

# Forecast-based Financing in Urban Informal Settlements – A Viable Disaster Risk Management Strategy?

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**Forecast-based Financing in Urban Informal Settlements  
- A Viable Disaster Risk Management Strategy?**

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#### Abstract

*Rationale:* Urban informal settlements are vulnerable and exposed to hazards. Weather forecasting is possible and provides a “window of opportunity” to push cash or aid to vulnerable dwellers before the disaster strikes. Forecast-based Financing is a framework, which provides this system, and it has had great success with rural pilots. Currently no research has investigated the implementation of Forecast-based Financing in urban informal settlements. *Research question:* The thesis investigates the obstacles and benefits of implementing Forecast-based Financing in urban informal settlements and discusses whether Forecast-based Financing is a viable disaster risk management strategy in urban informal settlements. *Methodology:* The thesis uses three scoping studies to investigate what is known about Forecast-based Financing in scientific and grey literature and what is known in scientific literature about preparedness work related to floods in urban informal settlements. The scoping studies are the basis for conducting five semi-structured interviews with FbF practitioners. *Findings:* Several obstacles and benefits of implementing Forecast-based Financing in urban informal settlements were identified. Obstacles varied from lack of commitment from local governments, large numbers of actors, general vulnerability, identifying appropriate actions, lack of communication and coordination, heterogeneous communities, attracting new dwellers, safety issues, and lack of long-term thinking. Benefits were related to being able to act faster and not waiting until after the disaster, financial efficiency, keeping dwellers from adopting negative coping strategies and linking actors while improving communication and coordination. *Conclusion:* Benefits outweigh obstacles and Forecast-based Financing is a viable disaster risk management strategy in urban informal settlements.

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# Table of Contents

<b>Acknowledgements .....</b>	<b>4</b>
<b>1. Introduction .....</b>	<b>9</b>
1.1 Rationale and research aim.....	9
1.2 Research Questions and Objectives.....	10
1.3 Thesis Structure .....	12
<b>2. Background.....</b>	<b>13</b>
<b>3. Scoping Studies Methodologies .....</b>	<b>15</b>
3.1 What is a scoping study?.....	15
3.2 Scoping Studies.....	16
3.3 Scoping Study Limitations.....	16
3.4 Scoping Study 1: FbF in Scientific Literature.....	17
3.4.1 Step 1: Identifying Research Question .....	17
3.4.2 Step 2: Identifying Relevant Articles.....	17
Database Selection .....	17
Search Query Identification.....	18
3.4.3 Step 3: Article Selection.....	19
Literature Lists and “Cited By” .....	19
3.5 Scoping Study 2: FbF in Grey Literature.....	21
3.6 Scoping Study 3: Preparedness Work in Urban Informal Settlements.....	23
<b>4. Step 4: Analysis and Results from Scoping Studies .....</b>	<b>25</b>
Overall analysis.....	25
4.1 Step 4: Overall Analysis of Scoping Study 1 “Scientific Articles”.....	25
Methodologies from Scoping Study 1 “Scientific Articles” .....	27
4.2 Step 4: Overall Analysis of Scoping Study 2 “Grey Literature”.....	28
4.3 Step 4: Overall Analysis of Scoping Study 3 “Preparedness Work” .....	30
4.4 Step 4: In-depth Analysis of Scoping Study 1 & 2 “Scientific/Grey Literature on Forecast-based Financing” .....	32
4.4.1 Forecast-based Financing Framework in Literature.....	34
Forecast-based Financing Framework in Scientific Articles.....	34
Forecast-based Financing Framework in Grey Literature.....	34
4.4.2 Obstacles and Benefits of Implementing Forecast-based Financing .....	35
Obstacles of C&C in Scientific Articles.....	35
Obstacles of C&C in Grey Literature.....	36
Benefits of C&C in Scientific Articles.....	37
Benefits of C&C in Grey Literature.....	37
Obstacles of Actions in Scientific Articles.....	37
Obstacles of Actions in Grey Literature.....	38
Benefits of Actions in Scientific Articles.....	38
Benefits of Actions in Grey Literature.....	39
Obstacles to Scale in Scientific Articles.....	39
Obstacles to Scale in Grey Literature.....	39
Benefits of Scale in Grey Literature.....	39
Obstacles of Forecasts in Scientific Articles.....	40
Obstacles of Forecasts in Grey Literature.....	40
Obstacles of Technology in Scientific Articles.....	41
Obstacles of Technology in Grey Literature.....	41
Obstacles to Response Focus in Scientific Articles.....	41
Obstacles to Response Focus in Grey Literature.....	42
Obstacles to Donors, Funding and Finances in Scientific Articles.....	42
Obstacles to Donors, Funding and Finances in Grey Literature.....	42

<i>Benefits to Donors, Funding and Finances in Scientific Articles</i> .....	42
<i>Benefits to Donors, Funding and Finances in Grey Literature</i> .....	43
<i>Obstacles to Policies in Scientific Articles</i> .....	43
<i>Obstacles to Capacity in Grey Literature</i> .....	43
4.4.3 Summary of results from scoping study one and two.....	44
4.5 Step 4: In-depth Analysis of Scoping Study 3 “Preparedness Work” .....	45
4.6 Summary of results from scoping study three .....	49
5.1 Semi-structured Interviews Limitations.....	52
5.2 Results from Semi-structured Interviews with Professionals .....	53
<b>6. Discussion/Conclusion</b> .....	<b>61</b>
FbF and Preparedness in Literature and by Pratictioners .....	61
Obstacles of Implementing FbF in UIS .....	61
Benefits of Implementing FbF in UIS .....	63
Is FbF a viable DRM strategy in UIS?.....	63
Further research.....	64
<b>References</b> .....	<b>65</b>
<b>Webpages</b> .....	<b>73</b>
<b>Appendices</b> .....	<b>74</b>
Appendix 1: Keywords Scoping Study FbF scientific/grey literature .....	74
Appendix 2: Keywords Scoping Study Preparedness Work In Urban Informal Settlements.....	75
Appendix 3: Interview Protocol.....	76
Appendix 4: Scoping Study 1, Frequency of Factors in Scientific Articles.....	84
Appendix 5: Scoping Study 2: Methodology .....	85
Appendix 5.1: Scoping Study 2: Frequency of Factors .....	88
Appendix 6: Methodology Trends in Scoping Study 1.....	90
Appendix 7: Scoping Study 3: Methodology .....	91
Appendix 7.1: Scoping Study 3: Frequency of Factors .....	93
Appendix 8: Methodology Trends in Scoping Study 3.....	94
Appendix 9.1: Interview with Alexandra R�uth, GRC. ....	95
Appendix 9.2: An anonymous representative, RCCC. ....	103
Appendix 9.3: Interview with Catalina Jaime, RCCC. ....	110
Appendix 9.4: Interview with Aynur Kadihasanoglu, ARC.....	116
Appendix 9.5: Interview with Anne Mette Meyer, DRC. ....	120
Appendix 9.6: Email from Elisabeth Stephens, Reading University.....	129

## **List of Figures**

- Figure 1: EM-DAT Number of Floods 1900-2018
- Figure 2: Overview of Scoping Study 1 For Scientific Literature
- Figure 3: Overview of Scoping Study 2 for Grey Literature
- Figure 4: Overview of Scoping Study 3 About Preparedness in Urban Informal Settlements
- Figure 5: Scientific Articles on FbF by Year
- Figure 6: Grey Literature on FbF by Year
- Figure 7: Literature About Preparedness in Urban Informal Settlements by Year
- Figure 8: Frequency of Factors on FbF in Scientific Articles
- Figure 9: Frequency of Factors on FbF in Grey Literature
- Figure 10: Frequency of Factors on Preparedness in Urban Informal Settlements

## **List of Tables**

- Table 1: Scientific Articles Types of Sciences
- Table 2: Scientific Articles by Region and Regional Focus
- Table 3: Grey Literature by Region and Regional Focus
- Table 4: Grey Literature by Organization
- Table 5: Preparedness in Urban Informal Settlements Documents by Subject Area
- Table 6: Preparedness in Urban Informal Settlements Documents by Region and Regional Focus

## **List of Appendices:**

- Appendix 1: Keywords Scoping Study Forecast-based Financing scientific/grey literature
- Appendix 2: Keywords Scoping Study Preparedness Work In Urban Informal Settlements
- Appendix 3: Interview Protocol
- Appendix 4: FbF Frequency of Factors in Scientific Articles
- Appendix 5: Scoping Study 2: Methodology
- Appendix 5.1: Scoping Study 2: Frequency of Factors
- Appendix 6: Methodology of Trends in Scoping Study 1
- Appendix 7: Scoping Study 3: Methodology
- Appendix 7.1: Scoping Study 3: Frequency of Factors
- Appendix 8: Methodology of Trends in Scoping Study 3
- Appendix 9.1: Interview with Alexandra R uth, GRC
- Appendix 9.2: Interview with an anonymous representative, RCCC
- Appendix 9.3: Interview with Catalina Jaime, RCCC
- Appendix 9.4: Interview with Aynur Kadihasinoglu, ARC
- Appendix 9.5: Interview with Anne Mette Meyer, DRC
- Appendix 9.6: E-mail from Elisabeth Stephens, Reading University

## List of Acronyms

AbF	Action-based Forecasting
CB	Capacity Building
C&C	Communication & Coordination
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DRC	Danish Red Cross
EA	Early Action
EAP	Early Action Protocol
EW	Early Warning
EWS	Early Warning System
EWEA	Early Warning Early Action
FbF	Forecast-based Financing
FEMA	Federal Emergency Management Agency
GloFas	The Global Flood Awareness System
GRC	German Red Cross
IFRC	International Federation of Red Cross/Red Crescent Societies
IbF	Impact-based Forecasting
IRI	International Research Institute for Climate and Society
KRC	Kenyan Red Cross
NGO	Non-Governmental Organisation
NS	National Societies of Red Cross
RCCC	Red Cross/Crescent Climate Centre
SOP	Standard Operating Procedure
SSS	Social Security Systems
UIS	Urban Informal Settlements
UNDP	United Nations Development Programme
UNISDR	United Nations Office for Humanitarian Aid
WFP	World Food Programme
WMO	World Meteorological Organization

# 1. Introduction

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## 1.1 Rationale and research aim

Due to the still increasing world population, which will hit 8.5 billion in 2030 and 10 billion in 2050, there are more people every year (Lutz et al., 2014). The majority of the increase during recent decades has happened in the developing world (UN-DESA, 2014) and megacities<sup>1</sup> are no longer unusual. In 1990 the world had 10 megacities, but in 2014 the number reached 31 while the 2030 prognosis predicts 41 (UN-DESA 2016). In 2007, the world's urban population exceeded the rural, and if urbanization continuously rises, the world will have a stunning 66% of the population in cities in 2050, which is almost reverse of the 70% rural population from 1950 (UN, 2014).

Urbanization is not entirely devastating, but it can result in higher living standards and better opportunities of employment, which is the rationale behind migrant settlement in urban informal settlements (UIS) in unattractive and hazard prone areas (Lucci et al, 2015; Deely et al, 2010). According to UN-Habitat (2003), UIS are vulnerable to hazards and often without any basic services such as running water, sanitation, electricity, sewers, and roads. UIS are growing and UN-Habitat (2014) states that 1/3 of all urban inhabitants live in UIS and in sub-Saharan Africa it rises to more than 50%. UIS pose risks to the inhabitants since they are vulnerable to hazards, and Coppola (2011) emphasizes trends towards more frequent and extreme hazards. Consequently, UNISDR (2015) aims to prevent and reduce disaster risk with “The Sendai Framework for Disaster Risk Reduction” and specifically mentions the need to enhance disaster preparedness for effective response.

The ability to forecast weather provides humanitarian organizations with a “window of opportunity” from the moment a hazard is forecasted until the disaster hits. With the system set up, organizations could communicate, transfer money, or deliver aid before the disaster strikes. This gap was not being utilized until the German Red Cross (GRC) and Red Cross Climate Centre (RCCC) started piloting Forecast-based Action (FbA) projects. Now GRC and RCCC have created a framework called Forecast-based Financing (FbF). Pilots were launched in Uganda, Togo, Bangladesh, Ethiopia, and Peru. The programs are relatively small and focus on a few thousand families in rural areas, and therefore Stephens et al (2015) encourage

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<sup>1</sup> Cities with more than 10 mio. inhabitants (UN-DESA 2016)

the scientific community to shed light on how FbF can be implemented on larger scales and in other contexts.

The literature lacks studies on FbF in an urban context in order to plan the implementation appropriately. Urbanization is here to stay, and UIS are still increasing in number and size. FbF in UIS must be investigated in order to determine the implementation obstacles<sup>2</sup> and benefits<sup>3</sup> before projects on large scale and in urban contexts can be launched.

The research aim of the thesis is to: *increase knowledge about the obstacles and benefits of implementing FbF as a viable<sup>4</sup> disaster risk management strategy to lower impacts and consequences of floods in UIS*. The research questions are limited to flood hazards because they are forecastable and relevant in UIS. The research questions and objectives are presented below.

## **1.2 Research Questions and Objectives**

The aim of the thesis was met through two scoping studies on scientific- and grey literature on FbF in general and a third scoping study on preparedness work related to floods in UIS. Five semi-structured interviews were conducted with professionals working with FbF and UIS. The scoping studies were chosen to answer the first three research questions and interviews were used to answer research question four. All scoping studies and the interviews were used to answer the fifth research question, including sub-questions. Research question number five is the main research question, where the others assist to answer the fifth. In the thesis they are dealt with in a chronological order.

### **Research Questions**

1. What is known in the scientific literature about Forecast-based Financing?
2. What is known in the grey literature about Forecast-based Financing?
3. What is known in the scientific literature about preparedness work related to floods in urban informal settlements?
4. What benefits and obstacles of Forecast-based Financing are known by practitioners?
5. Is Forecast-based Financing a viable disaster risk management strategy in urban informal settlements?

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<sup>2</sup> "A thing that blocks one's way or prevents or hinders progress." (Oxford Dictionary)

<sup>3</sup> "An advantage or profit gained from something" (Oxford Dictionary)

<sup>4</sup> "Capable of working successfully" (Oxford Dictionary)

- What are the potential benefits of implementing Forecast-based Financing in urban informal settlements?
- What are the obstacles to implementing Forecast-based Financing in urban informal settlements?

### **Research Objectives**

- Conduct scoping studies of scientific and grey literature on Forecast-based Financing about preparedness work related to floods in urban informal settlements.
- Conduct semi-structured interviews with relevant professionals working with Forecast-based Financing.
- Identify the obstacles and benefits of implementing Forecast-based Financing in urban informal settlements.
- Determine if FbF is a viable strategy in urban informal settlements.

### **1.3 Thesis Structure**

To better understand the red thread of the thesis here follows a brief overview of the structure after the introduction.

- *Chapter 2: Background*
  - Presents the background and elaborates on the rationale.
  
- *Chapter 3: Methodology Scoping Studies*
  - Presents the methodology of scoping studies and outlines the first scoping study.
  
- *Chapter 4: Analysis and Results from Scoping Studies*
  - Presents the findings from three scoping studies.
  
- *Chapter 5: Methodology and Results from Interviews with Professionals*
  - Outlines the methodology of semi-structured interviews and presents findings from five interviews with professionals.
  
- *Chapter 6: Discussion & Conclusion*
  - Discusses key findings related to UIS and concludes the research questions.

## 2. Background

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This section elaborates on the rationale of investigating Forecast-based Financing (FbF) as a concept and implementing it in urban informal settlements (UIS).

The Sustainable Development Goals (SDG) goal 11 “Sustainable cities and communities” aims to “make cities and human settlements inclusive, safe, resilient, and sustainable” (UN, 2015), and 149 countries (May 2017) have fully or partially implemented national-level urban policies regarding the achievement of the goal (UN, 2017). The economic development in many developing countries and the improvement of living standards are generally positive, but there is still a long way to achieve the SDG before 2030.

The Hyogo Framework for Action aims at strengthening disaster preparedness for effective response at all levels and ensures that Disaster Risk Reduction (DRR) is a national and local priority with a strong institutional basis for implementation (UNISDR, 2005).

The Paris agreement focuses on the rising climate issues the planet is facing and the resilience building that is needed (OECD, 2005).

The varying frameworks and aims of the reports align with the purpose of FbF, which makes it relevant for development; preparedness and response work in the humanitarian sector. UNDP (2012) states that every \$1 spent on prevention saves \$7 in response and the difference lies in reacting pre or post disaster. Many organizations advocate preparedness, and it can save lives, time, and increase the efficiency of aid and funds. Despite the advocacy, Kellet & Caravani (2013) found that only 12% of funding from 1994 to 2013 was invested in reducing the risk of a disaster before it happens. Preparedness is trending and FbF fits perfectly in the agendas of large collective and humanitarian charters.

Floods caused the majority of disasters from 1994 to 2013 at 43% (CRED, 2015), and they affected more than 2.5 billion people. Figure 1 from EM-DAT show the increase in floods globally from 1900 to 2018 (EM-DAT, 2018).

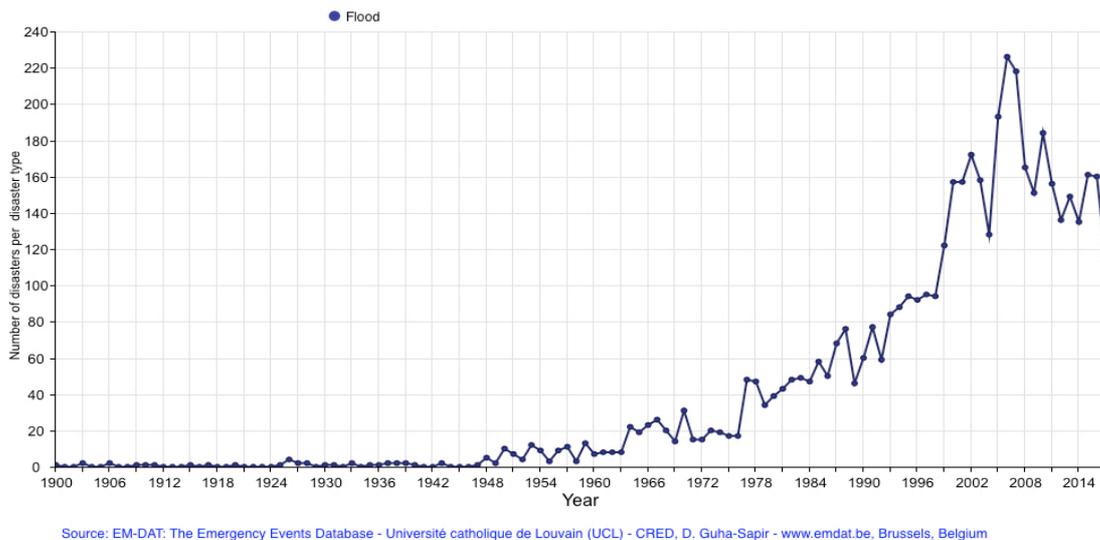


Figure 1: **EM-DAT Number of Floods 1900-2018.**

Weather related hazards like floods are often simple to forecast with the right technology (Stephens et al, 2015). In addition, according to UNISDR (2015), most developed countries have the ability to forecast weather related hazards, but developing countries still lag behind in technology and capacities.

During the Sandy Hurricane disaster, 1,000 patients were evacuated from hospitals in New York, and FEMA<sup>5</sup> prepared urban search and rescue committees before the storm (Powell et al, 2012). Based on weather forecasts, the Cyclone Phailin in India caused the evacuation of 800,000 people (Ghosh et al, 2013). The weather forecasts are not only useful for decisions about evacuation but also strategic stock, which improved the supply availability in West Africa in 2008 from 40 to 2 days (Braman et al, 2013). Pakistan experienced a heavy rainfall in 2010, which was forecasted several days before. No actions were triggered and the rainfall ended up affecting more than 20 million people. Webster et al (2011) found that if the forecasts had been utilized for action pre disaster, serious impacts could have been averted. These are good examples of the potential of forecasting weather hazards and taking action before the disaster strikes. Most forecasts unfortunately do not trigger any actions.

<sup>5</sup> Federal Emergency Management Agency

### **3. Scoping Studies Methodologies**

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This section illustrates the methodology of the three scoping studies by outlining the general methodology and then the specific method for the first scoping study with limitations of the method in general. The methodology of scoping study two and three can be found in Appendix 5 and 6. The results of the scoping studies can be found in chapter 4.

