arrangement in our case] (from Liefferink 2006, reprinted with permission from the author)



Flood Risk Governance Arrangements can in principle be analysed taking any of the four dimensions as a starting point. There is no a priori reason to assume that any starting point would be better than the others from an analytical point of view, as long as all dimensions are addressed. There may, however, be practical reasons to take a particular starting point. For instance, researchers may feel most comfortable with a particular dimension, or the data related to a particular dimension may be more readily available than for the other dimensions.

The researchers will have to consider the following types of questions to be able to make more general statements regarding stability and dynamics in Flood Risk Governance at the NFPR level:

1. Which *name* should we give to the Flood Risk Governance Arrangement?
2. *How many* different FRGAs are there, both at the NFPR level and at the case study level?
3. To what extent are these different FRGAs *connected*, to what extent are they *separate*?
4. *When* did each FRGA arise? (When) did it become connected to other FRGAs?
5. Finally, considering all FRGAs together, can we give a general characterisation of stability and dynamics in Flood Risk Governance at the NFPR level?

As these, granted, still general and abstract questions illustrate, one of the main challenges in empirical research will be not to drown in very detailed empirical data, but to use them as evidence for more general statements on content and organisation of Flood Risk Governance in the different STAR-FLOOD consortium countries. At this stage, before the start of the empirical analyses, it is still too early to predict what types of FRGAs will be distinguished. However, existing governance literature provides some guidance on how FRGAs could be typified (Arnouts *et al*. 2012; Driessen *et al*. 2012; Hysing 2009; Lange *et al*. 2013). Without discussing it in detail, some recurring points can be observed in recent literature proposing frameworks for categorising governance arrangements (Arnouts *et al*. 2012; Driessen *et al*. 2012; Hysing 2009). First, from this literature we can derive the point that governance arrangements could be placed on a continuum with on one extreme a strong government with a large degree of steering power and on the other extreme various forms of self-governance, whereby societal organisations, business but also individuals take issues up without government intervention. Second, the cited publications argue that in many cases different arrangements are seen to be present simultaneously. This may nuance the frequently-heard claim that an all-encompassing shift "from government to governance" would be taking place "everywhere". It will probably be better to expect forms of state-less governance to co-exist with more "traditional" forms of government intervention. Also hybrids between the two extremes of "centralised" (Driessen *et al*. 2012) or "hierarchical" (Arnouts *et al*. 2012) arrangements on the one hand and self-governance on the other hand may be found. These hybrids may be what in literature is termed "public-private governance" (Driessen *et al*. 2012) or forms of "open" or "closed" co-governance (Arnouts *et al*. 2012).

A tentative conclusion at this stage of the research project would be that at least the following two specific aspects of FRGAs need to be taken into account when trying to arrive at a typology of FRGAs: i) *The division of responsibilities between public and private actors*; whereby "responsibility" is understood in the broadest possible sense. Responsibility then refers to the extent to which actors from different societal domains (state, market, civil society) are involved in Flood Risk Governance, seen in combination with the resources they have at their disposal; the rules of the game they operate in and help constitute; and the discourses they tap from and give form; and ii) The extent to which different flood-relevant policy domains have been *integrated* in a single arrangement or, alternatively, operate relatively *autonomously*. In the course of the empirical research, it will be tried to arrive at a straightforward and universal denomination of different types of FRGAs.

3.6 Conclusion

This chapter has operationalised the analytical framework of STAR-FLOOD. It has shown how Flood Risk Governance can be assessed at the level of the context, the National Flood Policies and Regulations Domain and the case study level. It has, furthermore, operationalised the PAA, being the backbone of the analytical framework for the analyses at the NFPR and case study level. Policy analysts and legal scholars both have a role to play in the analysis at all three levels. After conducting the analysis, at several levels and for all four dimensions of the PAA (actors, discourses, rules, resources), the results should be tied together into a typology of Flood Risk Governance Arrangements and the dynamics (or absence thereof) in these arrangements. The latter exercise will get further flesh and blood in the course of the empirical research.

So, at the end of the "analytical" part of the empirical research, we will have identified types of Flood Risk Governance Arrangements, assessed if shifts therein have occurred or not and we will have identified some preliminary lessons regarding differences between national policy and legal systems. In other words, we will have an answer to the question: "what happened"? The assessment of Flood Risk Governance does not stop there, however. The ultimate goal of STAR-FLOOD is to identify design principles for appropriate and resilient Flood Risk Governance. To identify these, it will also be necessary to assess the questions of "Why did it happen?" and "To what effect?" Stability and dynamics in Flood Risk Governance should thus be explained (chapter 4) and evaluated (chapter 5).

4. Explaining stability and change in Flood Risk Governance

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4.1 Introduction

STAR-FLOOD aims to identify design principles for appropriate and resilient Flood Risk Governance. Our results should therefore provide useful advice to the actors involved regarding the actions they can undertake to increase the chance that Flood Risk Governance is appropriate and resilient. We can only do this, if we can make a strong argument that a certain action (e.g. establishing an NGO, taking the initiative to make new legislation or any other intervention option or measure) indeed increases the chance that a certain outcome (e.g. the implementation of a more diverse set of Flood Risk Management Strategies) is achieved. Put in other words, we should be able to tell a convincing story as to *how* and *why* things happened and why changes did or did not take place.

Literature on policy change lists a number of key factors researchers need to consider when they attempt to explain policy change:

1. **The explanandum**. A crucial issue is the "dependent variable" problem. What should be explained (the explanandum) (Capano and Howlett 2009; Howlett and Cashore 2009)? The choice for an explanandum is often made very implicitly, but it is key to make it explicit (Dupuis and Biesbroek 2013). To do this, it will be necessary to very precisely denominate the degree of stability AND change, possibly by considering all four dimensions of the PAA;
2. **Explanatory factors.** A wide range of potential explanatory factors should be considered. When doing this, researchers need to reflect, amongst other things, on i) the relative importance of the role of structures vs. agency (Capano and Howlett 2009), that is the role of individuals vis-à-vis the social structures they are part of; ii) the extent to which change is explained as *endogenous* change, that is, change occurring from within a policy system vs. change that comes from *outside* (Capano and Howlett 2009; Howlett and Cashore 2009); and iii) the degree to which change is conceptualised as evolutionary (incremental) vs. revolutionary (radical) (Capano 2009; Capano and Howlett 2009);
3. **The explanation behind the explanation.** After providing explanatory factors, researchers need to specify *why* and *how* these factors influenced policy change or the absence thereof. (How) did certain factors interact? Why were certain factors present (e.g. as a result of purposeful actions, or could they be due to chance)? What was the relative importance of certain factors?
4. **Establishing evidence**. Generally, an explanation is believed to be convincing if we have empirical evidence that A may cause B to happen or increases the chance that B happens. In other words, if we can explain why things happened in the past, this may increase our potential to make an ex-ante assessment of the desirability of certain actions from a certain normative viewpoint. For that reason, in STAR-FLOOD we not only want to *map* change – with the help of the conceptual framework laid down in previous chapters of this report – but that we also want to *explain* this change. Generally analyses of policy change will be more reliable if they are based on multiple sources of evidence and if the object of research is approached via multiple theoretical lenses (Zittoun 2009).

This chapter provides a review of policy change literature and legal studies organised according to the key factors listed above. In line with the discussed theories, the chapter's underlying assumption is that individuals are boundedly rational (Gigerenzer and Selten 2002). Bounded rationality refers to

the idea that the information individuals have at their disposal, as well as the time and cognitive abilities to process this information is limited. According to the notion of bounded rationality, individuals are assumed not to make *rational* decisions. Instead, they simplify choices and choose not for *optimal* but for *satisfying* solutions (ibid).
The outline of this chapter is as follows. We first provide some clarification on how *explaining change* and *providing evidence for explanations of change* in the policy and legal studies differs from the natural sciences (4.2). We then go on by reflecting on the first key issue (the explanandum) (4.3). Section 4.4 provides an overview of potential explanatory factors. All these factors will be recognisable and relevant for policy analysts and legal scholars, although they may approach the factors from different perspectives. The section will therefore also highlight the complementarities of and differences between both perspectives. In section 4.5 we address the issue of "the explanation behind the explanation" that is: how may several explanatory factors together produce a certain outcome? Section 4.6 addresses the issue of establishing evidence. In section 4.7 we conclude this chapter. The literature on which this text is based has been summarised at the end of the Appendix chapter.

4.2 Explanations in policy and legal studies

Obviously controlled experiments would not be feasible in the domain of Flood Risk Governance and if they were, ethical commissions would probably not allow them. However, in some cases it might be possible to do what some call "natural experiments" (Adger *et al*. 2012). For instance, it can make sense to make a systematic comparison between flood-related policies in Frankfurt (Oder) in Germany and Slubice (in Poland, on the other side of the Oder). Some of the differences between both cities will be attributable to institutional differences between the two countries. However, many differences will be attributable to other factors including geography, institutional factors at the level of the cities and the regions they are part of etc. The researcher making this comparison faces the challenge to find out "what caused what and why?"

To establish causality, it should be shown that A (a certain explanatory factor) was a *cause* of B (the explanandum). To do this, three requirements should be met: (i) A should *precede* B; (ii) there should be *co-variance*, that is consistent patterns, across countries or cases (e.g. B happened always or more often if A was present); (iii) there are no alternative explanations for why B happened (De Goede *et al*. 2005: 184).

Meeting these three requirements is challenging in practice. First, even the seemingly straightforward question as to whether one event preceded the other needs to be carefully established (e.g. was a certain law issued *before* certain observed changes in spatial planning practices occurred or did these changes in practices, on closer inspection, take off earlier?). Second, the researcher will need contrasting examples to be able to observe patterns across these and may not always know what should be contrasted with what at the time cases, policies and projects are selected. Third, it is needless to say that searching for – and subsequently dismissing – alternative explanations requires a critical attitude of researchers. They should be willing to put their own intuitive storylines as to why things happened (or not) to the test by proactively looking for contradicting evidence. Fourth, it is very likely that certain events do not have a single cause but that several causal factors together produced this outcome (see also section 4.5).

Therefore, in the social sciences, it is not possible to deliver absolute proof of explanations *sensu strictu*. The best that social scientific research can do is to come up with a plausible line of argumentation that takes into account a range of potential explanatory factors and draws logical relationships between these factors. The analysis is generally stronger if the researcher comes up with several potential (competing) explanations and manages to show that one of these is more plausible than the others.

As is explained in more detail in the background theories report, explanations of changes in legal systems are part and parcel of policy change. Legal systems may respond to societal changes and change in turn. They may also obstruct, hinder or contradict societal changes. Endogenous changes within the legal system may take place and, finally, law can be used as a tool to instigate change.

Box 4.1 The difference between describing, analysing and explaining

By now the reader will have understood that there is a difference between *describing*, *analysing* and *explaining* stability and dynamics in Flood Risk Governance. With some risk of over-simplification, we can say that describing is about trying to depict the plain facts. An example of descriptive knowledge would be "issue X is raised in law Y". Analysing data goes one step further. For example, the finding "that municipality A had a highly dedicated alderman while municipality B hadn't" requires the analysis of several sources of data (e.g. an interview with the alderman, interviews with others who describe the alderman, a timeline of actions that were taken (including an assessment of the alderman's role in these) etc. Explaining goes again one step further. It is about determining the significance of one's analytical findings. For example, *what does it mean* "that municipality A had a highly dedicated alderman"? *How important was it* in the light of other evidence? Was it a cause of a certain shift in governance?

As the above suggests, thinking about and discussing the collected data, setting up different competing lines of argumentation and thinking about the plausibility of each is a challenging endeavour. However, the STAR-FLOOD researchers do not have to start this endeavour from scratch. Several rich bodies of literature provide inspiration for this as they *theorise* policy change.

4.3 What to explain: the explanandum

As we have seen also in the concluding section of chapter 3, a first crucial question is what it is that should be explained. The importance of this question cannot be underestimated. Many social-scientific explanations of change and stability can be criticised because the explanandum remains very implicit (Dupuis and Biesbroek 2013; Howlett and Cashore 2009). In our research, *the explanandum is the presence or absence of dynamics in Flood Risk Governance Arrangements in the various STAR-FLOOD consortium countries, at the country level*. As has been discussed in previous chapters of this report, we measure the presence or absence of dynamics using the four dimensions of the Policy Arrangements Approach (PAA): actors, discourses, rules and resources. The presence or absence of dynamics in Flood Risk Governance Arrangements will be explained at the level of the National Flood Policies and Regulations domain (NFPR). However, to acquire insight into what happens at this level, in-depth studies of three case studies within each country will be carried out. We assume there to be *interaction between developments taking place at case study level and developments taking place at NFPR level*. An understanding of the latter requires the study of both.

This characterisation of the explanandum implies the following:

- Dynamics can take place *within a single policy arrangement* at one or more dimensions of the Policy Arrangements Approach (actors, discourses, rules, resources) or within several arrangements;
- Dynamics can take place *between different arrangements* (establishment of links between arrangements or even mergers of previously separate arrangements into one arrangement);
- New arrangements can emerge or alternatively disappear;

The extent to which governance arrangements are to be characterised as 'stable' or 'dynamic' can be expected to vary across countries and cases. As will be further discussed in chapter 5, there is no a priori reason to assume that change would be "better" than stability or the other way round. For example, if we conclude that existing arrangements are both appropriate and resilient (see next chapter), the absence of dynamics could be seen as something positive. If existing arrangements are

not evaluated as appropriate and resilient, one could argue that change is urgently needed. In any case, both the presence and the absence of dynamics should be explained. One can assume that the latter is often easier to explain than the former.

To determine the explanandum, it is crucial to study developments over a longer period of time (at least a decade) (True *et al*. 2007). Furthermore, it is important to make a conscious decision for what the *baseline situation* should be (change compared to what?) (Rayner 2009). This baseline situation could be the situation just before a seemingly disruptive event like a major flood (e.g. in The Netherlands the baseline could be the situation just before the – near – floods in 1993/1995). After all, such an event could have led to policy change and it will therefore be interesting to assess if this was the case or not (in this specific event the presence of policy change was confirmed in a study by Wiering and Arts (2006)). It is almost inevitable that different baseline situations will be chosen in different countries. This will not be a problem per se, as long as the reasons for choosing a particular baseline situation are made explicit and reflection takes place on what it would mean for the analysis if another baseline was chosen. By explicating all this, the researchers will be forced to discuss all their underlying assumptions. Also, it will be possible to establish a discussion throughout Work Package 3 in which the researchers explore the similarities and differences found in a joint process.

4.4 Some types of explanatory factors: an overview

The literature documents both factors that may explain stability and factors that may explain dynamics. There is some consensus within and amongst several bodies of literature that the margins for establishing change are small (Kingdon 1984, Hughes 1987, Geels 2005, Zahariadis 2007, Sabatier and Weible 2007, True *et al*. 2007). Reasons given for the general stability of policy subsystems are diverse and have been described in terms including "vested interests" (Geels 2005), "sunk costs", "momentum[1]" (Hughes 1987), "path dependencies" (Zahariadis 2007) amongst others. As explained in the previous sections, within STAR-FLOOD we want to arrive at ex-ante assessments (design principles). To be able to identify these, the current section will discuss five types of factors that may explain stability and/or dynamics in Flood Risk Governance: i) physical circumstances (4.4.1), ii) physical and social infrastructure (4.4.2), iii) structural factors (4.4.3), iv) agency (4.4.4) and v) shock events (4.4.5). We have chosen these five factors because we believe that they capture the basic elements in which explanatory factors can be divided. They include both internal and external factors which can be either of a physical or a human/social nature. In addition, we have chosen to add the factor of shock events next to more incremental developments. As the subsequent sub-sections will show, these factors differ in the way in which they exert their influence and also in the extent to which they can be changed at will.

4.4.1 Physical circumstances

Physical circumstances (seasonality of rainfall patterns, climate change trends; altitude; gradient; the degree of complexity of river systems) to some extent determine the nature and characteristics of Flood Risk Governance. For instance, The Netherlands are a densely populated country of which large parts can be flooded. This will most likely restrict the options to "keep people away from water" (the first FRMS in our categorisation). In Sweden, on the other hand, this strategy will generally be more feasible (see also D1.1.4, Hegger *et al*. 2013). These physical circumstances can be considered very stable and hence are expected to contribute more to stability than to dynamics of the National Flood Policies and Regulations domain. Regional actors will have virtually no direct possibilities of changing these physical circumstances. When analysing specific countries or regions, therefore, these physical circumstances should be analysed to get to know the background situation against which Flood Risk Governance takes place. In the previous chapters we have conceptualised these physical circumstances as part of the context.

[1] As Hughes puts it: "They [technological systems] have a mass of technical and organisational components; they possess direction or goals; and they display a rate of growth suggesting velocity" (Hughes, 1987: 76)

4.4.2 Physical and social infrastructure

Physical and social infrastructure (the presence of dams, dikes, sewer systems, railways, ships, houses, energy installations, energy- and transport networks; but also educational systems, including handbooks and training facilities, and knowledge infrastructure) forms a second explanatory factor. In terms of the dimensions of the PAA, physical and social infrastructures can be considered "precipitated resources". Due to large past investments (billions of Euros), they have gained *momentum* (Hughes 1987). This momentum powerfully reinforces path-dependency and lock-in, suggesting that physical and social infrastructures contribute more to stability than to dynamics in National Flood Policies and Regulations domain. The legal system might exacerbate this effect, for instance, because there are legal obligations and responsibilities to maintaining existing physical structures like dikes, and legal norms may require higher levels of protection for economically vulnerable areas like the Randstad in The Netherlands.

Infrastructure can be expected to enable some FRMSs by providing the necessary capabilities, but to constrain others. For instance, if we find that universities and institutes for higher vocational training have established civil engineering study programmes paying ample attention to flood protection, while urban planning curricula pay limited attention to water management issues, this will probably explain at least partly why we do not see a broadening of FRMSs. However, the chance that new FRMSs are actually implemented is probably enhanced in cases in which the new strategies make use of infrastructures that are already in place and in that sense we may find instances in which physical and social infrastructures do contribute to dynamics in Flood Risk Governance. In the case of the previous example, for instance, it would be a logical step to set-up FRM courses that are followed by civil engineers and urban planners together.

4.4.3 Structural factors

Structures can be defined as "rules and resources, recursively implicated in the reproduction of social systems. Structure exists only as memory traces, the organic basis of human knowledge ability and as instantiated in action" (Giddens 1984:377). Generally in the social sciences, structures are understood as recurrent patterned arrangements which limit the choices and opportunities available, as opposed to agency, that is the capacity of individuals to act independently and to make their own free choices (Barker 2005: 448). The elements that have been discussed under the rules and resources dimension of the PAA (see previous chapter) can be seen as structural factors. For instance, building codes are structural factors as well as dynamics in spatial planning law in a certain country more generally. Other examples of structural factors are the venues in which policies are made, which may be as diverse as parliaments, state agencies, ministries, universities, congresses, the media, but also less tangible venues including partnerships, interest platforms etc. Note that actors may strategically choose to address certain issues in certain venues (True *et al*. 2007). Within the legal framework, legal norms as well as the founding principles of national legal frameworks can be seen as important structural factors that can be expected to contribute to stability in Flood Risk Governance.

It will be clear that structural factors comprise a large category of factors that all have to do with the institutionalisation of behaviours. The more that behaviours are institutionalised, the more they will contribute to stability of Flood Risk Governance Arrangements. The reader will note, however, that these factors maybe *guide*, but generally not *determine* behaviours. For instance, in a decentralised legal system several formal rules – including building codes – could relatively easily be changed. Also, in some cases the law in a certain country leaves room for flexibility. The constitutional structure of a country is another good example of a set of structural factors that can contribute to explaining stability or change. Although laws can be changed, some laws are easier to change than others. Constitutional norms are resistant to change, and when these norms relate to the way in which competences are distributed and which actors are expected to initiate change, they are even more

so. The level of centralisation or decentralisation in a given jurisdiction will affect how change occurs as well. In decentralised countries legislation might be easier to change on a local level, when local circumstances dictate. In a centralised country it is possible that change in legislation is more time-consuming, and the threshold for change is higher, because the legislation processes at national level tend to be more complex, but when a change is made, it applies to the whole country and has a large influence.

On the other hand, 'non-formalised' but 'normal' behaviours of actors may be harder to change than a law because of the latter's high degree of institutionalisation. Therefore, several policy analytical theories (Sabatier and Weible 2007, True *et al*. 2007, Zahariadis 2007) but also social science literature more generally often assume that social structures enable and constrain the actions of individuals (e.g. existing legislation permits some courses of action and restricts others). But, vice versa, actors have some opportunities to change these social structures. This is referred to by Giddens (1984) as a duality of structure (for a more detailed discussion on this, the reader is referred to the background theories document).

4.4.4 Agency

Agency or the purposeful actions of knowledgeable and capable agents forms a fourth explanatory factor. For the purpose of our project, it is perhaps a key factor. After all, the very goal of our project is to identify design principles, that is, actions that people can undertake to achieve change – but also to resist change! – in the field of Flood Risk Governance. Put in other words, we expect that agency can contribute to stability and dynamics in Flood Risk Governance. It is an empirical question of what types of agency can be observed and whether and to what extent agency has contributed to stability or dynamics. To be able to address these questions, it will be helpful if all STAR-FLOOD researchers are familiar with at least the following three concepts from the policy sciences literature:

- *Change agents*. Change agents can undertake actions to establish changes in policies (that may in turn lead to changes in the legal system needed to effectuate these policies). The term change agent is a general term, and according to literature several types of actors could qualify as a change agent (see Caldwell 2003 for an overview). Change agents can be leaders or senior executives, middle level managers, external or internal consultants and they can work at a strategic or at an operational level. Change agents can even be teams. They can be found in various types of organisations (including business, NGOs, governmental bodies). Within the legal system, change agents may be found within courts. Courts can instigate change. The outcome of an appeal process may influence the way the challenged provision is explained, effectively changing applicable rules (and possibly behaviours) without intervention by the legislator. Courts' judgements can also inspire new legislation, as they bring flaws in existing laws into the light. The presence or absence of a constitutional court could be a relevant factor as well. Such courts might promote change or obstruct it, but either way their rulings carry great weight, and may have significant impact on processes of change. The degree of discretion awarded to the administration is relevant as well: large amounts of discretion (which are respected by the courts) give room to change agents within the administration, whereas strict rules and bound competences will frustrate them.

- *Policy entrepreneurs*. The term "policy entrepreneur" is related to the term change agent but generally interpreted in a narrower sense (Zahariadis 2007, Brouwer and Biermann 2011). Policy entrepreneurs have been defined by Brouwer and Biermann (2011:5) as "risk-taking *bureaucrats* who seek to change policy and are involved throughout the policy change process" (emphasis added). In some theoretical frameworks (Kingdon 1984, Zahariadis 2007) policy entrepreneurs are attributed a crucial role in putting problems on the agenda. To do this and other things, they make use of different strategies including the development of ideas, the building of coalitions,

the selling of ideas, recognizing and exploiting windows of opportunity, orchestrating and managing networks and recognizing, exploiting, creating and/or manipulating multiple venues (Huitema *et al*. 2011). An obvious example of a policy entrepreneur would be an official in a municipality or regional water authority who – out of personal commitment – works very hard to bring water managers and spatial planners together. He/she could, for instance point out the interests of water managers to spatial planners, insist that certain people meet each other, or try to speed up or slow-down a planning process or the release of a water policy plan to make sure that insights from one policy domain can be considered in the other domain.

It is also important to remain critical on the literature on policy entrepreneurship as it seems to implicitly attach a positive connotation to the policy entrepreneur. This positive connotation translates as "change is good and we need risk-taking individuals to pursue it". There are, however, good reasons to question if this assumption is always valid. First, one can question if policy entrepreneurs always go for change. The same entrepreneurial skills that can be used to pursue change can also be used – and probably are used – to maintain the status quo and protect vested interests. Second, as we stressed several times throughout this report, change is not inherently good and in some cases we may find that, from a normative perspective, stability would be preferable. If we find, at the same time, that policy entrepreneurs are continuously pushing for changing the law, without a thorough problem evaluation, we will of course not evaluate this as positive.

- *Advocacy coalitions*. The term, advocacy coalitions, forms the core of the Advocacy Coalitions Framework (Sabatier and Weible 2007: 203). At the core of the ACF lies the assumption that in each policy sub-system we may find multiple (at least two) competing advocacy coalitions, that is coalitions of actors that converge in their ideas and compete with other coalitions. Actors within these coalitions have certain policy *beliefs* as well as a certain amount and type of resources (including 1. formal legal authority; 2. public opinion; 3. information; 4. mobilizable troops; 5. financial resources; 6. skilful leadership) (Sabatier and Weible 2007: 203). The ACF provides space for agency as it attributes much influence to the beliefs held within advocacy coalitions – as opposed to actors' interests. For example, the Room for the River coalition in The Netherlands is a strongly opposite coalition to the dike enforcement coalition.

4.4.5 Shock events

Shock events undoubtedly do influence stability and change in Flood Risk Governance. A flood is an external shock, which creates a disturbance throughout the interconnected ecological, economic and social systems (Green *et al*. 2011). Whereas it is quite certain that shock events influence governance, it is less easy to determine how they do so. Determining this is an empirical question. At this point we will restrict ourselves to sketching some patterns and options that have been documented in literature. As these patterns will show, shock events may contribute both to stability and to dynamics in Flood Risk Governance.

- Shocks may come from inside and from outside the policy subsystem (Sabatier and Weible 2007, True *et al*. 2007). An example of an internal shock would be expansion of conflicts between actors in a policy subsystem (Real-Dato 2009). Examples of external shocks or what Real-Dato (2009) has coined exogenous impacts, include focusing events (e.g. floods), but also other changes in context such as economic crises, public opinion etcetera.
- It may be the case that many developments had been going on within a policy subsystem before large observable change occurred (True *et al*. 2007). That is, the shock event only triggered the change, but was not its main cause. For instance, in The Netherlands in the 1980s and 1990s many plans for dike reinforcement had been made. In 1995, an emergency situation arose because of the threat of dikes being breached due to extremely high water levels in some major rivers. As Driessen and De Gier have shown (1999), this shock event helped the implementation

of flood defence measures and the necessary changes in legislation, which had been hoped for by many water sector professionals for some time. In this specific example, however, the main thrust of the change was acceleration along existing paths and trajectories (flood defence). So in a sense, this particular shock event contributed to stability.

