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 <u>24 months</u> 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).	

Work Package 2: Assessment framework and methods for the empirical research

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.