#### **3.1 What is a scoping study?**

Scoping studies have become a common method of searching literature (Daudt et al, 2013). There are varying definitions of a scoping study, and there exists no universal definition or purpose (Levac et al, 2010). However, the present study leans towards the definition of Arksey & O'Malley (2005), which aim to map key concepts underpinning a research area and the main sources and types of evidence available. Scoping studies in the present thesis should not be seen as initial literature review but instead as a method to answer the research questions. Thus, the purpose of the scoping study for the present thesis is to map key literature within the field of Forecast-based Financing (FbF) and to summarize research findings in order to answer the research question.

The presentation of the scoping study follows the recommendations of Arksey & O'Malley (2005) and consists of four steps, which ensure comprehensive research.

1. Identifying the Research Question
2. Identifying Relevant Studies
3. Study Selection
4. Charting the Data

The framework might seem linear, but Arksey & O'Malley (2005) emphasize the need to make the process iterative and work with steps in a reflexive way to ensure comprehensiveness.

### **3.2 Scoping Studies**

This thesis contains three scoping studies that serve the purpose of achieving a detailed picture of the available and relevant literature from scientific databases and grey literature.

The scoping studies aims to investigate the research questions: “*What is known in the scientific literature/grey about Forecast-based Financing?*” and: “*What is known in the scientific literature about preparedness work related to floods in urban informal settlements?*”

The questions are broad and thus aligned with the recommendations of Arksey & O’Malley (2005) and furthermore the continuous development and testing of the framework by Levac et al (2010) and Daudt et al (2013). Since, the thesis contains three scoping studies, the methodology of the first one will be fully presented, whereas the methodology of the second and third can be found in Appendix 5 and 6. The results of number one and two are merged, because the research question is the same, but one focuses on scientific literature, where the other focuses on grey literature. Results from scoping study three is presented separately.

### **3.3 Scoping Study Limitations**

Arksey & O’Malley (2005) emphasize the importance of balance between the breadth and depth of scoping studies, but FbF is a new framework and therefore not widely researched in the community. Thus, the breadth is manageable due to the few peer-reviewed articles based on FbF. Scoping studies do not appraise the quality of evidence in the primary research reports in any formal sense and cannot determine whether particular studies provide robust or generalizable findings (Arksey & O’Malley, 2005), which mean that the articles found in the present scoping studies are not in any way quality assessed for their findings nor are findings analyzed for the purpose of weighing their importance. These limitations are general for the method of scoping studies, where specifically limitations will be dealt with in the methodology of the individual scoping studies to better understand what limitations are related to what scoping study.

### **3.4 Scoping Study 1: FbF in Scientific Literature**

This section presents the methodology and the steps of the first scoping study.

#### **3.4.1 Step 1: Identifying Research Question**

The first step in the scoping study was to identify the research question, which should follow the recommendation of Arksey & O'Malley (2005) to aim for a wide approach to generate breadth of coverage. Wide definitions can reduce likelihood of missing relevant articles, but could generate an unmanageable amount of hits (Arksey & O'Malley, 2005). The concept of FbF is relatively new and the literature limited. Consequently, the research question was set up to aim for everything relevant for FbF and not exclude relevant articles. The researcher ended up with following research question: *“What is known in the scientific literature about Forecast-based Financing?”*

Test searches were conducted before investigating the research question. The aim was to ensure an overview of existing literature, where to find it, and to develop a general understanding of the terminology (Beerens & Tehler, 2016). Furthermore, citations of known and relevant articles were investigated with the purpose of extending the knowledge of existing literature.

#### **3.4.2 Step 2: Identifying Relevant Articles**

The second step of the scoping study was to identify relevant studies and papers. A distinction was made between database selection (where to search) and search query identification (how to search) (Beerens & Tehler, 2016). Arksey & O'Malley (2005) recommend developing the search query identification from the research question.

##### ***Database Selection***

The database Scopus ([www.scopus.com](http://www.scopus.com)) owned by Elsevier was selected for conducting searches. The database is one of the largest and publishes a great number of multi-disciplinary relevant articles in varying fields (Beerens & Tehler, 2016).

### ***Search Query Identification***

The search string was based on a Boolean approach. The essential keywords from the research question were (A) “Forecast” (B) “Financing,” but the keywords have many synonyms and were insufficient as they generate a large number of hits.

Following the recommendation of Arksey & O’Malley (2005), the following key words were added (C) “Disaster,” since it was assumed to be the expected outcome of no intervention and (D) “Weather,” because weather related hazards were investigated. Lastly, a list of synonyms was created (Appendix 1), and the keywords were systematically searched by balancing the broadness (number) and depth (relevance) of the articles.

Some synonyms (e.g. “monitoring”) were found to generate irrelevant medical hits and were consequently removed from the search string. Relevant articles showing up in the results repeatedly were analyzed for keywords, which resulted in a better search string. The best result was found by combining the following and searching the title, abstract, and keywords:

- (A) Forecast OR probability OR prediction OR warning OR response
- (B) Financing OR aid OR funding OR relief OR humanitarian
- (C) Disaster OR risk OR emergency OR hazard OR threat
- (D) Weather OR climate OR flood OR inundation OR rain

Not all the words in the same groups are synonyms. “Financing” and “humanitarian” are not synonyms, but humanitarian was found to generate a lot of relevant articles in the group, but separating it out limited the hits. Figure 2, illustrates the search string and the (1444) generated articles, before following criteria filtered irrelevant hits:

1. Articles in English only (1390)
2. Articles must be peer-reviewed (837)
3. No articles older than 2012 (436).

Most scientific literature is in English, and there were limited relevant articles in other languages, English articles only were chosen. Aiming for scientific literature, the articles must be peer-reviewed. The articles removed in this step were not integrated to the scoping study for grey literature. A limited scan of the articles revealed no relevance in first pages of hits and with potential 553 more hits to look through by including, they were removed due to time limit and it was assumed that the important grey literature would be captured in the scoping

study focusing on specifically this part. Articles older than 2012 were removed due to FbF becoming a well-known concept in that year. The list was imported to Excel with the purpose of removing duplicates (434).

### **3.4.3 Step 3: Article Selection**

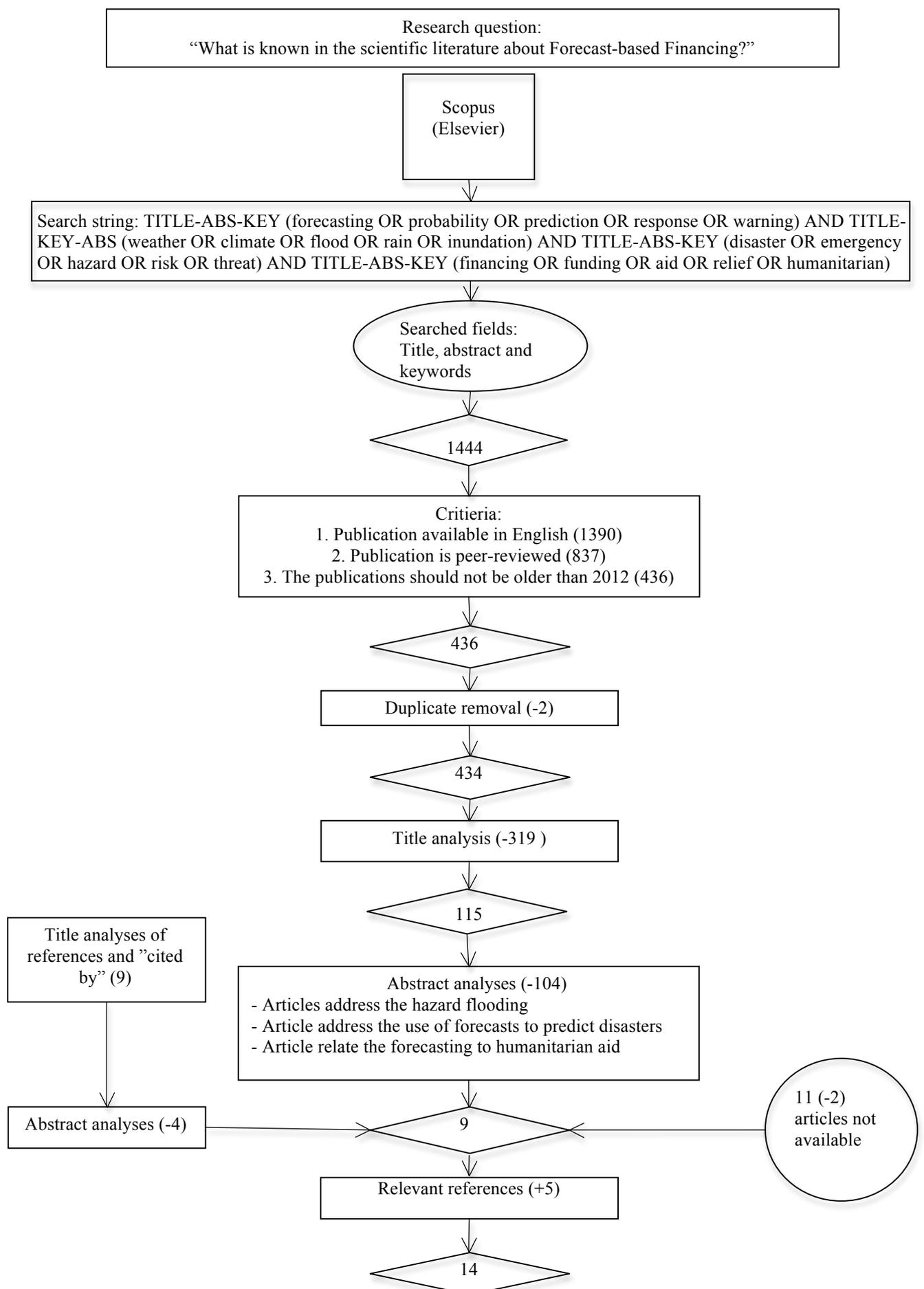
The titles of 434 articles were analyzed, and obvious irrelevant articles were removed. Eventually, the list was reduced with 319 articles, and the abstracts of the final articles (115) were assessed with following inclusion criteria:

- Article addresses the hazard flooding
- Article addresses the use of forecasts to predict disasters
- Article relates the forecasting to humanitarian aid

After analyzing the abstracts, 104 articles did not comply with the criteria. The scoping study was left with 11 articles, but because two articles were not available, the study was narrowed down to nine articles.

### ***Literature Lists and “Cited By”***

Arksey & O’Malley (2005) found checking references valuable in discovering new literature. Therefore, literature lists of the generated articles were investigated, and the “Cited By” tool in Scopus provided articles that had later cited the generated articles after they were published. This generated nine new articles based on a title analyses. Then an abstract analysis with the same criteria as mentioned above was conducted (-4). This left the author with an additional five articles. In total, 14 articles were mapped from the scoping study. Figure 2 illustrates the full methodology and process of the first scoping study.

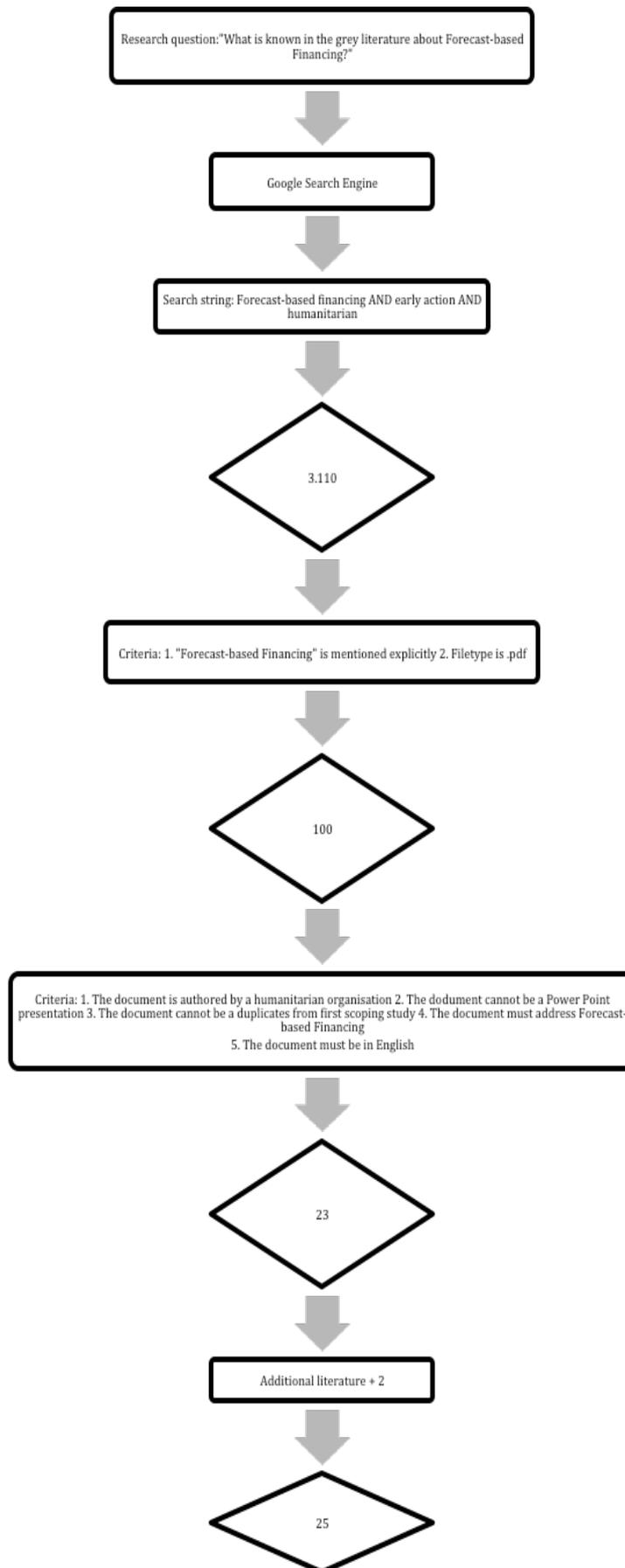


**Figure 2:** Overview of Scoping Study 1 for Scientific Literature.

### **3.5 Scoping Study 2: FbF in Grey Literature**

This section briefly presents the methodology and the steps of the second scoping study with Figure 3. Additional text and in-depth methodology description from steps 1-3 can be found in appendix 5. The second scoping study aims to answer the second research question: “*What is known in the grey literature about Forecast-based Financing?*”

There were several limitations with the scoping study. The criteria that FbF should be mentioned explicitly could limit relevant hits, where other organisations might have named similar concepts differently e.g. FoodSecure by WFP. The limitation to pdf files could potentially filter out relevant hits, but was necessary to exclude the many irrelevant hits from websites only referring to FbF. Furthermore the document must be authored by a humanitarian organisation or representative, which potentially could also leave out important documents. This criterion was set to uphold validity of the generated hits. Lastly, another important limitation to the scoping study was the deselection of power points, which were found useless and difficult to understand, due to the limited included text and information. To avoid misunderstandings, power points were excluded.

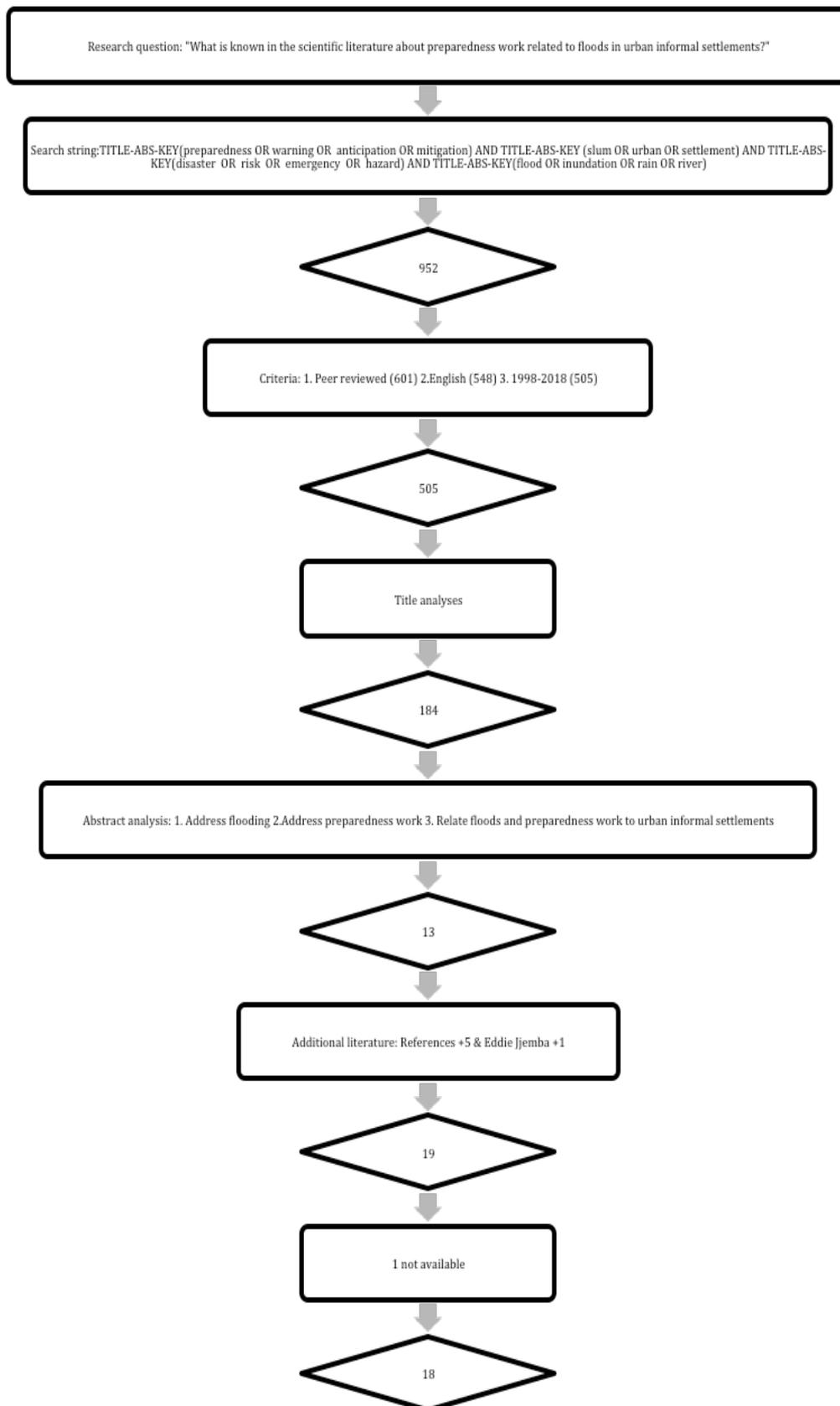


**Figure 3:** Overview of Scoping Study 2 for Grey Literature.

### **3.6 Scoping Study 3: Preparedness Work in Urban Informal Settlements**

The following section briefly presents the methodology of the third scoping study with Figure 4. The in-depth methodology from steps 1-3 can be found in Appendix 7. The scoping study aims to answer the research question: *“What is know in the scientific literature about preparedness work related to floods in UIS?”*

Several limitations were found from scoping study number three. Only scientific literature were generated and relevant grey literature probably exist. The rationale of this decision was rooted in the time limitation and scientific literature was preferred over non-scientific. The scoping study only included literature from 1998-2018, but could potentially have covered more years. Going back 20 years only seemed fair, due to the development in techonology with early warning systems and the increasing problem with UIS. Lastly, limitations regarding UIS are present. Other urban contexts could potentially have been included for a more comprehensive scoping study.



**Figure 4:** Overview of Scoping Study 3 About Preparedness in Urban Informal Settlements.

## 4. Step 4: Analysis and Results from Scoping Studies

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This chapter contains step 4 of the scoping studies, which is the overall and in-depth analysis of all three scoping studies. The first part contains a simple overall analysis of the articles without analyzing the content, which is done in the in-depth analysis. The work was primarily done with information about the articles from Scopus. Word and Excel were used to create tables and diagrams.