4.5 The explanation behind the explanation: dynamics between different explanatory factors

As the discussion of the explanatory factors in the previous sub-sections has shown, to explain dynamics it is often necessary to look at what might be termed "the explanation behind the explanation". How did certain factors together produce a certain dynamic? Policy change and stability can – amongst others – be explained by dynamics between structure and agency within a policy subsystem. From the perspective of policy analysts, these dynamics can roughly be divided along the lines of *learning* vs. *negotiation* (Real-Dato 2009). According to Real-Dato (2009), the chance that learning takes place is enhanced by the existence of institutional elements within organisations and at sub-system level designed to foster it, such as internal or external evaluations, consultative bodies, professional fora, information systems integrated in policy implementation procedures etc. Although Real-Dato does not mention this explicitly, one can assume that such institutional elements allow for a context in which individuals with alternative views are taken seriously. Real-Dato found that the opposite, contexts in which individuals with alternative views are easily marginalised, makes the occurrence of learning less likely.

Negotiation is another mechanism of change. Contrary to literature on learning, the literature dealing with negotiations and agreements does not assume that actors are willing to engage in communicative processes with the aim to learn from one another, but that they have opposing interests that should be settled. This can take place, amongst other things, through conflict expansion (Real-Dato 2009) originated by outsider participants. Even deadlocks/stalemates are sometimes an agreed upon situation in the sense that actors have agreed to disagree and perceive the option of "doing nothing" as the best option for the time being. Of course, deadlocks are not always agreed upon. It can also be that a less powerful actor does not have the power to change anything. The latter is often the case in upstream-downstream situations with unidirectional externalities. In such cases, often the upstream country inflicts environmental damage upon the downstream country but its strategy is to maintain the status quo because it has no interest in cooperation. Cooperation increases transaction costs for the upstream country (the costs of negotiation, contracting, etc.), while it does not lead to additional benefits (because the upstream country does not experience damage). Compensation of the upstream country by the downstream country can help to stimulate cooperation, but compensation schemes can be complicated and it is still more likely that the upstream country prefers the status quo over binding cooperation (Bernauer 2002; Dieperink 2011). In other cases, all parties may think that the deadlock is undesirable, but they are unable to solve it.

Legal scholars can contribute a complementary perspective to the analysis of how different factors together may explain stability and dynamics in Flood Risk Governance. They can look, for instance, at the extent to which legal systems respond to, obstruct or contradict societal changes, or at similarities and differences in the amount of public support needed before the legislator takes action or to what extent courts' rulings influence the way a challenged provision is explained or instigates new legislation. Other issues to assess may be if endogenous change within the legal system takes place, and whether and to what extent the law is used as a tool to instigate change.

4.6 Establishing evidence

In many cases, stability or change in Flood Risk Governance Arrangements will best be explained by combining several explanations. For instance, it may be the case that a highly dedicated policy entrepreneur has been pushing hard to get flood-proof measures in a certain area. Eventually, he/she succeeded. Empirical research may show that the hard work of this policy entrepreneur was a necessary precondition for achieving these higher protection levels, but that it was not a sufficient precondition. For instance, at a crucial moment in the policy process, certain windows of opportunity may have emerged, e.g. the election of a politician with a similar interest in certain measures, or a devastating flood that put the issue of flood protection high on political agendas and the subsequent adoption of emergency legislation. It should also not be forgotten that certain developments can be due to "chance" or "serendipity" (Capano 2009:26).

Also, as the previous example may show, it is important for researchers to consider competing explanations and to point out which explanation is most plausible. If we find, as in the previous example, that actors managed to make use of a political window of opportunity (Kingdon 1984, Zahariadis 2007), *why was this window there*? Much literature implicitly suggests that the presence of policy windows is contingent and that actors can use such windows if they are present, but have limited opportunities to make these windows arise (Zahariadis 2007) but more recent literature provides evidence of actors – including policy entrepreneurs – that do create and manipulate policy windows (Brouwer and Biermann 2011; Van Stigt *et al*. 2013). Generally, claims regarding the plausibility of explanations will be more reliable if they rely on multiple sources of data (e.g. document study, interviews, participant observation) simultaneously. This is generally referred to as data triangulation.

It is impossible, in principle, to determine the counterfactual (what would have happened otherwise) with 100% certainty. Also determining the relative importance of explanations is challenging and in some cases we *will* get it wrong. However, throughout the empirical research we will take several actions to minimise the chance that we get it wrong. Besides the obvious measure of relying on multiple sources of data (see above), these actions will include:

- To explicitly reserve time for the steps of explaining and evaluating stability and change. This will allow for thorough discussions amongst all researchers on the empirical findings, potential competing explanations etc.
- To carry out several activities to check and challenge our findings, including case workshops in Work Package 3 and international workshops in Work Package 4.

4.7 Conclusion

In this chapter we have argued that to provide recommendations for improving Flood Risk Governance, it is necessary to come up with plausible explanations for stability and change. Formulating explanations is difficult. As we have attempted to show, however, it is necessary to make the effort. We hope that the reader, after reading the previous sections, appreciates that developments in Flood Risk Governance can be described both in terms of stability and in terms of dynamics. Often, both can be seen to be happening at the same time. Second, explaining things is not about collecting new information. It is about drawing logical connections between the bits of information that have been collected. Researchers trying to explain things should therefore become trained in considering alternative explanations. Third, we have proposed five types of explanatory factors to consider, expecting that policy analysts and legal scholars have complementary perspectives to offer to each factor.

The current chapter has provided a first step towards making explanations. A next step will be to jointly engage in the empirical analysis of Flood Risk Governance in Europe and to have thorough discussions about why things happened.

The step of explaining stability and change can benefit from drawing systematic comparisons between NFPRs and cases. As the above may suggest, we will not wait to draw such comparisons until the start of WP4, which is about country comparison. Instead, throughout WP3 the STAR-FLOOD researchers will have discussions on their findings and on the presence or absence of certain patterns across countries and cases. The empirical research is hence also an exercise both in comparative policy analysis and comparative legal studies. As a final illustration, box 4.2 provides some examples of what integrated social scientific and legal explanations of policy change may look like.

Box 4.2 Some examples of integrated analyses by policy analysts and legal scholars of stability and dynamics in Flood Risk Governance (parts of the example were also used in D1.1.4, Hegger et al. 2013)

Example 1: the Water Test in Flanders and The Netherlands

In the Netherlands, in the year 2000, the so-called water test ("Watertoets" in Dutch) has been established on advice of the governmental committee "Water policy for the 21st century) (Hegger *et al*. 2013). This procedural instrument requires the inclusion of a 'water paragraph' in municipal zoning plans and hence in principle it enables water policy-makers to specify and politicize their interests. In practice, until recently, the instrument was approached as a formality which could be quite easily bypassed by using a 'standard text'. Recent discussions within some of the sub-programmes of the Dutch Delta committee suggest, however, that some provinces (the governmental entities overseeing the development of municipal zoning plans) are seriously considering putting stricter requirements on municipalities when it comes to water-related issues, and hence the significance of the Water Test is expected to increase in the future (Frank Wagemans, policy advisor on water and spatial planning, IPO and Dutch Delta Programme, personal communication).

Policy analysts and legal scholars in a country could try to explain both this apparent change as well as local and regional differences in the extent to which this change manifests itself. Issues which one would logically consider would be the physical context (e.g. is implementation of the procedure more pro-active or stricter in areas that are more vulnerable?). Can we identify policy entrepreneurs who push for stricter implementation of the procedure? Or can we establish that governmental actors in certain regions will be liable in case a flood occurs and the procedure has been weakly implemented? To what extent do policymakers have knowledge on the content and scope of certain rules? All these and other types of explanation need to be thought through and discussed. In the case of the Water Test it is also interesting that in Belgium a policy instrument with the same name exists. What are its similarities to and differences from the Dutch water test? How does its implementation differ from the one in the Dutch context and why?

Example 2: dynamics in the development of new legislation

In general, there are different potential reasons for establishing new legislation. These may include for example that:

- Public authorities have the formal obligation to make certain legal arrangements (e.g. transposition of EU law to the national level);
- There may be internal political debates at country or regional level, e.g. a general tendency towards decentralisation;
- Several actors, including public authorities and interest groups perceive existing legislation to be ineffective and push for new legislation or revision of existing laws.

In many cases, several explanations will be applicable simultaneously. Some of these explanations can be found through a legal study while others require an analysis of decision-making processes, interviews with involved key actors, a study of debates in parliament etc. Determining why a particular law was adopted in the form in which it was adopted will then require the researcher to ask critical questions regarding each potential explanation. For example: If implementation of the Floods Directive was the only reason to change this law, would the current law have been the only option? What other options were available? We know that a certain interest group was dissatisfied with the previous law. Does the new law suit their interests better? Do we have any evidence that they influenced the content of the law? If not, is there still reason to logically assume that they had influence?

5. Evaluation framework

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5.1 Introduction

Following the application of the PAA analytical framework (as outlined in Chapter 3), there is a need to evaluate *Flood Risk Governance Arrangements* (FRGAs) in our pursuit of policy design principles. This is justified in the initial starting assumptions of this research project, as follows;

Assumption 1: Urban agglomerations, urban areas and regions vulnerable to flooding will be more resilient if multiple Flood Risk Management Strategies are implemented simultaneously and are aligned;

Assumption 2: A successful implementation of a diverse, resilient set of FRMSs – requiring a combination of old and new strategies and coordination of different strategies – in a certain area is only possible if these strategies and their coordination are appropriate (legitimate, effective and efficient), that is, are properly institutionally embedded given the opportunities and constraints of their physical and social context.

Returning to these assumptions, we must assess the extent to which FRGAs facilitate the assembly of diverse, multi-layered and appropriate FRM strategies. In turn, it is assumed that such an approach will enhance the resilience of urban areas. In some countries it may be the case that strategies are shaped by several overarching arrangements and it will be part of the analytical process to identify *how many* Flood Risk Governance Arrangements exist, as well as the strategies and measures they may inform. In shaping the evaluation framework, we need to begin from the starting position of the following questions:

1. What is governance and what is it trying to achieve?
2. What is the purpose of the evaluation framework?

Functionally, an ideal FRGA is one which results in appropriate and resilient FRM (D1.1.1, Green *et al*. 2013); that is, it matches the problem and has the capacity (D1.1.2, Dieperink *et al*. 2013) to deliver the appropriate strategy. This raises one of the immediate issues in evaluation: the distinction between descriptive evaluations (does it do what was intended?) and the normative evaluation (did it do what it ought to do?).

The second of these questions relates back to the key aims of the STAR-FLOOD project and the need to be able to both compare and contrast case studies in such a way so that best practice Flood Risk Governance approaches are identifiable. Ultimately, the key rationale for the evaluation approach (in line with the rest of this report) is to ensure that suitable data are collected in WP3 and enable their subsequent comparison in WP4. Here, we employ the criteria of *Resilience* (Berkes *et al*. 2003; Carpenter *et al*. 2001; Davoudi *et al*. 2012; Folke 2006; Holling 1973; Keessen *et al*. 2013) and *Appropriateness* (March and Olsen 2008); including the sub-criteria of *Effectiveness* (Buijze 2008; Underdal 2002; Young 1994), *Efficiency* (Buijze 2008; Hanley and Black 2006) and *Legitimacy* (Johnson *et al*. 2006; Mees *et al*. in press) to steer evaluation. Simultaneously, it is important to stress that during the course of empirical research further criteria may emerge, thus the proposed criteria should be seen as a starting point only. This document is intended as a pragmatic tool to guide empirical research and ensure a degree of consistency across partner countries, whilst

accommodating the flexibility required to conduct research in contrasting case studies. This document should thereby be regarded as a "living document" and subject to iteration throughout the research process.

This chapter is focusing on how we can operationalise the evaluation of FRGAs in the six countries studied. Accompanying this document, the *Background theories document* discusses in further detail the purpose and logic of evaluation and the use of assessment indicators. Drawing from numerous texts on policy and programme evaluation (e.g. Ménard and Saleth 2011; Abrams *et al*. 2003; Paneque Salgado *et al*. 2009), as well as on project appraisal, we identify a number of "take home" messages to inform our activities in STAR-FLOOD. Furthermore, the *Background theories document* provides a theoretical grounding and justification for the selected evaluation criteria.

To support evaluation, each criterion and sub-criterion are conceptualized according to ***processes*** and ***outcomes***; this can be distinguished between inputs, outputs, outcomes and impacts (see the *Background theories document*). This distinction is justified on a pragmatic level and emphasises the importance of being holistic in our approach.

This chapter begins with a discussion of the conceptual challenges for evaluation (more deeply developed in the *Background theories document*) and then presents the evaluation criteria in turn. Next, we examine the empirical challenges for operationalising these criteria in our evaluations of FRGAs. We are therefore aiming to answer the following questions;

- Is the FRGA(s) resilient? (i.e. Does it enable a broadening of FRMSs? Does it provide scope for learning and innovation?)
- Does the FRGA(s) deliver strategies which enhance the flood resilience of the area?
- Is the FRGA appropriate? (i.e. Does it deliver an assembly of FRMS which are effective, legitimate and efficient?)

5.2 Some conceptual challenges for evaluation in STAR-FLOOD

There are a number of conceptual challenges when developing an evaluation framework for governance and designating evaluation criteria (Mark 2005; Rossi *et al*. 1999; Stufflebeam and Shinkfield 2011). Evaluating governance within a STAR-FLOOD context introduces the challenge that there is the need to both investigate past and current governance arrangements and FRMSs, and evaluate not only how they have performed, but also how they might perform in the future or when applied in different contexts. Here, we make the distinction between *ex post* and *ex ante* evaluation, summarised in Box 5.1.

Box 5.1: Ex-post vs. ex-ante evaluation

***Ex post* evaluation** (e.g. CDC 1999; OECD 2001; 2010; 2013) can be both descriptive and analytical. On one hand, it is concerned with determining whether or not a system delivered as intended; whilst on another it must demonstrate the extent to which change is attributed to the policy instrument or governance arrangement and thus requires a degree of causal analysis.

***Ex ante* evaluation** (e.g. Paneque Salgado *et al*. 2009) is fundamentally predictive and hence needs to be causal. Therefore, it is necessary to develop and test through WP3 some hypotheses about what circumstances will result in appropriate and resilient governance arrangements.

There are a number of specific problems that we will need to confront in developing our framework for evaluation. Firstly, evaluation must be conducted both *ex post* and *ex ante*. We are not only concerned with how systems have performed in the past but how they will perform in the future;

where the future may be both different to the past and where we may seek to make the future different to the past. Consequently, we must adopt and balance descriptive and more analytical practices of evaluation.

Secondly, our evaluation approach needs to link to the PAA framework (presented in Chapter 3). Part of evaluation is to ask *ex post* whether the arrangements of rules, power, actors and discourse was such as to deliver the appropriate FRMSs and enable a broadening of FRMSs. In turn, these insights will contribute to *ex ante* evaluation, where the objective is to question what arrangements of rules, power, actors and discourse are necessary in order to deliver the appropriate and resilient FRM.

Consequently, there are two initial roles for which the criteria need to be considered:

a) ***Success criteria*.** Within the evaluation this will primarily involve an *ex post* assessment of whether, and to what extent, actors in vulnerable urban regions actually managed to diversify, link and align FRMSs (*Resilience*) as well as whether the strategies and their coordination were properly institutionally embedded (*Appropriateness*). The more both conditions have been met, the more successful we consider Flood Risk Management to be.
b) ***To challenge, nuance and evolve our starting assumptions*** (outlined in Section 5.1). This deals more with an *ex ante* evaluation and would involve questioning existing ideas about what governance arrangements (and FRM strategies and measures delivered through these arrangements), would best reach the success criteria of *Appropriateness* or *Resilience* and how it might in the future. For instance, in terms of our assumptions about resilience, implementation and coordination of the different FRMSs would be an ideal to aspire to. But one can logically assume that this is not always necessary. In a very sparsely populated area (where risks have been prevented), for instance, it may be less essential to have sound evacuation plans (flood preparation). Exploring these assumptions in the context of the partner countries and the case studies should enable a better understanding of the suitability of different FRMSs (and their combinations) in different flood risk situations and contexts. Although we acknowledge that our starting assumptions may prove invalid in certain contexts, we have intentionally avoided the term hypothesis, which otherwise implies an empirical investigation geared towards falsification. It is necessary to generate and test hypotheses through WP3 activities, but these should be distinguished from our high-level starting assumptions to avoid conceptual confusion.

Utilising the evaluation criteria in both of these ways will enable us not only to evaluate the success and value of current FRGAs but also to begin to question and compare how different governance approaches and FRMSs act in different countries and whether their selection and/or adoption was fitting.

Another issue involves the challenge of defining evaluation criteria in different contextual settings. Firstly, there is a need to be mindful of the context in which governance approaches are adopted and utilised. This creates an inevitable tension between generic and context-specific criteria. This includes the need to prescribe a rigid set of criteria and indicators for comparative purposes yet incorporating learning and reflexivity as part of the evaluation process including space for the development of emergent evaluation criteria (Box 5.2).

Box 5.2: Some reflections on the evaluation process

We should think about the evaluation of the FRGAs as being part of a **learning process**; questions that need to be examined as part of that process include:

- Are there other criteria that are relevant to the stakeholders within a case study?

- Are the evaluation criteria in conflict? If so, can the evaluation framework account for this balance that may exist between criteria?

We may examine within the case studies the apparent criteria used to select the courses of action adopted. For example, in the Netherlands on normative criteria; in England firstly the use of CBA and increasingly now towards MCA and output measures – the key question that needs to be asked is: why does this criterion matter? (E.g. why does legitimacy matter?) What is its purpose?

Secondly, there is the need to acknowledge that some of the evaluation criteria can be defined and interpreted in different ways at a number of different levels including for instance; by different researchers, in different research contexts, by potential research participants and ultimately by different flood risk policy and governance approaches. Although it may be possible (with some debate) for STAR-FLOOD researchers to reach a consensus regarding the definition of legitimacy for example, the policy or legal framework for Flood Risk Management (FRM) may offer a description or definition of these terms which is also to be reflected and adopted within evaluation. At a similar level, there is a fundamental need to understand how those employing FRGAs and working for institutions involved in FRM also utilise and comprehend some of these criteria and concepts. This is to ensure that when collecting primary data at (particularly) the case study level it is clear how these concepts are understood and interpreted and the general expectations of FRM within the country or case being studied. This context is fundamental to being able to evaluate a FRGA both against its intended objectives as well as being able to elicit wider and comparative evaluation conclusions about the FRGA adopted.

Consequently, there needs to be a balance between the evaluation criteria being sufficiently flexible to recognise the different situations within case studies and being adequately structured and objective to enable governance approaches to be compared and evaluated.

It is also not possible to provide a set of evaluation criteria which are completely objective and that are able to be rigorously and definitively measured. For some criteria, indicators are available for quantitative measurement. However, much of the value and richness of evaluation is only possible through narrative explanation and achieved via more subjective analysis of both the context and process (this is likely to emerge from discussion with flood risk actors as well as directly from STAR-FLOOD researchers). Ultimately, definitions and approaches will need to be tailored within each partner country (and potentially within each case study) as the notions of *Appropriateness* and *Resilience* (and any sub-criteria) will vary between study locations and will impact upon the results obtained. Investigating how these notions are understood and incorporated within each case study is fundamental to being able to evaluate governance approaches.

The evaluation criteria presented here provide a starting point for evaluating FRGAs but allows for the development of learning and adapting as WP3 progresses. Each partner country and case study should consider and use all of the criteria (and sub-criteria) presented here in order to enable later comparisons between countries and case studies; however it is plausible that partners may wish to add additional evaluation criteria which appear to be applicable in the specific circumstances of the case study and collect any additional data that may be needed to make these evaluations. In particular, other potential criteria may emerge during the National Flood Policies and Regulations domain component of the research where country-level FRGAs are analysed.

However, to begin evaluation, there is a need to select some generic criteria which can be adopted by all STAR-FLOOD partners. The two selected criteria are *Resilience* (Berkes *et al*. 2003; Carpenter *et al*. 2001; Davoudi *et al*. 2012; Folke 2006; Holling 1973; Keessen *et al*. 2013) and *Appropriateness* (March and Olsen 2008); divided into the sub-criteria of *Effectiveness* (Buijze 2008; Underdal 2002;

Young 1994), *Efficiency* (Buijze 2008; Hanley and Black 2006) and *Legitimacy* (Johnson *et al*. 2006; Mees *et al*. in press). Within environmental management and Flood Risk Management these criteria are quite broad concepts and each will be discussed and explained in more detail in the coming sections (also see the *background theories report*).

5.3 Resilience

Although the term resilience is widely applied, it is recognised as a contested concept. Distinctions are made in the literature between forms of engineering, ecological and social-ecological resilience of adaptive systems (Gunderson and Holling 2002; Folke 2006; Davoudi *et al*. 2012); such that resilience can be conceived as a measure of resistance, return, absorption or adaptation. These theoretical fracture lines are reviewed in the *Background theories report*. There is a strong argument that *adaptability* should be seen as a crucial facet of resilience, capturing the ability of the system to respond to changing environments, capacity for learning and evolution (Adger *et al*. 2005; Smit and Wandel 2006; Gallopín 2006).

Box 5.3: Proposed definition of resilience

"The ability to absorb disturbances, to be changed and then to re-organise and still have the same identity (retain the same basic structure and ways of functioning). It includes the ability to learn from the disturbance." (http://www.resalliance.org/index.php/key_concepts, accessed 1 November 2013).

Although the term resilience is widely applied, it is recognised as a contested concept. For the purpose of this project, we conceive there to be two key facets to resilience. Firstly, resilience can be regarded as the ability of the system to absorb disturbances in a way that does not fundamentally change its identity. This facet of resilience is reactive to so-called "shock" events. Secondly, resilience requires capabilities for learning, as well as the willingness and capability to consciously adjust. This involves proactive mechanisms for adaptation. At this stage, we have adopted a fairly broad definition of resilience proposed by the EU SPICOSA research project (http://www.coastal-saf.eu/) (see Box 5.3) and endorsed by the Resilience Alliance.

5.3.1. Evaluation of Resilience

The selection of *Resilience* as a criterion for evaluation is justified by a number of reasons. Firstly, Flood Risk Governance Arrangements (FRGAs) have a key role to play in enhancing or constraining the resilience of urban agglomerations vulnerable to flooding. This view is based on the starting assumption that an assembly of multiple FRMSs (coordinated through established FRGAs), will enable society to better respond and recover from all types of flood events in a multi-faceted way (Assumption 1). Therefore, governance arrangements that successfully enable a broadening of FRMSs can be seen as delivering resilience; this might be described as "*outcome resilience*". However, another important facet to this discussion is the underlying process through which resilience is delivered and whether the FRGA(s) itself is resilient. Here, we might question whether the current arrangement(s) is able to withstand "shock" events and the extent to which it provides opportunities for learning and innovation to support adaptation and enhance resilience to future floods; this might be referred to a "*process resilience*". By drawing attention to notions of *process* and *outcome* resilience, we aim to encourage researchers to examine the criterion of *Resilience* in a holistic way. Evaluation can be steered by two central questions;

1. Is the FRGA(s) resilient? (i.e. Is it able to withstand "shock" events? Does it provide scope for learning and innovation? Flexibility to change?);
2. Does the FRGA(s) deliver an assembly of strategies which enhance the flood resilience of the area and/or key systems (social, economic, ecological etc.)?

With regard to the first research question, at this stage, we can only propose hypotheses about what constitutes "resilient" FRGAs and these should be critically evaluated during the research process. We might argue that FRGAs are considered resilient if they actively promote flood resilience and support the delivery of diverse, multi-layered FRMSs. Furthermore, we might examine the extent to which mechanisms are in place for learning, experimentation and innovation, and whether there is evidence to indicate capacity for adaptation.

The second of these research questions, is essentially divided in two parts:

- Firstly, we need to evaluate governance arrangements in terms of whether they enable or constrain the delivery of diverse and multi-layered FRMSs. This point of evaluation is *process*-orientated, in the sense that it considers how governance arrangements promote or prevent resilience.
- Secondly, there is a need to demonstrate (or test) that the assembly of strategies delivered through FRGAs, actually enhances the resilience of the system. This discussion frames resilience as an *outcome*.

A key consideration when discussing resilience to flood risk is that we need to question about the resilience of what or of whom? The physical system or societies? Individuals or communities? All of these different elements need to be considered by each STAR-FLOOD partner country; however, to avoid confusion, it is crucial that we assign a corresponding adjective to "resilience" and specify which type of resilience we are discussing (ecological, social, social-ecological, institutional etc.).

Additionally, it is important to consider the different types of disturbances to which notions of resilience are applicable. For instance, resilience to sudden shocks to the system ("*shock resilience*") can be distinguished from discussions of resilience to gradual, systemic changes to the system ("systemic resilience"), which may become pressures that challenge resilience over time (e.g. population growth, climate change). Furthermore a distinction can also be made concerning discussions of adaptive capacity (e.g. http://www.unisdr.org/we/inform/terminology; http://www.resalliance.org/index.php/key_concepts, accessed 1 November 2013). From a STAR-FLOOD perspective, we are clearly interested in all three. Firstly, FRGAs should be evaluated in terms of the ability of the system to absorb "shock" disturbances, to reorganise and maintain its identity. This includes a measure of return (i.e. recovery) and functional performance, and can be assessed *ex post* on the basis of previous flood events. Secondly, systemic resilience is relevant to discussions of FRM given the interaction between flooding and shifting climatic and societal trends shaping landscapes of risk. Therefore, it is necessary to also evaluate how FRGAs are situated within these broader discussions of resilience and sustainability discourse. Finally, adaptive capacity can be evaluated according to the mechanisms in place to integrate and act upon "lessons learned", the opportunities created for innovation and enhancing (shock and systemic) resilience.