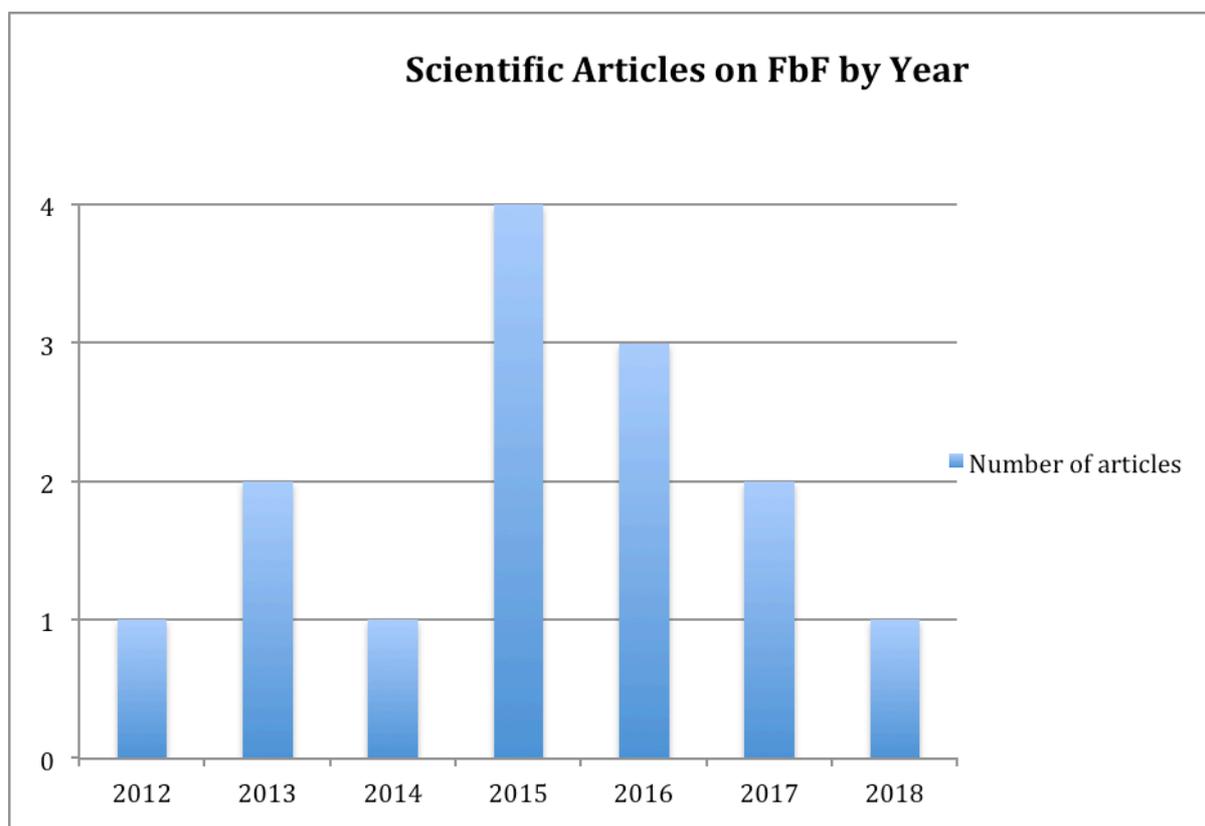
### *Overall analysis*

The overall analysis show graphs and tables illustrating when articles were published, in what sciences they are rooted, publishing organisations, and lastly where they are published and what regional focus they have. This information is used to illustrate trends.

### **4.1 Step 4: Overall Analysis of Scoping Study 1 “Scientific Articles”**

This sections contains the overall analysis of 14 articles generated from the first scoping study on: *“What is known in the scientific literature about Forecast-based Financing?”*

The articles were sorted according to the year they were published (Figure 5). The first article appears in 2012. In the following years, few articles address Forecast-based Financing (FbF), but there is a peak of articles during 2015 during the collaboration between German Red Cross (GRC), Red Cross Climate Centre (RCCC), and Reading University. The pilot projects were launched around this time, and this is probably also why the interest peaked. The pilots ended in 2018, so evaluations of FbF are expected to be published. Furthermore, the scoping study was carried out in March 2018 and additional articles will possibly be published later in 2018.



**Figure 5:** Scientific Articles on FbF by Year.

The articles were categorized based on their subject according to Scopus. Three areas were found: Earth and Planetary Sciences (50%), Social Sciences (29%), and lastly Environmental Sciences (21%) (Table 1). Several articles could be categorized in multiple sciences, which could indicate a multidisciplinary scientific field.

**Table 1:** Scientific Articles Types of Sciences.

Subject Area	Total (14)
Earth and Planetary Sciences	7 (50%)
Social Sciences	4 (29%)
Environmental Sciences	3 (21%)

The articles were grouped according to the region of the publication; the regional focus was found in the articles (Table 2). The majority of scientific literature comes from Western Europe (86%). The rest of the articles were from North America (14%). Regarding regional focus, South Asia was the primary region (43%); this was probably related to the famous Pakistan flood. Western Africa followed closely (29%). The last articles for the regional focus are divided by Western Europe (14%) and Eastern Africa (14%). Most regions were not

represented in either of the categories, which could indicate a concentrated scientific community.

**Table 2:** Scientific Articles by Region and Regional Focus.

<b>Region (n=14)</b>	<b>Region of Publication</b>	<b>Regional Focus</b>
Northern Europe	-	-
Eastern Europe	-	-
Southern Europe	-	-
Western Europe	12 (86%)	2 (14%)
Eastern Africa	-	2 (14%)
South Africa	-	-
Western Africa	-	4 (29%)
Northern Africa	-	-
North America	2 (14%)	-
South America	-	-
Australia	-	-
South Asia	-	6 (43%)
East Asia	-	-
South East Asia	-	-

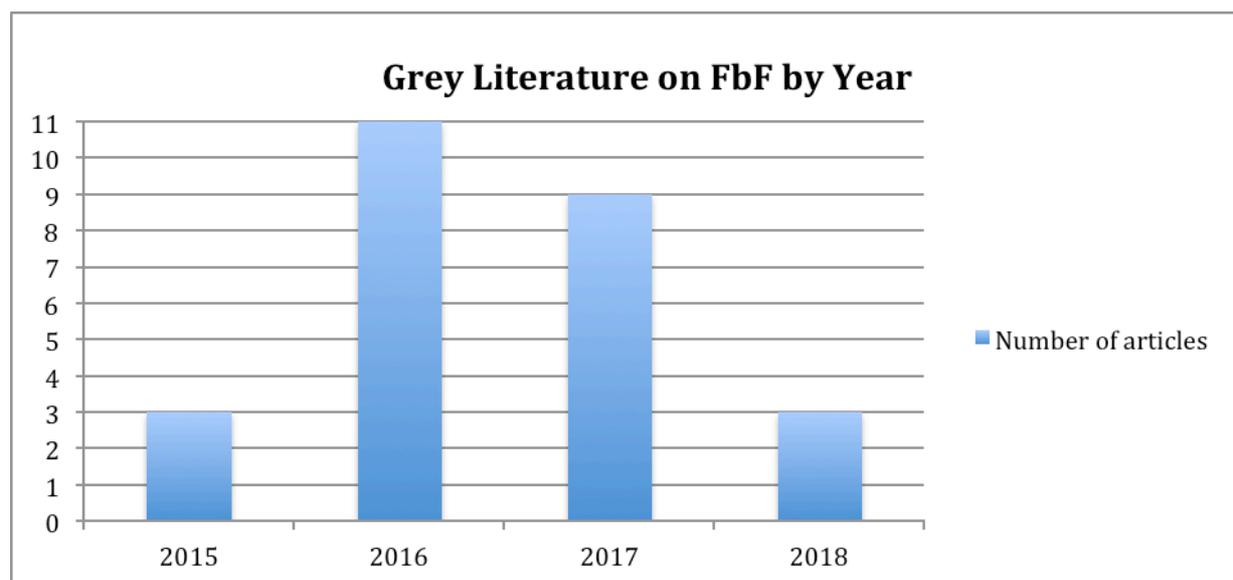
***Methodologies from Scoping Study 1 “Scientific Articles”***

The most frequently used methodology was quantitative data collected and reviewed mathematical models. The second most used was literature reviews, and the third was qualitative methods, such as interviews. See Appendix 6 for a further elaborated description of methodology for individual articles.

## 4.2 Step 4: Overall Analysis of Scoping Study 2 “Grey Literature”

26 articles from grey literature are analyzed in this section.

The articles are grouped by year in Figure 6, and the first grey literature is from 2015 with three articles. In 2016, the number peaks with 11 and declines after 2017. This study was conducted in March 2018, where three articles had already been published, so additional literature is expected later in 2018.



**Figure 6:** Grey Literature on FbF by Year.

Table 3 shows that 17 documents (65%) are from Western Europe and 18 (69%) have a regional focus on Eastern Africa. Also Northern America represents 6 articles (23%), and the second highest regional focus is in Western Africa with three publications (11%). The rest of the regional publications are one from each of Northern Europe, Eastern Africa, and Australia (4%). As for the regional focus, one is focused on Western Europe (4%), and two articles focus each South Asia and South America (8%). The large representation of Western Europe and Eastern Africa was expected, since the majority of organizations advocating FbF are from Western Europe, and the primary receivers are from Eastern Africa.

**Table 3: Grey Literature by Region and Regional Focus**

<b>Region (n=26)</b>	<b>Region of Publication</b>	<b>Regional Focus</b>
Northern Europe	1 (4%)	-
Eastern Europe	-	-
Southern Europe	-	-
Western Europe	17 (65%)	1 (4%)
Eastern Africa	1 (4%)	18 (69%)
South Africa	-	-
Western Africa	-	3 (11%)
Northern Africa	-	-
North America	6 (23%)	-
South America	-	2 (8%)
Australia	1 (4%)	-
South Asia	-	2 (8%)
East Asia	-	-
South East Asia	-	-

Table 4 illustrates the authoring organizations. Seven out of twenty-six (27 %) documents are authored by GRC, three (12 %) by WFP, two (8 %) by RCCC, and the rest of the organizations authored one out of twenty-six (4%) each. Several documents had multiple authoring organizations, which could indicate that inter-organizational collaborations are common in this field. The dominant organization was chosen in these cases.

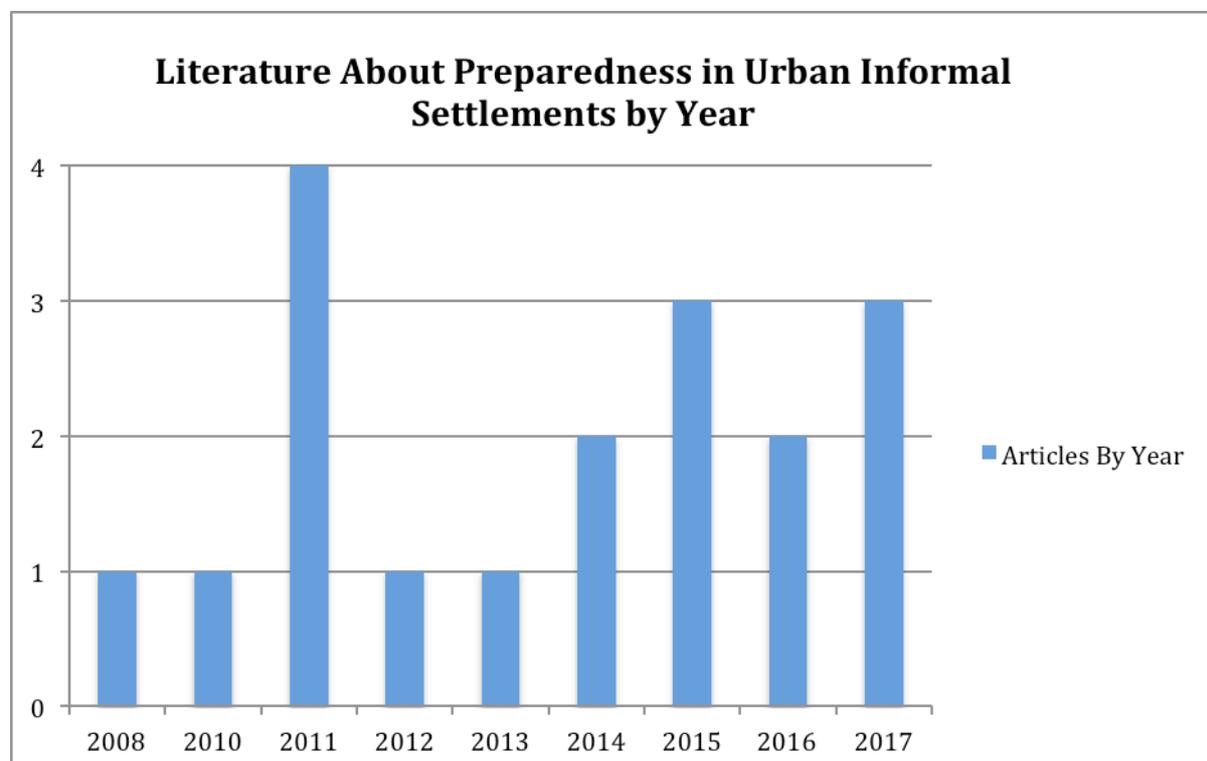
**Table 4: Grey Literature by Region and Regional Focus**

<b>Organisation</b>	<b>Number of publications (n=26)</b>
German Red Cross	7 (27%)
World Food Programme	3 (12%)
Red Cross Climate Centre	2 (8%)
OXFAM	1 (4%)
Kenya Red Cross	1
Australian Journal of Emergency Management	1
Start Network	1
Reading University	1

University of Birmingham	1
The UN Secretary General’s Climate Resilience Initiative	1
Stockholm Environment Institute	1
Building Resilience and Adaptation to Climate Extremes and Disasters	1
World Vision	1
Climate & Development Knowledge Network	1
OECD	1
Understanding Risk Global Forum	1
USAID	1

### 4.3 Step 4: Overall Analysis of Scoping Study 3 “Preparedness Work”

Eighteen articles about preparedness work related to floods in UIS are analyzed in this section. Figure 7 illustrates the articles from the scoping study by year. The first article appears in 2008, and in 2011 it peaks with four articles. 2017 is represented by three articles, but no articles from 2018 were generated. The scoping study was conducted in March 2018, so relevant articles will likely be published later in 2018.



**Figure 7:** Literature About Preparedness in Urban Informal Settlements by Year.

Articles were categorized according to the study subject areas to illustrate from what science they are rooted (Table 5). There are 18 documents, but four (23%) of the documents are UN and Red Cross reports, which are categorized separately. Social Sciences is represented with nine articles (50%), Environmental Sciences three articles (16%) and lastly Earth and Planetary Sciences with two articles (11%). Several articles could be defined as multiple subject areas, which indicates a multidisciplinary field.

**Table 5:** Preparedness in Urban Informal Settlements Documents by Subject Area.

<b>Subject Area</b>	<b>Total (18)</b>
Earth and Planetary Sciences	2 (11%)
Social Sciences	9 (50%)
Environmental Sciences	3 (16%)
Reports from UN and RC	4 (23%)

Table 6 shows the region of the literature and the regional focus. As for the region of the publications, North America is well represented with five articles (28%), and Western Africa and Western Europe have three articles each (17%). Northern Europe published two (11%), and Australia, Eastern Africa, East Asia, South East Asia, and Eastern Europe published one article each (5%). The regional focus is more concentrated with Western Africa being the most investigated region with six articles (33%) and Eastern Africa with five (28%). South East Asia had three (17%), South Asia had two (11%), and Eastern Europe and East Asia had one each (5%). Four of the articles came from UN reports and were difficult to determine the regional focus for. The most dominant focus of each publication was chosen in these cases.

**Table 6:** Preparedness in Urban Informal Settlements Documents by Region and Regional Focus.

<b>Region (n=18)</b>	<b>Region of Publication</b>	<b>Regional Focus</b>
Northern Europe	2 (11%)	-
Eastern Europe	1 (5%)	1 (5%)
Southern Europe	-	-
Western Europe	3 (17%)	-
Eastern Africa	1 (5%)	5 (28%)

South Africa	-	-
Western Africa	3 (17%)	6 (33%)
Northern Africa	-	-
North America	5 (28%)	-
South America	-	-
Australia	1 (5%)	-
South Asia	-	2 (11%)
East Asia	1 (5%)	1 (5%)
South East Asia	1 (5%)	3 (17%)

### ***Methodologies of Scientific Articles***

The most used methodology is qualitative interviews and focus group discussion. The second most used methodology is quantitative surveys and questionnaires, and the third most is the literature review. Several studies used both qualitative and quantitative methods. For further elaboration, the methodologies of the individual articles are addressed in Appendix 8.

### **4.4 Step 4: In-depth Analysis of Scoping Study 1 & 2 “Scientific/Grey Literature on Forecast-based Financing”**

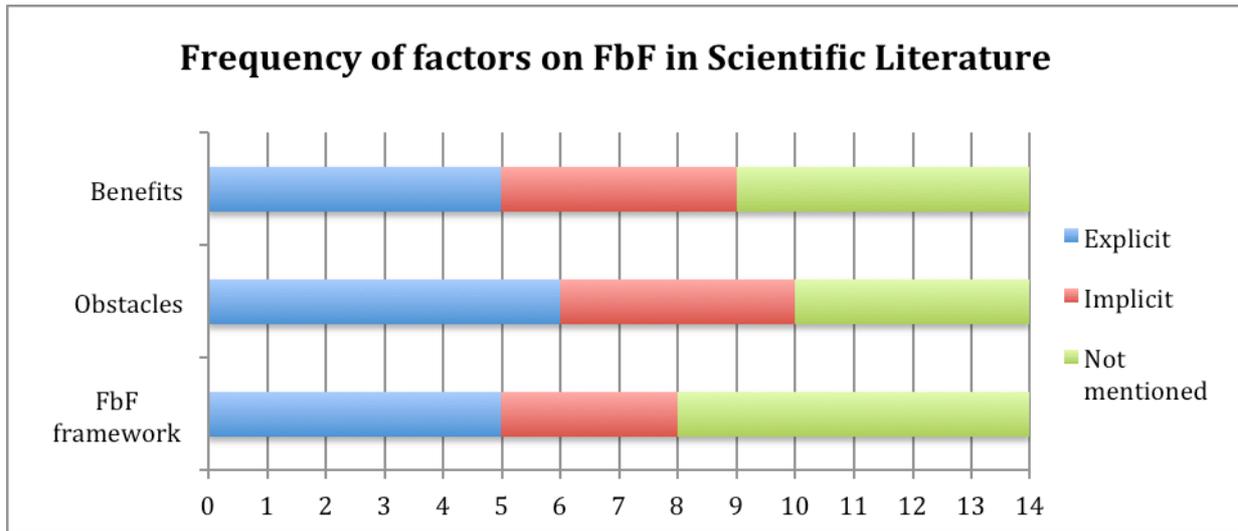
The in-depth analysis will focus on the content of the articles and present the key findings, discussions, and conclusions from the articles. Scoping studies 1 and 2 are presented in a merged in-depth analysis, since they investigate the same questions.

From the literature, varying factors emerged, which are relevant to answer the research questions satisfiable.

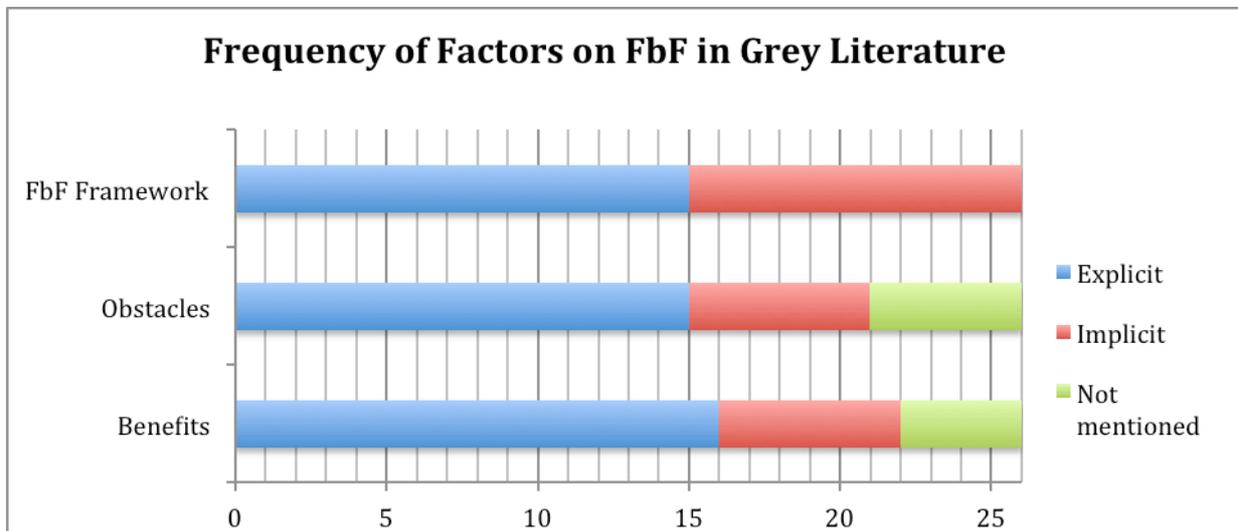
1. Forecast-based Financing framework
2. Obstacles to implementing Forecast-based Financing
3. Benefits of implementing Forecast-based Financing

The in-depth analyses focus on Forecast-based Financing framework, which in this case is the use FbF and how it works in theory. Furthermore obstacles and benefits emerged, which is the theoretically and practical experiences addressed in the literature. The articles will be scored as explicit, implicit, or not mentioned on how they address the different aspects. Figure 8 and Figure 9 illustrate how the factors are addressed in scientific and grey literature. Explicit

means the article has sections focusing on the factors, where articles scored implicit address the factor implicitly. Lastly, the “not mentioned” articles do not address the factor. The scores of specific articles can be found in Appendix 4 for scientific articles and Appendix 5.1 for grey literature. The scoring provides the reader with an overview of the literature and assists to operationalize the research questions: *“What are the obstacles/benefits of implementing FbF in UIS?”*



**Figure 8:** Frequency of Factors on FbF in Scientific Articles.



**Figure 9:** Frequency of Factors on FbF in Grey Literature.

#### **4.4.1 Forecast-based Financing Framework in Literature**

The following sections present the merged results of the two first scoping studies in categories under the FbF framework, obstacles, and benefits from both scientific and grey literature.

##### ***Forecast-based Financing Framework in Scientific Articles***

The FbF framework is addressed explicitly in five of the fourteen articles and implicitly in three of the fourteen articles. Six of the fourteen articles do not address the FbF framework.

FbF is a mechanism that enhances early warning systems (EWS) and weather forecasts with early action (EA) measures based on pre-agreed forecast triggers, supported by protected funding. When an action is triggered by a forecast or threshold, an FbF mechanism automatically releases funding to take anticipatory, pre-defined actions before the potential hazard event strikes (Costella et al, 2017; De Perez et al, 2016 & 2015; Cools et al, 2016). De Perez et al (2015) outline three components of a system for early warning (EW) to become operational: (a) information about worthwhile actions, (b) available funding mechanisms, and (c) designated entities that are responsible for taking pre-planned actions.

##### ***Forecast-based Financing Framework in Grey Literature***

The Forecast-based Financing framework emerges explicitly in sixteen of the twenty-six articles and implicitly in ten of the twenty-six articles.

FbF tries to bridge the gap between DRR and response by using weather forecasts to trigger predefined actions and the release of funds. This allows humanitarian organizations to make disaster risk management (DRM) more effective. Governments in Germany, the Netherlands, United Kingdom, Australia, and the United States support the concept, and organizations such as German Red Cross, Red Cross Climate Centre, World Food Programme, Start Network, and FAO utilize FbF (Costella et al, 2018; Rohwerder, 2017; R uth et al, 2016A; Halima et al, 2016).

According to R uth et al (2016A), FbF consists of different steps such as an initial risk assessment, which provide necessary information about intervention areas; a feasibility analysis that assists in determining how feasible an implementation of FbF is; a menu of triggers, which are the options for triggering early actions (EA); a prioritization of actions; and lastly the Standard Operating Procedure (SOP), which is also called early action protocol

(EAP) that provide step-by-step procedures for an action to be implemented. SOP's are always specific for the area and hazard and involve the organizations while recognizing that there are no one-size fits all solutions (Aubke et al, 2017).

#### **4.4.2 Obstacles and Benefits of Implementing Forecast-based Financing**

In scientific articles, obstacles to implementing FbF were addressed explicitly in six of the fourteen articles and implicitly in four of the fourteen articles. In four of the fourteen articles, obstacles to implementing FbF were not mentioned (Figure 8). Benefits were explicitly addressed in five of the fourteen articles and implicitly in four of the fourteen of the articles. Five of the fourteen articles did not mention benefits (Figure 8).

In the grey literature, obstacles to implementing FbF were addressed explicitly in fifteen of the twenty-six articles and implicitly in six of the twenty-six articles. In five of the twenty-six articles, obstacles were not mentioned (Figure 9). The benefits were addressed explicitly in sixteen of the twenty-six articles; implicitly in six of the twenty-six and not mentioned in five of the twenty-six articles (Figure 9).

Obstacles and benefits emerged in different topics and were grouped by: communication and coordination (C&C), actions, scale, forecasts, technology, focus on response, donors, funding finances, and lastly, capacity. The findings are divided in scientific and grey literature to be able to separate them.

##### ***Obstacles of C&C in Scientific Articles***

Lumbroso (2018) highlights a lack of C&C between governments, donors, and NGOs when implementing early warning systems (EWS), which leads to obstacles with parallel initiatives. Costella et al (2017) confirm this and describe a lack in ability of responsible agencies to receive and understand warnings. The coordination across sectors is challenged by the lack of harmonization of mandates, interests, and priorities (Costella et al, 2017). Communication is essential, and Cools et al (2016) found that to be able to trigger response actions, warnings must be trusted, understood, and usable.

In 2007, Red Cross did not access available forecasts in West Africa due to non-existent communication lines between climate forecasting centres and RC, which resulted in devastating consequences after the floods in 2007 (Tall et al, 2012).

Braman et al (2013) highlights that systems need redundancy built in, so C&C does not rely on individuals to receive, perceive, and react to forecasts or warnings. Jongman et al (2015B) extends and discusses the difficulties with triggering humanitarian action based on eyewitnesses because of disaster response costs.

Lack of translation into indigenous languages challenge the sharing of forecasts or warnings and exclude the most vulnerable population from receiving important information (Tall et al, 2012). When communities are not involved, organizations fail to effectively address community-level stakeholders and cannot improve the response to warnings (Cools et al, 2016; Tall et al, 2012). The lack of C&C between forecasters and humanitarians might explain why vulnerable populations continue to be impacted by predictable natural hazards (De Perez, 2015; Tall et al, 2012).

### ***Obstacles of C&C in Grey Literature***

Halima et al (2016) highlight that the overall rationale and aim of a program is often not well communicated or understood. FbF programs must be coordinated with other programs, humanitarian organizations, and partners to avoid duplicate or conflicting messages and disengagement (Rüth et al, 2017; Rohwerder, 2017; Aubke, 2017). National partners need guidance as well (Wuestenberg et al, 2016). Prior systems and knowledge can speed up the aid and process (Rohwerder, 2017). Feeny (2017) concludes that in order to link EW to EA, decision makers need access to an analysis of what the data shows. RCCC (2018) emphasizes the need for interdepartmental C&C within the organization and highlights difficulties with identifying the right level of detail in information. Partners often struggle to collaborate effectively with the exchange of data (Davies et al, 2016; Charters, 2015). Halima et al (2016) highlights obstacles with communities' trust in climate forecasters and believe more work is required to improve farmers' trust and understanding of climate data and how to take action based on it.

### ***Benefits of C&C in Scientific Articles***

De Perez et al (2016) argue that Forecast-based Financing could encourage the collaboration between development- and humanitarian actors. Deen (2015) discusses that increased investments in disaster prevention should be coupled with disaster preparedness. He also calls for strong partnerships with NGOs operating at the micro-level, international relief agencies, and state disaster response organizations, and he argues that inter-agency cooperation can reduce overlapping efforts and pool development funds more efficiently and therefore effectively. Cools et al (2016) state that EWS are shown to strengthen knowledge, coordinate authorities across sectors, and engage local communities, and they should be facilitated.

Braman et al (2013) discuss a partnership between RC West and Central Africa and the African Centre for Meteorological Applications for Development that was facilitated by RCCC. The partnership enhanced the use of forecasts and weather information in the region. This was also true for the International Research Institute for Climate and Society and IFRC, which allow the humanitarian sector to work with scientists to deliver better disaster risk management programs. Such cooperation can increase confidence in predictions, since the information comes from several providers (Braman et al, 2013).

### ***Benefits of C&C in Grey Literature***

Partnerships among different stakeholders for improved interaction between actors facilitate C&C (Aubke et al, 2017; R uth et al, 2016A; CDKN, 2015; R uth, 2015). Wuestenberg et al (2016) conclude that partnerships can improve the quality of weather and climate information available and CDKN (2015) extends this argument to long-term solutions that can help strengthen relationships between climate service providers and development planners. Costella et al (2018) emphasize the benefits of a joint learning process that can enhance capacities at all levels.

### ***Obstacles of Actions in Scientific Articles***

In Africa in 1998, farmers reduced their cropping area because there was a forecast of an increased chance of below normal rainfall, which resulted in public backlash because the drought did not occur (De Perez et al, 2015). Forecasts can never provide complete certainty, so the risk of acting in vain and the perception of wasting funds often prevent EA (Costella et al, 2017; De Perez et al, 2016; De Perez et al, 2014; Braman et al, 2013). De Perez (2016)

found that evacuation is an action where humanitarians cannot risk acting in vain, because the political and reputational costs of evacuating in vain are considerable.

### ***Obstacles of Actions in Grey Literature***

Stephens et al (2016) mention the limited data that adds uncertainty to the analysis and therefore to FbF, and that an action should be able to withstand a certain level of acting in vain to manage reputational risk and the “cry wolf” effect.<sup>6</sup>

### ***Benefits of Actions in Scientific Articles***

In Bangladesh, Costella et al (2017) found cash transfers before the disaster to be the most effective action, because the program prevented several negative coping strategies. Preparing to act can reduce the lead-time significantly, and Tall et al (2012) argues that most countries across the West African region received relief supplies in a matter of days in contrast to the 40 days it took the year before in 2007. Preparation and pre-positioning allows for more direct action at the local level, which could be taken for shorter-range forecasts (Braman et al, 2013; Tall et al, 2012). Humanitarians favour actions with longer lifetimes due to the “forgiving” nature if the flood comes late (De Perez et al, 2016). The lifetime for digging drainage canals is 90 days, and another forecast cannot retrigger actions during their lifetimes. This “rule” keeps the system from retriggering actions all the time, and only actions that have no flooding during the lifetime are theoretically in vain (De Perez et al, 2016). Humanitarians favor actions with long-term positive impacts in strengthening resilience and supporting on-going development in the area (De Perez et al, 2016); protecting assets could leave humanitarians focused on development without worrying about disasters demolishing their projects (De Perez et al, 2015). Tall et al (2012) emphasize non-perishable items that could be used both during crisis and in peace.

“No regret” actions are low-cost efforts that do not go to waste if the forecasted event never comes (Braman et al, 2013). De Perez et al (2015) emphasize the need for actions to correspond to the strength of the forecast – this means that high-regret actions are not taken due to a small increase in disaster likelihood. Costella et al (2017) highlight the benefit of taking advantage of potential asset gains, e.g. distributing seeds for additional planting before increased rainfall.

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<sup>6</sup> “Call for help when it is not needed, with the effect that one is not believed when one really does need help.” (Oxford Dictionary)

### ***Benefits of Actions in Grey Literature***

Cash in hand during a flood event can help people reduce negative coping strategies (Start Network, 2017; R uth et al, 2016A). Olaf Neussner from German Red Cross prefers cash distribution because beneficiaries can buy what they need (Aubke et al, 2017). Stephens et al (2016) divides actions into two phases: “preparation phase” and “activation phase” and explain that the preparation phase ensures that all necessary preparations are put in place to enable the activation phase quickly (e.g. water treatment tablets are procured before the rainy season). FbF does not only function as a way to reduce losses but also an opportunity to take advantage and benefit from variability (Stephens et al, 2016). The Kitui intervention aimed to take advantage of a potentially positive impact by distributing seeds before the high probability of more rain (Halima et al, 2016). No regret actions have lasting effects that are beneficial to the community even if the disaster does not strike and can build resilience and contribute to being prepared for other events (R uth et al, 2017B; RCCC, 2016; Destrooper et al, 2016; Stephens et al, 2016).

### ***Obstacles to Scale in Scientific Articles***

Pilots have provided an opportunity for more focused interventions, but they reach a limited number of people. The FbF approach requires a scale up to regional or national mechanisms in order to improve sustainability and effectiveness, and it needs to be extended to other locations (Costella et al, 2017; De Perez et al, 2016). In an extension of this obstacle, De Perez (2015) concludes that FbF still has to be designed for a specific hazard at a specific geographical scale and extends that research to achieve large-scale FbF is required for further development.

### ***Obstacles of Scale in Grey Literature***

RCCC (2018) highlights that to scale up FbF they need to engage with government and relevant stakeholders. Stephens et al (2016) elaborate on the spatial scale and explains that the location of the greatest impact can be difficult to predict and limits the effectiveness of community-level actions. WFP (2016B) discusses that limited coverage of existing EWS constrains FbF scale up to the national level.

### ***Benefits of Scale in Grey Literature***

WFP (2016A) believes that integration of FbF mechanisms into social protection and safety net programs allows for a more sustainable approach at scale, and Start Network (2017) argue

that when the number of national funds grow, they will probably be able to increase the amount that they can self-insure. Larger scales can bring further cost savings.

### ***Obstacles of Forecasts in Scientific Articles***

The early warning capacity and ability to forecast are limited in many places (Lumbroso, 2018; Costella et al, 2017). Science has medium to high ability to produce reliable forecasts for storms and floods with a six-day lead-time (De Perez et al, 2015; Tall et al, 2012), but poor forecasting can result in potential bias to over- or under predicting (Dale et al, 2014).

Flood forecasts in data scarce regions have high uncertainty. De Perez et al (2016) concluded that the relationship between water levels and flood risk vary over time due to trends in vulnerability and exposure, so it is unlikely that humanitarians could plan for preparedness using forecast skill only.

In Uganda, most EWS are based on situational analyses, but to implement action-based forecasting (AbF), the lead-time needs to be increased (Lumbroso, 2018).

De Perez et al (2017) demonstrate that indicators of floods vary across Africa, and a combination of variables could be a useful indicator of floods. Seasonal forecasts have historically been underutilized, but they can be utilized to predict floods (Tall et al, 2012).

Despite the availability of free international forecasts, they are not used to inform floods in many places (Lumbroso, 2018). De Perez et al (2016) conclude that GloFas<sup>7</sup> can be used to trigger extreme river flow, but only for actions that can in practice withstand acting in vain. De Perez et al (2016) call for forecast modelling that allows for specific and targeted preparedness actions related to e.g. small and large floods.

### ***Obstacles of Forecasts in Grey Literature***

Rüth et al (2016A) elaborate on how obstacles are interlinked, e.g. determining actions is highly related to the leadtime of the forecast. FbF actions are constrained by short timelines because the floods are not predicted until a few days before (RCCC, 2018). WFP (2016B) and Fabre (2017) emphasize the need for location specific forecasts with a defined impact level in order to plan and execute EA. Stephens et al (2016) extend the use of hind casts<sup>8</sup> to predict that the likelihood of acting in vain is common but challenging in Africa because of limited

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<sup>7</sup> The Global Flood Awareness System

<sup>8</sup> "The hindcast approach entails running atmospheric and ocean response models for a historical period" (Ocean Weather Inc.)

observation data. Variables need to be translated into probability of impact, which is the necessary information for determining what actions to take. This is extended by Aubke et al (2017) who elaborate that localized triggers require considerable scientific effort – especially in an environment with limited data availability. R uth et al (2016B) state that despite the improvements, local and international scientific communities face obstacles to achieving forecast accuracy both on probability and intensity. Stephens et al (2016) highlight the obstacle with complex representations of impact, which could be built into FbF e.g. a flood with lower magnitude, might only trigger actions during the harvest season.

### ***Obstacles of Technology in Scientific Articles***

Tall et al (2012) observed that the density of meteorological stations in Africa is about eight times lower than the minimum recommended by the World Meteorological Organization, where Costella et al (2017) and De Perez et al (2017; 2016; 2015) argue that investments in both hardware and software in developing countries are needed in order to forecast with greater skill. Tall et al (2012) address community members where farmers would need improved technology such as plows and crop varieties in order to benefit from precipitation forecasts. McCallum et al (2016) believe it comes down to the lack of awareness of already existing technologies.

### ***Obstacles of Technology in Grey Literature***

Early action requires technical systems to issue warnings (RCCC, 2018; Rohwerder, 2016). Wuestenberg et al (2016) emphasize the need for weather stations, remote sensing, and earth observation, as well as basing EWS on community needs. Fabre (2017) links technology with forecasting and extends that disasters under pre-defined thresholds can still have significant economic impacts. Davies et al (2016) conclude that projects need high-resolution models, equipment, and the ability to incorporate hydrological and inundation forecasting in order to achieve the necessary impact-based forecasting.

### ***Obstacles to Response Focus in Scientific Articles***

Lumbroso (2018) mentions the positive record of predicting food crises but a poor record of triggering EA, and he found that 75% of surveyed stakeholders stated that existing EWS never or only occasionally emphasize preventative actions. Obstacles to political will within institutions to take action are rooted in the culture (Costella et al, 2017; Braman et al, 2013). Historically, humanitarian organizations have focused on long-term developing programs and

post-disaster response (De Perez et al, 2015). McCallum et al (2016) argue that the real potential is acting before the disaster, but they also argue for investments in better disaster response and recovery.

### ***Obstacles to Response Focus in Grey Literature***

The majority of financial resources are assigned to disaster response, which makes decision-makers unable to finance actions that could reduce losses (RCCC, 2018; Fabre, 2017; R uth et al, 2017A, 2017B; Koelle et al, 2015). Stephens et al (2016) extend that lack of mandate to act on a heightened probability of a disaster as an obstacle. Wuestenberg et al (2016) blame the culture of risk avoidance in the humanitarian sector and the fear of “getting it wrong.”

### ***Obstacles to Donors, Funding and Finances in Scientific Articles***

Funding for on-going FbF projects primarily come from dedicated project funding, but FbF projects require sources of funding that can be more flexible when disaster is likely because with high uncertainty comes difficulties committing resources (Costella et al, 2017; De Perez et al, 2016; De Perez et al, 2015; Braman et al, 2013; Tall et al, 2012). In Somalia in 2011, only 47% of the need was funded based on forecasts, but two months after the famine was declared, the funds exceeded 100% (De Perez et al, 2015). The majority of donations come from voluntary contributions and are based on news about impacts and not forecasts (Costella et al, 2017; Braman et al, 2013). FbF cannot eliminate the need for response post disaster, but it could reduce it (Costella et al, 2017). Braman et al (2012) highlight the obstacle with tracking effectiveness and collects useful data to demonstrate savings to donors.

### ***Obstacles to Donors, Funding and Finances in Grey Literature***

An obstacle is the need for a financing mechanism that enables humanitarian organizations to implement FbF (R uth et al, 2017A). Both tangible (assets) and intangible losses (lives), direct and indirect all affect the measurement and require in-depth economical analysis to prove that FbF can reduce losses (R uth et al, 2017A; Start Network, 2017; Stephens et al, 2016). Many national societies (NS) lack funds to undertake preparedness measures (Aubke et al, 2017).

### ***Benefits to Donors, Funding and Finances in Scientific Articles***

Lumbroso (2018) highlights that estimates in Uganda show return on investment from improving meteorological services over a 15-year period between 630% and 1770% and

emphasizes that benefits of EWS in most cases exceed their costs. Tall et al (2012) found that EWEA showed a 33% lower cost per beneficiary compared to other years with floods in West Africa, and De Perez et al (2015) highlight that saved resources could double or quadruple investments in disaster risk reduction. This aligns with other findings that show that every dollar invested in FbF programs would save three dollars in beneficiary losses (Costella et al, 2017).

### ***Benefits to Donors, Funding and Finances in Grey Literature***

Rüth et al (2016A) carried out a sensitivity analysis on FbF using 5,000 simulations of variations and the avoided losses per dollar invested ranged from \$2.5 to \$3.90. Stephens et al (2016) point towards that disaster prevention-type actions are significantly cheaper than response actions. Start Network (2017) highlights that \$1 of EA funding is worth \$4 in late response funding. Rüth et al (2017B, 2016B) argue that FbF speaks directly to the Addis Ababa Action Agenda on financing the management of risk as part of strategies for cost-effective and sustainable development and that FbF contributes to achieving several SDGs. WFP (2016B) agrees that the response is more efficient and cost effective in Nepal when actions are taken before the disaster. WFP (2018, 2016A) also argues that EA would reduce the cost of emergency response by approximately 50%.

### ***Obstacles to Policies in Scientific Articles***

Deen et al (2015) emphasize the need to implement policies and make disaster prevention a national priority. The meteorological offices in Uganda is not perceived as important in the national policies, and in Malawi and Uganda governmental agencies disseminate warnings for the same hazards, which shows a lack of policies in the area (Lumbroso, 2018). Costella et al (2017) conclude that political will to establish a system of action would need to be in place from the beginning to implement FbF.