5.3.2 Operationalising Resilience as an evaluation criterion

There have been a number of attempts to define indicators to measure the resilience of Flood Risk Management systems (e.g. Remmelzwaal and Vroon, 2000; Termes *et al*., 1999). For instance, de Bruijn (2004) suggests three resilience indicators for lowland rivers to include: amplitude of the flood waves and impact on impact, graduality of increase of impact and recovery rate, however these have tended to focus on the need to quantify resilience. The majority of the approaches above arguably focus not actually on the resilience of a system *per se* but only on characterising the shock being experienced. They generally consider the impacts of flood management approaches on flood characteristics and include a before and after analysis of a system. This approach may be difficult to adopt in the STAR-FLOOD case studies as we are often examining approaches and management systems which have evolved in a piecemeal way – although may be suitable for analysis at a scheme

level. Before/after assessments may also prove challenging in cases where measures have only recently been implemented and therefore may not have come under the scrutiny of a specific flood event in which to be tested (e.g. some of the Swedish case studies may encounter this). Additionally, because these approaches are evaluating resilience at the FRMS level they lack consideration of the resilience of the overall governance approach.

A good initial starting point for STAR-FLOOD researchers is to investigate notions of, and commitment to, the concept of resilience within Flood Risk Management within the NFPR (and latterly their case studies); to see if, and how, it is included within the policy and legal framework and subsequently how it is included, implemented within FRMSs. There may be a tension between the ways in which resilience is included within the formal documentation of FRGA and FRMS and then how it is operationalised in practice. In each STAR-FLOOD partner country there are a number of aspects of resilience that should be examined through legal and policy documentation, as well as interaction with key stakeholders. These may include for example;

- Is there formal consideration of resilience? For instance, is resilience explicitly recognised as a concept within policies or legislation? And how is it defined and described? What are the processes for it to be operationalised?
- If so how and to whom is the responsibility designated? What actors are involved and at what levels are they developing and promoting resilience?
- Are there formal mechanisms to promote resilience (e.g. Resilience Forums)? How is it integrated within FRGAs and FRMSs?
- Are there formal plans that have been prepared through a process of discussion about those who will have to deliver resilience?
- Are there indications of formal learning? How is learning sought and promoted? Who is part of this process?
- What opportunities or constraints exist to experimentation, the integration of new ideas and innovations?

From a legal perspective, *Resilience* may be addressed from two positions. Firstly, it is possible to discuss the resilience of the legal system itself and whether there is any capacity (and willingness) in the legal process for learning and adaptation. On one hand, the law can be thought of as adaptive, because it knows some instruments that enhance resilience for example planning cycles, monitoring obligations, possibilities for revisions of decisions, flexibility instruments, but if these kind of instruments are not available changing the law typically can take a long time to occur. On another, there is a need to maintain continuity and stability within the legal order; indeed, regular change would generally be viewed in a negative light. In the context of STAR-FLOOD, we should examine the extent to which the law has evolved (and along what trajectories of change) and how legislation has adapted to changing circumstances or contains instruments to deal with change.

Secondly, legal frameworks can be thought of as the “rules” discussed in the PAA (Chapter 3). Here, there is a need to examine how these rules function to create opportunities or barriers to resilience goals. Tensions may emerge between current policy and legal frameworks and the aspirations of resilience and adaptive governance. For example, Green *et al*. (2011) analyse the EU Water Framework Directive and inherent difficulty of balancing the need for flexibility (required for resilience) and simultaneous need for robust and enforceable standards in adaptive water governance. Similarly, Josefsson and Baaner (2011) contend that the legal provisions under the Act may compromise resilience and examine in further depth how the core legal concepts underscoring the legal norm of “good ecological status” require revision. Extending this discussion in the context of adaptive ecosystem management, Garmestani *et al*. (2008) argue that there exists a conflict between the principle of legal certainty and socio-ecological uncertainty, as well as a mismatch

between scales of decision making and socio-ecological processes (Garmestani *et al*., 2008). In addition, there is a need to document how opportunities for innovation and learning may vary between different legal systems. For the purpose of STAR-FLOOD, legal scholars should try to find if the concept of resilience is used in their own legal framework. Five legal sources can be explored: positive law, normative law, jurisprudence, doctrine, evaluation processes.

- Positive law (i.e. what the law is): laws or rules may refer explicitly or implicitly to the notion of resilience. If this notion has been formalized in some legal norms, what are the criteria used for its evaluation? And can these criteria be useful to us?
- Normative law (i.e. what the law ought to be): is there an argument for transformation? Movement towards resilience thinking?
- Jurisprudence: the notion of resilience might have been used also by a judge to evaluate the opportunity of certain arrangements, when his control is open to a large appreciation. What criteria does the judge use? Once again can these criteria be useful to us and how?
- Doctrine: legal scholars can also explore the publications of their colleagues and can find some references about resilience useful for our own evaluation.
- Evaluation processes: Flood Risk Governance Arrangements might have been subject to evaluation processes in some EU countries. If these evaluations exist, have they based their work on resilience criteria?

Another aspect of resilience to explore is whether, either at the National Flood Policies and Regulations domain (NFPR) or the case study level, there is any experience of resilience in previous flood events. It is Important to this investigation to try to elicit any specific causes or barriers to resilience and how these interact with the Flood Risk Governance Arrangements and management strategies implemented. Indeed how do past and current FRGAs and delivered assembly of FRMSs assist in promoting or preventing resilience to different parts of the system? Furthermore, we should examine whether there is evidence of resilience in practice, such as the ability of communities or individuals to recover from past floods.

Finally, our starting assumption and useful indicator for evaluation, is that an urban system will be more resilient to flooding if it has a range of adopted FRMSs. This is fundamental to understanding resilience and to try to unpick whether there is any relation between the FRGA(s) and FRMS(s) implemented and the increasing or decreasing resilience of a system. Therefore, following the investigation, documentation and description of strategies undertaken in chapter 2 and 3 (Analytical Framework) evaluation should specifically focus not only on the type and range of FRMSs adopted but how they are situated and interact to create a resilient system.

To achieve this, STAR-FLOOD partners need to consider the following:

- How is the concept of resilience operationalised through the FRMSs? For instance, are those strategies which aim to promote more resilient outcomes promoted above other strategies? E.g. is resilience used as a measure of success at all?
- Is there a varied range of FRMSs? How are they implemented in relation to each other?
- How do the FRMSs adopted inform the resilience of the system?

An example of this notion is the multi-layered approach (e.g. see D1.1.4) whereby FRMSs are adopted to create a system with a degree of contingency should one level of the system fail or be insufficient. Although this contingency might be considered to be appropriate and one way to develop a resilient system, there needs to be a careful balance between this scenario and one in which there is some duplication which may introduce short-term inefficiency. The potential for

conflict between the selected evaluation criteria is discussed further in the accompanying *Background theories* report.

It should be borne in mind that evaluation may prompt us to challenge or evolve our starting assumptions about resilience as we identify how different arrangements and assembly of strategies are successful or unsuccessful in different contexts. Furthermore, it is possible that different interpretations of resilience may come to light from interaction with relevant stakeholders or within different policy and legal frameworks. In this context, our evaluation framework must in itself be resilient in terms of its flexibility and opportunities for learning.

The following section will now discuss the second of the evaluation criteria, ***Appropriateness***, as well as its sub-criteria of *Effectiveness, Efficiency* and *Legitimacy*.

5.4 Appropriateness

The choice of *Appropriateness* for the second criterion has been derived primarily from the governance literature (March 1994; March and Olssen 2008; see also the *Background theories report*) and is based on the assumption that the **implementation of a diverse (and resilient) set of FRMSs in a certain area is only possible if these strategies and their coordination are appropriate (legitimate, effective and efficient), i.e. properly institutionally embedded** given the opportunities and constraints of their physical and social context.

There is considerable literature about what governance approach should be adopted and what makes a good or bad approach. These arguments are discussed in more detail in the *Background theories* report. However, in STAR-FLOOD we have chosen to try to avoid 'objectively' determining in a classical way whether one FRGA is 'good' or 'bad' and therefore this evaluation of appropriateness will adopt a context-specific evaluation of Flood Risk Governance in line with the "**Logic of Appropriateness'** (March 1994; March and Olsen 2008). Additionally, later we will be drawing on legal perspectives of appropriateness in terms of its relevance for the principles of 'good' or 'proper' administration (e.g. Langbroek 2003).

March and Olsen's (2008) perspective on appropriateness considers how the rules organized into institutions determine what is seen as natural, rightful, expected and legitimate. Rules essentially provide codes of meaning that facilitate interpretation and shape human action. Beyond rational actor theories, it is argued that actors define what is appropriate for a given situation, thus matching the problem-solving action to a problem situation. Appropriateness is therefore reasoned through cognition and normative values. According to March and Olsen (2008), actors are driven to fulfil the obligations embedded in *roles, identities, membership in a political community or group, and the ethos, practices and expectations of its institutions*. In similarity to the discussions on resilience (see the *Background theories* report) March and Olsen explain how institutions, roles and identities may grow or decay, and how rules can create order and stability, as well as flexibility and adaptiveness (p12). The formation of rules is seen as dynamic, with opportunities for transformation through experience and social learning.

In relation to STAR-FLOOD, the *Logic of Appropriateness* draws attention to the relationship between "the rules of the game" and human action. In our analysis and evaluation it is important that we examine this relationship thoroughly, considering the factors that strengthen or weaken this relationship in the context of FRM. In particular, we should be interested in how lessons acquired through experience shape the formation of these rules and how decisions are negotiated between potentially conflicting actors. Potential examples of a 'lack of appropriateness' involve the failure to resolve internal conflicts within a policy arrangement. So the starting point of case study research might involve examining whether a FRGA performs in practice how it was intended to perform and,

where possible, examine reasons why it is not able to. For instance, new strategies or working procedures may be incompatible with explicit rules and there may be institutionalised ideals which can never be realized in practice. This may be because there is a lack of faith in institutions, or intra- or inter-institutional tensions are present between organizational and normative principles.

As an initial starting point, and from an *ex post* perspective, the criterion of *Appropriateness* should evaluate whether a FRGA improves the situation and for whom. Mirroring the situation with the criterion of *Resilience*, *Appropriateness* should be evaluated at the level of the Flood Risk Governance Arrangement. Therefore, as a criterion of success *Appropriateness* needs to answer the following:

- Does a FRGA work in practice and achieve its aims? (i.e. *Effectiveness*)
- Does the FRGA improve the flood situation?
- How does an FRGA achieve its aims? (*Process Legitimacy*)
- How resourcefully does it do this? (*Efficiency)*
- For whom is the situation improved? (Addressing for instance if there are there any distributional consequences of the implementation of a FRGA or any associated policies or instruments?) (*Legitimacy*)

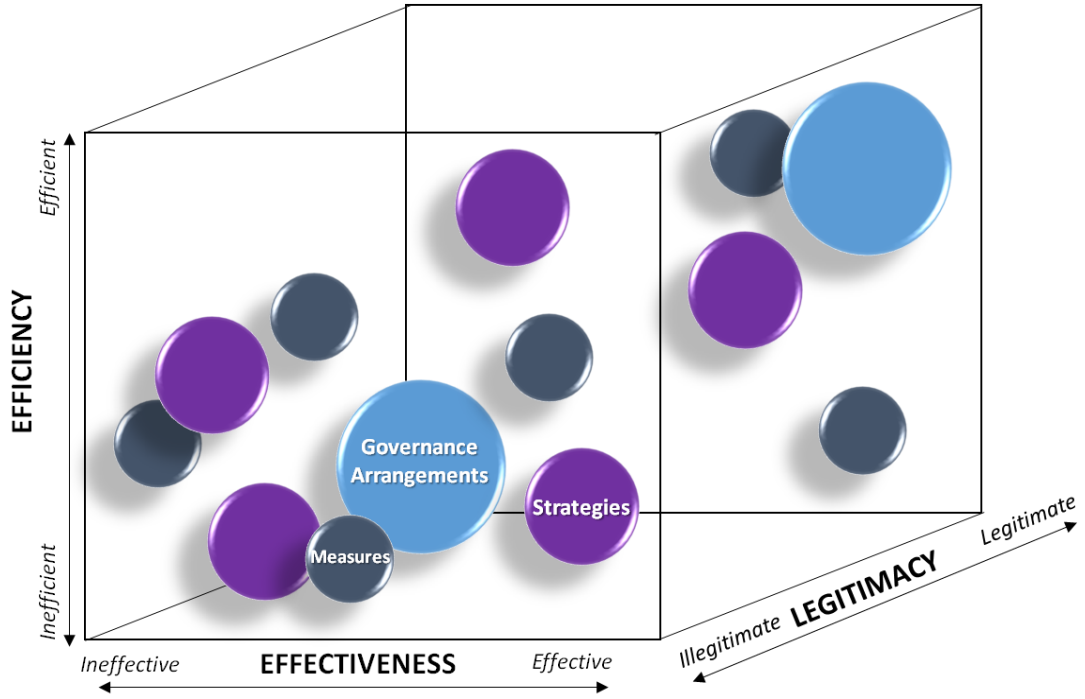
Appropriateness is ultimately established by "*fitting a rule to a situation*" (March and Olsen 2008: 9). In order to evaluate this, three sub-criteria have been identified, which are discussed and reviewed both in the following sections and in the *Appendix to Chapter 5*. In each case, the theoretical background is outlined to justify the underlying rationale for the selection of these sub-criteria;

- *Effectiveness*
- *Efficiency*
- *Legitimacy*

Similar to the criterion of *Appropriateness* to which they combine, each of these sub-criteria should therefore be evaluated at the level of the FRGA. However, it may also be possible for these sub-criteria to transcend scales and be used to evaluate *Effectiveness*, *Efficiency* and *Legitimacy* at different levels: an assembly of strategies, a single Flood Risk Management strategy and also the specific measures or implemented projects. This approach emphasises the flexibility for STAR-FLOOD researchers to also use these sub-criteria to evaluate at a lower scale of analysis (measure, strategy or groups of strategies). This may act as a starting point for consideration and a framework for the evaluation of the overarching governance arrangement.

Although the three sub-criteria are not mutually exclusive, Figure 5.1 provides a conceptual illustration of how these may come together in the assessment of overall *Appropriateness*. If we imagine each sub-criteria as an axis upon which *Appropriateness* may be assessed, then FRGAs can be conceivably positioned somewhere across each axis individually. When these evaluations are combined in some form, FRGAs may be conceived as operating somewhere within this 3D conceptual space of *Appropriateness*. Therefore, for a FRGA to be considered fully appropriate an approach will need to fulfil all three of these criteria. This is also applicable to discussions of measures and strategies. Crucially, this illustration emphasizes the spectrum upon which FRGAs may be aligned. The challenge is how to aggregate evaluation assessments of each sub-criterion – do they equally inform *Appropriateness*? Or are they weighted in some fashion? If so, how can this weight be applied?

Figure 5.1 "Appropriateness cube" – conceptual space for envisioning assessment of governance appropriateness, based on the sub-criteria ("axes") of effectiveness, efficiency and legitimacy. The colours highlight that the appropriateness of different FRM elements can be evaluated, including the appropriateness of Governance Arrangements (light blue), Flood Risk Management Strategies (purple) and individual measures (grey)



5.4.1 Legal perspectives on Appropriateness

In the legal discourse, 'appropriateness' is addressed in different ways in different legal systems. Properness (behoorlijkheid) is the dominant concept in Dutch law, which has been operationalised by the principles of proper administration, most of which have been codified in the Dutch General Administrative Law Act 1994 (see also: Langbroek 2003). These principles are considered necessary to provide some counterbalance to the legal flexibility accorded by discretionary administrative powers, which often exist alongside more formal rules. EU law also introduces some notions of sound administration and good administration, which are detailed in Article 41 of the Charter of Fundamental Rights of the EU (Official Journal of the European Communities 2000a). Other jurisdictions have different principles, or even altogether different means, to ensure although there were some differences in how the different traditions of administrative law in Europe interpret and handle these principles, there were some core principles which they considered to be widely accepted amongst EU Member States. These principles were:

- The principles of lawfulness, non-discrimination, proportionality;
- The right to have one's affairs handled impartially and fairly and within a reasonable time;
- The right to be heard before any individual measure is taken that would affect the citizen adversely;
- The right to have access to his or her file, regarding any individual measure that would affect him or her;
- The right of access to documents;
- The obligation to state reasons in writing for all decisions;
- The obligation to give an indication of remedies available to all persons concerned;
- The obligation to notify all persons concerned of a decision;
- The obligation to be service-minded.

Within the STAR-FLOOD project any principles of 'proper' or 'good' administration (or alternative mechanisms) adopted by a NFPR should be identified by researchers. In addition, research into legal doctrine can clarify the manner in which these principles are believed to lead to appropriate outcomes. The goal of these administrative principles is two-fold. Firstly, they increase the quality of the decisions made by the administration (their effectiveness and efficiency) and secondly, they ensure that the rights of legal subjects are safeguarded. This second purpose of proper administration is related to legitimacy, although legitimacy is a much broader concept (as discussed in Section 5.7).

These principles however, are limited in scope: they only apply to the administration. In addition, their effects are not empirically tested. Legal scholars assume that their observance will lead to a certain outcome, but we cannot be sure whether this is actually true, or under which circumstances this is true. However, they can provide some indicators for when decision-making procedures will result in legitimate, effective and efficient outcomes and can be used therefore to demonstrate *Appropriateness*. STAR-FLOOD researchers should aim to conduct analysis which answers the following questions:

- What legal principles are there which aim to ensure the appropriateness of decision-making processes? These principles will vary between jurisdictions, but will tend to provide norms for the preparation of decisions, for how the decision-making process should be handled, for the communication of decisions, and for what appropriate decisions are (Langbroek 2003);
- What assumptions underlie the presence of these principles in the legal system?
- Do governance systems comply with these principles?
- What role do these principles play in court cases?
- With regard to research undertaken at the case studies: how and where are these norms applied in the governance process? Did their observance lead to any problems? Have any of these principles been violated? If so, why?

5.4.2 Reinforcing the importance of context to the concept Appropriateness

It is important when evaluating *Appropriateness* that the context in which a governance arrangement is being evaluated is considered. For instance, one FGRA may be considered appropriate within the legal, political, social and physical context within which it is applied, but for instance, due to differing public expectations, legal arrangements or physical circumstances may not be considered to be as appropriate in another situation. We began by mentioning that the social and physical contexts impact upon the implemented governance arrangements and strategies: therefore these are central to an analysis about whether any one arrangement can be described as *Appropriate.* These contextual issues should to some extent already be embedded at the level of the sub-criterion. An illustration of this is with legitimacy, where it is necessary to appreciate local understanding of the term to be able to evaluate how it is implemented before challenging the notion more widely.

In order to construct an evaluation framework for *Appropriateness* we now examine each of the selected sub-criteria in turn. A theoretical background is provided alongside a consideration of how the sub-criteria link together and to the criterion of *Resilience.* Finally, how concepts can be combined into an overall evaluation of *Appropriateness* is considered.

5.5 Effectiveness

5.5.1 Effectiveness from a public administration perspective

In terms of *Effectiveness* (Boda 2012; Buijze 2008; Chambers 2004; Ménard and Saleth 2011; Underdal 2002; Young 1994) we are aiming to assess the degree to which FRGAs are effective in enabling a broadening of Flood Risk Management and creating the situation where there is a diversity of strategies. However, it is also possible to evaluate *Effectiveness* at different scales (e.g. measures, FRMS or assemblies of FRMSs). This permits STAR-FLOOD researchers the freedom to evaluate the *Effectiveness* of individual components of the system which can act as an entry point to assessing the *Effectiveness* of the overarching Flood Risk Management governance approaches.

At a most basic level evaluating *Effectiveness* should involve the analysis of whether the existing FRGAs (and at a more practical level through the adoption of a variety of region- and context-specific norms, instruments, processes and strategies) have achieved what they have set out to achieve. In the broadest sense, any FRGA is intending to solve the problem of flooding, therefore if an outcome of the arrangement is elimination (or a partial resolution) of the flooding problem then the approach might be considered to be effective. This can be viewed as akin to Young's (1994) notion of 'Effectiveness of problem-solving' (Table 5.1).

However, this is not the only element of effectiveness that can or should be evaluated. Table 5.1 provides a description of these dimensions along with an added example from Flood Risk Management. Young's (1994) approach has been chosen because it provides a comprehensive set of criteria and moves beyond merely examining problem-solving and goal-attainment considerations of effectiveness. Additionally, this broader consideration of effectiveness through the inclusion of the dimension of 'Process effectiveness' combines both legal and political science views of effectiveness. Evaluating *Effectiveness* utilising Young's (1994) six dimensions permits a broader scope for consideration, although admittedly some dimensions are easier to evidence than others. Additionally, there is some degree of overlap between the dimensions (in particular that of 'Evaluative effectiveness') and the other *Appropriateness* sub-criteria of *Legitimacy* and *Efficiency.*

Table 5.1 Six dimensions of Effectiveness (after Young 1994)

Dimension	Description	Flood Risk Management Example
Effectiveness as problem solving	This considers whether an international regime or governance arrangement operate in a way that solves the problem that they were created to achieve. However, this may not be as straightforward as it might initially appear as there are likely to be varying perspectives and framings of the problem and the problem itself is unlikely to be static.	If we consider Flood Risk Management an effective FRGA would be one which took action so that flooding no longer was considered to be a problem (i.e. an arrangement which prioritises development control; thereby preventing building on floodplains).
Effectiveness as goal attainment	This dimension measures the effectiveness of a regime or arrangement by whether it achieves its goals (whether the goals are stated or unstated). Although this can be linked to the dimension above – the should be considered to be distinct dimensions (particularly when considered unstated or wider goals)	An effective FRGA from a goal attainment perspective is one whereby the specific goal of that arrangement is met – for instance if the key paradigm is for flood defence, then an arrangement that achieves the building and maintenance of dikes can be considered to be effective.
Behavioural Effectiveness	This dimension measures effectiveness as whether individuals or institutions alter their behaviour: either through adopting different behaviour or terminating or reducing previous actions. Young (1994) argues that this may be linked to both problem-solving and goal effectiveness, but equally it may be distinct and therefore should be assessed on its own terms.	A measure which aims to promote evacuation as a response to flooding and the numbers of people leaving an area following a flood warning increases.
Process Effectiveness	Process effectiveness is defined by Young (1994; 146) as "the extent to which the provisions of an international regime are implemented in the domestic legal and political systems…as well as the extent to which those subject to a regime's prescriptions actually comply with the requirements." This has the potential to be aligned with the other dimensions of effectiveness – but also may be distinct; for instance is it equally possible for legislation to be passed but not solve the problem or for goals to be attained but EU Directives not to be ratified or complied with.	Successfully transposing the Floods Directive into national legislation and meeting compliance deadlines.
Constitutive Effectiveness	This dimension can differ significantly from the other measures of	The creation and involvement of local community groups in developing

	effectiveness. It deals with the extent to which a regime or governance arrangement leads to the formation of a social practice whereby time, energy and resources are expended. For instance, even though a social practice expends much time and effort it is not a guarantee of goal attainment or solving the inherent problem.	community flood plans.
Evaluative Effectiveness	Young describes this dimension of effectiveness as not a generic measure of outcome, but whether the outcome of the governance arrangement is "efficient, equitable, sustainable or robust." Specifically it evaluates effectiveness against these performance criteria and therefore this measure of effectiveness links clearly to the other sub-criteria of *Legitimacy and Efficiency.*	One example is a rigorous process of CBA in the selection of FRM measures (evaluation of efficiency). However, this dimension of Effectiveness would require all elements of the Flood Risk Management approach to be evaluated for sustainability or robustness.

5.5.2 Effectiveness from a legal perspective

Effectiveness is probably the easiest of the three sub-criteria of *Appropriateness* for lawyers to adopt and integrate (see also: Buijze 2008). The effectiveness of a legal instrument can be evaluated in the context of the question: will it result in the action that was intended by its introduction? However, from a legal perspective this is closely linked to the notion of control. In some legal systems, the administration or the judge will control if a norm has been adopted in accordance with another more superior norm. Controlling whether a norm has been properly used and if it has achieved the objective it was originally assigned is something that a judge considers in his control of legality. In situations where a judge makes these decision, the criteria used and the methods (faisceau d'indices for instance in France) (s)he can adopt might provide some enlightenment about legal effectiveness. Therefore, there may be examples which are documented whereby a judge has ruled that a norm has or has not been properly applied that can be used to evidence the effectiveness of a FRGA or FRMS.

Legislation is likely to be one of the tools used to achieve the goals of the FRGA. It may be more or less effective in achieving the intended goals. Likewise, administrative decisions can be more or less effective. The effectiveness of individual Acts and decisions may or may not be reviewed, depending on the attitude and the position of the courts in a given legal system. Effectiveness review will often be implicit, because effectiveness itself is rarely a norm in legal review. The *suitability* criterion that is part of the European proportionality test requires that a measure is likely to contribute to the realisation of a goal. If it is not, the decision will be quashed. The German courts apply a similar test. Dutch (and UK) courts apply a less stringent reasonableness or 'evenredigheids'-test. Case law on those and similar principles may reveal the courts' view on the effectiveness of certain decisions and acts. However, the main method of deciding on the effectiveness of a measure will often be rhetoric, either because there are no data about the effectiveness of the contested decisions, or because the courts are ill-equipped to judge the reliability of such data. One question therefore is: Has the principle of proportionality been considered/violated/relied upon when fighting decisions?

The doctrine of 'legal effectiveness' identifies some factors of regulation which are necessary, although not sufficient, conditions for effectiveness. Traditionally, norms are considered to be effective when they are complied with, or lacking that, when they are enforced. In addition, the

competences given to public authorities should match their responsibilities. Legal certainty is important as well: if public authorities are uncertain about the scope of their competences, they will be hesitant to use them in what they deem the most effective way. Consistency within the legal system is also important; there should be no conflicting rules or rights that make the exercise of competences impossible, or that impose conflicting demands on actors. Thus, the legal system may also limit the effectiveness of FRGAs, because it excludes certain useful tools, e.g. because the administration has not been attributed the competence to use them, or because they violate (fundamental) third party rights. Relevant questions to explore include:

- Are the relevant norms likely to be complied with? (consistent with society's moral views, sufficiently clear, not asking the impossible, made known sufficiently far in advance?)
- Are norms complied with?
- Are norms enforced?
- Is it clear who is responsible for achieving a result of performing a task? Does this party have the matching competences?
- Do public authorities tasked with enforcement have sufficient tools to do so?
- Are there conflicting norms that make it legally impossible to comply with norms or to make efficient use of competences?

Finally, legislation might impose a duty to conduct effectiveness reviews. Therefore, researchers need to ask: Are there obligations to evaluate the effectiveness of policy or specific laws/regulations? Are there specific monitoring obligations?