### ***Obstacles to Capacity in Grey Literature***

Halima et al (2016) address the need to develop farmers' skills in interpreting and applying climate information when planting crops. Making FbF sustainable requires the strengthening of capacities. In addition, empowerment of organizations, individuals, and communities are necessary measures, which depend on institutional ownership of humanitarian, governmental, and DRR actors (Rüth et al, 2017A; Aubke et al, 2017; Wuestenberg et al, 2016).

### **4.4.3 Summary of results from scoping study one and two**

A great number of obstacles and benefits with implementing FbF were found from the first two scoping studies. This section aims to sum up important key findings to ease the readability.

There is a clear lack of C&C between organisations, governments and communities, but actors also internally fail to communicate. EWS rely on trust and with poor communication trust is difficult to establish. FbF could encourage and facilitate C&C because it builds on collaboration and partnerships.

Identifying appropriate actions is difficult and acting in vain is too, because actions are wasted. Actions must be able to withstand a certain level of acting in vain to manage risk of the crying wolf effect. Long lifetimes can be forgiving in the sense that if the disaster comes late the action was not wasted. Preferably, no regret actions ensure no acting in vain, because they assist in supporting the receiver long-term. Actions can be prepared before they are activated, which lower the time needed to deliver aid.

FbF is only tested with small pilots and large scaled projects are needed to determine sustainability of the approach. Limited EWS constrains FbF scale up in many places and scale is believed to increase the sustainability of FbF and some even mention a possibility of self-insurance through a network.

Science has high ability to produce reliable forecasts in six-day lead-time, but forecasts are limited in many places and therefore FbF constrained by short timelines. Potential programme sites lack hardware and software to produce reliable forecasts.

Lack of political will and focus on response in many places affect the possibility of implementing FbF and financing actions that could reduce losses.

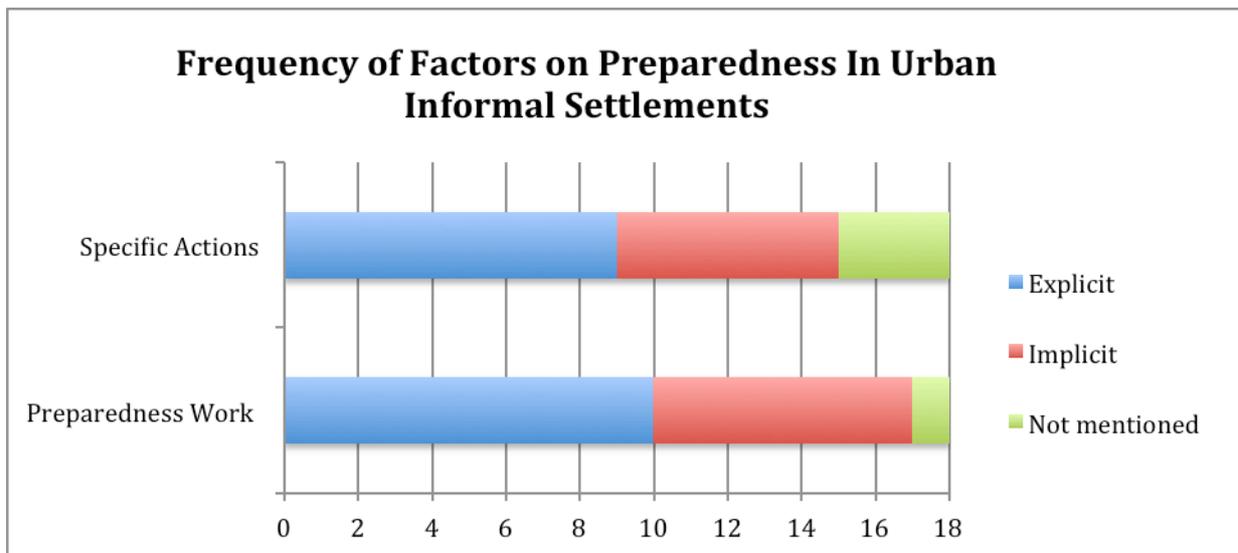
Funding primarily come from dedicated project funding and funding preparedness is difficult, because most funding come from voluntary contributions based on news media about the disaster. Collecting data tracking effectiveness of FbF could prove to donors that FbF is a good investment. Findings from pilots show that every dollar invested in FbF would save three dollars in beneficiary losses and studies in general show that investing in preparedness would lower the need for response significantly.

In many places strengthening capacities are important for developing and implementing FbF.

#### **4.5 Step 4: In-depth Analysis of Scoping Study 3 “Preparedness Work”**

The purpose of the scoping study was to investigate: “*What is known about preparedness work related to floods in urban informal settlements?*” The findings assist in answering the research questions, which have a focus in UIS.

The following sections will present the findings from the literature. Two key factors emerged from the literature: general preparedness work, which is related to the general work with preparedness e.g. 91% in Mombasa protect their housing. Where the factor specific early actions in UIS are related to specific actions e.g. studies found that cleaning drainage systems is good way to mitigate flood risks. These factors were chosen to operationalize the research question and provided the study with the necessary scope of UIS to answer the main research question: “*Is FbF a viable disaster risk management in UIS?*”. Obstacles and benefits were not chosen as in scoping study one and two because preparedness work is much broader and mapping the would become difficult due to the wide perception of preparedness work. FbF is not mentioned in this scoping study, but it is assumed that the scoping study is still applicable to the context, since FbF is an enhancement of EWS and EW, which scoping study three address through preparedness work. Figure 10 illustrates how the articles address these factors. An individual scoring of the arcticles can be found in Appendix 7.1. Grouping the findings assists in operationalizing relative to the general preparedness and specific actions in UIS, which help to answer the main research question: “*Is FbF a viable DRM strategy in UIS?*” Lastly, trends in methodologies of the literature are briefly presented.



**Figure 5:** Frequency of Factors on Preparedness in Urban Informal Settlements.

### *Preparedness Work*

This section presents the preparedness work in urban informal settlements found in the literature generated from the third scoping study. General preparedness work is explicit in ten of the eighteen articles, implicit in seven of the eighteen articles and not mentioned in one article (Figure 10). The explanation of explicit, implicit, and not mentioned is found in section 4.4.

Salami et al (2017) conclude that UIS dwellers' insufficient means of livelihoods coupled with the lack of human and social capital are responsible for their low level of preparedness, which will amount to low community resilience and increased vulnerability, despite a high level of risk awareness. De Perez (2012) found early warning systems necessary to take effective preparedness measures against flooding. In Mombasa, 91% protect their house during extreme events and develop preparedness measures before an event (The World Bank, 2011B). Ajibade et al (2014) found that about 60% of respondents did not receive EW, that warnings were distrusted, and that receivers had no alternatives. EWS are not enough to save lives and properties in a flooding situation, where waste filling, inadequate housing, and lack of DRR infrastructures increase dwellers vulnerability to flooding (Kita, 2017; Ajibade et al, 2014).

Marfai et al (2015) conclude that local communities have the capability to adapt to flooding based on experiences, and local government could play a role in "scaling up" adaptation measures and facilitate knowledge sharing. Hellman (2015) emphasizes the need for good

relations to local government to mitigate floods. Tas et al (2013) conclude that increased community participation in DRM and changing attitudes towards disaster preparedness requires that we understand the motivation of individuals/families/communities to take part.

Porio (2011) concludes that the level of preparedness for floods in UIS in Manila is low and is compounded by lack of preparedness with formal/informal institutions in the community. Chatterjee (2010) concludes that formal flood mitigation strategies do not reduce risks for people living in UIS and emphasizes the importance of understanding the role of support networks in UIS and developing mitigation and adaptation strategies like preparedness, structural adjustments, awareness, and safety networks. Texier (2008) found that NGOs through community-based DRR could assist in activating local informal networks that rely on local capacities. Marfai et al (2015) found that lack of coordination between stakeholders is the most dominant factor causing higher vulnerability.

Communities in UIS are heterogeneous, and the differences affect community work when households have varying interests (Chatterjee, 2010). Hellman (2015) argues that vulnerable people try to make a sustainable livelihood by residing in high-risk areas and conclude that flood mitigation needs to work with policies to improve socio-economic factors in UIS. With the constant threat of eviction, dwellers in UIS build temporary and often weak housing to meet immediate shelter needs (Ajibade et al, 2014; Porio, 2011).

The urban poor reside in dangerous and unhealthy environments, and the most vulnerable in UIS are the main victims as they live in the most affected districts and are extremely vulnerable (Salami et al, 2017; Texier, 2008). Porio (2011) extends that the vulnerable do not have the choice of where to build or to relocate. Hellman (2015) states that floods can be beneficial to the urban poor, because if floods were mitigated, living costs would increase and force dwellers to find alternative living spaces.

Dwellers have developed loss redistribution networks to help each other prepare and recover from floods (Kita, 2017; Nkwunonwo et al, 2016; Hellman, 2015; UN-Habitat, 2014; Porio, 2011; Chatterjee, 2010). Issues with land tenure often make the UIS illegal, and local governments will not invest in any preparedness or development work (Hellman, 2015; Ajibade et al, 2014; Porio, 2011; Chatterjee, 2010). Lack of drainage facilities in UIS is an issue resulting in floods (Mahmood et al, 2017; Ahadzie et al, 2016). The World Bank Group (2011B) found that 25% of households flood regularly due to inadequate drainage, and in

most UIS, open drains result in accumulated garbage that prevents drainage systems from working.

### ***Specific Early Actions***

This section addresses some of the specific EA taken in varying study areas. In the articles they are observed, evaluated, or recommended by the author as a coping strategy. Specific EA emerge explicitly in nine of the eighteen articles, implicitly in six of the eighteen articles, and are not mentioned in three articles (Figure 10).

Mahmood et al (2017) point to establishment of service infrastructure such as health, property insurance, sewage plant, medical facilities, and minor paved roads as important for flood DRR.

Varying authors found that cleaning drainage systems is a good way to mitigate flood risks (Kita, 2017; Mahmood et al, 2017; Marfai et al, 2015; Odemerho, 2015; Tas, 2013; The World Bank Group, 2011A, 2011B; Chatterjee, 2010). Pilot projects where dwellers clean drains and collect solid waste help DRR against floods. In some UIS, they even form community groups to collect waste from households and markets and convert them into composite manure they can sell. This enhances income and agricultural production and improves sanitation and drainage systems (Kita, 2017; Marfai et al, 2015)

Marfai et al (2015), Hellman (2015) and Chatterjee (2010) found that the local communities prepare for floods by moving household possessions and electronic equipment to higher places and evacuating the elderly and children to mosques. Marfai et al (2015) conclude that the majority of adaptation measures are taken at household level. Odemerho (2015) points towards varying kinds of EA that include defense walls, sand bagging, and distributing rain boots. Likewise, Porio (2011) highlights that dwellers have adapted to floods by packing clothes in boxes, tying and raising furniture and appliances to higher parts of their homes, and creating platforms for valuable household items.

Ezemonye et al (2014) recommend saving accounts for disasters, a family flood disaster plan, raising the foundation of the house above flood level, and educating individuals in disaster awareness. Tas et al (2013) sum up varying EA such as using carpets, cushions, and clothing to shore up doorways; placing sandbags/bricks in front of doors and using planks to change the direction of the flood waters. De Perez (2012) emphasizes boiling water, constructing

drainage systems and dykes, awareness and education, shelter building, and practical actions such as distributing boots and shovels.

The World Bank Group (2011A) emphasizes the use of EA that generate net social or economic benefits independent such as capacity building and education. In Kenya, 90% of dwellers took preparedness measures such as repairing roofs, building stronger foundations, digging trenches, clearing drainage and ditches, repairing leaks, channelling water, and planting trees, which The World Bank Group (2011B) perceives as important EA for cities with limited capacity and resources. The World Bank (2011B) recommends a mapping of the dynamic areas in UIS, which assist in useful risk assessments.

#### **4.6 Summary of results from scoping study three**

This section aims to sum up key findings from the third scoping study to help the reader identifying important findings.

Early warning systems are necessary to take preparedness measures against floods. 91% of respondents protect their house during events, but unfortunately more than half do not receive EW and EWS is not enough to lives and properties. Community participation and changing attitudes towards disasters are necessary. UIS communities are heterogeneous, which complicate community work. There is a clear lack of long-term thinking both from dwellers, which do not invest in DRR and instead they rely on a social distribution network.

UIS have poor service infrastructure and drainage is often inadequate. Community groups collecting garbage is helpful with securing drainage channels. Important household items are secured by moving it to higher places. Relying on low practical items and actions is important for cities with limited capacities and low practical items are useful.

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## 5. Semi-structured Interviews with Professionals

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Semi-structured interviews are used to answer the research questions: “*What benefits and obstacles of FbF are known by practitioners?*” and “*Is FbF a viable DRM strategy in UIS?*” and the sub-questions: “*What are the potential benefits/obstacles of implementing FbF in UIS?*” The interviews will support the scoping studies in identifying important factors to answer the research questions and investigate if practitioners agree with findings from the literature.

The interview questions are based on the findings from three scoping studies and divided into the categories of the obstacles and benefits found in literature. The interviews start out generally about FbF and develop into more specific questions and end with focusing on UIS. Furthermore, the interviews address practices and experiences with already existing FbF programs and the future implementation of FbF projects in UIS.

The interviews were conducted as semi-structured, which allowed the interviewer to plan questions beforehand and ensure a red thread, but still pursue new discoveries during the interview. It ensured openness and provided the interviewer with the opportunity to ask follow-up questions or the interviewee to elaborate on answers (Kvale, 2007).

Personnel from leading organizations advocating FbF were relevant interview subjects. Alexandra R uth from GRC works with the coordination of climate change adaptation and FbF (Appendix 9.1). An anonymous interview person working for RCCC was chosen because of FbF and UIS related work (Appendix 9.2). Catalina Jaime is RCCC’s FbF coordinator (Appendix 9.3). Aynur Kadihasanoglu is an Urban Risk Management advisor from the American Red Cross (Appendix. 9.4). Anne Mette Meyer from Danish Red Cross (DRC) is a DRM and climate change adaptation consultant and coordinates FbF programs for DRC (Appendix 9.5). The last interview person was Elisabeth Stephens, a researcher from Reading University, but she was unable to participate in the interview, instead she sent an e-mail listing her perception of the main obstacles related to FbF in UIS (Appendix 9.6).

Each interviewee contributed and helped with answering the research questions with their experiences. An interview protocol was produced to ensure comprehensiveness and coherence in the data collected from the scoping studies (Appendix 3). The interview protocol addresses

the different obstacles/benefits<sup>9</sup> from the literature and allows interviewees to think about their own perceptions.

### **5.1 Semi-structured Interviews Limitations**

Semi-structured interviews require the interviewer to have great interviewing skills. Answers are sometimes ambiguous where statements can imply a variation of interpretation. Furthermore, questions could open the interviewees to see obstacles or benefits from a new perspective and therefore perceive them differently after the interview (Kvale, 2007).

The present thesis faced challenges with interviewing busy practitioners, which led to hurrying the interviews. In some cases more time would have benefited the interviews. The interviewees were all practitioners with great experience in the field, and it was difficult to challenge their views, which hindered the interviewer from pursuing discussions. At the beginning of each interview it was not clear how much time the interviewee had planned and this definitely hindered planning. Conducting the interviews again proper time management and knowing the limit would be helpful and could benefit the interviews.

In the interview protocol (Appendix 3) expected answers of planned questions were integrated in order to plan follow-up questions. The questions were based on literature findings and therefore expected answers and follow-up questions as well. Interviewees had experienced a lot since literature was published, which led to unexpected answers and therefore limited the use of the planned expected answers and follow-up questions. Positively, interviewees often had a less negative view on literature's highlighted obstacles e.g. "acting in vain".

Lastly, a great part of the available literature in the field was produced or influenced by several interviewees, which could lead to similar results as in the scoping studies and interviews. Especially, Alexandra R uth has authored a lot of the available grey literature about FbF.

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<sup>9</sup> The word 'challenge' was used in the interviews interchangeably with 'obstacle'.

## **5.2 Results from Semi-structured Interviews with Professionals**

This section presents the results from five semi-structured interviews. The results are presented in the categories from previous sections with obstacles and benefits on FbF.

### **5.2.1 Communication & Coordination**

All interview persons agreed that obstacles emerge from C&C. German Red Cross faced obstacles in phase one of FbF, but in the second phase, GRC implemented a longer process of discussion and advocacy work with actors to make them understand what FbF means, including the consequences in order to ensure commitment from their side (Appendix 9.1). Similarly, Danish Red Cross face obstacles with explaining the concept to local organizations, because FbF is quite technical and is less visible compared to traditional responses (Appendix 9.5).

One interviewee highlighted the need for C&C between actors, so the same threshold can trigger actions from varying organizations, which could help solve funding issues (Appendix 9.3). Another interviewee elaborated on the need to collaborate, because UIS do have structures, but the structures can be invisible to external observers (Appendix 9.4).

One representative from RCCC advocated partnerships amongst local and national governments, meteorological offices, NGOs, and states that FbF should be housed and championed by an office of DRM in the country (Appendix 9.2). The anonymous interview person said that a main obstacle is:

*“getting the government to buy the idea of FbF”* (Appendix 9.2).

One interviewee pointed out the obstacle of bringing scientists and humanitarians together and the cooperation between sectors (Appendix 9.1). Another professional agreed that integrating FbF into the government and RC strategies is an obstacle and stated:

*“How do we make sure that this is not just seen as another project and as another kind of isolated strategy and rather as a part of a DRR strategy?”*  
(Appendix 9.3)

Two out of five interviewees are ambitious with the private sector's future role in FbF, both as partners and donors (Appendix 9.2, 9.5). One interviewee explained that GRC has drained the field of professionals with knowledge about FbF, which is an obstacle for new organizations trying to launch FbF programs (Appendix 9.5).

### **5.2.2 Scale**

Four out of the five interviewees addressed scale as an obstacle. Several interviewees believed the national approach should include more areas and have solved some issues of scaling up. The former method was inefficient because the forecast level is a higher scale, so when cyclones hit, nothing was implemented in the communities next to the program area (Appendix 9.3). GRC has implemented the national approach with flexible actions and mobile teams (Appendix 9.1), and this approach prevents complaints from communities that are not included in the programs (Appendix 9.2).

In order to scale up and utilize existing systems, GRC has tried to combine FbF with social security systems, but systems are not trusted and the data is useless (Appendix 9.1). On the one hand, social security systems could assist FbF in urban informal settlements, because it might be easier when people are geographically closer. On the other hand it could be an obstacle because people are working outside their homes, which creates obstacles with accessibility (Appendix 9.3). Another interviewee agrees that scale is an obstacle and states that the national approach brings opportunities but also forces RC to build local capacities when expanding to more places (Appendix 9.5).

### **5.2.3 Forecasts**

Forecasts are insufficient in some places, and one interviewee perceived this as an obstacle but stated that actions can be adapted to forecasts. FbF is developed to work where forecasts are imperfect, and data is vague (Appendix 9.1).

One interviewee agreed that producing reliable forecasts is an obstacle, and projects try to move from using preselected communities to consider where forecasts are sufficient and where there is vulnerability (Appendix 9.2).

#### **5.2.4 Policies**

Two out of five interviewees mentioned policies. FbF in many places is not rooted in the institutions, and one interviewee thought that FbF needs institutionalization in order to have higher chances of being more successful (Appendix 9.2). A GRC representative thought that the policy work GRC has helped with additional funding (Appendix 9.1).

#### **5.2.5 Donors, Funding and Finances**

GRC does not face obstacles with funding, but the interviewee can see other organizations struggling (Appendix 9.1). Three out of the five interviewees have experienced the corporate sector being interested in FbF, and they believe in potential additional funding (Appendix 9.1, 9.2, 9.5). DANIDA<sup>10</sup> have accepted that DRC uses 25% of the flexible funding for preparedness based on forecasts (Appendix 9.5).

Two out of the five interviewees stated that donors do not care if FbF is proven financially more efficient because they weigh the humanitarian aspect where acting faster avoids higher human suffering (Appendix 9.1, 9.5).

GRC tried to prove the efficiency of FbF, but using comparison villages that do not receive aid was an ethical issue (Appendix 9.1). Two out of the five interviewees highlighted the difficulties with measuring the impacts of actions (Appendix 9.3, 9.5).

Two out of the five interviewees stated that the maximum amount of an early action protocol is an obstacle, because it limits the number of households they can assist (Appendix 9.1, 9.3). An interviewee stated:

*“One EAP can be up to 230,000 Swiss Francs, so we somehow always have to limit our interventions”* (Appendix 9.1)

#### **5.2.6 Response focus**

One out of five interviewees mentioned the focus on response as an obstacle to FbF. They continued with the idea that if preparedness is challenging in western countries, in developing countries with less resources and long-term thinking, preparedness measures become even more difficult to implement (Appendix 9.5).

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<sup>10</sup> Ministry of Foreign Affairs of Denmark (<http://um.dk/da/danida/>)

### **5.2.7 Technology**

Four out of the five interviewees addressed technology as an obstacle. Initial investments are not normal procedure in GRC, but both hardware and software were purchased for actors to launch FbF (Appendix 9.1). DRC invested in weather stations in Zimbabwe and rain gauges in Mali to produce forecasts (Appendix 9.5). One interviewee explained that RCCC works more on the soft part and does not invest in hardware and technology, but they would build capacities to use it (Appendix 9.3). There lies great potential in utilizing technology for EWS, which could benefit everyone (Appendix 9.2).

### **5.2.8 Capacity**

The capacities of actors and national societies vary and lack of capacities challenge FbF. GRC experiences brain drain in their programs when employees take UN positions (Appendix 9.1). GRC has chosen to do more capacity building to which their representative stated:

*“... our strategy is now that GRC has the possibility to get long-term cooperation funding, and we are strategically trying to use this funding now more for organizational development of our NS”* (Appendix 9.1).

One interviewee elaborated on the need for CB in NS, but also emphasizes that reflection on capacities is included, so actions that are impossible due to lack of resources or capacities are not proposed (Appendix 9.3). Another interviewee highlighted the obstacle of hiring staff with knowledge about FbF and DRC experience, and as a result, GRC, due to their number of operations, has hired everyone with FbF skills in the field (Appendix 9.5).

### **5.2.9 Actions**

Varying obstacles and benefits emerged with actions, which are crucial in FbF, but cannot be prescribed. Actions should be based on extensive consultation and come from community members (Appendix 9.2).

Four out of the five interviewees highlighted cash transfers as the best FbF action. One stated that, theoretically, cash transfer programs are the perfect FbF action if a market exists (Appendix 9.1). Another stated:

*“I mean the cash transfer program, and I think it is one of the most successful actions because we managed to see the reduction of the impact that we were expecting reduced”* (Appendix 9.3).

One interviewee added that when people have the necessary resources, they do not cope with negative strategies, e.g. taking high interest loans (Appendix 9.3). Cash is preferred over coupons because coupons are conditioned by agreements with stores and service providers, which require involvement of multiply actors (Appendix 9.5). Furthermore another interviewee explained that broadly distributing is easier because of the resource heavy process in identifying the most vulnerable receivers (Appendix 9.1). Cash distributions require good data on beneficiaries though, which is often not available in these areas (Appendix 9.1).

FbF actions should be very specific in the medium to short-term window before a disaster. Low practical actions like “digging trenches” are useful, but they should be done as part of normal preparedness measures and not FbF actions (Appendix 9.1). The actions are often determined by the strengths and weaknesses of NS and require that partners bring other competences to which one interview person stated:

*“When you have a NS very strong in basic health, most likely the actions will be chosen accordingly, and then it is about maybe creating more different networks with other partners and bringing in different competences to work on FbF,”* (Appendix 9.1).

Obstacles with pre-positioning also emerge because NS does not always have transportation and storage facilities (Appendix 9.1). EAPs only focus on reducing risk and do not take advantage of situations, e.g. where higher probability for more rain, could trigger the additional planting of crops (Appendix 9.2, 9.3).

Dwellers of UIS can be difficult to persuade to do long-term preparedness work, because they do not plan to stay. They often favour actions that provide short-term benefits (Appendix 9.4, 9.5).

Three out of five interviewees addressed obstacles with actions and national partners, because they proposed traditional emergency aid. However, advocates of FbF propose basing actions on scientific research and what works for the beneficiaries (Appendix 9.1, 9.2, 9.5). In general, interviewees faced obstacles with identifying good EA (Appendix 9.1, 9.2, 9.3, 9.5).

DRC also experienced difficulties with employees preferring traditional emergency response actions over preparedness work, and one interviewee stated:

*“... Everything you normally do after the disaster, you have to do before. It is not like that at all,”<sup>11</sup> (Appendix 9.5).*

One interviewee explained that a worry with FbF is that beneficiaries spend cash distributions on unnecessary things, but surveys show that only 5% spend the cash on something useless (Appendix 9.5).

Five out five interviewees did not perceive acting in vain as a critical obstacle because donors seem to accept it, to which one interviewee stated:

*“... Honestly, they don’t see it as so critical, and we always bring it up with no regret actions, so in most cases if you implement certain FbF actions and you don’t have a real disaster, most of the actions still have a certain added value if a disaster is coming one year later,” (Appendix 9.1).*

To cope with acting in vain, the no regret policy ensures that actions will help long-term whether the disaster appears or not (Appendix 9.2).

One interviewee thought that evacuating could lead to acting in vain, but cash distributions or training will not harm anyone (Appendix 9.5) and most FbF actions can be stopped at the last minute if a flood is not happening anyway (Appendix 9.1). Acting in vain can lead to the “cry wolf effect,” but one interviewee did not think of it is an obstacle, since EWS are implemented in most places already, and it does not seem to be an issue there (Appendix 9.1).

One interviewee was worried about donor fatigue, where actions are implemented repeatedly without visible improvements or development. The interviewee extended that it is important to argue that there are impacts on different levels (community, organizational, donor) to be able to cope with obstacles (Appendix 9.3).

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<sup>11</sup> Translated from Danish (Appendix 9.5)

### 5.2.10 Urban Informal Settlements

Five out of the five interviewees identified both obstacles and benefits with implementing FbF in UIS.

One interviewee stated that the rationale for working in UIS is there, but GRC has been careful due to obstacles like a clear mandate to work in the area and lack of experiences with setting up EWS in UIS (Appendix 9.1).

Two out of the five interviewees highlight the number of actors as an obstacle, because working with FbF in UIS requires involvement of many stakeholders (Appendix 9.2). Furthermore, beneficiaries, volunteers, and employees shop around between organizations looking for the best offer (Appendix 9.5).

Actions in UIS that are not cash transfers should be generic and community-based and not focused on households. The number of households limits the distribution and becomes an obstacle, where the community level is more appropriate to intervene (Appendix 9.2). Actions related to social services in UIS and access to alternative sources of medicine, power, and food within the community are promising aspects (Appendix 9.2).

Many NS do not want to work in urban areas, because it challenges their principles to stay independent and impartial, because of land tenure conflicts (Appendix 9.5). One interviewee believed that implementing FbF in UIS requires:

*“... close negotiations and discussions with the government on the criteria to take action in the informal settlements, which could be regarded as illegal by the government,”* (Appendix 9.2).

Land tenure is an obstacle according to three out of the five interviewees, but it can be solved by working with local organizations in the area, which means RC do not have to deal with it directly. RC can instead focus on bringing actors together and facilitate a stakeholder engagement process (Appendix 9.4).

Municipalities are often not willing to serve UIS with basic services, and the city fabric in UIS can be difficult to penetrate. One interviewee stated:

*“You just have to adapt different methodologies. It takes longer because you have to invest in building trust and building relationships, and that is also overlooked a little bit,”*(Appendix 9.4).

The relevance of programs is crucial to persuading inhabitants of UIS to subscribe to your opinions (Appendix 9.4). Connecting UIS to formal systems and local authorities is an obstacle for FbF in UIS (Appendix 9.4).

Three out of five interviewees did not think attracting new dwellers by implementing FbF is an obstacle. Two highlight that there is no investment in creating jobs or similar, and in general, people want to leave the UIS (Appendix 9.1, 9.2). Another practitioner agreed and elaborated that distribution is not as visible as traditional response and FbF is based on forecasts, which would require people to use forecasts to determine where they should reside (Appendix 9.3). One interviewee out of five has experienced people moving for Word Food Programme food distribution and potentially thinks that FbF could attract people (Appendix 9.5). One out of five interviewees will not deny that it could potentially happen (Appendix 9.4). One interview person highlighted that individual organizations would struggle with the number of beneficiaries, and different organizations should focus on different actions based on the same forecasts instead (Appendix 9.2).

One interviewee believed that the main reason FbF has not been implemented in UIS is lack of forecasting, but the interviewee also emphasized that the national approach theoretically covers UIS and therefore comes down to vulnerability and exposure to the specific hazard (Appendix 9.3). Two out of five interviewees emphasized that UIS are resourceful areas with dynamic people that came to change their lives, and the strong existing networks should be utilized when implementing FbF in UIS (Appendix 9.2, 9.4). According to two out of five interviewees, gangs are not uncommon in UIS, and safety is an obstacle to the implementation of FbF (Appendix 9.3, 9.5).

## 6. Discussion/Conclusion

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This chapter contains brief conclusions from the first four research questions: “*What is known in scientific/grey literature about FbF?*”; “*What is known in scientific literature about preparedness work related to floods in UIS?*”; and lastly: “*What benefits and obstacles of FbF are known by practioners?*” Then follows a discussion/conclusion of the main obstacles and benefits related to UIS. Using earlier presented definitions of an obstacle/benefit in the “Rationale and Aim” section, the author aims to combine the findings from the literature and the interviews in order to determine if FbF is a viable DRM strategy in UIS. Lastly, a few suggestions related to the findings of the present thesis are recommended for future research.

### **FbF and Preparedness in Literature and by Prationers**

The interest from the scientific community in FbF is rather recent and most studies have been conducted in the last three years. The majority of the literature originates from Western Europe and focuses on East and West Africa and South Asia. German Red Cross is the most represented authoring organization of FbF related documents. The focus of the studies has been related to the experiences from already implemented FbF programs, preparedness measures in UIS, or investigation of the concepts in general.

There are several obstacles as well as benefits from FbF identified. Results from both literature and interviews indicate agreement in the rationale for humanitarians to work in UIS. From the data, many obstacles and benefits were identified (see sections 4.4.2, 4.5 and 5.2), but the following discussion and conclusion will focus on the main research question, which addresses contexts related to UIS and therefore obstacles and benefits related to UIS.

### **Obstacles of Implementing FbF in UIS**

Several obstacles to implementating FbF in UIS were identified in the literature and through the interviews. By combining the findings from the sources, it is possible to identify several obstacles that seem relevant in the present context. Five out of five interviewees agreed that *FbF is challenging in UIS*, but the highlighted obstacles varied. FbF programs probably suffer

from individual obstacles, which explain why interviewees perceived obstacles differently and aligned with earlier statements that a one-size fits all does not apply to FbF.

Literature and interviewees subscribed to the obstacle that *municipalities do not serve UIS with service infrastructure*. Literature and interviewees also highlighted *the large number of actors and interests* as an obstacle when implementing FbF in UIS. *The general vulnerability* is highlighted in literature as an obstacle in UIS and *lack of C&C* is the most dominant factor causing vulnerability. Interviewees indirectly subscribed to this statement, when they emphasized targeting the general community vulnerability. The broad agreement indicates obstacles related to the implementation of FbF in UIS.

Interviewees proposed that actions in UIS should focus on the community and especially social services, where literature highlights low practical household actions instead. The disagreement illustrates a general obstacle with *identifying appropriate actions in UIS*.

*Heterogeneous communities* are highlighted in literature as an obstacle when working in UIS, but interviewees did not perceive it as an obstacle. They perceived it as an opportunity because of the variety of people with different skills. Heterogeneous communities could cause disagreements, and, with the definition of an obstacle in mind, having conflicts and disagreements in the community would be an obstacle for the implementation of FbF in UIS.

The literature did not anticipate FbF *attracting more dwellers to UIS*, and only one interviewee subscribed to this possibility due to personal experiences. The national FbF approach should theoretically prevent people moving for aid, but humanitarian programs have experienced dwellers moving for aid before and it should therefore be taken into consideration as a possible obstacle when implementing FbF in UIS.

Two out of five interviewees emphasized *safety issues in UIS* as an obstacle, but it is not something the literature addresses. According to interviewees, gangs are not uncommon and there are often security issues with operating in UIS. It indicates that organizations implementing FbF in UIS could face obstacles with *accessibility* and safety issues are an obstacle when implementing FbF in UIS.

Two out of five interviewees and the literature highlighted the lack of long-term thinking in UIS as an obstacle when implementing FbF. Preparedness requires long-term thinking, and the lack of this mindset will be an obstacle for implementation of FbF.

## **Benefits of Implementing FbF in UIS**

Benefits to the implementation of FbF in UIS were also identified in the literature and through the interviews. Findings from the sources helped identify benefits that seem relevant in the present context.

Interviewees and the literature highlighted that the primary benefit is *acting faster and not waiting until after the disaster strikes in order to avoid human suffering*.

The literature and interviewees subscribed to the perception that FbF is *financially more sustainable and efficient*, which allows for more humanitarian interventions within the same budget.

The literature and interviewees agreed that FbF *keeps beneficiaries from adopting negative coping strategies* (e.g. high interest loans) after a disaster. It allows dwellers and humanitarian actors to work on long-term development without having projects demolished by disasters.

The literature argued that FbF theoretically *assist in linking all actors*, which could benefit a lot more than the specific program and FbF could help achieve other goals by improving C&C. The same mindset is indirectly found with interviewees through supporting community-based solutions and including actors.

## **Is FbF a viable DRM strategy in UIS?**

Both literature and interviewees agreed that the rationale for working in UIS is present. With urbanization, climate change and floods, humanitarians need to assist and intervene in UIS. Red Cross is launching smaller FbF pilots in UIS and they strongly believe in the rationale. Most literature is rooted in RC and interviewees employed with RC and the belief in the program could potentially be biased by the commitment towards FbF. Nevertheless, there are obstacles with implementing FbF in UIS according to both interviewees and the literature, but

the benefits outweigh the obstacles, since *FbF costs are expected to be lower in UIS than traditional emergency response; FbF in UIS allows humanitarians to act faster and prevent human suffering and dwellers from negative coping strategies. Lastly FbF in UIS creates interorganizational links that benefit varying fields and organizations in a stakeholder heavy environment.* The benefits of FbF will in many cases probably alleviate obstacles, when implemented, because *FbF can improve the general vulnerability in UIS.* The list of obstacles is much longer than benefits, but benefits weigh heavier, when compared because they support important humanitarian objectives and assist in achieving *less human suffering.*

## **Further research**

Based on the obstacles found, several uninvestigated areas are relevant for the implementation of FbF in UIS:

- Investigate how FbF affects the efficiency of funds in UIS versus traditional emergency response. Related to that, studies that can prove the decrease in negative coping strategies with the implementation of FbF.
- Investigate how the stakeholder heavy environment in UIS can be included in FbF programs to facilitate a better community-based program (e.g. through a cluster approach).
- With disagreement on appropriate actions and at what level (household, community, municipality), organizations are in need of studies identifying specific and appropriate actions and levels for UIS.

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[https://www.wvi.org/sites/default/files/WV\\_EWEA\\_Doc\\_FINAL\\_Web.pdf](https://www.wvi.org/sites/default/files/WV_EWEA_Doc_FINAL_Web.pdf)

## **Webpages**

EM-Dat, The Emergency Event Database. *Last visit March 14<sup>th</sup> 2018:* [www.emdat.be](http://www.emdat.be)

Oxford Dictionary. *Last visit April 26<sup>th</sup> 2018:* <https://en.oxforddictionaries.com>

Scopus. *Last visit April 26<sup>th</sup> 2018:* [www.scopus.com](http://www.scopus.com)

Ocean Weather Inc. *Last visit April 26<sup>th</sup> 2018:*  
<http://www.oceanweather.com/research/HindcastApproach.html>

## Appendices

### Appendix 1: Keywords Scoping Study FbF scientific/grey literature

<b>A:</b> <b>Forecasting</b> <b>Probability</b> <b>Prediction</b> <b>Warning</b> <b>Response</b>	<b>B:</b> <b>Financing</b> <b>Aid</b> <b>Funding</b> <b>Relief</b> <b>Humanitarian</b>	<b>C:</b> <b>Disaster</b> <b>Risk</b> <b>Emergency</b> <b>Hazard</b> <b>Threat</b>	<b>D:</b> <b>Weather</b> <b>Climate</b> <b>Flood</b> <b>Inundation</b> <b>Rain</b>
Preparedness Anticipation Prevention Projection Prognosis Mitigation Alertness Early Warning system Monitoring	Assistance Support Help Costs Action Catalyzing Trigger	Uncertainty Accident Catastrophe Exposure	Rainfall

## Appendix 2: Keywords Scoping Study Preparedness Work In Urban Informal Settlements

<b>A:</b> <b>Preparedness</b> <b>Warning</b> <b>Anticipation</b> <b>Mitigation</b>	<b>B:</b> <b>Slum</b> <b>Settlement</b> <b>Urban</b>	<b>C:</b> <b>Disaster</b> <b>Risk</b> <b>Emergency</b> <b>Hazard</b>	<b>D:</b> <b>Flood</b> <b>Inundation</b> <b>Rain</b> <b>River</b>
Alertness Readiness	Illegal Informal Tenement Shanty	Threat Accident Catastrophe	Climate Hydrological Weather Rainfall

### Appendix 3: Interview Protocol

- What I would like to know is related to what knowledge I want to obtain from asking the question.
- Why I would like to know the answer is related to why it is important to ask and why is it important to know.
- Literature is related to the literature related to the question or expected answer.
- Question, is the specific question I want to ask the interviewee.
- Expected answer is related to what answer I expect to get.
- Follow-up questions are related to what follow up questions that emerge from the expected answers.

<b>Interview part I</b>						
<i>What would I like to know?</i>	<i>Why would I like to know?</i>	<i>Related to literature?</i>	<i>Question?</i>	<i>Expected answer(s)</i>	<i>Follow up question</i>	<i>Follow up question</i>
I would like to know about the FbF Framework	To obtain knowledge about the FbF framework	Rüth, Stephens et al (2015), GRC & RCCC	- Can you run me through the stages of FbF?	<ol style="list-style-type: none"> <li>1. Understand Risk scenarios</li> <li>2. Identify available forecasts</li> <li>3. Formulate early actions</li> <li>4. Identify danger levels</li> <li>5. Create SOP of early actions</li> <li>6. Validate with key actors</li> </ol>	- In practice are the stages thought as an iterative or linear process?	- Is the FbF for a specific place ever finished? Can you finish FbF?  - How are exit strategies implemented in the framework?
I would like to know about obstacles in general	This question aims to make the interviewee sum up obstacles before I ask more specific about them to avoid bias	-	- What obstacles have you experienced with implementing FbF?	Interviewee is expected to highlight the different categories I will go into later in the interview	The follow up questions are the more specific questions related to following categories	-
I would like to know about benefits in general	This question aims to make the interviewee sum up obstacles before I ask more specific about them to avoid bias	-	- What benefits have you experienced with implementing FbF?	Interviewee is expected to highlight the different categories I will go into later in the interview	The follow up questions are the more specific questions related to following categories	-
<b>Interview part II</b>						
<b>Commu-</b>						