5.5.3 Operationalising Effectiveness as an evaluation sub-criterion

It may be possible to evaluate Effectiveness from a goal-attainment perspective via quantitative measurement. Where reducing the exposure of the population to flooding or reducing the probability or the severity of the hazard are the goals of the FGRA or FRMS, quantitative measures may include: a reduction in the numbers of people exposed to flooding at different risk levels, the numbers of properties protected, a reduction in the expected average annual damages or a reduction in the expected depth or velocity of flooding.

Any of these might be used as indicators that can be used to partly evidence the *Effectiveness* or *Ineffectiveness* of a FRMS. The selection of indicators to use may in part be determined by the available data, but will also reflect Young's dimension of effectiveness being evaluated. For instance, if 'Behavioural effectiveness' is what is being evaluated, then a researcher might examine pre or post-event survey data to see whether a particular arrangement or strategy has impacted upon the actions taken to prepare for or in response to a flood. This might include whether people evacuated the area at risk in response to a flood warning or if they have made pre-flood preparations to protect their property. Although these actions might be closely linked with goal-attainment (such as the overall goal of reducing the number of fatalities or injuries associated with flooding or reducing the damage caused by flooding) the behavioural actions may provide additional information and insight into why a goal was or was not attained or a flooding problem was or was not solved.

STAR-FLOOD researchers should also consider (if possible) linking the indicators for *Effectiveness* to the overarching approach adopted within the case study or NFPR of interest. For instance, a Flood Risk Management approach may already have indicators for assessing and monitoring both the value and effectiveness at the project level (e.g. the outcome measures approach previously adopted in the UK which measured both the economic and social benefits of a Flood Risk Management scheme). Therefore, these approaches and methods could be used as a starting point for data collection and understanding *Effectiveness*; particularly when researchers are beginning evaluation at the level of the Flood Risk Management measure or strategy. The particular indicators utilised for evaluation

and the questions asked need to be tailored to the dimension of *Effectiveness* which is being considered.

However, the effectiveness of a FRGA or FRMS might not only be concerned with absolute changes in the levels of flood risk and quantifying these outcomes. There should not be an over-reliance on only looking at quantitative indicators when considering *Effectiveness*. Just as fundamental to an evaluation is an understanding of effectiveness that can be gained through discussions and interviews (see Chapter 6 for more information about methods) with those both managing flood risk and those who might potentially suffer from its consequences. Additionally, one might argue that effective FRGAs should ensure not only that citizens are safer, but also that they feel safer. Therefore, there is also the need to investigate the perception of flood risk in the case studies and potential questions that need to be answered may include:

- Have there been any notable changes in the perceptions of those at risk?
- Has understanding of flood risk increased or decreased?
- Has flood risk awareness changed? Do the at-risk population seem to have grown more or less aware of flooding issues and their risk?

This aspect of effectiveness is perhaps more difficult to measure and might be considered to be both a direct and intended outcome of a FRGA or FRMS (i.e. a campaign to raise flood awareness) that can be evaluated as part of 'Goal-Attainment effectiveness' or more as an indirect and (either partially or fully) unintended consequence of other actions (i.e. increased local awareness of flooding following stakeholder engagement about a new flood defence structure). As well as being intended or unintended goals of governance arrangements or strategies, these outcomes and impacts on perceived flood risk can also be both positively or negatively oriented. Additionally, these indicators may link closely with Young's dimensions of 'Behavioural' or 'Constitutive Effectiveness'. From a 'Constitutive Effectiveness' perspective a consequential outcome of a strategy or arrangement in the UK might be the establishment of a local community Flood Action Group to represent the interests of the local population and thereby expending time, resources and energy. Existing risk perception or flood awareness surveys may be already available to provide indicators and to answer some of the above questions. Alternatively, if these datasets are missing it may be necessary to include these aspects when interviewing flood management professionals about their views or by speaking directly to the population at risk.

When evaluating an overall governance arrangement, it may also be important to determine the reference point to which a research would like to compare it. This may involve a comparison of the following:

- Compare to the situation that would have been existed if the regulation had not been in place;
- Compare to the goal of the regulation: how far has the original goal achieved?
- Compare to an ideal situation: a safety standard, which specialists at national and local level see as appropriate;
- Perceived effectiveness: take the perceived safety of the population as a goal.

In STAR-FLOOD the comparison could be made with the different reference points. Of a certain regulation, national and local experts could be asked whether they think the safety level improved with the new regulation, whether they think the actual safety level is consistent with the goal of the regulation and whether they see this level as sufficient. It is not necessary to quantify this change in effectiveness precisely. In general, a lack of consensus among experts can be seen as an indication for ambiguous effectiveness, whereas a broad consensus on the chosen strategy could be an

indicator for *Effectiveness* (though we must of course be careful to see the general discourse not as automatically effective).

5.5.4 Challenges of evaluating effectiveness

The discussion above details potential measures and indicators for the evaluation of *Effectiveness*: however these do not provide the full picture. Indicators are able to provide some broad indication about whether a goal is met or a problem is solved but in reality fully substantiating the true effectiveness of a governance arrangement or FRMS is more complex and these indicators are only partially fulfilling an evaluation. In order to fully determine *Effectiveness* there is the need to establish causality between the adoption of an approach, strategy or measure and the resulting outcomes and impacts. For instance, STAR-FLOOD researchers need to try to understand whether the adoption of a governance approach has directly led to a positive or negative impact on the problem of flooding or whether the outcome has been an unintended consequence or the consequence of another set of circumstances.

This process is assisted to some extent by the comprehensive approach to the evaluation of *Effectiveness* recommended here. Adopting Young's (1994) different dimensions of effectiveness may provide evidence to determine this causal link. For example, understanding behavioural change (within an evaluation of 'Behavioural effectiveness') and tracing how and why different behaviours have emerged may provide insight into the reasons for an approach being *Effective* or *Ineffective.*

Evaluating *Effectiveness* and establishing a causal link should be easier to achieve the smaller the unit of analysis. It is likely that the link between a measure and its outcome and impact will be easier to demonstrate than that of a governance arrangement which may oversee a number of flood management aspects and strategies. Within this consideration and in particular when researchers also choose to evaluate *Effectiveness* of not only the governance approach, but also instruments at different scales, is how these results can be integrated. There will be a distinction between evaluating single outcomes and the effectiveness of FRGSs and translating this into the evaluation of a regime or a whole governance approach to Flood Risk Management. As mentioned above, tackling the former is much more straightforward than the latter. In addition, in order to be able to corroborate or contradict the effectiveness of an approach the analysis should also seek insight into the causes or barriers to the effective implementation of FRGAs or FRMSs. This aspect is critical to any comparison of approaches and best practices and for providing recommendations for the design of FRGAs. This may also highlight where opportunities exist. Where FRGAs have not fulfilled their intended goals, understanding why is critical to evaluating the *Effectiveness* of an approach.

5.6 Efficiency

The second sub-criterion of *Appropriateness* is *Efficiency* (Bell and Tobin 2007; Buijze 2008; Centre for Coastal Management 1993; Hanley and Spash 1993; Hanley and Black 2006). This concept is rooted in economics and refers to the use of resources. Perhaps the best known test of efficiency is Cost-Benefit Analysis (CBA) (e.g. Hanley and Black 2006), which requires the benefits of a proposed flood risk measure for example, to exceed to calculated total costs. This is a relative assessment of efficiency driven to the least costly option and considered to be a rigorous way to judge actions with multiple consequences (e.g. Hanley and Black, 2005). Underlying theory of economic efficiency is elaborated further in The *Background Theories* report.

Box 5.4 Definition of efficiency

The use of both public and private resources in a resource-efficient manner; based on the ratio of some desired output(s) to some input(s).

Arguably, economic notions of efficiency are too narrow and based on multiple assumptions. Therefore to avoid constraining our evaluation of *Efficiency,* our adopted definition reflects broader discussions of resource efficiency (Box 5.4). Returning to the *Logic of Appropriateness*, emphasis is placed upon the notion of "desired" inputs and outputs, determined by the actors involved to be appropriate. As a sub-criterion, *Efficiency* is applicable to the evaluation of individual measures, strategy and assembly of strategies; moreover, STAR-FLOOD researchers may find these lower levels of analysis a useful entry point into understanding the overarching arrangements for governance.

There are a number of different aspects and indicators of *Efficiency* and particular questions of interest might include:

- Whether there is an indication that there is a concern with efficiency as shown by a rigorous process by which the alternative courses of action are compared. This may in fact be compulsory under specific legislation or principles of proper administration;
- How were options identified or "created"?
- How many alternatives were considered? (even when a very limited set of options is identified such as an expectation that a dike will be built, there are options that ought to have been considered. In the case of a dike, obvious options include: Should it be set back? What should be the intended design standard of protection? When is the best time to build it, is it better to delay until some future date?);
- How wide was the search for options? Who was consulted? Are there any formal rules regarding who should be consulted? (linked to legitimacy);
- How wide was the range of options singularly or in combination that was considered?
- Was there a range of default options to be considered? (i.e. in the UK, managed realignment is always to be considered as an option);
- Was an adaptive approach considered? Principles such as the *precautionary principle* or notions of *adaptive licensing* might be examined here. How is a balance struck between acting now against waiting until the situation becomes clearer?
- How is efficiency promoted? By whom?

There are a number of objections to be mindful of when it comes to legal principles of efficiency and these are explored in more depth in Buijze (2008). Firstly, there is a concern that the emphasis on maximising utility neglects matters of distributive justice and the allocation of costs and benefits. In this context, the *Efficiency* criterion could be seen as conflicting with *Legitimacy*. Secondly, from a moral standpoint, efficiency (and effectiveness) can be conceived as *consequentialist* in nature and therefore only partially represent moral reasoning, which must also include *rules of right*. The State as a moral actor must clearly balance the two. In defence, Buijze (2008) contends that considerations of efficiency actually enhance the decision-making process, improve its transparency and provide opportunities for parties to challenge decisions. Furthermore, such assessments as CBA can be used to establish citizens' rights and basic entitlements to flood protection measures. Therefore, *Efficiency* can in fact enhance *Legitimacy*. Moreover, efficiency need not be constrained by economic reasoning and could include forms of ethical inquiry.

In fact, the efficiency of public action could arguably be construed as an existing legal norm (Buijze 2008). Whilst a formal review of efficiency would be challenging in practice, given that the courts are ill-equipped to determine whether a given measure is efficient; on an EU level, some form of efficiency review is already practised. This is evident in legal reviews of compliance with the *necessity* component of the proportionality test, which essentially asks whether there is a less burdensome method to achieve the same result. In contrast to Cost-Benefit Analysis (CBA) which demands that the benefits *outweigh* the costs, this prescribes that the costs should not be *disproportionate* to the benefits. In addition, there may be legal measures that contribute to taking efficiency into account. Here, we propose a series of prompts to guide legal scholars in their evaluation;

- Does legislation contain obligations to conduct efficiency evaluations?
- Procedural principles of proper administration require all interests to be taken into account and to be balanced. Environmental Impact Assessments require several alternatives for action and their consequences to be considered. Are there other means for promoting efficiency?
- What is the role of Courts of Audit in decision making? How are their reports taken into account in future decision-making? Do these courts stimulate efficiency?
- How are explicit/implicit discussions of efficiency prioritized in relation to other legal principles?
- Are there cases where judges have implicitly or explicitly used principles of efficiency to interpret the law?
- Who is charged with the burden of proof to demonstrate whether an action was efficient or inefficient? (Linked to notions of legitimacy).

In addition, the efficiency of both governance and legal arrangements may also be subject to evaluation, as the decision-making process itself carries a cost and use of resources. Applying the *Efficiency* criterion to the evaluation of governance arrangements directly may be more difficult. For instance, we might observe how resources are currently used or are potentially changing. Indeed, in many countries procedural law is being simplified to minimise decision-making costs.

In drawing connections across selected criteria, it is possible that *Efficiency* conflicts with the contingency mechanisms and multi-level safeguards aspired to from a resilience perspective. In addition, although *Efficiency* and *Effectiveness* are conceptually distinct, in practice there is an argument that the concepts are intrinsically linked; for instance, it could be argued that effectiveness requires efficiency, or vice versa (Buijze 2008). Alternatively, Bell and Tobin (2007) observe how the 100 year flood criterion may be described as an efficient administrative tool, but an ineffective means of communicating risk or risk policy. Finally, as the discussion above has shown, *Efficiency* can be interpreted as both conflicting and complementary to notions of *Legitimacy*. Ultimately, both from legal and social science perspectives, we must be critical of how *Efficiency* can be used to address our research objectives. Is it the case, that such evaluations can inform recommendations for increasing the efficiency of FRGAs/FRMSs? Are we proposing that efficiency is a desired condition, in which case how can efficiency be mediated with other ideals of *Effectiveness, Legitimacy* and *Resilience*? Indeed, the relative position of *Efficiency* against the other selected criteria, how this varies between different governance arrangements and the context in which this emerges, will be an important focus in evaluation.

5.7 Legitimacy

5.7.1 Introduction

Legitimacy is the most contentious of the selected sub-criteria for appropriateness. Moreover, what may be *considered* to be legitimate may vary considerably in different contexts. With this in mind, we propose that STAR-FLOOD partners develop a clearer understanding of how legitimacy is defined and the expectations of different actors in relation to FRM.

For the purpose of STAR-FLOOD, this section here sets out the basis by which *Legitimacy* can be tested in the case studies on a consistent basis. The first question concerns the *object* of evaluation. As discussed in Section 5.4 *Legitimacy* needs to be evaluated at the scale of the FRGA. However, this may only be practically achieved by examining *Legitimacy* on other scales: namely measures, strategies and assembly of strategies. In every case it is necessary to clearly specify whose legitimacy is being evaluated.

Secondly, in seeking to evaluate the STAR-FLOOD sub-criterion *Legitimacy*, there are four approaches:

1. Formal tests: here, there is logic in adopting the Aarhus Convention 1998 (as embodied in EU Directive 2003/35/EC; European Parliament and Council, 2003) criteria for three reasons. Firstly, they represent common norms agreed by both the national and European Parliaments. Secondly, in consequence they apply consistently across the whole of the European Union. Thirdly, they are testable. The European Convention on Human Rights does provide a similar common norm. However, as these Rights are enforceable and generally enforced, it would be surprising if they were found to be violated in any individual case study;
2. Since legitimacy is ultimately in the eye of the beholder(s), it is fitting to ask stakeholders to judge the legitimacy of the process in which they have been engaged;
3. A number of hypotheses about the conditions required for legitimacy have been put forward. As discussed previously, however, there is a limited empirical foundation (e.g. statistical analyses of social surveys) concerning the determinants of legitimacy in varying contexts. Where research has been conducted, these may provide a basis for potential indicators of legitimacy (Boda 2012; Hough *et al*., in press, Levi *et al*., 2010; Mazerolle *et al*., 2010). However, it must again be emphasised that as only the *demos* (the relevant electorate) has the authority to make normative judgements, our role as researchers is limited to seeking to identify those factors they themselves might find appropriate to consider. Consequently, not all indicators for evaluating legitimacy can be used by the researchers unless the *demos* or their representatives choose to adopt them as such;
4. Linking to the point above, the final approach asks are experts seeking to make normative judgements which really belong to the *demos*? Such judgements are *prime facie* evidence of illegitimacy.

5.7.2 Formal tests of Legitimacy: Aarhus criteria

The Aarhus Convention (1998) sets out three requirements:

- The right to environmental information;
- A right to degree of stakeholder engagement;
- A right to an appeals procedure.

Therefore, in each case study, we may ask:

a) Was the process informed by access to the appropriate environmental information?
b) Was there a real process of stakeholder engagement and public participation?
c) Was there an appeals procedure?

Access to flood risk information

The first of these (the right of access to environmental information) involves analysis of how flood risk information is created, collected, held and made available. Analysing how different types of information are made available (or not made available) is the first step towards evaluating the legitimacy of Flood Risk Management decisions.

Public participation processes

Initially, within the contextual or NFPR levels of investigation, participatory norms need to be explored to better understand the level of participation that might be expected within Flood Risk Management as well as the participatory culture of both the NFPR and case study areas. It is important to set the baseline and measure the success of participation against its intended aims as well as the legitimacy of the process itself. But a key question is: who is entitled to be regarded as a stakeholder and what entitlements and obligations follow from being included as a stakeholder? (Green and Penning-Rowsell 2011). Further points are made in Box 5.5.

Box 5.5 Other questions related to public participation

- Are FRGAs acting in accordance with the law and/or best practices at the national/EU level with regards to legitimacy and public participation? How are legitimacy concepts translated within policy and guidance to both the national and case study level?
- Is the process of managing flood risk and selecting Flood Risk Management approaches transparent? Is this transparency implicit or explicit?
- To what degree is public participation institutionalised or normalised within Flood Risk Management?
- Who is involved in the process of managing flood risk? What types of expertise are deemed relevant (and are the carriers of some types of expertise, e.g. local knowledge, or scientific disciplines not traditionally connected to Flood Risk Management marginalized)
- Are the public invited to participate and at what stages? What is the degree of their involvement? For instance, is it a process of consultation or do all actors truly have a role in/impact on decision-making?
- How are those involved in public participation efforts invited and how are their views represented? How representative is the process in practice? Is the voice of minority groups heard?

Access to an appeals process

The final criteria related to the principles of the Aarhus Convention involves whether there was sufficient access to justice and if an appeals process is established for stakeholders to challenge Flood Risk Management decisions. This may be evaluated initially by investigating the systems in place and the rights that different actors may have at different levels. It is necessary to investigate who has the right of appeal (and at which stage of the process) what is that process of appeal, what are available remedies and how are these processes funded? The funding question is important as it raises questions about whether all members of the public have equal access to the process.

This may also involve a review of any instances where a challenge has occurred; although the degree to which researchers are able to undertake such a process will vary according to the overarching legal tradition. For instance, the lawyers may observe the frequency of trial. Are some arrangements more challenged in court than others? The more some citizens go to court the less the arrangement is accepted and therefore legitimate, at least from the point of view of private individuals. Also it can be relevant to see if the jurisprudence goes in favour of private interests or of the administration?

5.7.3 Legitimacy in the eye of the beholder

However, legitimacy can be argued to lie in the eye of the beholder; hence Tunstall and Green (2003) suggested that participants in a stakeholder engagement process might be asked:

1. Was the process fair and equitable?
2. Was each stakeholder treated in a fair and equitable way? Were their views given due consideration? Were their contributions valued?
3. Was a sufficient range of options considered?
4. Did any individual stakeholder or group of stakeholders impose their views upon the group as a whole?
5. Was adequate technical support and information made available?
6. Did the process result in any change or was the decision effectively already made?
7. Did you learn anything from the process?
8. Did you derive any personal satisfaction or benefits from the process? Would you be prepared to repeat the experience?

This is not necessarily a complete list and legitimacy may be approached, as in this listing, from an internal perspective or externally: do non-participants regard the process, decision and action as being legitimate?

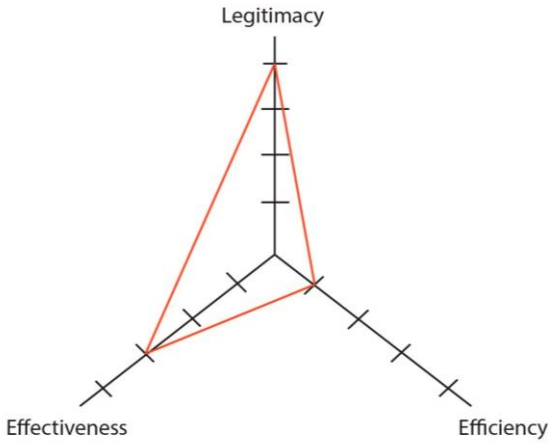
The discussion now turns to how we can operationalise *Legitimacy* alongside the other sub-criteria of *Effectiveness* and *Efficiency* in our evaluation of *Appropriateness.* A more detailed elaboration of potential indicators for Legitimacy can be found in the Background Theories report.

5.8 Operationalising the concept of Appropriateness: Combining the sub-criteria of Legitimacy, Effectiveness and Efficiency

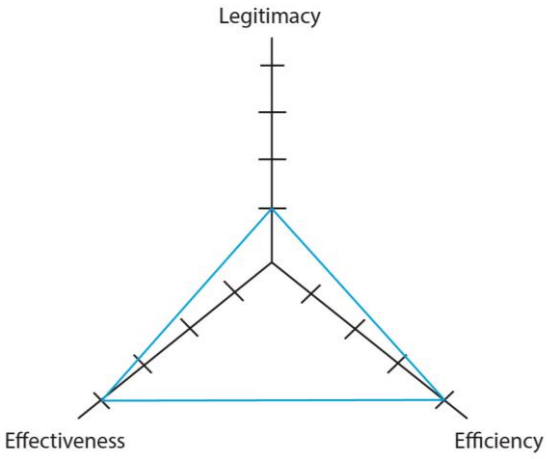
Operationalising an evaluation framework of *Appropriateness* presents the challenge of how to combine the three different sub-criteria. For instance, we could take the position that unless a FRGA completely fulfils each of the criteria then it cannot be considered to be fully "*Appropriate*". In reality however, a Flood Risk Governance Arrangement is likely to fall along a spectrum between not meeting a criteria and full satisfying it: it is unlikely that an optimum scenario of full *Appropriateness* will occur as there is highly likely to be a trade-off between the three criteria. For instance, an approach may end up being more legitimate than efficient, or more effective than legitimate. Therefore, within the evaluation framework it is applicable to best describe the criterion of *Appropriateness* as a **relative concept**, rather than an **absolute one**, with an FRGA being described as more or less appropriate than an alternative FRGA. By combining the sub-criteria together we are able to use these notions to more fully describe the evaluation concepts on which a judgement of *Appropriateness* is made.

Much of the evaluation of *Appropriateness* can be achieved within a narrative approach and a discussion about the outcomes of analysis of each of the separate sub-criteria. Additionally, as comparative hypotheses are developed, these might also consider different measures for testing and ways of combining the different criteria. Inspired by the work of Rasche *et al*. (2006) we might visualise different combinations of *Effectiveness*, *Efficiency* and *Legitimacy* via a radial diagram, to facilitate comparisons across different governance arrangements (see Figure 5.2). In order to operationalise this approach, we acknowledge that we will need to accept some simplification of the outcomes of the analysis and develop a classification approach for each of the sub-criteria. Categorisation will need to be developed following the analysis of the governance arrangements. For instance, for *Legitimacy*, researchers will need to profile those characteristics that an FRGA should demonstrate in order to be considered: *Highly Legitimate*, *Legitimate*, *Moderately Legitimate* or *Lacking Legitimacy etc.* A four point scale is displayed on the following illustration Figure 5.2; however researchers are free to develop a scale which is suitable for displaying the data gathered.

Figure 5.2 Using radial diagrams to visualise[2] the "shapes" of different FRGAs according to the selected evaluation criteria. Two potential examples are illustrated.



An arrangement which shows a very high degree of *Legitimacy*, has a high degree of *Effectiveness*, but lacks *Efficiency*. This arrangement might be described as displaying *Legitimately-Effective Appropriateness* characteristics.



A highly effective and efficient governance arrangement is displayed in this example. However, its *Appropriateness* is reduced by the low levels of *Legitimacy*.

Although categorising in this way arguably means that some of the associated complexity will not be visualised on the diagram, this detail can still be captured in an accompanying narrative and justification of category selection and the power comes from the comparative nature of the approach. It may provide the first indication of commonalities or differences between governance arrangements in case studies and may highlight cases where further exploration and analysis can then be taken forward. Figure 5.2 illustrates how these radial diagrams might look in the evaluation of FRGAs. This provides a compelling visualisation tool that (when accompanied by a full narrative discussion) could support the following tasks;

- Unite the different sub-criteria of *Appropriateness* (or axes) to reveal the "make-up" of the FRGA under investigation;
- Facilitate comparisons between different configurations of the *Appropriateness* of governance arrangements;
- Prompt discussions about why arrangements are "shaped" in different ways;
- Prompt discussions on how arrangements should be "shaped" in certain contexts.

It may be possible to adopt a similar approach to provide diagrammatic representations of each of the sub-criteria. For instance, the axes might depict input, throughput and output legitimacy or relate to one or all three of the central pillars of the Aarhus Convention: Access to flood risk information, the public participation process and the access to an appeals process. These indicators might then be used to provide a justification for those characteristics utilised by the scaled axes.

As discussed in Section 5.4.1, the principles of sound/good/proper administration presents a complementary framework for evaluating and drawing together the notion of *Appropriateness*. It has the advantage that more legal perspectives may be demonstrated by examining whether a governance arrangement is acting in accordance with the principles relevant to the country of study.

[2] This figure only illustrates one way of presenting the radial diagrams – other approaches might also be equally effective such as representing the different criteria on the different.

In this respect, STAR-FLOOD researchers are determining whether the norms established within the jurisdiction of interest (i.e. usually at the level of the NFPR) have been complied with and the decisions-made and the actions taken are in accordance with the legal system. It is important to reinforce that these principles need to be viewed comprehensively as they jointly combine to ensure an outcome that is considered to be 'proper' however there are many ways in which the same result can be achieved. An example of the type of principles that might be considered is provided when reviewing the Dutch General Principles of Proper Administration (GPPA) (see Langbroek, 2003).

5.9 Conclusion

Evaluation is purposive: what we select to evaluate and how we evaluate it depends upon why we are seeking to evaluate it. For the purpose of STAR-FLOOD we are seeking to evaluate FRGAs and the extent to which they enable (or constrain) the broadening of FRMSs; with the view that this insight can inform principles of best practice. Based on our initial assumptions, the purpose of evaluation is to assess the extent to which FRGAs facilitate the assembly of diverse, multi-layered and appropriate FRM strategies; the successful delivery of which is assumed to enhance the resilience of urban areas to flooding.

Our purpose is ultimately to undertake *ex ante* evaluations to assess what governance arrangements would be the most appropriate in particular circumstances. This requires being able to draw conclusions about causality relationships between some features of the governance arrangements and their performance. For the case studies, this implies that we have to develop testable hypotheses about the causal links between the characteristics of the governance arrangements and the assembly and performance of the FRMSs. This document now turns to the methodology for conducting research at the NFPR and case study level.