<b>Communication &amp; Coordination</b>						
Know more about obstacles and benefits related to communication and coordination	I have addressed varying obstacles/benefits related to communication and coordination and want the interviewee to elaborate on the obstacles	Cools et al (2016) Braman et al (2013) Jongmann (2015B) Costella et al (2017) Tall et al (2012) Lumbroso (2018)	- What obstacles have you faced with communication and coordination both on the administrative/practical level internally and externally?	Parallel initiatives and organisations duplicating varying programmes and actions  Knowledge sharing  Not implementing the “right” actions for the community because of lack of communication  No clear roles and responsibilities	- How do you avoid creating parallel initiatives?  - How do you ensure knowledge sharing between/within organisations and communities and inclusion of communities with unique data?  - How have RC faced obstacles with languages spoken by indigenous people and translation issues?  - Do you know of misunderstandings between local “chiefs” or community leaders assisting in defining beneficiaries  - How do you ensure clear roles and responsibilities in the programmes?	- Are the forecasts always based on “scientific forecasts or do you know of places where the triggering is based on real time eyewitnesses?  - What is done to avoid misunderstandings and different risk perceptions of communities and organisations?
<b>Actions</b>						
Actions vary, but what actions have had the most success?	Need to know experiences, when addressing specific actions	Rüth et al (2016)	- What kinds of actions have had the most success? (items, cash transfers or actions e.g. digging trenches)	Cash transfers in Bangladesh  Actions that are cheap and have long lifetimes  Non-perishable items	- Why have cash transfers had so much success?  - How is “prepare to act” integrated in the projects? (e.g. stock up before rain season) without forecasts showing higher probability?  - Can you elaborate on the action lifetimes and what they mean when prioritizing actions?	- What items do you prefer when planning?  - How is distributing of e.g. seeds to plant more and take advantage of increased rainfall utilized in FbF?  - Why are long lifetime actions preferred?
I would like to know about the obstacle of “acting in vain”, if the interviewee thinks it is an obstacle and how it can be mitigated	“Acting in vain” on a forecast that do not end in e.g. heavy rainfall is one of the core obstacles from literature	Stephens et al (2016) Braman (2013) Costella et al (2017) De Perez (2016)	- How does the risk “acting in vain” affect FbF?	The risk of spending money on nothing.  Reputational risk  “Cry wolf effect”	- How can you manage the obstacle of “acting in vain”?  - How does reputational risk when “acting in vain” influence the programme?  - How does the “cry wolf effect” affect the households and communities involved in the	-

					programme	
If “no regret” actions are preferred over normal actions	Because “no regret” actions are a core part of the actions and seem preferred vs normal actions.	RCCC (2016) Destrooper (2016) Rith et al (2017B)	- What is the idea behind “no regret” actions?	Help develop the community long-term and also to respond to an event	- Are “no regret” actions difficult to integrate and do you know of any projects where the “no regret actions” are administrated by other organisations?  - Could all actions chosen for a project potentially be “no regret” and if they are retriggeder all time time, could that end with the community getting tired of those actions?	-
<b>Scale</b>						
Scale emerges from the literature and I would like to know more and if the interviewee agrees.	Scale is highlighted as the way to make FbF sustainable and the future of FbF, but also an obstacle	Costella et al (2017) De Perez (2016) WFP (2016A) WFP (2016B)	- Why are FbF programmes currently small scale?	Hard to find donors willing to risk  They are only pilot projects investigating the sustainability	- Sustainability is proven?, so how are the FbF scaled up to regional or national levels reaching far more people?	- Can it be scaled up, since it is based on local risk assessments and local needs?  - If it cannot be scaled up, do you think it can be sustainable with many local programmes on a smaller scale where the funds come from one large pool?
<b>Fore-casting</b>						
I would like to know how forecasts intervene with FbF and how challenging they are to FbF	Forecasts are necessary to predict and trigger predefined actions	Costella et al (2017) Jongman (2015B) Tall et al. (2012) De Perez et al. (2016)	- How does limited access to forecasts affect FbF and how important are the forecasts for FbF?	It would be difficult to run FbF without forecasts	- How many of the pilot projects base their forecasts on situational analysis and trends, more than actual scientific forecasts?  - How do you work with data scarce regions when forecasting?  - Is FbF constrained by short timelines if forecasts are only available two days before?  - How common is	- Adequate forecasts are necessary, but what if they are not available. Would capacity building or investments be necessary?  - How is local knowledge incorporated into large scale forecasting systems?

					use of hindcasts or historical data?	- How do you include climate change as a factor when planning and implementing FbF?
<b>Technology</b>						
About the technology necessary to run FbF programmes	Because if certain technology is needed it an obstacle to implement FbF and therefore an obstacle.	Tall et al (2012) De Perez et al (2015; 2016; 2017) Costella et al (2017)	- What kind of technology do organisations need to run FbF?	Weather stations	- How many of the places FbF are implemented have the necessary technology?	- What kind of technology is missing and why?  - Would initial investments in technology before launching programmes be necessary and would that be an obstacle to implementation of FbF?  - Can you think of any other technology that is currently not being used but could be very useful for FbF?
<b>Response focus</b>						
How the focus on response affect FbF?	FbF is preparedness measures and is currently fighting	Lumbroso (2018) Costella et al (2017) Braman et al (2013) De Perez et al (2015)	- How does the humanitarian focus on response (on all levels) affect the development and launching of FbF programmes?	Difficult to get funding and donors	- How could the humanitarian get mandate to react to high probability of a disaster?	
<b>Donors and finances</b>						
How donors and finances affect the running and launching of FbF	Donors are the core of humanitarian work and fund everything around it	Costella et al (2017) Braman et al (2013) De Perez et al (2016, 2017) Tall et al (2012)	- How do donors react to humanitarian's interest in FbF?  - How do beneficiaries react to receiving funds or items?	Interested but sceptic about taking chances with funds  Beneficiaries are satisfied	- How could humanitarian organisations convince donors to fund more projects related to preparedness and anticipation?  - How is it assured that beneficiaries do not pass their funds or items on to landowners etc.?	- How can humanitarian organisations prove that this is cheaper, if not getting the chance on a larger scale? Or would small scale project be sufficient?

						- How is the financial flexibility for national societies in developing countries?
How donors and finances affect the running and launching of FbF	Donors are the core of humanitarian work and fund everything around it	Costella et al (2017) Braman et al (2013) De Perez et al (2016, 2017) Tall et al (2012)	- What are the experiences from the pilots regarding cost-benefit compared to response?  - What does cost-benefit analyses of FbF programmes show?	Cost-effective	- Is there a need for development of M&E related to showing the cost-effectiveness of FbF?	- Everyone in the literature seem to argue that preparedness activities are cheaper and more cost-effective, why can't we implement more preparedness measures then?
<b>Policies &amp; CB</b>						
Lack of policies emerge from the literature about obstacles and I want to know how this affect the work of humanitarian organisations	Because the right policies can open up for preparedness work and FbF	Lumbroso (2018) Costella et al (2017) Deen et al (2015)	- What policies are needed for implementing and launching FbF? (both in north/south)	Disaster Risk Management Protecting poor people Advocating preparedness	- Are these policies present with current pilots and in the countries contributing?	- If NOT, then why not?, and how can they be implemented?
If capacity building of actors and locals is needed to make FbF sustainable	Capacity building is mentioned as something necessary for developing FbF and making it sustainable	Rüth et al (2017A) Wuestenberg (2015) Aubke et al (2017)	- Is capacity building needed and what capacities need development in order to make FbF sustainable?	Forecasting Interpreting data Planning actions	- Is there a common lack of these capacities in contributing and receiving countries?	- Are the any current projects where the local NS run it completely by themselves?
<b>Partnerships</b>						
If FbF could be linked to existing systems to include more people and utilize on data and information and if there are benefits of partnerships	Because of the article Costella et al (2017), which talk about linking FbF to social protection systems	Costella et al (2017) De Perez et al (2016) Deen (2015) UN (2015A)	- What partnerships emerge from FbF?  - What existing systems could FbF be linked to and how could partnerships benefit from that?  - How is the trust between different partnerships?	Donors – International organisations International organisations – NS NS - communities  Social protection systems  Lack of trust in NS from communities	- Is the humanitarian sector calling for better partnerships and collaboration between development, response and preparedness actors and how could they benefit from partnerships?	- Partnerships are necessary (weather + NGO), but how do they work together in developing countries? (One thing is GRC and RCCC)
I want to know if FbF is an	Partnerships are essential in sustainable		- How can humanitarian organisations enable	Facilitate partnerships between organisations that have not worked	- How can FbF be helpful with partnerships in the	- Are partnerships necessary

opportunity for new partnerships to emerge	humanitarian work		national DRR actors?	together before	humanitarian sector?	for successful FbF?
<b>UIS</b>						
These questions should start the conversation about FbF and urban informal settlements and I am interested in knowing what the interviewee thinks about FbF in urban informal settlements	It is related to answering my research question and because I need to know about their general perception and knowledge before I start asking specific questions	De Perez (2012)	- Can you tell me about your experiences with FbF in urban informal settlements?	-	- Do you have experience with humanitarian work related to urban informal settlements (slums)?	-
If the interviewee thinks implementing FbF in urban areas is different from rural areas	Few experiences with urban contexts and therefore their thoughts about the implementation is essential	-	- How do you see implementing FbF in urban informal settlements different from a rural area?	Heterogeneous communities Forecasting is different	- Are urban informal settlements to large for FbF and how do you think demographics affect the implementation of FbF?	-
If the interviewee can think of any ethical issues with implementing FbF in urban areas	Ethical issues with implementing FbF are important to reflect on before implementing	Stephens et al (2016)	- What ethical issues do you see implementing FbF?	-	-	-
If professionals think land tenure is an obstacle to implement FbF in Urban informal settlements and how they think it could be implemented	Land tenure emerged as an obstacle to preparedness work in urban informal settlements	Hellman (2015) Ajibade et al (2014) Porio (2011) Chatterjee (2010)	- How would illegal urban informal settlements affect the implementation of FbF?	Problems with local government when helping dwellers in illegal settlements (Land tenure)	- How would that manifest in the outcome, how do you think a potential FbF programme would look like?	- What would be necessary to be able to implement FbF in urban informal settlements?  - How can the communities/individuals and organisations spend resources upgrading slums, when the dwellers live there illegal?
If a heterogeneous community would be an issue when implementing FbF	Heterogeneous communities emerged as an obstacle for preparedness work in the literature	Chatterjee (2010)	- How would a heterogeneous community affect implementation of FbF?	The dwellers varying in households, caste, demographic etc. would complicate the planning and implementation and neighbours might fight over items or cash	- Would it be necessary to emphasize and focus on specific stages/parts of FbF planning and implementation to make it successful in	- What actions do you think would be appropriate in terms of lowering the

					<p>this case? (if yes why that specific focus projects?)</p> <p>- What experiences do programmes have with dwellers passing on their aid to landowners etc.?</p>	<p>inequality we find in urban informal settlement?</p> <p>- How can organisations make sure that only the most vulnerable in these places get aid and not the “slum kings”?</p>
<p>If the general vulnerability seen in urban informal settlements is an obstacle for FbF and what there could be done to overcome it</p>	<p>The general vulnerability seems to be very high in urban informal settlements and knowing how it affects implementation of FbF is important determining whether FbF is a viable DRM strategy</p>	<p>Salami et al (2017) Ajibade et al (2014) Kita (2017) Marfai et al (2015)</p>	<p>- What role does the general vulnerability play in FbF when selecting beneficiaries?</p>	<p>Dwellers general vulnerability need to be lowered</p>	<p>- How do you think lowering the general vulnerability in the slums play together with FbF often being very specific preparedness actions?</p>	<p>- What kind of actions would be appropriate to lower the vulnerability in general?</p>
<p>What the supportive networks (between family and neighbours) found in urban informal settlements mean to FbF</p>	<p>Because I want to know if organisations have thought about utilizing the supportive networks people have in the slums in some way</p>	<p>Chatterjee (2010)</p>	<p>- How would existing networks fit into FbF and how could the existing networks be utilized? (Dwellers from urban informal settlements rely on supportive networks)</p>	<p>Utilizing the already existing networks</p>	<p>-</p>	<p>-</p>
<p>Know about the issues with ending up helping one household on side of the street and not on the other side</p>	<p>Because this differences could potentially cause huge problems</p>	<p>(Stephens email)</p>	<p>- How would organisations avoid to ending up helping households on side of the street and not on the other side?</p>	<p>Help the whole slum</p>	<p>- If the slum is too big, how would we include so many dwellers in the project, and people could potentially move to the side where they get help</p>	<p>-</p>
<p>The slums could potentially increase in size if people hear humanitarian organisations deliver aid to the inhabitants</p>	<p>Because the act is counterproductive, since we want to get rid of slums, but helping slum dwellers can create a reason for people to move there.</p>	<p>Stephens (email)</p>	<p>- How would organisations ensure the slums wont increase in size, when people hear about the aid programmes?</p>	<p>Only most vulnerable are included in the programme</p>	<p>- How is the pull factors balanced so we wont attract to many new inhabitants because of the aid?</p> <p>- How is the most vulnerable found?</p>	<p>-</p>
<p>From the literature it emerged that dwellers often do not receive warnings before e.g. heavy rain, I</p>	<p>Because knowing about the stages and execution of the early warning is relevant</p>	<p>Ajibade et al (2014) De Perez et al (2012)</p>	<p>- How does the early warning function in the areas of FbF programmes now?</p>	<p>Local RC volunteers get information from local weather services/RCCC and warn and trigger actions</p>	<p>- How would that function in an urban context with a lot of people that do not know each other?</p>	<p>-</p>

want to know about early warning in areas of FbF						
I want to know from practitioners if forecasting for floods in urban areas is very different from rural areas	Most projects are related to rural areas and this should spark any obstacles related to forecasting in urban areas.	Stephens (Email)	- How is forecasting in urban informal settlements different from a rural area?	We don't know where the water goes and we have no clue about the households, where the water run etc.	- What is done to improve the forecasts in urban areas and especially urban informal settlements?	- How do you think mapping urban informal settlements could improve the possibilities of good forecasts in these areas?
I want to know what the interviewee thinks are appropriate early actions	To answer the related research question: "what appropriate early actions..."	3. Scoping Study	- What are some appropriate EA to take in urban informal settlements and your experience with the different types of EA?	Cash transfers is mentioned in literature as the number one or best FbF action	- What experiences have you had with community based DRR?	- How is their level of vulnerability included in in FbF?
I want to know what the interviewees think about EWS in UIS and if its is normal or not	Because EWS is essential to implement FbF	De Perez (2012)	- How many of urban informal settlements you know of have appropriate EWS and does it cover the whole settlement?	-	-	-
If mapping have helped in implementing FbF, if it is a necessity before implementing FbF.	Mapping seems essential for the risk analysis	Stephens et al (2016)	- Do you have experience with mapping the urban informal settlements before you start implementing FbF?	Mapping is crucial to understand the risk picture of the UIS	-	-
What there would happen to the settlements if the flood risk were removed	People live there because they have to, and the lands are unattractive to the municipality because of the risk, but if risk were removed they might remove the dwellers or sell the land	Chatterjee (2010) Hellmann (2015)	- What would happen if the flood risk were removed?	Increasing land value would force people out	- Could living costs potentially rise, or government evict the area and build expensive housing dwellers cannot afford.	- Do dwellers actually benefit from floods and have no interest in a total mitigation of floods?

## Appendix 4: Scoping Study 1, Frequency of Factors in Scientific Articles

The different tables (Appendix 4, 5 and 6) illustrate the scoring of factors emerging from the literature from the three scoping studies. They are presented order as in the thesis. (3 = explicit, 2= implicit and 1 = not mentioned)

Article	Forecast-based Financing Framework	Obstacles	Benefits
Alfieri, et al. (2013) “GloFAS-global ensemble streamflow forecasting and flood early warning”	1	1	1
Braman, L.M. Et al (2013) “Climate forecasts in disaster management: Red Cross flood operations in West Africa, 2008”	3	3	3
Costella, C.,et al. (2017) “Scalable and sustainable: How to build anticipatory capacity into social protection systems”	3	3	3
Cools, J., Innocenti, D., O'Brien, S. (2016) “Lessons from flood early warning systems”	2	2	2
Dale, et al. (2014) “Probabilistic flood forecasting and decision-making: An innovative risk-based approach”	1	2	2
Deen, S. (2015) “Pakistan 2010 floods. Policy gaps in disaster preparedness and response”	1	1	1
De Perez, E., et al. (2015) “Forecast-based financing: An approach for catalyzing humanitarian action based on extreme weather and climate forecasts”	3	3	3
De Perez, et al. (2017) “Should seasonal rainfall forecasts be used for flood preparedness?”	2	2	2
De Perez, et al. (2016) “Action-based flood forecasting for triggering humanitarian action”	3	3	3
Jongman, B. et al (2015) “Declining vulnerability to river floods and the global benefits of adaptation”	1	1	1
Jongman, B. et al. (2016) “Early flood detection for rapid humanitarian response: Harnessing near real-time satellite and twitter signals”	1	2	1
Lumbroso, D.(2018) “How can policy makers in sub-Saharan Africa make early warning systems more effective? The case of Uganda”	2	3	2
McCallum, I. Et al. (2016) “Technologies to Support Community Flood Disaster Risk Reduction”	1	1	1
Tall, A. Et al. (2012) “Using seasonal climate forecasts to guide disaster management: The Red Cross experience during the 2008 West Africa floods”	3	3	3

## **Appendix 5: Scoping Study 2: Methodology**

### **Step 1: Identifying Research Question**

The scoping study was already presented in the methodology. This section presents the methodology for the second scoping study answering the second research question: “*what is known in the grey literature about Forecast-based Financing*”. This research question was found necessary because much literature about FbF seems to be non-scientific and not available from any databases of scientific literature. The results serves the same purpose, to know more about FbF, but since grey literature falls completely out of the first research question it needs to be handled separately.

### **Step 2: Identifying Relevant Articles**

A distinction between (where to search) and search query identification (how to search) was made (Beerens & Tehler, 2016).

#### ***Database selection***

Google Search Engine was chosen instead of a scientific database and non-scientific literature instead of scientific. Based on the initial Google test searches which generated more than 6 million hits for ‘Forecast-based Financing’, it was essential to generate less and more relevant literature to fit the time and limitations for present thesis.

#### ***Search Query Identification***

A Boolean approach was adopted. Before the final search was conducted, it was necessary to identify the search words to generate relevant hits and same words and synonyms for the first scoping study were also relevant for the second (Appendix 1). Test searches were done with varying search words trying to balance the breadth and depth of the generated hits (Arksey & O’Malley, 2005). The author found that too many search words generated an unrealistic amount of hits and therefore the number of words was compromised to a few.

To answer, “*what is known in the grey literature about Forecast-based Financing?*” following search string was used: “forecast-based financing” AND early action AND humanitarian, which generated over 3,000 hits. File type was set to .pdf to avoid a large number of webpages found in test searches with no information on Forecast-based Financing and the generated number of hits were brought down to 100. This could potentially leave out relevant webpages, but from looking at a large number of webpage they were irrelevant and

without any information that was not given in the documents. Webpages often included smaller articles based on an official document that was still generated from choosing .pdf files only. Using the Boolean operator ‘AND’ generated significantly fewer hits, since Google only generate hits where all words are present at the same time and the specific word function, allowed only articles with “Forecast-based Financing” in it. The reason for this choice was based on the number of generated hits by not doing it (119.000). 100 hits were a realistic amount based on the extent of FbF and the time available.

Here the criteria that were set up, to locate the right articles among the many generated hits on Google Search are listed:

1. “Forecast-based Financing” is mentioned
2. File type: PDF

### **Step 3: Article Selection**

The links and generated hits were opened to analyse the title of the document and determine relevance. The documents were assessed according to following criteria in order to filter irrelevant hits, but due to the varying kind of documents setting criteria was challenging.

1. The document must be authored by a humanitarian organisation
2. The document cannot be a Power Point presentation
3. The document cannot be a duplicate from the first scoping study
4. The document must address Forecast-based Financing
5. The document must be in English

The document must be authored by an organisation working with humanitarian relief, preparedness or development. Several Power Point presentations were generated from the search, but the format were not found useful. A few scientific articles from the first scoping study were generated, but removed. Regarding content, ‘Forecast-based Financing’ was searched in the documents to determine if the document actually addressed FbF or simply referred to it. Documents not addressing FbF were not relevant and lastly, all documents not in English were also removed. After looking through the 100 generated hits, the pool was left with 23 documents after above-mentioned criteria.

### ***Relevant Organisations and Additional Literature***

As for the first scoping study, it was found necessary to increase the comprehensiveness of the study and search for additional literature with organisations represented in the hits. Red Cross Climate Centre (RCCC) and German Red Cross (GRC) seemed to be involved in a great deal of literature. The organisations were therefore interesting to investigate further with the intention of mapping valuable literature to answer the research question. With the same inclusion and exclusion criteria another 2 documents were added from their websites <https://www.climatecentre.org> and <https://www.drk.de/en> to the pool of 23 documents of grey literature about FbF (25).

## Appendix 5.1: Scoping Study 2: Frequency of Factors

The following table illustrate the scoring of factors emerging from the literature. (3 = explicit, 2= implicit and 1 = not mentioned). This is further elaborated in section 4.3.