6. Methods for the empirical research

Dries Hegger, Marlous van Herten, Cathy Suykens

6.1 Introduction

This chapter describes the general set-up of the empirical research that will be carried out within WP3 and aims to provide guidance on its execution. The chapter aims to provide guidance on the analyses both at the level of the National Flood Policies and Regulations Domain (NFPR) and the case study level. The chapter also lists some specific methods that can be used by policy analysts and legal scholars respectively. It should be stressed, however, that it is the young researchers in the six STAR-FLOOD consortium countries who are mainly responsible for developing and carrying out their research. This document should therefore not be seen as a *recipe*. The young researchers themselves are responsible for developing a detailed methodology for analysing the NFPR and the case studies in their country.

The document proposes some general steps to be taken by all researchers to ensure that the products and sub-products that are being produced within WP3 are *comparable* and of course scientifically sound. Comparable does, however, not mean that all researchers at all stages should use exactly the same methods. Throughout the execution of the research it will become apparent that the specific characteristics of different countries and case study areas require the researchers to tailor their approaches and this will have consequences for the actual data collection (e.g. type and amount of documents studied, number and type of people interviewed, kinds of questions asked as well as the exact wording of questions). What we mean by "comparable" is:

- That all researchers jointly follow the same steps (join forces) throughout WP3 (see 6.9 "schedule");
- Look for similar issues when analysing the countries and case studies (see chapter 2 and 3 on the analytical framework);
- Produce comparable milestones at regular intervals (see 6.9 "schedule" and 6.11 "next steps") and discuss these with the whole consortium (also in the framework of the steps of explanation and evaluation);
- And finally: that the consortium should start to decide, in the course of WP3, what will be the benchmarks against which countries and case studies will be compared in WP4.

The outline of this chapter is as follows. We first list the research questions to which the empirical research in WP3 should contribute (6.2). Next, in 6.3, we provide the main features of the empirical research. In 6.4 we deal with the data collection methods that we intend to apply and in 6.5 with their analysis. These sections provide some general guidance. For more detailed information on particular methods for data collection and analysis, we refer to some dedicated handbooks. Section 6.6 elaborates on the internal and external validity of the research. In 6.7 we specify the limitations of the study, i.e. the issues that one may not resolve through the proposed empirical research through inherent characteristics of the problem studied. In 6.8 we provide a tentative outline of the deliverable reports that should ultimately result from WP3 as well as of the analysis of the FPRD in each country and of a single case study. We do this only for the sake of illustration, as our insights of what would be an appropriate reporting format will undoubtedly progress in the course of executing the empirical research. Section 6.9 provides time estimates for all major steps to be taken in WP3. It does so only in general terms, as a more detailed work plan for WP3 has been produced as a separate document. Section 6.10 discusses miscellaneous issues. Finally, in 6.11 we provide some reflection on next steps and on the content of the detailed case study protocols per country.

Box 6.1: Handbooks on research methodology

This report does not provide space to discuss all aspects of doing case study research, including procedures for data collection and analysis in great detail. For that reason, we provide here some reference to textbooks that may be consulted for further background.

Doing case study research – must read

We suggest that everyone reads at least the most recent version of Robert Yin's standard work "Case study research, design and methods. Below is a reference to the most recent edition of the book.

- Yin, R.K. 2014. Case study research, design and methods. Sage, Thousand Oaks, CA. 5th Edition.

To those unfamiliar with certain methods for data collection and/or analysis, we suggest consideration of the following books.

Carrying out qualitative interviews

- Weiss, R.S. 1994. Learning from strangers, the art and method of qualitative interview studies. The Free Press, New York.
- Evers, J., De Boer, F. 2012. The Qualitative Interview: Art and skill.
- Seidman, I. 2006. Interviewing as qualitative research. A guide for researchers in education and the social sciences.
- Bryman, A. 2004. Interviewing in qualitative research. In: Social Research Methods. Oxford University Press, Oxford.

Analysing the results of qualitative interviews

- Bazeley, P. 2013. Qualitative data analysis, practical strategies. Sage, Thousand Oaks, CA.

Various software packages for analysing qualitative data exist. Well-known ones are Atlas.ti, NVivo and Kwalitan.

- The users' manual of Atlas.ti can be freely downloaded: http://www.atlasti.com/uploads/media/atlasti_v7_manual_201301.pdf
- For Nvivo: http://download.qsrinternational.com/Document/NVivo10/NVivo10-Getting-Started-Guide.pdf
- Information about Kwalitan can be found here: http://www.kwalitan.nl/engels/index.html

Setting-up and moderating focus groups

- Krueger, R.A., Casey, M.A. 2009. Focus Groups, a practical guide for applied research. Sage, Thousand Oaks, CA.
- Greenbaum, T.L. 2001. Moderating Focus Groups – A Practical Guide for Group Facilitation. Sage Publications, Thousand Oaks, London, New Delhi.
- Greenbaum, T.L. 1998. The Handbook for Focus Group Research. Sage Publications, Thousand Oaks, London, New Delhi.

Doing action research

- Craig, D.V. 2009. Action Research Essentials. Jossey-Bass, San Francisco, CA.

Questionnaire construction

- Blair, J.E., Czaja, R.F., Blair, E.A. 2013. Designing surveys, a guide to decisions and procedures. Sage, Thousand Oaks, CA.

Analysing quantitative data using SPSS

- Pallant, J. 2010. SPSS survival manual.

Some other, more general, handbooks

- Yin, R.K. 2011. Qualitative Research from start to finish. The Guilford Press, New York.
- Gerring, J. 2007. Case study research, principles and practices. Cambridge University Press, Boston.
- Verschuren, P., Doorewaard, H. Designing a research project.
- Russell Bernard, H. 2002. Research Methods in Anthropology – qualitative and quantitative approaches. Altamira Press, Walnut Creek/Lanham/New York/Oxford.
- Rossi, P.H., Lipsey, M.W., Freeman, H.E. 2004. Evaluation: A Systematic Approach. Sage, Thousand Oaks, CA.
- Hennink, M., Hutter, I., Bailey, A. 2011. Qualitative Research Methods. Sage, Los Angeles/London/New Delhi/Singapore/Washington DC.

6.2 Main research questions to be addressed by the empirical research

6.2.1 Main research question

The main research question of STAR-FLOOD is: "What are appropriate and resilient Flood Risk Governance arrangements for dealing with flood risks in vulnerable urban agglomerations in Europe?"

6.2.2 Sub-questions

The case study research in WP3, for which this case study approach has been produced, will mainly address the following sub-questions of the STAR-FLOOD research proposal. Question 5, 6 and 8 are empirical questions that are to be addressed mainly in WP3. Question 7 has been addressed in chapter 5 of the current report. We have listed it here again for the sake of completeness. Questions 1-3 concern a general problem analysis and a first exploration of the empirical field of study and have been addressed in Work Package 1 (see Green *et al*. 2013, Dieperink *et al*. 2013, Bakker *et al*. 2013 and Hegger *et al*. 2013). Questions 9-12 concern the country and case comparison as well as the identification of design principles and will mainly be addressed in Work Package 4 and 5.

Box 6.2 Research questions to be addressed in the empirical research

i) Sub-goal 'identifying'

4. Which FRMSs are developed and applied in different urban agglomerations in the selected countries?

ii) Sub-goal 'analysing':

5. What are the *social, legal and political dynamics* (or the absence thereof) of FRGAs in the selected EU member states?

iii) Sub-goal 'explaining':

6. Which factors *explain* the FRGAs and their dynamics and what is the relative importance of each factor?

iv) Sub-goal 'evaluating':

7. What are the main building blocks to specify the meta-criteria of appropriateness and resilience into an assessment framework for FRGAs, what kind of indicators could be derived from these building blocks and how can these indicators be measured?)

8. What are the strengths, weaknesses, opportunities and threats of FRGAs in the selected EU member states in terms of their appropriateness (legitimacy, efficiency and effectiveness) and resilience?

6.2.3 Explanation of the research questions

As was indicated in chapter 4 of this report, the main goal of the STAR-FLOOD research is to identify design principles for appropriate and resilient Flood Risk Governance. Our results should provide useful advice to actors involved in Flood Risk Governance regarding the actions they can undertake

to increase the chance that Flood Risk Governance is appropriate and resilient. We can only do this if we can make a strong argument that a certain action (e.g. establishing an NGO, taking the initiative to make new legislation or any other action) indeed increases the chance that a certain outcome (e.g. the implementation of a more diverse set of Flood Risk Management Strategies) is achieved. Put in other words, we should be able to tell what has happened (sub-question 5), why it happened (sub-question 6) and to what effect (how appropriate and resilient do we consider certain Flood Risk Governance Arrangements to be, question 7 and 8).

6.3 Design of the country and case study analysis

6.3.1 Overview

The empirical research in WP3 consists of an analysis of the National Flood Policies and Regulations Domain (NFPR) in each STAR-FLOOD consortium country (The Netherlands, Belgium, Sweden, Poland, France and the United Kingdom) combined with an in-depth analysis of three case studies in each country (18 in total). By employing such an approach, we will be able to study Flood Risk Governance in practice, looking at actual efforts that are made (or not) to broaden FRMSs and to link multiple strategies. As we mentioned throughout the report, the goal of the empirical research is to analyse, explain and evaluate Flood Risk Governance arrangements at the country level. This however requires an in-depth study at case study level. The case studies are expected to provide in-depth insights that can be translated to the FRPS level and, furthermore, it is expected that mutual interactions between case study and NFPR level take place continuously. The three case study areas in each country are all urban agglomerations. It is expected that an analysis at the level of urban agglomerations will enable a comprehensive analysis of all relevant opportunities and barriers, including the interactions between urban and rural areas, interactions with upstream and downstream regions, interactions between public authorities, and the role of private companies and civil society. The empirical analysis in WP3 should provide the basis for drawing comparisons between the countries in WP4 and for identifying design principles for appropriate and resilient Flood Risk Governance in WP5.

All countries and case studies have in common that they can potentially be flooded by rivers, and that flood risks in the case study areas are expected to increase due to urbanisation and the consequences of climate change. Furthermore, in all case study areas efforts seem to be taking place to broaden Flood Risk Management Strategies. The exact context in which all this takes place differs, however, in terms of physical circumstances, the significance of flooding, the potential types of floods occurring and the precise attempts to broaden the application of Flood Risk Management Strategies. Besides that, as has been mapped in some detail in deliverable report D1.1.4, the countries differ in terms of their dominant *administrative structure and culture*. A detailed overview of the countries and case study areas is included in appendix III.

6.3.2 Unit of analysis

As stated before, STAR-FLOOD aims to make claims at country level. To be able to make these claims, we will make use of the distinction between three different levels: context, National Flood Policies and Regulations domain and case study level (see also chapter 2 of this report). Not all of these levels will be studied in detail. Our main *units of analysis* are i) the country level in each of the six STAR-FLOOD consortium countries and ii) the case study level. The cases study areas are formed by vulnerable urban agglomerations in Europe. We use an embedded case study approach, meaning that the case study areas comprise several levels. Within the case study area we distinguish the sub-levels of the regions, municipalities and the levels of projects and policy initiatives. In short:

- The level of the *context* will be studied to the extent that it is relevant to understand the National Flood Policies and Regulations domain (NFPR). Relevant context factors may be aspects of the technological, situational, historical, socio-cultural, economic and legal context. A concrete

example of a context factor that should be taken into account would be the fact that The Netherlands experienced severe flooding in 1953 (see D1.1.4, Hegger *et al*. 2013). These floods had and still have a profound influence on the NFPR level. Obviously, the STAR-FLOOD researchers will not study the floods of 1953 in detail, but of course they need to take them into account as an important background factor. It is up to the STAR-FLOOD researchers in each country to determine which context factors are relevant;

- The level of the NFPR will be studied in-depth;
- Each of the three cases study areas will be studied in depth. Not everything within each case study area can be researched. The challenge will be to carefully select projects and policy initiatives within the case study areas. These should be significant in the sense that they teach us something about what is going on at case study level AND about what's going on at NFPR level.

6.3.3 Case selection criteria

At the start of the STAR-FLOOD project the following case selection criteria were envisaged:

- Diversity in the physical contexts that are studied;
- Diversity in terms of the significance of flooding;
- Potential types of flooding that occur;
- Ideas on the kinds of attempts towards broadening FRMSs.

The reason to strive for diversity on these four criteria was that design principles that have proven to be valid across a diverse set of case studies can be considered to be more robust than design principles that are only valid in homogeneous case studies.

At the time of finalising this report, all young researchers within STAR-FLOOD are having a critical look at their case selection and are refining their motivation for selecting the cases. A detailed look at the cases with the above-mentioned criteria in mind has shown that for most cases in most countries the researchers still stand behind their original case selection with the exception of the UK who may want to reconsider some of the cases. Throughout Work Package 3 there will be some room for reconsidering some of the cases as they will be researched in sequence. The findings from the first case may therefore inspire the researchers to reconsider the selection of the second and third case.

Looking at the actual practice of selecting the case studies, we can conclude that in the course of elaborating the case studies, the case study criteria have been refined as follows:

- The researchers are taking the administrative context into account next to the physical context;
- All researchers are taking the significance of flooding into account;
- All researchers are taking the potential types of flooding that occur into account;
- Considerations about the types of shifts in FRMSs in the various case studies are – at the time of writing – the first consideration for the young researchers. It has turned out that most researchers are naturally inclined to simultaneously consider the shifts in FRGAs that may underlie the expected shifts in strategies.

As it looks now, in January 2014 the researchers will start with the following cases:

- UK: Hull
- Sweden: Karlstad
- Belgium: Antwerp
- France: Nice
- Netherlands: Nijmegen
- Poland: Poznan county

6.4 Data collection methods

The data collection methods that we intend to apply in WP3 are desk research, country-specific expert panels, interviews and workshops. Both for the country analysis and for each of the case studies, we expect to carry out approximately 10 to 15 interviews. This number is needed to arrive at a good overview of the Flood Risk Management Strategies in each of the countries and to a reconstruction of the processes (including critical events) that have led to the current state of affairs in the regions. We are not only interested in why certain FRMSs are applied, but also in the reasons why certain others are not. Therefore, it may be useful to not only interview people currently involved in Flood Risk Governance, but also people who could have been involved, but are not (e.g. insurance companies in The Netherlands). Potential interviewees may include all public and private actors involved and, if deemed useful, also citizens.

In summary:

- country level 10-15 interviews (Ministry, experts, private companies, ...);
- case study n°1 10-15 interviews (local decision makers, local State department, etc.);
- case study n°2 10-15 interviews (local decision makers, local State department, etc.);
- case study n°3 10-15 interviews (local decision makers, local State department, etc.);

Total 40-60 interviews per country

Below are some ideas to consider when making decisions as to which data to collect:

- **Document analysis** may include the study of policy documents, advisory notes, press articles, stakeholder communication, social media; legislation; parliamentary proceedings; jurisprudence; literature amongst others;
- When selecting **interviewees**, one can ask oneself if people from various Flood Risk Management Strategies have been interviewed, if a mix of local people and national/regional people well acquainted with the case has been selected; and if the interviewees include civil servants, market players and people from civil society (stakeholder organizations, individuals;
- **Duo interviews** (with two interviewees) may enable one to speak to more people. On the other hand, it may be useful to carry out some interviews with two interviewers (one asking questions, one taking notes). This can allow them to learn from one another;
- If considered desirable, **focus groups** with interviewees or other contacts to present and discuss working hypotheses on the case can be carried out;
- It may be appropriate to use **quantitative surveys**. For instance, if in a certain region citizens/inhabitants are considered to be important actors, it may be appropriate to carry out research into their opinions or experiences (victims of floods) using such a survey.

As noted earlier, the collection and analysis of empirical data is a first and necessary step to address the main question raised in chapter 4: to what extent do we observe dynamics in Flood Risk Governance Arrangements in the various STAR-FLOOD consortium countries, at the country level? To measure the presence or absence of these dynamics, the four dimensions of the Policy Arrangements Approach will be used and the lists of guiding questions provided in chapter 4 may provide inspiration to the researchers carrying out the analysis. It is their responsibility, however, to make the link between the guiding questions and the precise empirical data that should be sought. About some issues, in a particular case, one could learn through document analysis (e.g. to find out about the amount of available financial resources one could consult project plans, annual reports of organisations etc.). Other issues can be derived from interviews (e.g. what one's opinion on an issue was and if it changed over time). In many cases a richer understanding will be gained if multiple data collection methods are used simultaneously.

We expect that the collection of data will contribute most to the step of analysing stability and dynamics in Flood Risk Governance Arrangements. However, the collection of data will probably also provide inspiration for the steps of explaining and evaluating. For instance, through qualitative semi-structured interviews the researchers will discover the opinions of actors. These opinions will often concern explanations (why was plan A favoured over plan B? Why did municipality X withdraw from project Y?) as well as evaluations (Was it legitimate to expropriate these people? Was the execution of this plan cost effective?). Needless to say, the researchers should try to assess these opinions from some critical distance, compare the various opinions they have heard and combine it with other more descriptive data they collected.

Box 6.3 Some guidance on the use of data collection methods

Data collection methods are highly dependent on the types of questions that are addressed and the specific characteristics of the researched countries and case studies as well as the researchers studying them. The questions we ask within STAR-FLOOD are largely explorative in nature, so we can logically expect that predominantly qualitative data collection methods will be needed. As the overview below will show, however, this need not always be the case.

Interviews – As indicated above, in all case studies we expect the researcher to carry out interviews. These are generally useful 1) to get **information** (but also additional network contacts) that could not be obtained through a document analysis; 2) to find out about the **opinions** of the interviewee on certain issues. Commonly, a distinction is made between unstructured, semi-structured and highly structured interviews. We suggest that in most cases it will be appropriate to opt for semi-structured interviews. In these types of interviews, the interviewer is in charge of the types of issues that are raised and the order in which they are raised, but he/she interacts with and reacts to the responses of the interviewee. This way, in-depth insights can be obtained. It will be the responsibility of the researchers to develop a detailed interview guide, inspired by the guiding questions that have been raised in the previous chapters of this report. Please note that the questions in these other chapters are not yet interview questions! They should be further operationalized and specified for the case studies under study. Researchers who have limited experience with this are advised to consult one of the text books listed above or to follow a course on interview methods and techniques. The policy and legal scholars in each country are encouraged to carry out a limited number of interviews together, to facilitate mutual learning.

Focus groups – The term focus groups refers to all types of group interviews, where several people are interviewed together. The main distinction between an individual interview and a focus group is that the interviewees *react* to one another. This enables the researcher to gain insight into social dynamics that may be at play (who reacts to whom, when and why), how are certain understandings constructed etc.? We expect focus groups to be useful at a late stage of WP3, after empirical material at country level and the level of the three case studies has been collected and the researchers have drafted some first explanations of the dynamics (or absence thereof) found. Focus groups can, amongst other things, be used to get feedback on the results and to refine the initially drafted explanations and evaluations. Such focus groups can of course be held both with people that were interviewed previously as well as with "new" interviewees.

Surveys – Surveys are generally appropriate if the researcher is interested in getting the same information from a large number of people. When we use the word survey, we have standardised questionnaires in mind. In general, some qualitative pre-research will be necessary to find out which issues should be raised in a survey and how the questions should be posed. The following two examples may further illustrate the potential usefulness of surveys. First, the researchers may find that a certain group of people, e.g. the inhabitants of a certain area, is a crucial actor in a project/policy initiative and may want to systematically map the opinions of these inhabitants on Flood Risk Governance in their area. For this purpose, a survey would be appropriate. Second, it is

also an option to jointly – with all six STAR-FLOOD consortium countries – carry out systematic research at country level into the opinion of FRM professionals on a range of issues, for instance shifts in Flood Risk Management Strategies. For this purpose, it could be an option to develop a standardised questionnaire that is distributed amongst FRM professionals in all STAR-FLOOD consortium countries.

Action research – This type of research refers in our understanding of instances in which a researcher deliberately tries to influence the phenomenon under study ("if you want to understand how something works, try to change it!") In most cases researchers try to analyse what is going on in an empirical case study area without actually influencing the object of research (distanced researcher, 'fly on the wall'). Of course, in social science research, it will be difficult not to influence the object of research (e.g. if people are interviewed, they will likely start reflecting on issues that they would otherwise not have reflected on). Whereas in most ordinary forms of research such influence is seen as something to be minimised, in action research it is actually a goal of research. A potential application of action research within STAR-FLOOD is the following. We foresee that so-called design-oriented workshops will be held as part of WP5. In these workshops, design principles preliminary drafted by the researchers can be presented to FRM professionals and these professionals can be asked to provide feedback on the usefulness of the design principles and to make suggestions for improvement.

Legal historical research – To analyse stability and dynamics in Flood Risk Governance Arrangements, *legal historical research* will be carried out. The reference points of the legal historical analysis will depend on the specificities of each country, and will therefore be determined separately per country. Indeed, change in legislation is often triggered by a "shock event". For example, in the Flemish Region, the year 2010 is considered a reference year, as major floods occurred then. Subsequently, legislative initiatives were introduced to simplify existing legislation in order to better deal with flood risks. The legal historical research aims to identify to what extent societal changes have triggered amendments to the legal framework (see also section 4.2 on making explanations in the social sciences). Moreover, the analysis will bring understanding to the question of whether, in turn, the law and legal instruments in the consortium countries have induced societal change.

Positive law study – The main bulk of the legal analysis will be a *positive law study* into the legal frameworks governing floods in the various countries. In order to carry out this positive law study, several sources will be studied in-depth. Firstly, international and European legislative instruments will be studied. Secondly, the legislative instruments within the countries implementing these international and European instruments will be subject to an in-depth analysis. The case law at the various levels (both civil courts and administrative courts) will be analysed. Moreover, the doctrine constitutes a very important element to support the legal analysis. The positive law study will also entail focusing on preparatory documents of the relevant legislative instruments, in order to identify "why" the legislation was introduced. Hence, both the historical legal research and the positive law study are expected to contribute to the explanation of changes and stability within legal frameworks and their relationship with change and stability in policies.

Comparative law study – The positive law study will form the basis for the *comparative law study* that will be carried out throughout the countries. Within the context of multi-level regulation, comparative legal research will (i) help to understand the international and European legal frameworks applicable to floods, and (ii) will add to the understanding of the implementation of these frameworks in the consortium countries (Devroe 2010). Within the comparative legal method, a functionalist approach will primarily be taken. This functionalist approach is based on the premise that the legal system of every society essentially faces the same problems, but that it will solve these problems by quite different means though often with similar results (Zweigert & Kötz 1997). Therefore, this approach will start the analysis not from a legal concept, but from a particular issue,

namely Flood Risk Governance, whilst aiming at the identification of best practices and lessons learnt. This requires that a study be done of both the law in the books and the law in action. For the sake of completeness this approach is thus preferred over the dogmatic approach, whereby the comparison is limited to the law in the books (Kestemond & Schoukens 2012). Another characteristic of the functional approach is that a wide range of data sources is used (including formal sources, case law and soft law).The legal questions set out in chapter 3 of this report, which will be tackled within the context of the positive law study, will add greatly to the coherence and transparency of the comparative law study within the countries in the consortium.

The comparative law study that will start in WP3 will continue in WP4 (country comparison). Legal scholars distinguish between several forms of comparative legal research, including internal and external comparative law studies. The former concerns a comparison within the same legal system (e.g. comparing "cooperation" regarding marine waters with "cooperation" regarding fresh waters). External comparative legal research concerns a comparison between countries. In STAR-FLOOD, predominantly the latter (external comparative legal research) will be carried out.

6.5 Data storage and analysis

All collected data should be stored in one form or the other. There are two reasons why this is necessary. First, all scientific claims that are made on the basis of the case study research should be controllable. This means that the primary evidence – the empirical data – on which the claims are based should remain available. Second, by storing the data, it becomes possible to exchange these between different researchers within the consortium. The data can then also serve as primary data for these researchers, or as a source of inspiration for their own data collection and analysis. According to what we think is common scientific practice, we have the following expectations regarding data storage:

- The researchers are expected to record interviews – of course after asking interviewees for permission to do so. The recordings should not be deleted. To enable exchange of interview data and to aid the researchers in processing the interview results, we suggest that they write an extended summary (1 p. A4 for each half hour of interviewing) of the interviews. Some researchers may be accustomed to writing full interview transcriptions. This may in some cases be useful, but especially if the researcher would like to focus more on *how* something is said than *what* is said. The researchers should decide for themselves if the additional information that could be collected is worth the effort of transcribing the interviews (as a general rule of thumb, it will take a researcher on average one full day to transcribe one hour of interviewing). In an early stage of WP3, we will look into the possibilities of centrally storing the collected data, for instance by uploading them to a central server;
- Researchers are encouraged to use qualitative data analysis software (e.g. Atlas, NVivo, Kwalitan) to do data analyses. In an early stage in WP3, we will discuss amongst the junior researchers which packages they intend to use and, if it is possible to use the same software package at all participating research institutes, to allow exchange not only of data but also of the analyses that have been performed on them (e.g. which codes have been given to which bits of information);
- When presenting evidence from interviews in reports and publications, the researcher has three options: to summarise, to cite or to paraphrase. Summarising results from interviews means that the researcher gives a quite exact depiction of what the interviewee said, preferably using similar wording as the interviewee. Citing means that a literal quote is provided of what the interviewee said. Paraphrasing means that the researcher describes what an interviewee said, but in the researcher's own words. It should always be clear to the reader if the researcher is summarising, quoting or paraphrasing an interviewee. Obviously, direct quotations should be between quotation marks;
- If surveys are carried out, it is expected that survey data are brought together in a data analysis package (e.g. SPSS). The results of the analyses should be stored and, to enable replication, a log

of the analyses that were carried out should also be available (what in SPSS is called the syntaxes);
- In the case of action research, it is expected that the researchers will keep diaries of their experiences, in accordance with what is commonly considered good practice for carrying out action research;
- All data – including the documents that were analysed – should be stored at least until the end of the STAR-FLOOD project.

6.6 Internal and external validity of the research

6.6.1 Operationalisation

The empirical research will to some extent be explorative in nature. The concepts in chapter 2, 3 and 4 of this report provide guidance on what to look at. However, we do not know exactly how to measure these concepts. The empirical research should teach us what the concepts will mean exactly in the empirical domain of Flood Risk Governance. In methodological terms, the concepts of our assessment framework are sensitising concepts. As opposed to definitive concepts, sensitising concepts have no fixed meaning. Empirical research can, however, help us to develop sensitising concepts into definitive concepts.

6.6.2 Establishing chains of evidence

Based on the empirical research, we expect to be able to make certain claims. Of course we cannot exactly predict at this stage what types of claims can be made – determining this is one of the reasons for doing the research. Here are some examples for the sake of illustration. At country level, we may be able to make claims like: "Country A is more advanced in broadening Flood Risk Management Strategies than country B is". "Insurance systems are being discussed in country C, but there are still many steps to be taken before these systems can really take off". "Compared to other countries, country D is much focused on strategy X". At case study level, claims could be made like: "There are mixed experiences with the implementation of the water test as a principle to achieve integration between water and spatial planning. For instance, in municipality Y we have seen that this principle is a leading principle. In municipality Z this is not at all the case. There is some evidence that the work of person Z has played a crucial role in the uptake of the principle in municipality Y." We can suppose that the chain of evidence is easier to find at case study level (less actors, more easy to exchange with). Sometimes, explanations can appear very technical, very common, often grounded – even trivial- reasons (Mr A does not like Mr B). The challenge is to understand how the concrete chain of evidence at case-study level is not only the theatre of life, but the image of social and political situations. Researchers have to find explanations factors behind the daily small matters, at case-study level and at the level of the NFPR.

As is explained in more detail in chapter 4, it is crucial that claims are backed-up with evidence. In case study research, this means the following things:
- The *link between general claims and the primary data they rely on* should be clear. For instance, to back up the claim that "insurance systems are being discussed in country C, but there are still many steps to be taken before these systems can really take off" it would be necessary to refer to evidence that insurance systems are being discussed (e.g. quotes from media, policy documents, interviews). Furthermore, the steps that are still to be taken should be discussed (e.g. law Y should be adapted to accommodate for Z, bill X should be passed in parliament, interest group B should be convinced that they have an interest in this issue etc.) and the researchers should indicate that these steps are indeed necessary. To back up the claim that "there is some evidence that the work of person Z has played a crucial role in the uptake of the principle in municipality Y" it should of course be made clear what this evidence is. Did the researcher actually *observe* the actions of person Z? Was this person *positively referred to* in

several interviews? Did this person give this impression during an interview with the researcher and if so, what exactly gave the researcher this impression (e.g. a certain utterance of the interviewee, his/her appearance etc.) Was his/her name mentioned in policy documents? Or otherwise?

- The *primary data should be available for evaluation*. As discussed in section 6.5, primary data should be stored in such a way that the information that is based on it can be controlled. An argument will often be more convincing if relevant bits of the primary data are presented in the case study report (e.g. illustrative interview quotes, quotes from policy documents, figures). Obviously, claims are generally stronger if they rely on multiple sources of evidence;
- The researchers should be *critical* on their findings and *consider alternative explanations*. For instance, if the claim is made that "there is some evidence that the work of person Z has played a crucial role in the uptake of the principle in municipality Y", the argument will be more convincing if the researcher also lists arguments for why the role of person Z was NOT that crucial (e.g. "if he/she had not taken these actions, the citizens in polder Y could have gone to court and they would most likely have had a strong case") and subsequently shows that these counter-arguments do not, or only to a limited extent weaken the main claim that is made (e.g. "but these citizens have been shown to be largely unaware of the juridical options they have at their disposal, see for instance the survey carried out by Z").

In the course of WP3, we expect to have discussions amongst all junior researchers on intermediary products. This will be an opportunity to draw initial cross-country comparisons. These are also meant to aid the researchers with the last bullet point: to be critical on their findings and consider alternative explanations.

Box 6.4: Evidence for shifts in Flood Risk Governance

The case study research should enable us to make statements as to whether shifts in Flood Risk Governance Arrangements have occurred, both at case study and country level. Chapters 2 and 3 of this report provide some guidance on the type of information that is needed to be able to tell something about this. The challenge will be to be able to make well-motivated generic statements. For the sake of illustration, we provide here some fictive examples of statements that could be made after doing case study research:

- Actors in case study A only pay lip service to the approach of multi-layered safety. It is true that the importance of the approach is stressed, amongst other things in policy document X, Y and Z. However, we found no proof that the approach is actually taking off in practice. Several interviewees indicated that actors in case study A are mainly interested in keeping policymakers at national level satisfied, with minimum extra investments. Apparently, a genuine intention to make substantive changes is absent. This could then be illustrated with an illustrative interview quote;
- In case study B we see a clear broadening of Flood Risk Management Strategies towards Flood Preparation. For instance, since 20xx, representatives of the safety regions have regular meetings with the regional water authority in the area. The representatives of the safety regions initially saw these meetings as "top-down" requirements with no added value for the quality of their work. In the course of the process, however, as interviewee #9 puts it "they learned about the need to pay attention to flood risks in external safety policy".

Obviously, the findings from the analysis both at case study and country level should result in more generic statements about shifts in Flood Risk Governance at country level. For instance, it should be possible to tell if a broadening of FRGAs has taken place and from what to what. An example of a statement at country level would be:

- Country A still has a **dominant focus** on flood defence. It has a **well-established governance arrangement** related to this strategy. When it comes to the strategy of flood mitigation, we see

that **some attention** to it is paid in policy discourses, but the actors **holding expertise** on this can be said to be in a **marginalised** position. The three other FRMSs are still **completely absent**. [Obviously, further evidence should be provided on the statements in bold. When is a focus dominant? Why does the researcher call a particular governance arrangement a well-established governance arrangement? What kind of attention has been paid to flood mitigation in policy discourses? What kind of expertise do the actors hold? Why does the researcher believe them to be marginalised?

6.6.3 External validity

As we have seen in 6.3.2, the six STAR-FLOOD countries and the 18 case studies are our main units of analysis. They have, however, been chosen with the hope and the expectation that the results found will have a broader validity, at least for Flood Risk Governance across the EU more generally. That our results will have this broader validity can, however, not be taken for granted but needs to be carefully established. One way of establishing this broader validity is to set up the **research process** in such a way that the researchers continuously scrutinise and discuss the generalizability of their findings:

- As said before, all researchers will discuss intermediary projects every three months. This will hopefully increase the sensitivity of all researchers for relevant similarities and differences between countries and case studies as well as sensitivity for factors that may make the results generalizable to other (non) EC countries or not;
- As part of WP4, measures have been planned to try to corroborate our claims. Amongst other things, a second expert panel (part of WP4 and WP5) will be held as well as international workshops in which the results of particular STAR-FLOOD consortium countries will be discussed with neighbouring countries. This way, the generalizability of claims is explicitly put to the test;
- When reporting results, obviously, we should carefully motivate why we expect findings to be more generally relevant, to what extent this is backed-up with evidence and to what extent it is to be seen as 'grounded speculation'.

It is challenging to *a priori* determine which issues will be generalizable and which ones not. We have seen already that the STAR-FLOOD consortium countries differ greatly in terms of, amongst other things, their experiences with floods, the actors involved in flood governance, their available resources, existing rules of the game, prevailing discourses as well as the presence of and apparent shifts in Flood Risk Management Strategies (D1.1.4, Hegger *et al*. 2013). For that reason, claims about generalizability should be brought with some caution, especially in this stage of the project. Nevertheless, we do have assumptions about reasons for generalizability and issues that may be generalised. By making them explicit here, it will be possible to scrutinise them throughout the remainder of the project.

Main issues that we expect will be generalizable:
-all EU countries are facing the challenge to implement the EU Floods Directive;
-all EU countries contribute to, or are influenced by, broader debates about a need to broaden Flood Risk Management Strategies;
-some issues will ultimately be explicable through what we may term "the nature of mankind" rather than the specific social and physical situation in a researched country or case study. For instance, we expect that patterns in how humans react to danger, how they understand information on the probability of floods, under what circumstances they can learn from previous crises; under what circumstances they tend to help others etc. are quite universal;
-patterns in how and why policies change as discussed in chapter 4 have been shown to be valid in different geographical contexts and different policy domains;

As our discussion hitherto shows, we have good reasons to assume that we can accompany good practices found in the researched countries and case study areas with guidelines about their applicability in different contexts at least when it comes to generalisation from the country level to the level of the EC as a whole. The endeavour will become more challenging when we try to generalise beyond this geographical level (e.g. the social and geographical situation in mega cities in East-Asia is of a totally different nature from what we may find in a European context). It will also become more challenging to generalise beyond the field of Flood Risk Governance and make claims about other fields of disaster risk reduction (e.g. heat stress, earthquakes, volcanos). It would not be justifiable to make strong *a priori* claims about these types of generalizability here, but one can logically expect that an active discussion of our findings with relevant scholars and practitioners will yield an overview of similarities and differences and will enable us to identify elements that have more general validity.

6.7 Study limitations

As we argued in other parts of this report, one can only acquire insight into Flood Risk Governance by researching the phenomenon in some detail. In chapter 4 of this report we have shown the difficulty of drawing systematic comparisons through case study research. Cases can differ from one another in many respects and controlled experiments are very hard or even impossible to carry out. Therefore, a limitation of our research is that we will not be able to deliver absolute proof for the design principles that will be denominated on the basis of the research, but only plausible lines of argumentation.

Also when up-scaling the research findings (external validity) some degree of cautiousness is necessary in distinguishing between statements for which we have evidence versus statements that are based on speculation or logical expectations. Finally, our empirical research is necessarily historically situated. Most of it will take place between 1 October 2013 and 1 October 2015. This is a specific period in which specific developments will take place (a.o. at context level). For example at the time of writing Europe is facing an economic crisis. At the same time, important EU policy initiatives are being implemented (e.g. EU floods directive). A practitioner who wants to take up the lessons of STAR-FLOOD in, say, 2017, will be facing a different reality from that which we do now.

6.8 Reporting

6.8.1 Tentative outline of the national country reports

A tentative outline of the national country report could look as follows:

- Introduction
- Analysis of the context and the NFPR
- Analysis of case study n° 1 – city/project/policy initiative of …
- Analysis of case study n° 2 – city/project/policy initiative of …
- Analysis of case study n° 3 – city/project/policy initiative of …
- Case comparison
- Explanation and evaluation of the dynamics found in the case study areas
- Conclusions

This outline will also evolve in the course of carrying out the empirical research. It may, however, provide some first guidance on the types of issues to be included in the reports. For further reference, we refer to the appendix in which more preliminary ideas on the content of all chapters are given.

6.8.2 Proposed content of chapter 2 of the national country reports on the context and the National Flood Policies and Regulations domain

Chapter 2 of the national country reports deals with the national NFPR as well as the context level insofar as it is relevant for a particular country. A detailed outline to be used for writing the first draft of this chapter is included in the appendix A6.1 of chapter 6, the tentative annotated outline of the country reports. As can be read in the annex, the outline of the chapter is roughly as follows:

- At the context level, the following items will be addressed
    - General overview of relevant characteristics in a country;
    - Administrative structure;
    - Political and administrative culture;
    - Legal context/legal system regarding floods
- At the level of the NFPR, the following items will be addressed:
    - National legal frameworks regarding floods
    - Analysis of the NFPR using the four dimensions of the Policy Arrangements Approach;
        - Actors
        - Resources
        - Rules
        - discourses
    - Zooming in on the five Flood Risk Management Strategies

6.8.3 Tentative outline of a case study report

In the process of writing the main deliverables for WP3, the country-specific reports, it will be helpful for the researchers to write case study reports of each case study. Such reports could include the following elements:

1. Main characteristics of the case study area (geography, type of flood and chronology of flood events.);
2. The main projects/policies in a flood prone area;
3. Description of the operationalization of each of the five strategies: Chronology of the decision making processes, description of main actors, resources, discourses and rules of the game;
4. Analysis
    - Evaluation of the relative importance of each of the strategies in this case study area (dominant or not?);
    - Special attention for multi-actor governance, e.g. public-private cooperation (positive and negative aspects);
    - Special attention for legal hindrances, remarkable legal aspects (cooperate with legal scholars);
    - Description of difficulties in practice (causes, consequences, learning lessons for the future or for other locations).
5. Explanation of the institutionalization of flood risk management strategies in this case study area;
6. Definition and refinement of criteria that can help evaluate FRMSs in practice.

In the course of WP3, the above listed tentative outline will be discussed by all young researchers and revised if the need arises. Moreover, some generic schemes, patterns, figures or tables could be included to be used for the case study report. This will also facilitate the comparative work in WP4. Discussions about these issues will be held, amongst other things, during the academic master classes.

6.8.4 Case study notes

In the process of carrying out the country and case study analyses, all researchers need to use dedicated procedures for processing empirical data into input for the reports. This will probably require the researchers to make case study notes. At this preliminary stage, we do not want to give detailed prescriptions on how to do this, but we foresee that early in WP3 this issue will be addressed in one of the Academic Master Classes.

6.9 Schedule

The 24 months that will be spent on WP3, are roughly built up as follows:

- We will start the analysis of the NFPR at country level (three months);
- Subsequently each of the three case study areas is analysed (approx. four months each);
- Then the results of the country and case study analyses will be wrapped up (two months);
- The case studies will be compared (three months);
- Storylines regarding explanation and evaluation of the dynamics found will be set up (three months);
- The case study workshop/expert meeting will be organised (one month).

Table 6.1 Schedule

Periods	Contents	Out puts
Oct. 2013 – December 2013	*Analysis at NFPR level*: Analysis at country level (three months): during this first period, legal and policy scholars will work in parallel but in coordination.	one preliminary report for each country
January 2014 – April 2014: y	*First case study* :	one final report for each country one preliminary report for first case study
May 2014 – August 2014:	*Second case study*	one final report for first case study one preliminary report for second case study
September 2014- december 2014: third case study	*Third case study*	one final report for second case study one preliminary report for third case study
January 2015- Februay 2015:	Wrapping up the results of the country and case analyses (two months);	one final report for third case study one final report for country including case studies
March 2015- May 2015:	Case comparison	one final report for comparative statement for each country
June 2015- August 2015:	*Explanatory analysis* Setting up storylines regarding explanation and evaluation of the dynamics found (three months);	one final report for comparative statement for the six countries
September 2015	Organizing the case workshop/expert meeting (one month).	

This planning is a refinement of what is stated in the Description of Work (DOW) of STAR-FLOOD. The DOW mentions that three to four months will be devoted to the analysis at the national level; five to six months to each of the three case studies and two to three months to achieving integration between public administration and law (see text under WP3). The current schedule (this report) differs from the DOW in that it makes a more explicit distinction between data collection and analysis. Furthermore, integration between public administration and law is no longer portrayed as an activity as such, but as something that should be continuously monitored.

A detailed work plan for WP3 has been developed as a separate document that will be updated bi-annually – at the STAR-FLOOD plenary consortium meetings. We will not repeat the content of this document here, but instead only list some of the main points in this work plan:

- It is expected that public administration and legal scholars in every country will collaborate on producing the country-specific reports. To do this, they will have to divide tasks amongst themselves;
- All young researchers of all countries will meet each other four times a year (every three months) at Academic Master Classes. Two of these will be connected to the plenary consortium meetings at which also all senior researchers will be present;
- At each three-monthly meeting, concrete intermediary products will be discussed. This implies that all researchers should roughly follow the same time planning and should produce products that are comparable. The work plan specifies what types of products are expected at each stage. Every version will specify in some detail which products are expected in the next six months and will specify the later 'milestones' in more general terms.

At the beginning, the emphasis will be on carrying out country level analyses. In parallel, the researchers can make a quick scan of the case studies in their country and come up with a proposal as to which case should be analysed first. For the country level analyses, the researchers will start off analysing the NFPR in their country. This comprises all governance processes relevant for understanding flood risk management, including water management, spatial planning, disaster management etc. The researchers will have some flexibility to determine what is relevant (for describing flood risk management strategies) in their country. Secondly, the researchers will analyse the first case study area, and on the basis of the analysis draw substantive lessons on dynamics at the national level. Besides that, from the first case study the researchers will also learn how to do the case study research. After that, the second and third case studies are analysed.

The 'milestones' discussed at the first Master Class in Tours on 2 and 3 October 2013 included:

i) preparation of presentations on literature related to the evaluation framework presented in part C of this report;
ii) reading deliverable report D1.1.4 of STAR-FLOOD (on similarities and differences between the STAR-FLOOD consortium countries) and reflecting on and thinking about development in each country. What can be added to the facts and questions already mentioned in this report, and are there any other developments the young researchers know about? An initial discussion on similarities and differences can ideally lead to hypotheses;
iii) an initial inventory of the most salient characteristics of the cases to be analysed, reflection on whether there would be any reasons to reconsider one of the cases, and an elaboration on which case to start with and why;
iv) preparing feedback on the current report to be taken into account when finalising it.

At the next Master Class on 5-6 December 2013, the following milestones are foreseen: i) a draft of chapter 1 of the deliverable report of each country (see appendix); ii) a first draft text on the NFPR in each country; iii) a draft of the detailed case study protocol for the first case.

6.10 Miscellaneous

6.10.1 Broadening the empirical knowledge base

As noted above, the empirical core of the STAR-FLOOD research is formed by the country and case analyses in the six countries and the 18 case studies. These analyses are carried out by the young researchers in each STAR-FLOOD consortium country under the responsibility of their supervisors. However, we will try to broaden the empirical knowledge base through several additional activities as part of or adjacent to STAR-FLOOD:

- The coordinating post docs at UU Geo will carry out additional empirical analyses, amongst other things on the issue of trans-boundary flood risk management;
- All partners will try to recruit students who are interested in doing an MSc/MA thesis on the topic of Flood Risk Governance or related sub-topics. These students can focus on other countries and/or cases than the STAR-FLOOD researchers;
- Contacts will be established with renowned research institutes in other than the STAR-FLOOD consortium countries and if feasible results will be exchanged and joint publications produced.

6.10.2 Publications

Within WP3, besides the six country-specific reports, no scientific deliverables have been identified in the DoW of STAR-FLOOD. However, WP3 is expected to lead to many interesting empirical results. For that reason, a specific publication strategy has been written by UU Geo to enable the consortium to write high-impact journal articles on the results. This publication strategy will only be disclosed to consortium partners and the commission services. It will be updated bi-annually and subsequently discussed at the plenary consortium meeting.

6.10.3 Confidentiality

The STAR-FLOOD researchers are expected to protect the confidentiality of anyone participating in the case study research. This implies, amongst other things, that publications are preferably written in such a way that the identity of those who were interviewed is not disclosed and cannot be deduced. Often, this will not be possible. For instance, it will sometimes be necessary to refer to someone as “the project leader”, “the responsible mayor/alderman” etc. Interviewees should be informed in advance that this is possible and – logically – if they explicitly do not agree with disclosure of their identity this should be respected.

We want to leave it up to the discretion of the individual researchers if they choose to inform their interviewees of whom else they have interviewed or intend to interview. We expect that it will vary from case to case and even from project to project, whether this is a sensitive issue or not, so we do not deem it useful to give general principles for this. Logically, disclosing the identity of other interviewees may invite the interviewees to think along with the interviewer and provide suggestions for follow-up interviews.

Obviously, the researchers shall not disclose any information which the researcher knows is “secret” (this can in some cases even be a legal offence). However, it may sometimes be appropriate to mention that certain information has been sought for, but that this information cannot be disclosed for reasons of confidentiality.

6.10.4 Overlap with other research

In several cases the STAR-FLOOD researchers will not be the only researchers carrying out empirical research. For instance, it is known that the FP7 ENHANCE project has two cases overlapping with STAR-FLOOD (London, Rotterdam). For this particular instance, contacts between the two projects have been established to make sure that the overlap leads to synergies rather than conflicts. All researchers in all other countries are expected to follow a similar procedure if the need arises. In

practice this means that, before approaching specific persons for interviews, the researchers should inform themselves of other research projects that are being carried out, contact the researchers and check if any arrangements should be made to avoid overlap and promote synergy. Needless to say the researchers are also expected to stay in close contact with the knowledge dissemination counterparts in their country (Grontmij/CEPRI) to make sure that specific persons are not contacted several times by different people from the STAR-FLOOD consortium.

6.10.5 Training

As part of WP6, several Academic Master Classes for the young researchers have been planned. Besides discussions on the progress of the case study research, as outlined in the previous sections, attention will also be paid in the Master Classes to training activities enabling the researchers to carry out their research. The precise content of these training activities will be decided upon in consultation with the young researchers. Topics that may be included in an early stage of WP3 are, amongst other things, “interview skills” and “using qualitative data analysis software”.

6.11 Next steps: country-specific case study protocols

As mentioned in the introduction section, the current document only provides a general outline of the case study approach. The STAR-FLOOD researchers in these countries need to translate it in a detailed case study protocol for their country. This case study protocol should include at least the following items:

- Motivation for the selection of the cases – what is so interesting about them?
- Delineation of each case – which specific parts of the case (e.g. which policy initiatives, cities, projects) are studied in detail and why?
- Data collection methods
    - Scope of the document analysis (which types of documents will be studied and why?)
    - Scope of the interviews (who will be interviewed, who will carry out the interviews and why?)
    - Interview methods (e.g. semi-structured, highly structured)
    - Interview guide (which questions will be posed to the interviewees and why?)
- Time planning – this can be a general time planning for the full two years of WP3, but it is advised to regularly update this time planning and to have at all stages a detailed time planning PER WEEK for the upcoming six months.

7. Conclusion and outlook

Jean-Baptiste Trémorin and Dries Hegger

7.1 Conclusion

The previous chapters have focused on providing guidelines for the execution of Work Package 3, the analysis, explanation and evaluation of the STAR-FLOOD countries and cases. The report attempts to provide the national teams involved in the STARFLOOD project with the necessary assessment framework which will allow them to carry out the research during WP3. As was explained in the previous chapters, the assessment framework consists of three main parts:

- An analytical framework based on the Policy Arrangements Approach enabling the researchers to link together legal analysis and policy analysis;
- An explanatory framework based on theories from the fields of policy analysis, transition theory and legal studies;
- An evaluation framework based on a wide range of literature on the concepts of resilience, appropriateness, legitimacy, efficiency and effectiveness.

The current document focuses on providing guidance to researchers on how to set up and carry out the empirical analyses. The *background theories* report provides further elaboration on the theories used. Both documents together constitute an important milestone for the STAR-FLOOD project in terms of conceptual development as well as operationalisation of the approach. The framework which will be used by all the junior and the senior researcher involved in the project, has been built upon an intense on-going process within the members of the national teams as well as the project coordinators. The incremental process chosen for the production of this deliverable has allowed the members of the national teams to become involved in the process of developing the assessment framework and will help them to become co-owner of it.

7.2 Outlook

Although the report on the assessment framework is now finished, conceptual work within STAR-FLOOD is not. First of all, the empirical work may inspire refinements and revisions of all aspects of the assessment framework. Second, to allow for a smooth start of Work Package 4 at its start in October 2015 we should have a detailed overview of the benchmarks against which the countries and cases will be compared. To make sure that we actually know these benchmarks by then, discussion about these potential benchmarks will be on the agenda of Academic Master Classes and Plenary Consortium Meetings of STAR-FLOOD throughout WP3.

Potential benchmarks for the comparison may include:

1. Similarities and differences in the development and implementation of different Flood Risk Management Strategies between countries and case studies – which strategies are present and how “mature” are they?
2. What types of dynamics can we find in the development of these strategies? What are prominent similarities and differences between countries and cases and how can these be explained?
3. What are prominent governance challenges in the different countries? Can we observe patterns in the challenges encountered? Are some challenges consistently more pressing/urgent/important than others?
4. How can we characterise the similarities and differences in Flood Risk Governance Arrangements found in the STAR-FLOOD consortium countries? Is it possible to arrive at a typology of

governance arrangements? What (types of) dynamics in FRGAs can be observed (e.g. rise of new arrangements, merger of existing arrangements, more/less interaction between arrangements, demise of arrangements, co-existence of separate arrangements etc.)?

5. What similarities and differences across countries and cases can we identify in the applicability of certain good practices? Can we identify recurring patterns in the factors explaining the presence of good practices (e.g. policies that have only been implemented in cases in which policy entrepreneurs threw their weight behind it; integration between policy arrangements that mainly took place in cases in which the law allowed for considerable leeway in how it is implemented etc.)?
6. What similarities and differences between the countries can we observe in terms of the experienced barriers against the implementation of the Floods Directive?
7. What similarities and differences can we find between countries in terms of the effectiveness of flood relevant policies? How do the different countries "score" on different indicators?
8. What similarities and differences can we observe between countries in terms of the legitimacy of flood relevant policies?
9. How do the STAR-FLOOD consortium countries compare in terms of the normative principles on which flood risk governance is based?

It is envisaged that these items will be discussed, revised and worked out in some detail in the course of executing WP3. In WP4, a revised list of items for comparison will be actually addressed. Based on the comparison, in WP5 design principles for appropriate and resilient Flood Risk Governance will be formulated as well as guidelines for their applicability in different contexts.

References

Aarhus Convention 1998, *Convention on access to information, public participation in decision-making and access to justice in environment matters*, http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf, 25 June 1998, accessed 2 September 2013

Abrams, P, Borrini-Feyerabend G, Gardner J and Heylings P 2003, *Evaluating Governance: A Handbook to Accompany a Participatory Process for a Protected Area*, Parks Canada and CMWG/TILCEPA, Ottawa

Adger, N.W, Arnell, N.W and Tompkins, E.L, 2005, Successful adaptation to climate change across scales, in *Global Environmental Change*, vol 15, pp77-86

Adger, N.W, Quinn, T, Lorenzoni, I et al., 2012, Changing social contracts in climate change adaptation, *Nature Climate Change,* vol. 3, pp. 330-333

Arnouts, R, Van Der Zouwen, M and Arts, B 2012, Analysing governance modes and shifts – Governance arrangements in Dutch nature policy, in *Forest Policy and Economics,* vol. 16, pp. 43-50

Arts, B, Leroy, P and Van Tatenhove, J 2006, Political modernisation and policy arrangements: a framework for understanding environmental policy change, *Public organization review,* vol. 6, no. 2, pp. 93-106

Bakker, M.H.N 2009, Transboundary River Floods and Institutional Capacity, *Journal of the American Water Resources Association*, vol. 45, no. 3, pp. 553-566, DOI: 10.1111/j.1752-1688.2009.00325.x.

Bakker, M.H.N, Green, C, Driessen, P, Hegger, D, Delvaux, B, Van Rijswick, M, Suykens, C, Beyers, J.C, Deketelaere, K, Van Doorn-Hoekveld, W and Dieperink, C 2013, *Flood Risk Management in Europe: European flood regulation*, STAR-FLOOD Consortium, Utrecht, The Netherlands

Barker, C 2005, *Cultural Studies: Theory and Practice*, Sage, London

Basher, R 2006, Global early warning systems for natural hazards: systematic and people-centred, *Philosophical Transactions of the Royal Society A,* vol. 364, pp. 2167–2182, doi:10.1098/rsta.2006.1819

Bell, H.M. and Tobin, G.A. 2007, Efficient and effective? The 100-year flood in the communication and perception of flood risk, in *Environmental Hazards*, vol. 7, pp. 302-311

Berkes, F, Colding, J and Folke, C, 2003 (eds), *Navigating social-ecological systems: Building resilience for complexity and change,* Cambridge University Press, Cambridge

Bernauer, T 2002, Explaining success and failure in international river management, in *Aquatic Sciences,* vol. 64, pp. 1-19

Boda, Z 2012, Trust, legitimacy and the effectiveness of public institutions, paper given at ECPR Workshop, Antwerp

Brouwer, S and Biermann, F 2011, Towards adaptive management: examining the strategies of policy entrepreneurs in Dutch water management, *Ecology and Society*, vol. 16, no. 4, pp. 5

Bruijn, de K.M 2004, Resilience and flood risk management, in *Water Policy,* vol 6, pp. 53-66

Buijze, A 2008, On the justification and necessity of legal effectiveness norms, Unpublished Master's Thesis, Utrecht University, Utrecht

Caldwell, R 2003, Models of Change Agency: A Fourfold Classification, in *British Journal of Management*, vol. 14, pp. 131-142

Capano, G 2009, Understanding policy change as an epistemological and theoretical problem, *Journal of Comparative Policy Analysis*, vol. 11, no 1, pp. 7-31

Capano, G and Howlett, M 2009, Introduction: The Determinants of Policy Change: Advancing the Debate, in *Journal of Comparative Policy Analysis*, vol. 11, no. 1, pp. 1-5

Carpenter, S, Walker, B, Anderies, M.J and Abel, N. 2001, From metaphor to measurement: Resilience of what to what?, in *Ecosystems*, vol 4, pp. 265-781

Centre for Coastal Management 1993, *Monitoring the efficiency and effectiveness of the Wet Tropics Management Plan,* The University of New England-Northern Rivers, Lismore

Centre for Disease Control and Prevention CDC (CDC) 1999, Framework for Program Evaluation in Public Health, in *Morbidity and Mortality Weekly Report (MMWR),* vol 48, no RR-11, pp. 1-40

Chambers, W.B 2004, Towards an improved understanding of legal effectiveness of international environmental treaties, in *Georgetown International Environmental Law Review,* vol. 16, 2003-2004, pp. 501-532

Davoudi, S, Shaw, G, Jamila Haider, L, Quinlan, A.E, Peterson, G.D, Wilkinson, C, Fünfgeld, H, McEvoy, D, Porter, L and Davoudi, S 2012, Resilience: A Bridging Concept or a Dead End? "Reframing" Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does it Mean in Planning Practice? Resilience as a Useful Concept for Climate Change Adaptation? The Politics of Resilience for Planning: A Cautionary Note, in: *Planning Theory & Practice*, Vol. 13, no. 2, pp. 299–333

De Bruijn, K.M, 2004, Resilience indicators for flood risk management systems of lowland rivers, *International Journal of River Basin Management*, vol 2, no 3, pp. 199–210

De Goede, M, Boeije, H and Hox, J 2005, Het experiment, In: 't Hart, H, Boeije, H, Hox, J (eds), *Onderzoeksmethoden*, Boom Onderwijs, Utrecht, pp. 177-218

Dieperink, C 2011, International water dispute settlement under asymmetry: lessons from the Rhine chlorides negotiations (1931-2004), *International Environmental Agreements,* vol. 11, no. 2, pp. 139-157. Available online at: http://www.springerlink.com/content/r7436u79272kj884/fulltext.pdf, accessed 12 October 2013

Dieperink, C, Green, C, Hegger, D.L.T, Driessen, P.P.J, Bakker, M, Van Rijswick, M, Crabbé, A, Ek, K 2013, Flood Risk Management in Europe: governance challenges related to flood risk management (report no D1.1.2), STAR-FLOOD Consortium, Utrecht

Driessen, P.P.J, De Gier, A 1999, Flooding, River management and emergency legislation – experiences of the accelerated reinforcement of dikes in The Netherlands, *Tijdschrift voor economische en sociale geografie (TESG)*, vol. 90, no. 3, pp. 336-342

Driessen, P.P.J, Dieperink, C, Van Laerhoven, F, Runhaar, H.A.C and Vermeulen, W.J.V 2012, Towards a conceptual framework for the study of shifts in modes of environmental governance – experiences from The Netherlands, *Environmental Planning and Governance,* vol. 22, pp. 143-160

Dryzek, J.S 1997, *The politics of the Earth, Environmental Discourses,* Oxford University Press, Oxford, UK

Dupuis, J and Biesbroek, R, 2013, Comparing apples and oranges: the dependent variable problem in comparing and evaluating climate change adaptation policies, *Global Environmental Change*, in press, http://dx.doi.org/10.1016/j.gloenvcha.2013.07.022, accessed 5 November 2013

European Parliament and Council 2003, Directive 2003/35/EC providing for public participation in regard of drawing up of certain plans and programmes relating to environment and amending with regard to public participation and access to justice, *Official Journal of the European Union* L156/17-24, Available online http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:156:0017:0024:EN:PDF, accessed 11th April 2013

European Parliament and the Council (eds) 2007, Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, *Official Journal of the European Union*, vol L288

Folke, C. 2006, Resilience: The emergence of a perspective for social-ecological systems analyses, in: *Global Environmental Change*, vol. 16, no. 3, pp. 253-267

Gallopín, G.C 2006, Linkages between vulnerability, resilience, and adaptive capacity, in: *Global* Environmental *Change,* vol 16, pp. 293-303

Geels, F.W, 2004, From sectoral systems of innovation to socio-technical systems. Insights about dynamics and change from sociology and institutional theory, *Research Policy*, vol. 33, no. 6-7, pp. 897–920

Geels, F.W 2005, The dynamics of transitions in socio-technical systems: A multi-level analysis of the transition pathway from horse-drawn carriages to automobiles (1860-1930), in: *Technology Analysis & Strategic Management*, vol. 17, no. 4, pp. 445-476

General Administrative Law Act 1994, Act of 4 June 1992, containing general provisions of administrative law (General Administrative Law Act), most recently amended on 10 July 2013, Bulletin of Acts, Orders and Decrees (Stb.) 2013, 307

Giddens, A 1984, *The constitution of society*, Polity Press, Cambridge

Gigerenzer, G and Selten, R 2002, *Bounded Rationality: the adaptive toolbox*, The MIT Press, Cambridge/London

Green, C.H, 2003, *Handbook of Water Economics*, John Wiley, Chichester

Green, C.H, 2009, *Procedural Equity*, *SWITCH Project Report*, http://www.switchurbanwater.eu/, accessed 2 September 2013

Green, C, Dieperink, C, Ek, K, Hegger, D.L.T, Pettersson, M, Priest, S, Tapsell, S, 2013, *Flood Risk Management in Europe: the flood problem and interventions (report no D1.1.1)*, STAR-FLOOD Consortium, Utrecht, the Netherlands

Green C.H and Penning-Rowsell, E.C 2011, Stakeholder engagement in flood risk management, in: Pender, G and Faulkner, H (eds), *Flood Risk Science and Management*, Wiley-Blackwell, Chichester

Green, C.H, Viavattene, C, Thompson, P 2011, *Guidance for Assessing Flood Losses, CONHAZ report*, Flood Hazard Research Centre, Middlesex University

Gunderson, L and Holling, C.S 2002, *Panarchy: Understanding transformations in human and natural systems,* Island Press, Washington DC

Hajer, M and Versteeg, W 2005, A Decade of Discourse Analysis of Environmental Politics: Achievements, Challenges, Perspectives, in: *Journal of Environmental Policy and Planning*, vol. 7 no. 3, pp. 175-184

Hanley, N and Spash, C 1993, *Cost-benefit analysis and the environment*, Edward Elgar, Cheltenham

Hanley, N and Black, A.R 2006, Cost benefit analysis and the Water Framework Directive in Scotland, in: *Integrated Environmental Assessment and Management,* vol. 2, no. 2, pp. 156-165

Hegger, D.L.T, Green, C, Driessen, P, Bakker, M, Dieperink, C, Crabbé, A, Deketelaere, K, Delvaux, B, Suykens, C, Beyers, J.C, Fournier, M, Larrue, C, Manson, C, Van Doorn-Hoekveld, W, Van Rijswick, M, Kundzewicz, Z.W and Goytia Casermeiro, S, 2013, *Flood Risk Management in Europe: Similarities and Differences between the STAR-FLOOD consortium countries,* STAR-FLOOD Consortium, Utrecht

Holling, C.S 1973, Resilience and stability of ecological systems, in: *Annual Review of Ecology and Systematics*, vol. 4, pp. 1-23

Hough M, Jackson J and Bradford, B (in press), Trust in justice and the legitimacy of legal authorities: topline findings from a comparative European study, in: *Policing: A Journal of Policy and Practice*

Howlett, M and Cashore, B 2009, The dependent variable problem in the study of policy change: understanding policy change as a methodological problem, *Journal of Comparative Policy Analysis,* vol. 11, no. 1, pp. 33-46

Hughes, T.P 1987, The evolution of large technological systems, in: *The social construction of technological systems: new directions in the sociology and history of technology*, Bijker, W.E, Hughes, T.P, Pinch, T (Eds), MIT Press, Cambridge

Huitema, D, Lebel, L and Meijerink, S 2011, The strategies of policy entrepreneurs in water transitions around the world, *Water Policy,* vol. 13, pp. 717-733

Hysing, E 2009, From government to governance; A comparison of environmental governing in Swedish forestry and transport, in: *Governance,* vol. 22, pp. 547-672

Johnson, C, Dowd, T.J and Ridgeway, C.L 2006, Legitimacy as a Social Process, *Annual Review of Sociology,* vol. 32, pp. 53-78

Josefsson, H and Baaner, L 2011, The Water Framework Directive – A Directive for the twenty-first century,in: *Journal of Environmental Law*, vol. 23, no 3, pp. 463-486

Keessen, A.M, Hamer, J.M, Van Rijswick, H.F.M.W and Wiering, M 2013, The concept of resilience from a normative perspective: examples from Dutch adaptation strategies, *Ecology and Society*, vol. 18, no 2, pp. 45

Kingdon, J 1984, *Agendas, Alternatives, and Public Policies,* Little, Brown, Boston

Knoepfel, P, Larrue, C, Varone, F, Hill, M 2007, *Public Policy Analysis*, The policy press, Cambridge

Langbroek, P.M 2003, General principles of proper administration and the General Administrative Law Act in The Netherlands, for the World Bank Workshop on Regulating Citizen-State Interactions: Administrative Law in the United Kingdom and the Netherlands, Washington, US, 23 January 2003

Lange, P, Driessen, P.P.J, Sauer, A, Bornemann, B and Burger, P 2013, Governing Towards Sustainability – Conceptualizing Modes of Governance, in *Journal of Environmental Policy & Planning,* first published online http://dx.doi.org/10.1080/1523908X.2013.769414, accessed 13 May 2013.

Levi, M, Sacks, A and Tyler, T 2010, Conceptualizing Legitimacy, Measuring Legitimating Beliefs, in: *American Behavioral Scientist,* vol. 53, no. 3, pp. 354-375

Lieferink, D 2006, The dynamics of policy arrangements: turning round the tetrahedron, in: Arts, B, and Leroy, P (eds.), *Institutional dynamics in environmental governance,* Springer, Dordrecht, pp. 45-68

March, J.G 1994, *A primer on decision making: how decisions happen,* Free Press, New York

March, J.G and Olsen, J.P 2008, The logic of appropriateness, in: Moren, M, Rein, M and Goodin, R.E (eds) *The Oxford Handbook of Public Policy*, Oxford University Press, Oxford, pp. 689-708

March, J.G and Olsen, J.P 2008, *The logic of appropriateness,* ARENA working papers, WP 04/09

Mark, M 2005, Evaluation Theory or What Are Evaluation Methods for?, in: *Evaluation Exchange,* vol. XI, no 2, http://www.hfrp.org/evaluation/the-evaluation-exchange, accessed 11 September 2013

Mees, H.L, Driessen, P.P.J and Runhaar, H.A.C (in press), Legitimate adaptive flood risk governance beyond the dikes: the cases of Hamburg, Helsinki and Rotterdam, in: *Regional Environmental Change,* Springer-Verlag, Berlin Heidelberg

Ménard, C and Saleth, R.M 2011, The effectiveness of alternative water governance Arrangements, in: Young, M (ed) *Towards a Green Economy,* United Nations Environment Programme, http://hal.archives-ouvertes.fr/docs/00/62/42/50/PDF/Menard-Saleth--Governance_in_Water_Sector-2011.pdf, 23 September 2011, accessed 2 September 2013

OECD 1991, *Principles for evaluation of development assistance*, Development Assistance Committee, OECD, Paris

OECD 1999, Evaluating country programmes, Evaluation and Aid Effectiveness, Vienna Workshop, 11-12 March 1999, OECD, New York

OECD 2001, *Evaluation feedback for effective learning and accountability*, Development Assistance Committee, Evaluation and Aid Effectiveness 5, OECD, Paris

OECD 2010, *Evaluating development co-operation: Summary of key norms and standards*, Second edition, OECD DAC Network on Development Evaluation, http://www.oecd.org/development/evaluation/dcdndep/41612905.pdf, accessed 11 September 2013

OECD 2011, *Quality standards for Development Evaluation*, DAC Guidelines and Reference Series, http://www.oecd.org/dac/evaluation/dcdndep/49334307.pdf, accessed 11 September 2013

OECD 2013, *Evaluating Development Activities: 12 Lessons from the OECD DAC*, http://www.oecd.org/dac/peer-reviews/12%20Less%20eval%20web%20pdf.pdf, accessed 11 September 2013

Official Journal of the European Communities 2000a, *Chapter of Fundamental Rights of the European Union, 2000/C 364/01*, Available online http://www.europarl.europa.eu/charter/pdf/text_en.pdf, Accessed 1 October 2013

Official Journal of the European Communities 2000b, *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy*, L 327/1

Paneque Salgado, P, Corral Quintana, S, Guimarães Pereira, Â, del Moral Ituarte, L and Pedregal Mateos, B 2009, Participative multi-criteria analysis for the evaluation of water governance alternatives. A case in the Costa del Sol (Málaga), in: *Ecological Economics*, vol. 68, pp. 990-1005

Paredis, E 2009, Socio-technische systeeminnovaties en transities: van theoretische inzichten naar beleidsvertaling. Working paper n° 10. CDO/UGent: Steunpunt Duurzame Ontwikkeling Transboundary Freshwater Dispute Database (TFDD), 2013. Online database available at http://www.transboundarywaters.orst.edu , last accessed May 2013

Rasche, K, Krywkow, J, Newig, J and Hare, M 2006, Assessing the intensity of participation along six dimensions, proceedings of the PATH Conference, 4-7 June 2006, Edinburgh, Scotland, http://www.macaulay.ac.uk/PATHconference/PATHconference_proceeding_ps3.html, accessed 2 September 2013

Rayner, J 2009, Understanding Policy Change as a Historical Problem, in *Journal of Comparative Policy Analysis: Research and Practice*, vol. 11, no. 1, pp. 83-96

Real-Dato, J 2009, Mechanisms of policy change: a proposal for a synthetic explanatory framework, *Journal of Comparative Policy Analysis*, vol. 11, no. 1, pp. 117-143

Remmelzwaal, A and Vroon, J 2000, *Werken met water: Veerkracht als strategie*, RIZA Lelystad

Rossi, P, Freeman, H and Lipsey, M 1999, *Evaluation: A systematic approach*, Sage, Thousand Oaks CA

Sabatier, P and Weible, C.M 2007, The Advocacy Coalition Framework: Innovations and Clarifications, in: Sabatier, P.A (ed) *Theories of the policy process*, Westview Press, Davis CA

Smit, B and Wandel, J 2006, Adaptation, adaptive capacity and vulnerability, in: *Global Environmental Change*, vol. 16, pp. 282- 292

Stufflebeam, D.L and Shinkfield, A. J 2011, *Evaluation Theory, Models and Applications*, John Wiley, London

Technical Support Unit 2003, *Integrated Flood Management: Concept Paper,* The Associated Programme on Flood Management, World Meteorological Organization/Global Water Partnership, Geneva, Switzerland

Termes, A.P.P, Kok, M and Klijn, F 1999, *Flexibiliteit en veerkracht van inrichtingsstrategieën Rijntakken. Effecten van Klimaatsverandering*, HKV rapport PR, 231, Lelystad, The Netherlands

True, J.L, Jones, B.D and Baumgartner, F.R 2007, Punctuated-equilibrium theory: explaining stability and change in public policymaking, in: Sabatier, P.A. (ed) *Theories of the policy process*, Westview Press, Davis CA

Tunstall, S.M. and Green, C.H 2003, From listener to talker: the changing social role of the citizen in England and Wales, http://www.harmonicop.info/, accessed 5 November 2013

Underdal, A 2002, One Question, Two Answers, in: Miles, E.L, Underdal, A, Andresen, S, Wettestad, J, Birger Skaerseth, J and Carlin, E.M (eds), *Environmental Regime Effectiveness: Confronting Theory with Evidence,* The Mitt Press, Cambridge, Massachusetts and London

Van Stigt, R, Driessen, P.P.J, Spit, T.J.M 2013, A window on urban sustainability: integration of environmental interests in urban planning through 'decision windows', in: *Environmental Impact Assessment Review,* vol. 42, pp. 18-24

Warner, J 2004, Mind the GAP - Working with Buzan: the Illisu Dam as a security Issue. SOAS Water Issues Study Group, School of Oriental and African Studies/King's College - London (Occasional Paper 67)

Warner J, 2011, Flood planning. The politics of water security. I.B. Taurus, London, New York

Wiering M, Arts, B 2006, Discursive shifts in Dutch river management: 'deep' institutional change or adaptation strategy? In: *Hydrobiologia,* vol. 565, pp. 327-338

Wiering, M and Verwijmeren, J 2012, Limits and borders: stages of Transboundary water management, in: *Journal for Borderlands Studies*, vol. 27, no. 3

Wolf, A.T, 2000, "Hydrostrategic" territory in the Jordan Basin: water, war and Arab–Israeli peace negotiations, in: Water in the Middle East: A Geography of Peace, Wolf, A. and Amery, H. (eds), University of Texas Press, Austin

Young, O.R 1994, *International governance*, Cornell University Press, Ithaca

Zahariadis, N 2007, The Multiple Streams Framework; Structure, Limitations, Prospects, in: Sabatier, P.A (ed), *Theories of the policy process*, Westview Press, Davis CA

Zittoun, P 2009, Understanding policy change as a discursive problem, in: *Journal of Comparative Policy Analysis,* vol. 11, no. 1, pp. 65-82

Appendix to chapter 3

This appendix to chapter 3 is intended to provide some practical questions for the field research. To guide most of the case study research in WP3, some specific guidance can be found in these different tables. Content-wise, this appendix follows the same organisation as chapter 3, i.e. the three levels of analysis (context level, National Flood Policies and Regulations domain and case study level). For each level, a division between the two fields of expertise has been made: some tables list legal questions and some list policy analytical questions.

A3.1 Context level

A3.1.1 Legal analysis

Table A3.1 Legal topics and related questions at the context level

Topic	Questions
International context	Hyogo Framework UN Watercourses Convention Aarhus First Protocol to the Convention for the Protection of Human Rights and Fundamental Freedoms Human Rights UNCCC
European context	Floods directive Water Framework Directive The UNECE Water Convention and the London Protocol on Water and Health Civil protection
Legal systems	- What legal system is the basis of your country (common law, civil law / decentralised, centralised)? - On what legal basis do the public authorities act? - What are the legal tasks of those public authorities?
Legal principles	-Which (normative) principles do public and private actors take into account in designing Flood Risk Management Strategies (as laid down in EU Directives and national rules and legislation)? On which legal basis do these principles rely? Common law/written law? Constitutional law/regular law? What is the position of those principles in the legal hierarchy?
Administrative structure	What is the structure of the State (e.g. federal/regions/central state) and what is the division of competences with regard to environment/spatial planning/water ?

Liability	- Is Flood Risk Management and dealing with the consequences of climate change seen as a specific public task? - Which legal obligations and rights do actors/stakeholders/interested parties(?) have concerning (the effects of) Flood Risk Management? - Who is legally responsible in case of a flood defence structure's failure/breakdown? - Who is assumed liable for damage caused by floods? - What is the role and which types of criminal law are involved here? - Who should prosecute and when?
Compensation	- Do measures cause burdens (financial and non-financial loss) to citizens or companies? When yes: a. What kind of burdens (loss) can be distinguished (deprecation of property, loss of income, damage caused by inundation)? b. What kind of parties are the damaged parties (private households, companies, communities?)? - Are they being compensated for their loss? - What does the compensation consist of (financial, *in natura*)? c. - Do you have a regulation for compensation for loss, caused by measures against floods? If yes: d. Which legal principles underlie the regulation compensation (principle of *égalité devant les charges publiques*, private law, property rights)? Does the regulation specifically address loss causes by (measures against) floods? Does the regulation define who has to pays the compensation? Does the regulation provide criteria concerning the type/severity of the damage before the damage is being compensated? If no: Is loss/damage caused by (measures against) floods compensated on a different basis? a. Which legal principle underlies the compensation (principle of *égalité devant les charges publiques*, private law, property rights)? Can you describe the preparation and decision-making procedure in case of compensation? - Is there any possibility for the interested party to object to the decision concerning compensation (objection procedure)? - Is there any possibility to file an appeal against the decision in court? In case of a building interdiction applicable to certain flood risk areas, is there a compensation mechanism that allows to build in another area? - Is there are form of compulsory purchase involved and how and when does it apply?
Insurance	- Does a possibility exist for citizens or legal bodies to take an insurance policy against damage causes by floods? If yes: a. Is the insurance voluntary or obligatory? b. Which criteria apply for this insurance? - Does the insurance replace other (possible) forms of compensation? - Does (the height of) the insurance influence the value of property?
Enforcement	- Is there a control for the respect of legislation? Who is empowered of this control? Are there legal instruments in criminal law? Are these instruments used? How often? Are they efficient? Regarding corruption, conflicts of interests, abuse of power or misappropriation, what place is

	dedicated to criminal law in FRMS? - Who is responsible if building authorisations in flood risk areas are/become illegal? - How is the failure of Member States to cooperate (in international river basin districts) with other Member States/Non Member States enforced and is this enforcement considered adequate? (How) can it be improved?

A3.1.2 Policy Analysis

Table A3.2 Policy analysis topics and related questions at the context level

Topic	Questions
Physical circumstances	how can we characterize rainfall patterns, climate change trends, altitude, gradient in a specific country or case through a political analysis?
Culture	- If relevant/salient: what type of national culture characteristics can explain shifts in FRM? (e.g. the German are known to be uncertainty avoidant, less so the English and the Dutch. France and Belgium are much more hierarchically oriented than are The Netherlands etc. Are there other prominent issues than should be taken into account to understand the political situation in which FRMSs are embedded, such as the transition from a communist system to a market economy in Poland or general depiction of some prominent indicators like population density, GDP etc.? - Administrative culture – e.g. consensus oriented, highly centralized; general preference for privatization or not etc. - Is the case study area part of an international river basin? - Political culture: how can we describe the political culture of the State? Presently, what is the political-ideological system?
Legal system	- Main features of the legal system (e.g. common law system; are court decisions made by laymen (juries) or not; do publications by legal scholars automatically receive a legal status or only after the text has been used in a court decision) etc. - Link between private and public law. Are there some oppositions/resistances?
Major socio-economic developments	- E.g. economic crises, means of development, type of economic policies
risk perception	- Differences in risk perception: are there discrepancies between risk perception among actors or institutions?
Historical events and related responses	- E.g. floods, recent infrastructure projects, official shifts in policy.

A3.2 National Flood Policies and Regulations domain

A3.2.1 Legal analysis

Table A3.3: Legal topics and related questions in the National Flood Policies and Regulations domain

Topic	Questions
Legislation	- In which national legislation is Flood Risk Management embedded? - How are flood risk maps prepared? What purposes is the map designed to serve (e.g. planning, public information, emergency management? What are the designations used? What is permitted or required in each designation (e.g. what are requirements for land use and built form?) - What are the different categories of watercourses applied? - What are the edges of the watercourse in each category? - Are there legal instruments that enable the State to buy real estate or to forbid construction? Are special rules applied to reconstruction after disaster? Is it possible to forbid reconstruction after disaster? - Who is responsible for ensuring effective drainage of land? Who is responsible for which classes of river? For what? Is there a different owner for each class of rivers? - Who is responsible for doing what in each category (where the what includes capital works, maintenance, dredging, water quality, the flow regime etc)? - How are areas for emergency flood storage determined and implemented? How are areas where managed retreat will be adopted determined? Who is responsible for determining those areas?
Financing water management	- How is water management financed (taxes/levies)?
Substantive norms: a) standards; b) Instruments	- Which legal and case law based substantial norms and standards embed and structure the development and implementation of the policy and what is their legal status? - How do they influence actual decision making? - Which informal material norms embed and structure the development and implementation of the policy (e.g. the importance of practical guidance or practice rules)? - Which instruments can be used to effectuate Flood Risk Management Strategies? - How are spatial planning instruments related to each other? Are they legally independent? Is the spatial link between these regulations coherent with the legal link? If not how are they related? - Which spatial planning instruments are most prominent in the legal framework to enhance Flood Risk Governance? (e.g. water test)?

Procedures	- What are the relevant formal procedural norms that embed and structure the development and implementation of the policy (e.g. norms formalizing planning procedures, norms requiring environmental impact or water assessments or tests, norms regarding public participation, legal protection and legal standing of stakeholders?
Integration	- Are the rules of environmental law separated from the rules of urban planning (separation of the legal system)? Is the relation to environmental preservation / biodiversity legal provisions defined in the legal framework? - Is Flood Risk Management incorporated into water management in general? (Interrelation WFD and FD): are flood risk management plans integrated into river basin management plans? - To what extent are Flood Risk Management Strategies related to (other) climate change adaptation strategies? - Is Flood Risk Management integrated with spatial planning? Are different zones used according to the level of risk? Are there technical regulations? - To what extent can Flood Risk Management Strategies be connected to other spatial planning interventions, potentially leading to economies of scale and 'no-regret' solutions? - Is civil protection (preparation and recovery) integrated with Flood Risk Management?
Transnational cooperation	- What are transnational cooperation structures with regard to Flood Risk Governance and how can they be improved? - How are the cooperation requirements put forward by the Floods Directive (eg article 5.2 of the FD) implemented in the Member States? (To what extent) are efforts coordinated with other Member States)? - Which instruments are used to cooperate in international river basin districts (instruments provided by the European legislative framework, or existing international or bilateral cooperation forms)?

A3.2.2 Policy analysis

Table A3.4: Actors and actor coalitions

Who are the actors involved at nationwide level in Flood Risk Management?	- Who are the actors that most strongly influence the process of Flood Risk Management? - Who are peripheral players? And on what criteria do you prioritize that? - Who are important actors at national level in Flood Risk Management (e.g. central government, parliament, representatives of local governments (associations of elected representatives), experts and researchers, economic actors, representatives of NGO's or individuals? To which administrative areas do these actors refer (national, regional, basin, local)?
Governmental actors at a central and a decentral level	Description of the National Flood Policies and Regulations domain: - Which levels of government are involved in developing and implementing the policies and measures? - Which actors represent flood-relevant policy domains such as spatial planning, housing, risk management, disaster management, or shipping and at what level (EU, national, regional, local)? - Which roles have the public actors played in developing and implementing the policy? -To which functional perimeters or areas do actors refer?
Experts and	- Which type of experts are involved in the process (e.g. public, private,

researchers	local, regional, national, international)? - Which private actors have been involved in developing and implementing the policy (citizens, industries, agriculture)? - When did these private actors become active in the FRGA? - Why have they been involved and what does this imply for the public-private divide (what is seen as public and what as private tasks and responsibilities)?
Economic actors	What are the main economic sectors involved in the decision making processes?
Representatives of civil society (NGO's / associations, or users, citizens)	(How) civil society organisations involved in decision making processes?
What are important/dominant actor coalitions?	- What are important actor coalitions? How can the modes of interaction between these actors be characterised (e.g. conflicts, cooperation, partnerships, coalitions, ignorance)? How have they evolved? - Which actor coalitions can be identified and what do the actors involved share (discourses, complementary or identical interests)? - Have any actors opposed the development and implementation of a policy and which counter-coalitions have been formed?
Interaction patterns	- Which formal and informal interaction patterns can be identified? - What is the frequency of interactions? - How do the public and private actors coordinate their tasks? - How is public participation organised? - Which actors have taken the lead in developing and implementing certain policies?

Table A.3.5: Resources and power

What resources are used by actors involved in Flood Risk Governance?	- On which types of resources (financial, informational etc) are the powers of the different actors in a FRGA? - Which types of resources are exchanged within a FRGA and between which actors? To what extent have these arrangements been formalised (e.g. policy agreement; convention; charter; contractual commitment; decree; circular)?
Legal resources	- How are legal powers divided over competent authorities (and possibly other actors, e.g. stakeholders in the context of participation processes, scientific advisors etc)? - Which actors have formal decision making power?
Financial resources	- Which actors are in control of the financial means necessary for developing and implementing policies and measures? - Which type of financial resources can be identified (e.g. private, public (fiscal, subsidies, a levy)? - Which actors involved have fiscal autonomy to raise funds for developing and implementing policies; and which actors depend on others for finances?
Knowledge resources	- Which knowledge networks are involved in developing and implementing policies? - Which actors have their own knowledge institute? - Which actors have a dominant knowledge base?
Infrastructures/structural measures that are in place	- What are the infrastructures/structural measures that are in place? - To whom belong flood defence infrastructures and other devices?
Technical skills	- Which actors have which skills in policy formulation and implementation? - Are there any non-transferable skills? - Are there any fields of non-shared expertise ? - What are relevant interaction skills and to what extent do actors have these skills?
Informal political networks	- Which actors have informal contacts with decision makers? - What informal cooperation and coordination structures are used between actors, levels and sectors? - Are there any training resources and who has them at their disposal?

Table A3.6 Rules of the game

Topic	Questions
Constitutional rules	- Is there any constitutional provision related to flood relevant policies? If so, which actor is referring to it during the decision making process?
Legislation	- In which legislation are flood relevant policies structured and embedded (EU Directives, national laws, ordinances, regulations)? - How can the legal system be described (common law system, civil law system, others)? In this context it is important to identify the effect of the Floods Directive. As a matter of fact the Flood Directive may change the Flood management rules of the game of Flood Risk Governance in each Country
Substantive norms, standards and instruments	- Which legal and case law based substantial norms and standards embed and structure the development and implementation of flood-relevant policies and what is their legal status? - How do they influence decision making? - How (by which instruments) are property rights regulated? - How are distributional effects at the national, regional, river basin and local level deal with (for example expropriation, compensation, mitigation, nothing)? - Which informal material norms embed and structure the development and implementation of flood relevant policies (e.g. the importance of practical guidance or practice rules)?
Procedures	- What are relevant formal procedural norms that embed and structure the development and implementation of flood relevant policies (e.g. norms formalizing planning procedures, norms requiring environmental impact or water assessments or tests, norms regarding public participation, legal protection and legal standing of stakeholders)? - What remedies are available? - What are the relevant informal procedural norms that embed and structure the development and implementation of the flood relevant policies (e.g. cultural norms concerning public participation, cultural norms concerning decision making, consensus-based or hierarchical, 'standard operating procedures' among civil servants)?

Table A3.7: Discourses

Topic	Questions
Scientific paradigms	- What is the dominant background of people involved in developing and implementing the flood relevant policies (natural/social sciences)? - What are the dominant storylines related to the development and implementation of flood relevant policies (e.g. technocratic, ecosystem-based or a more open form of reasoning)? - What is the position of uncertainties concerning economic development and regional consequences of climate change in scientific paradigms and scientific debates?
General policy normative programs, objectives and concepts	- What are the ruling normative programmes in which flood relevant policies are? How are these policy objectives framed and which hierarchy of values can be discerned? - What are the ruling policy concepts related to flood relevant policies (e.g. "integrated resources management", "integrated river basin management", " Space for the river" , "multiple levels of safety", "safety chains")?
Historical metaphors and narratives related to the public private divide, the framing and communication of risks and uncertainties, the interpretation and translation of normative principles etc…	- What narratives concerning historical developments and (shock) events are reflected in developing and implementing the policy? -What goals, values, problem perceptions, visions are shared by multiple types of actors at the NFPR level? Thus, what are the dominant discourses on that level? -How dominant is the risk-based approach in flood risk policies in your country? -How is the vulnerability approach operationalized? Which new strategies emerge? -Do we see mainstreaming of the new practices, developed in niches? -Is the regime receptive for change? -How can we describe the role of researchers (university scientists, policy analysts, consultants) in Flood Risk Governance? -Which flood-related problems can be distinguished? When did they get the attention of policymakers? When did they get the attention of politicians? -Did flood problems enter political agendas (both at the lower and higher government levels)? If so, were decisions taken to make profound changes in approaches, policies or legislation? -How were flood issues framed? Which policy images were created and used and by whom? What is the significance of this for explaining stability and change in Flood Risk Governance? -In the NFPR, can we find evidence of learning? If so, how did it take place and why? How probable is it that this learning contributed to (the absence of) policy change? - In what venues are flood relevant policies made (e.g. parliaments, conferences, state agencies, Ministries, universities, the media)?

A3.3 Case study level

A3.3.1 Legal analysis

Table A3.8 Legal topics and related questions

Topic	Questions
Prevention/Spatial Planning	- Does some exemption/dispensation (allowing building in flood risk areas) exist for especially high nuisance infrastructures (e.g. water treatment plant/fire station/power plants)? Do those exemptions/special treatments lead to a worsening of flood risks? Is there a link between this sort of exemption and certain planning documents? - Are natural flood protection measures (e.g. salt marshes) promoted in the legal framework and how? - Who controls spatial development? How does this take flood risks into account? What designations are used for risk zones within the flood plain and what limitations are applied to development within each of those zones?
Defence	- Does your country have standards for water safety or flood defence structures? When yes: - In which legislation are those standards embedded? - Which legal instruments are used for the construction and management of flood defence structures? -Which procedures are applicable to the construction and management of flood defence structures?
Mitigation	-Do building construction regulations either include provisions for flood proofing or for incorporating robust construction? What are these requirements and where do they apply? And who decides upon these requirements? - Is there any type of control to check that these building requirements have been made (control of conformity/compliance)?
Preparation	- How is the flood warning system at the case study level arranged? Is meteorological/hydrological forecasting integrated? Who disseminates the forecasts to whom? Who prepares the warnings? Who disseminates the warnings? Who plans for evacuation? - How is the evacuation system arranged? - Are there any planning documents for the emergency plan/evacuation? Who should implement them? Who is responsible if the evacuation happens to fail? - Is it compulsory to inform the public? In which cases (when you sell or rent a house, during school classes, when you implement a flood risk legal planning document)? - (How) is the population prepared to such eventualities? Is there a legal obligation for local authorities to train the population? Are there special disaster simulations for high risk potential areas? How often?
Recovery	-Who is/can be compensated for what losses from what kinds of flood; by whom, through what mechanism, under what conditions? Is there a possibility for insurance companies to contest the decision that a disaster has taken place, so they do not have to pay?

Appendix to chapter 6

A6.1 Tentative annotated outline of the national country reports

Chapter 1: introduction

The WP leader, the WP co-leaders and the project coordinator will write a first draft of the introductory chapter. This draft will serve as a template. Project partners will be requested to add specific information on their country/case studies and on their research methodology, to guarantee a good balance between a uniform approach and country-specific information.

This chapter motivates the relevance of studying your country within the STAR-FLOOD project. You will describe the vulnerability of your country to flooding risks. You will also explain how insights on your country (have the potential) to complement the insights of other countries.

The introduction text will also contain information on methodological issues, e.g.
-What are your criteria for selecting these case studies (and no other)? What is special about them? What are the characteristics of the case studies? E.g. what types of flooding are they dealing with?
-What is the object of analysis? Which Flood Risk Management initiatives will be studied in the case studies? It is recommended to analyse governance practices that are illustrative for the flood risk management approach in your country, but odd ones are also welcomed if it is efficient and it can inspire other countries.
-What is the level of analysis in the case studies? Case studies have been defined in the STAR-FLOOD research proposal as regions, but what is your interpretation of regional? This can vary from the level of neighbourhoods and villages up to the level of urban districts and even provinces. For reasons of cross-case comparability, it is recommended to use the same level of analysis in each of the case studies (in each of the countries). Our suggestion is to focus on the level of cities and/or urban districts.
-What kind of research techniques is being used? The analysis will draw together different strands of research, probably involving interviews, discussion groups (workshops) and document analysis. We adapt an approach broadly derived from the interpretative tradition, developing themes from interviews, workshops through an iterative process moving between transcripts, literature and the writing process itself to build our analysis.

Chapter 2: Country analysis (with a more detailed outline, as this is the first chapter that will be written by the young researchers)

<u>2.1 The context level</u>

2.1.1 General

a) Physical circumstances
b) Historical events and related responses

→ For example, the response after the 2010 floods in Belgium➔ The simplification of the water test was one of the responses to the 2010 floods, but we should be careful not to go into detail of the changes to the water test, before adequately explaining this instrument (this will be done in chapter B, the policy subsystem level).
→ Key turning points in Belgian water management throughout the 20-21th century:
1953 → only some dike elevations 1976 → Sigmaplan
1993-1995 → new FRGA in Maas
2000 → start revision Sigmaplan

2010 → water test, servitude procedure,

c) General characteristics of the demographic and socio-cultural context
   Individualisation, Europeanization, globalisation, living culture in Belgium, etc.
d) Major socio-economic developments

2.1.2 Administrative structure

a) General: e.g. Federal system in Belgium (division of competences by 1980 act in Belgium).
b) General administrative structure relevant for flood relevant policy and regulations domains (e.g. environmental law, water law, spatial planning).

2.1.3 Political and administrative culture

a) The administrative culture (e.g. in Belgium: consensus oriented; Tendency towards privatization);
b) The political culture (political balance in the system);
c) Public Opinion (risk perception and attitude towards water management).

2.1.4 Legal context regarding floods in your country

a) Legal System (e.g. civil law system, common law system)
b) Legal principles (This subsection aims to set out the legal principles taken into account in environmental and water legislation, as applied to flood related issues. Please only show THAT they are taken into account (using references). An analysis of HOW they are taken into account belongs to the analysis of the NFPR.
c) Legal Protection and Liability – This subsection aims to analyse the legal protection with regard to water management. It will be analysed to what extent property rights are balanced against the public interest of flood defence, and what the legal remedies are in case of e.g. expropriation. The liability angle will look into the legal responsibility in case a flood occurs, with consequential damages.
d) Compensation – This subsection builds upon subsection c, and will set out the regime for compensation.
e) Insurance – This subsection will set out the legal framework governing insurance regimes with regard to damage caused by floods.
   In the insurance area, in Belgium, there is an interesting division of competences between federal level and the Regions. At the federal level, the main legal instruments are the Royal Decree of 28 February 2007 and the Act of 17 September 2005, pursuant to which insurers may refuse to cover new properties in “high-risk areas”. In the case of Belgium the National Calamities Fund will be explained. In the Belgian context a fundamental shift was the milestone date of 23 September 2008, whereby the maximum tariffs of the “Tariff Office” are no longer applicable, in case the insurer covers a building for water damages in a high-risk area. In Belgium, the regions are responsible for delineating these high-risk areas.
f) Enforcement
   This subsection will analyse how compliance with the legislative is enforced. It will also analyse failure to cooperate (within Belgium, cross-regional, and also within International River Basin Districts).

<u>2.2 National Flood Policies and Regulations domain</u>

2.2.1 Legal frameworks governing floods in your country

Legal analysis can be conducted on the basis of the legal questions set forth in this report. The main legal frameworks relevant for Flood Risk Management (including water management, spatial planning and disaster management) should be discussed. As the overview below shows, this overview can be given for several items (including hard law, soft law, jurisprudence and policy documents) and at several levels of government in your country. Potential items to be discussed:

a) hard law;
   E.g. implementation of the Water Framework Directive and the Floods directive in national legislation
b) soft (non-binding) law, such as guidelines;
c) jurisprudence, and
   The analysis will also maximally make use of existing jurisprudence to gain further knowledge on the specific interpretation of the relevant provisions.
d) policy documents

Doctrine applies throughout these various subsections. Then, policy scholars may, in this scenario, add to the legal analysis in subsections (b) and (d)? For example, the legal analysis in Belgium will include the climate change adaptation plan of June 2013. It will be analysed to what extent this plan correlates with existing legal instruments.

Box x: Example: Belgium

The Flemish Region
→ Vlarem II, the Decree Integrated Water Policy and all the Executive Orders. Circulars, guidelines;
→ Preparatory works of the legal frameworks;
→ Legal instruments: e.g. Water Test, other spatial planning instruments ("signaalgebieden");
→ Climate change adaptation plan;
→ Jurisprudence of the Supreme Court and the Council of State, and comments on these various cases in literature.

The Walloon Region
Same comprehensive approach as Flemish Region. Interesting: Council of State has issued various judgments with regard to flood related issues in the Walloon Region.

The Brussels Capital Region
Same comprehensive approach as Flemish Region.

Cross-regional cooperation
Analysis of the coordination of legal instruments / provisions throughout the Regions, as embedded into the legal framework.

2.2.2 Analysis according to the four dimensions of the PAA

a) Actors and Actor Coalitions (outline varies per country based on administrative structure, e.g. in Belgium three regions will be discussed)
   → Questions included in D2.2.
b) Resources and Power (outline varies per country based on administrative structure, e.g. in Belgium three regions will be discussed)
   → Questions included on p. 28 of WP2.
   → The table below could be used to analyse the relationship between actors and resources at the end of sub-section b.

Table xyz: Overview of the relationship between types of actors and types of resources

	Legal	Financial	Knowledge	Infrastructure	Technical Skills	Political networks
Public						
xxx						
Xxx						
Market						
Xxx						
Civil Society						
Xxx						
Experts						

c) Rules of the Game (outline varies per country based on administrative structure, e.g. in Belgium three regions will be discussed)
   → Legal analysis.
   → For each Region, "Rules of the Game" will be split into three parts: (a) substantive provisions, (b) procedural provisions and (c) transnational cooperation.

d) Discourses (outline varies per country based on administrative structure, e.g. in Belgium three regions will be discussed)
   → Questions included on p. 31 – 32.
   → This Subsection splits into two parts: (a) at the level of policy formulation and (b) at the level of implementation.
   → The table below could be used to link discourses to relevant triggering factor(s), policy programmes, legal factors and consequences.

Tab. ABC: Overview of the discourse dimension relating paradigms to their triggers, relevant policy programs, describing their legal influence and general consequences; example in the cells is from The Netherlands

Paradigm	*Triggering factor(s)*	*Policy program(s)*	*Legal influence (?)*	*Consequences*
Integrated-water management	Environmental movement (increasing conscious + adverse consequences of engineering solutions + protest) High river discharge 1993, 1995	Commissie Becht (1977) Omgaan met water (1985) Boertien Commission I (1992)	Waterwet (?)	Water toets Room for the river Increase of number of actors, loss of power for RWS, EIA

2.2.3 Zooming in on the five Flood Risk Management Strategies

From a legal point of view, zooming in on FRMS in this phase of the research will enable legal analysis of the 5 FRMS at the case study level.

a) **Prevention** – Both legal scholars and policy analysts will provide their insights into prevention strategy.
   → In this chapter, it will be analysed, on the basis of the analysis carried out in the previous sections, to what extent flood risk prevention is put forward in the applicable legal frameworks. For example: plans pursuant to spatial planning policy, spatial development whilst taking into account flood risks, designations of risk zones

within the flood plain, the questions whether exemptions for high nuisance infrastructures such as water treatment plans.

b) Flood defence – Both legal scholars and policy analysts will provide their insights into Defence strategy.

→ It will be analysed how the strategy "Defence" is anchored into the legal framework.

→ Standards for water safety / flood defence structures, legal framework / instruments for the construction of flood defence structures.

c) **Flood Mitigation** – Both legal scholars and policy analysts will provide their insights into Mitigation strategy.

→ This subsection will analyse how the strategy "Mitigation" is embedded into the legal framework.

→ The analysis will include, for example, the tools of green infrastructure, water retention,

d) **Flood Preparation** – Both legal scholars and policy analysts will provide their insights into Mitigation strategy.

→ Here, the focus will be on the question whether the Regions provide for preparatory measures related to floods, and how these initiatives are coordinated across the regional border. For example, evacuation plans, information of the public, flood warning system,

e) **Recovery** – Both legal scholars and policy analysts will provide their insights into Recovery strategy.

→ It will be analysed how recovery from floods is legally safeguarded.

→ Note: insurance will have already been set out at the context level. However, here, we could go into more detail (e.g. adding jurisprudence and doctrine).

f) **Conclusions** with regard to the correlation between the strategies

→ In this subsection, it will be analysed how the five strategies correlate. It is also in this subsection, conclusions may be drawn with regard to the question whether a "shift" in FRMS can be noted.

Chapters 3/4/5: Analysis of the case studies

For climate change adaptation regional governance is needed. The case studies focus on how Flood Risk Management Strategies are put into practice at a regional scale. This implies analysing Flood Risk Management Strategies at the level of a city or an urban district. The first case study will be a 'test case'. From our experience in that case study we will draw conclusions on how to proceed with case study 2 and 3. If your country is a federalized country, we highly recommend choosing cities from various sub-national levels in order to broaden the scope. On the one hand, the case studies should be an illustration of the way your country deals with Flood Risk Management. On the other hand, case studies can also illustrate new and innovative governance practices that try to compete with the dominant approach at country level. In that framework, we welcome in-depth study of multi-actor, multi-sector, multi-level governance practices, already (briefly) discussed in the country analysis.

Here are some preliminary thoughts on a table of content for the chapters on the case studies. As for the country analysis, lawyers and policy analysts will cooperate intensely in researching the case studies and drafting the case study chapters.

-Characterizing the city and its flooding risks: a) What are the characteristics of the city? Number of inhabitants, population density, economic importance, wealth of the city and its population…; b) Flood risks in this city? Geography? How does the water system work? When do flood risks arise? History of floods?

-**Traditional flood risk management policies, as operationalized in this city**: a) Identifying and describing how 'traditional' flood risk management policies are operationalized in this city; b) Analysing and characterizing governance arrangements, typical for flood risk management strategies

in this city. Explaining how they have become institutionalized; c) Reflecting if these arrangements meet with the criteria of appropriateness and resilience (including legitimacy, effectiveness, and efficiency)

-**New flood risk management policies:** a) Identifying and describing pilot projects, developed in order to create institutional space for experiments with alternative strategies; b) Analysing and characterizing new arrangements-in-development, installed to install and implement these pilot projects. Lawyers study legal obstacles and stimuli for installing and implementing these pilot projects; they examine what the implications would be if these pilot projects would become the new standard; they reflect on the risks of experimenting and tailor-made solutions vis-à-vis normative principles such as legal certainty, equal treatment… Policy analysts analyse discourses on these pilot projects; why are they installed; who participates for what reasons; which informal rules are developed; what are the resources? C) What are criteria to evaluate these new arrangements-in-development; what are lessons to be learned from these pilot projects, both from a legal and policy analyst perspective.

-**General conclusions on flood risk management strategies in this city:** a) What are the strengths, weaknesses, opportunities and threats for flood risk management in this city, based on the opinions of interviewees, participants to workshops, authors of documents on flood risk policies in this city… (PA); b) How do we, as lawyers and policy analysts, reflect on the design of flood risk governance arrangements in this city? Based on the case study analysis, how do we (preliminary) evaluate their appropriateness and resilience? (see operationalization of these evaluation criteria in the respective deliverable of WP2). (PA and L)

Chapter 6: Case study comparison

p.m.

Chapter 7: Explanation and evaluation

p.m.

Conclusions

p.m.

The conclusions should bring together all relevant information needed for cross-country comparisons in WP4. The content of this chapter should be discussed with the leader and co-leaders of WP4.

A6.2 Detailed country- overview of the countries and cases (from the STAR-FLOOD research proposal)

Table A6.1 Criteria for country selection; diversity in potential explanatory factors for Flood Risk Governance

Country	Preliminary characterization of attempts to broaden FRSs	Significance of flooding	Administrative structure and culture
Netherlands	Towards flood response strategies: mitigation, preparation and recovery	High	Consensus-based
United Kingdom	Nearly complete spectrum of strategies adopted	Medium	Centralized
Belgium	Towards risk prevention and towards flood response strategies: mitigation and preparation	High	Federal country
Sweden	Towards broadening general contingency strategies (e.g., local rescue activities); establishing FRSs following FRD requirements	Minor	Decentralized
Poland	Enhancing flood defence in response to requirements stemming from the Floods Directive and adaptation to climate change	High	Transition towards democracy and market system & more empowerment of regional and local authorities
France	Towards vulnerability reduction and mitigation strategies	High	Centralized, with tendencies towards decentralization.

Table A6.2 Case selection criteria; diversity in local/regional explanatory factors for Flood Risk Governance

Cases	Physical context	Vulnera-bility	Type of floods (fluvial/ pluvial)	Preliminary characterization of attempts to broaden the strategies
Netherlands				
Rijnmond Drechtsteden	Large city, delta of two large rivers, close to sea	High	Fluvial/ pluvial/tidal	Mainly towards flood mitigation
Nijmegen area	Medium-sized city, close to large river (Waal)	High	Mainly fluvial	Towards flood mitigation & integration of water and ecology (“Space for the river”)
Westergouwe/ Zuidplaspolder	Deepest polder of Europe	High	Fluvial/ pluvial	Towards flood mitigation
United Kingdom				
London	Centre developed at lowest bridging point largely consisting of reclaimed land; also development in the flood plains of the tributaries of the Thames	High	Pluvial/ fluvial/ tidal	Towards pro-active spatial planning and flood mitigation
Hull	Lying almost exclusively on flood plains	High	Pluvial/tidal	Towards flood defence & development of forecasting

				and warning systems
Glasgow	Lying at the mouth of a relatively large rural catchment with some high ground	Moderate	Pluvial/ flash floods	Towards upland storage on agricultural areas; use of SUDS in urban areas.
Belgium				
Antwerp area	Densely populated area near river Scheldt	High	Fluvial/tidal	Mainly flood defence; limited attempts at broadening FRSs
Geraardsbergen area	Small historic city near the rain fed river Dender	High	Pluvial and fluvial	Towards risk prevention and flood mitigation
Ghent area	Densely populated city in a water prone area, along the rivers Leie and Scheldt	Moderate / high	Pluvial and fluvial	Towards city flood mitigation
Sweden				
Gothenburg area	Densely populated area near river Göta Älv	High	Pluvial and fluvial	Towards risk prevention, flood preparation, flood recovery
Haparanda area	Delta city along the Torneå river	Moderate	Seasonal fluvial caused by high flows and ice plugs	Towards flood preparation and flood recovery
Karlstad	Medium-sized city near river of Klarälven and the lake Vänern	Moderate	Fluvial	Towards risk prevention, flood preparation, flood recovery
Poland				
Slubice	Border town on the Odra (opposite to Frankfurt/Oder), in depression at high river stage	High	Fluvial and pluvial	Mainly flood defence
Poznan county	County around a large town on the River Warta	Medium (town)/ high (county)	Fluvial and pluvial	Towards flood mitigation (storage areas, rainwater management)
Wroclaw	Large town on the Odra	High	Fluvial and pluvial	Towards flood mitigation (creating storage volumes upstream, in Odra basin).
France				
Nice	Large coastal city located nearby two major rivers (Var and Paillon)	High	Pluvial (urban run-off)/fluvial (flash floods)	Towards vulnerability reduction, mitigation and protection
Nevers	Medium-sized city located along the Loire river	Moderate	Fluvial (slow floods)	Since 2007, attempts have been made to implement all flood management strategies
Le Havre	Coastal city located along the Seine river and its tributaries (Lézarde)	High	Fluvial (flash floods)	Towards flood mitigation: flood retention areas in the upper (rural) part of the river basin