Article	Forecast-based Financing Framework	Obstacles	Benefits
Aubke, G; Lux, S; Siahann, K (2017): "Outcome Report - Asia Pacific Regional Dialogue Platform"	3	3	3
Brigitte Rohwerder (2017): "Flexibility In Funding Mechanisms To Respond To Shocks"	2	3	3
Charters, R (2015): "Early Response to Drought in Pastoralist Areas: Lessons from the USAID Crisis Modifier in East Africa"	3	2	2
Costella, C; Jaime, C; Arrighi, J; De Perez, E; Suarez, P; Van Aalst, M (2018): "Resilience Solutions: Exploring Social Protection Linkages To Forecast-based Financing".	3	2	2
Davies, P; Lagmay, A; Monjane, F & Gunawan, I (2016): "The Final Mile: Connecting an Impact-based Warning Service to Decision-making"	3	3	2
Destrooper, M; Bazo, J; Puell, M; Melgar, J.C. (2016): "Forecast-based Financing – Changing The Paradigm, Acting Faster, El Niño in Peru"	3	3	3
Fabre, C (2017): "Financing Preparedness"	3	3	3
Feeny, E (2017): "From Early Warning To Early Action In Somalia – What Can We Learn To Support Early Action To Mitigate Humanitarian Crises?"	2	2	2
Halima, S; Obongita, J; Wanjiku, E; Barr, S; Zastiral, C. (2016): "Forecast Based Action in Kitui, Kenya: A Case Study",	2	3	3
Koelle, B; Bachofsen, C; Suarez, P; De Perez, E; Jones, R; Mudenda, W (2015): "Using Climate Information to Achieve Long-term Development Objectives in Zambia.	2	3	3
Kehler Siebert, C., Klein, R.J.T; Biskupska, N; Dickin, S; Piman, T; and Vulturius, G. (2017): "Adaptation Futures 2016: Practices and Solutions Conference Synthesis"	2	1	1
UN, The UN Secretary General's Climate Resilience Initiative (2015) "A2R, Anticipate, Absorb, Reshape"	2	1	1
Rüth, A; Lux, S; Scholz, S (2017A): "Forecast-based Financing – An Innovative Approach"	3	2	2
(RCCC), Red Cross Climate Centre & German Red Cross (2016): "Forecast-based Financing of Preparedness: Developing An Operational Protocol"	3	2	2

Rüth et al. (2016A): “Forecast-based Financing Manual”	3	2	3
Rüth, A; Bachofen, C; De Perez, E; Van Aalst, M. (2016B): “Closing The Gap: Reconciling Short-term Disaster Response With Long-term Risk Reduction With Forecast-based Financing”	2	1	3
Rüth, A (2015): “Framework, Action Plan of The Federal Foreign Office for Humanitarian Adaptation to Climate Change”	2	1	1
Rüth, A; Siahaan, K.D; De Perez, E; Kelly, T; Jaime, C; Bailey, M; Lux, S (2017B): “Forecast-based Financing - A Policy Overview”	3	3	3
RCCC, Red Cross Climate Centre (2018): “Forecast-based Financing: Case Studies From Togo and Uganda”	3	3	3
Suarez, P (2017): “Virtual Reality for A New Climate: Red Cross Innovations In Risk Management”	2	1	1
Start Network (2017) “Drought Financing Facility”.	2	2	2
Stephens, E; De Perez, E; Kruczkiewicz, A; Boyd, E; Suarez, P (2016): “Forecast-based Action”	3	3	3
Wuestenberg, A; Alemu, A; Jaime, C; Dujanovic, D; Jordan, G; Zewdu, G; Ticehurst, H; Bye, H; Taetsch, K; Caley, L; Miller, R (2016): “Learning From Experience: A Summarised Review Of Early Warning Systems”	2	3	3
WFP, World Food Programme (2016B): “Stakeholder Consultation Workshop Report. Forecast Based Flood Preparedness in Nepal”	3	3	3
WFP, World Food Programme (2016A): “The Standing Committee on Finance on Financial Instruments that Address the Risks of Loss and Damage Associated With the Adverse Effects of Climate Change”	3	3	3
WFP, World Food Programme (2018): “FoodSECuRE – Moving From Crisis Response to Risk Management”	3	3	3

## **Appendix 6: Methodology Trends in Scoping Study 1**

This section briefly addresses the methodology of the 14 scientific articles about FbF. The grey literature is not mentioned in this section, because their methodology is unclear.

Alfieri et al (2013) described tested the GloFas with an evaluation of its performance over a two-year test period and a qualitative analysis of a case study for the Pakistan flood, in summer 2010. Braman et al (2012) compares data from three consecutive years to capture benefits from use of seasonal forecasting information. Cool et al (2016) present case studies from three different places to highlight recommendations and lessons learned from EWS. Costella et al (2017) uses lessons learned and evaluations from existing FbF pilot projects. De Perez et al (2015) test cost-benefit using a mathematical model. Dale et al (2014) developed decision support method and tested it with two places in England to demonstrate practice. De Perez et al (2016) estimated quantity of discharge that represents a flood and identified the forecast probability that would make it worthwhile taking preparedness actions to define a forecast probability that could be used to trigger EA in Uganda. De Perez et al (2017) uses an alternative way to assess rainfall indicators used in data scarce regions and then their methodology depends on the reanalysis for climatology of rainfall and focuses on the hydrological model to estimate consequences of rainfall for river flows. Deen (2015) uses data from primary fieldwork, three interviews with key government officials and secondary research involved a review and analysis of existing literature on floods. Jongman et al (2015) used a physical model chain to produce flood hazard and exposure maps and then forcing the model cascade with bias-corrected simulation data produced projections of changes. Jongman et al (2016) assessed the effectiveness and usability of near-real time satellite and social media data for disaster response by analysing one flood in Pakistan and 80 smaller floods in the Philippines. Lumbroso (2018) base the findings on an Internet based survey with 41 respondents and semi-structured interviews with key stakeholders. Tall et al (2012) used comparison of varying factors triggering humanitarian action, comparison of disaster risk management strategies and investigating of news clips and reports. McCallum et al (2016) does not present the methodology in the paper.

## **Appendix 7: Scoping Study 3: Methodology**

### **Step 1: Identifying Research Question**

This section addresses the specific methodology and present the third and last scoping study, which investigates the following research question: “*what is known in the scientific literature about preparedness work related to floods in urban informal settlements?*”.

The research question is necessary to be able to answer the main research question of the thesis: “is FbF is a viable DRM strategy in UIS?” Arksey & O’Malley (2005) recommend aiming for comprehensiveness in the research question. Beerens & Tehler (2016) recommend test searches to know more about the terminology and find the right research question.

### **Step 2: Identifying Relevant Studies/Articles**

Second step of the scoping study was to identify relevant articles. A distinction was made between database selection (where to search) and search query identification (how to search) (Beerens & Tehler, 2016).

#### ***Database Selection***

Scopus owned by Elsevier ([www.scopus.com](http://www.scopus.com)) was chosen. The database is one of the largest and publishes a great number of multi-disciplinary relevant articles in varying fields (Beerens & Tehler, 2016).

#### ***Search Query Identification***

A Boolean approach was used to create a search string. First keywords from the research question were grouped and synonyms (Appendix 2) were made in order to create the best search string. The varying combinations were tested. The result was:

A: Preparedness OR warning OR anticipation OR mitigation

B: Slum OR urban OR settlement

C: Disaster OR risk OR emergency OR hazard

D: Flood OR inundation OR rain OR river

Figure 8 presents the methodology and process with the initial search string that generated 952 hits, before three criteria filtered the generated hits:

1. The articles must be peer-reviewed
2. The articles must be in English
3. The articles cannot be more than 20 years old

Peer-reviewed articles ensure trustworthy scientific work and resulted in 601 articles. English is necessary to understand the articles and narrowed the hits further down to 548. Only articles not older than 1999 were included, which resulted in a pool with 505 articles for the title analysis. The reason for filtering out articles older than 1999 is related to the technological development in EWS and preparedness, the recent focus on EA and lastly the increasing extent of slums.

### **Step 3: Study/Article Selection**

The 505 article titles were analysed and obvious irrelevant articles were removed. This left 184 articles ready for the abstract analysis, which was based on following criteria to filter out irrelevant hits.

- Articles should address flooding
- Articles should address preparedness work
- Articles should relate to floods and preparedness work to urban informal settlements

The articles should address preparedness work and flooding since it is the focus of the thesis. The articles should relate preparedness and flooding to urban informal settlements. The definition of urban informal settlements can be tricky, but present thesis used the words slum, urban and settlement and determined for every single abstract whether they worked with slums or poor neighbourhoods. This was primarily done by discovering the regional focus of the study e.g. slums in Western Europe are rarely.

### ***Additional literature***

Additional literature was obtained by an anonymous interview person (+1), an interview person that offered insights from a report on a project in Kenya. More literature was found looking through references (+5). A few of these articles were not scientific literature but produced by humanitarian organisations. Thus, the documents were used as references for scientific articles, they were approved despite the non-scientific basis and integrated in the pool of articles for present scoping study.

## Appendix 7.1: Scoping Study 3: Frequency of Factors

The table illustrates the scoring of factors emerging from the literature. (3 = explicit, 2= implicit and 1 = not mentioned). This is further elaborated in section 4.3.

Article	Specific Early Actions	Preparedness work
Ahadzie, D.K; Dinye, I; Dinye, R.D; Proverbs, D.G (2016): "Flood Risk Perception, Coping and Management in Two Vulnerable Communities in Kumasi, Ghana"	2	2
Ajibade, I; McBean, G (2014): "Climate Extremes and Housing Rights: A Political Ecology of Impacts, Early Warning and Adaptation Constraints in Lagos slum Communities"	3	2
Chatterjee, M. (2010): "Slum dwellers response to flooding events in the megacities of India"	2	3
De Perez, E. (2012): "Urban Risk Reduction - Climate Assessment"	3	3
Ezemonye, M.N; Emeribe, C.N (2014): "Flooding and household preparedness in Benin City, Nigeria"	1	3
Hellman, J. (2015): "Living with floods and coping with vulnerability"	1	1
Kita, S.M. (2017): " Urban vulnerability, disaster risk reduction and resettlement in Mzuzu city, Malawi"	2	2
Mahmood, M.I; Elagib, N.A; Horn, F; Saad, S.A.G (2017): "Lessons learned from Khartoum flash flood impacts: An integrated assessment"	2	2
Marfai, M.A; Sekaranom, A.B; Ward, P (2015): "Community responses and adaptation strategies toward flood hazard in Jakarta, Indonesia"	3	3
Nkwunonwo, U.C; Whitworth, M; Baily, B (2016): "Review article: A review and critical analysis of the efforts towards urban flood risk management in the Lagos region of Nigeria"	3	2
Odemerho, F.O (2015): "Building Climate Change Resilience Through Bottom-up adaptation to Flood Risk In Warri, Nigeria"	3	3
Porio, E. (2011): "Vulnerability, Adaptation, and Resilience to Floods and Climate Change-related Risks Among marginal, Riverine Communities in Metro Manila"	3	3
Salami, R.O.; von Meding, J.K; Giggins, H (2017): "Vulnerability of Human Settlements to Flood Risk in the Core Area of Ibadan Metropolis, Nigeria"	2	2
Tas, M; Tas, N; Durak, S; Atanur, G (2013): "Flood Disaster Vulnerability in Informal Settlements in Bursa, Turkey"	2	2
Texier, P. (2008): "Floods in Jakarta: When the extreme reveals daily structural constraints and mismanagement"	2	3
UN Habitat (2011): "Cities and Climate Change Global Report 2011 Human Settlements"	1	3
The World Bank Group (2011A): " Guide to Climate Change Adaptation in Cities"	3	3
The World Bank Group (2011B), "Climate Change,		

Disaster Risk, and the Urban Poor - Cities building resilience for a changing World”	3	3
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### **Appendix 8: Methodology Trends in Scoping Study 3**

There are some trends in the methodology of the articles from the third scoping study. The methodologies are briefly presented here.

Mahmood et al (2017) assessed impacts of flood events from the past from literature. Kita (2017) used mixed methods combining qualitative and quantitative approaches, where primary data were collected through focus groups, semi-structured interviews, participant observation and the secondary datasets from a household survey. Salami et al (2017) based the research on a quantitative method using primary data from a questionnaire, where 156/250 returned. Secondary data were from academic journals, textbooks and government documents. Nkwunonwo et al (2016) used a review of literature along with historical flood data from 1968 to 2012. Ahadzie et al (2016) used focus group discussion with a total of 20 interviewees. Marfai et al (2015) used in-depth interviews and observations in flood prone areas of Jakarta. Odemerho (2015) used a structured questionnaire survey with 126 returned. Hellman (2015) collected data through participant observation and formal interviews. Ezemonye et al (2014) used fieldwork, where primary data was obtained through structured questionnaires and oral interviews where necessary. Ajibade et al (2014) used mixed qualitative and quantitative method with in-depth interviews, a survey and focus group discussions. Tas et al (2013) used questionnaires with members from 33 households and 1 expert interview. Porio (2011) based the study on a survey of 300 urban poor households in 14 communities. Chatterjee (2010) used mixed qualitative and quantitative methods with in-depth interviews, a survey and focus group discussions. Texier (2008) Used 120 questionnaires for field surveys. De Perez (2012) held focus group discussions, participatory games with a total of 250 participants.

## **Appendix 9.1: Interview with Alexandra R uth, GRC.**

Interview with Alexandra R uth, German Red Cross.

M: Should we just start?

A: Yes

M: Maybe brief you could just run through the stages of FbF?

A: Maybe it's important to clarify somehow. When we started in 2014-2015 we had an approach, we were working in all kinds of different countries in a different way and our most important strategy was to somehow produce some results. So to get it done. To work on SOP's, it was a quick and dirty process and maybe not all kind of partners and actors were properly consulted and just to be able to activate and drive and to get more feeling to what does it mean to define scientific thresholds and combine it with early actions. And now when we move to our second phase, so we got new funding from our donors, the German government and we tried to continue working in our three pilot countries in Peru, Bangladesh and Mozambique and we added new ones. We decided that somehow we have to, we need a longer process of discussions or advocacy work with national partners and NS and with governmental actors to really make them understand what FbF means and what are all the different consequences and then get a clear commitment from their side and then the next step would be really engage in FbF and seriously start working on all the different steps like the risk analysis, checking what kind of forecasts are available, historical analysis, and in parallel identifying good humanitarian early actions. So that was a change in our strategy I would say. And the second change was, I think you have it one of the questions as well, was in our first phase we were working mainly in three selected communities, in Peru, an areas where you have generally flooding due to El Nino, we selected five communities and we just found out that this is not the right approach for FbF, because mainly it was raining and flooding in the neighbouring districts, and what we do now is try to imply a more national approach and to be more flexible in our early actions so if a risk is rising in a certain area we have mobile team and actions you can really implement in different regions. National wide approach it doesn't mean we are all able to cover the whole country, for example the Philippines with I don't know how many thousand of islands, is very complicated. Even Mozambique for example is too big for a country. So there we are still working in provinces, but we cover most of the coastline or the coastline in the southern part of Mozambique. So we have a higher chance to really activate and to gather more experience in activating FbF.

M: Just on top of your mind, what are the challenges you have experienced implementing and planning FbF?

A: It is very different from country to country, but more in general I think since it's a very innovative approach and it requires good cooperation between/across sectors – you know bringing scientists and humanitarian actors together we notice that that requires maybe more time and it is a process where people have to reflect on “what does it >FbF<really mean?”. Sometimes you present FbF and people are really excited and want to start something, but when its more about all the details they just face a lot of challenges and that is sometimes, sometimes you don't have the real commitment from government, actors and even NS. All Red Cross societies are not super strong so sometimes we work with quite weak national partners and they don't have the proper human resources. So I think second challenge would be that we have in some contexts to ambitious. We should go slower and have lower

expectations regarding the quality of FbF to something more simple and to get something done. In other contexts you can expect much more because the government, disaster management system is already much stronger and meteorological services are much stronger and there are strong links between the different partners, so it is maybe easier to set up a system such as FbF.

Then we face as well quite some challenges on the humanitarian action side, because in fact what our national partners propose are often very traditional/normal/emergency aid actions and now in our second phase we do more research on possible early actions that are maybe a bit more open, brain storming to look more beforehand on impacts. And what is really a challenge as well especially now where we move to the second phase and to a more flexible approach is to identify good early actions with a high impact but not too expensive because we want to cover larger areas and we cannot always work with prepositioning because you have to transport items from area 1 to area 2 and we don't always have storage facilities. It is a lot about logistics as well.

M: Regarding the actions, how are your experiences with actions that could be items, cash transfers versus really actions e.g. digging trenches or reinforcing houses. How are your experiences with the flexibility of the different actions and what kind of actions have showed to be most successful?

A: We cannot tell you at the stage now, but cash is quite promising I think. It is theoretically the perfect FbF action but have to be careful as well, because we are working in a lot of contexts where cash transfer doesn't really make sense, because there is no market and people. Then you maybe have to organise artificial markets or bring anyhow certain relief items to these remote areas so cash really doesn't make sense, but contexts where you have shops and where there is functioning markets cash is quite good, but even cash has the challenge that when you want to be more flexible you have to reach the beneficiaries ahead of the disaster and that is not easy as well. So we try as well to combine it with social security systems. But e.g. in Bangladesh the social security system you cannot really trust on it, so you cannot use all this data for our cash distributions so even cash is challenging. Other actions, yeah digging trenches as we did in Uganda and that was really first experience and didn't show so much impact and we have to be careful, I mean we have to be very clear that all kind of actions you could normally do without any scientific thresholds, they should just be done as normal preparedness measures, so FbF actions should be really for only medium to short term window before a disaster. So it should be really specific actions. And it is most probably about health, hygiene, cash for evacuations, cash for preventing people from selling assets, as we did in Bangladesh. Then about general livelihoods like Alpaccas in Peru, where we distributed veterinary kits or provided them with veterinary services..... for the herds. So that could be an option, but we are doing quite some research now in Mozambique especially where we have a scientist working on this whole action part, but so far we don't have the perfect FbF action.

M: It requires a lot of experience and evaluation also.

A: Yes and it requires I think as well certain change of mind-set you know, people have to start thinking out of the box and really looking in different directions and that is e.g. our NS have clear mandates. When you have a NS very strong in basic health most likely the actions will be choose accordingly and then it is about maybe creating more different networks with other partners and bringing in different competences to work on FbF.

M: Is it common that you experience challenges with the capacities with the local NS? When you work in Bangladesh and Mozambique.

A: Yes, for sure. We have e.g. the Philippines they have a very strong NS. They don't experience it so much but when you look at Togo e.g. they are very small and they don't have I mean they only have on disaster risk reduction advisor, but he is responsible for several projects. Often it is challenging.

M: What policies. I understand a lot of these issues emerge from the receiving countries or NS but is it enough just to have capacity building or is there need for more specific policies that could go in and change things. E.g. change something in the government or a way of doing something. CB often results in training, and that is positive, but you can also end up training people in the same thing, but what you also need is a change in mind-sets.

A: Then you have often a lot of change of staff because often NS pay their salaries and people are then taking UN positions. So now our strategy is now that GRC has the possibility to get long-term cooperation funding and we are strategically trying to use this funding now more for organisational development of our national societies, so we are trying to create stronger links. So we use this funding to somehow prepare the preconditions needed for FbF and then we come in with and start small with FbF. So to align better these different approaches and to use existing funding as well to work on the whole side of data preparedness so the requirements needed for FbF.

M: Related to the funding you mentioned. How have you experiences with getting funding for to do EA based in higher probabilities. Have it gotten easier throughout the years to get funding? Because what I see is still a focus on response and not preparedness and DRR.

A: We as GRC are in a really comfortable situation because the German government is funding us massively now since 2014 so we really are in a lucky situation. The German Federal Foreign Office. In Germany they are divided in two, the Germany Federal Foreign Office they are responsible for the humanitarian assistance, the normal response side, but partly preparedness as long as it is more humanitarian and then we have the Ministry for Cooperation and they are more into long-term cooperation projects and the Federal Foreign Office they are paying in our new FbF fund managed in Geneva by IFRC and it a FbF fund which is attached to the draft so it is a disaster relief emergency fund. So that is now a new instrument for us in RC and to ..... the ministry again showed quite big commitment in this agenda of anticipation forward. We can see now that other governments get interested apparently DFID British want to engage as well, .... They fund as well the Start Fund. So it a NGO fund and they have an anticipation window and they are a part of this whole FbF community as well and so there are some first moves in this direction providing more funding for EA, but I guess that in other countries it is maybe more difficult, but for example today I was discussing with French RC and they get as well now funding for something similar to FbF to a Caribbean island from their government. So it seems that as part of the policy work we did the recent years results in some more funding but I think there is still a huge gap, and there should be more investments. But we can see the whole corporate sector is very interested in this approach, anticipation, EA, more science, available scientific information, data preparedness, so there is a quite big potential for additional funding to the normal governmental funding.

M: is it related to maybe the lack off. I know in the literature there are a lot of studies that proves that preparedness is more effective and you can save time, lives, resources. But related to FbF. How have you documented or evaluated on the projects so it is proven that it is actually cheaper or you get more aid for the money?

A: Yes, that is a very difficult point. WFP did a study on FbF in Nepal, I can forward that as well to you. I just have one page, but I guess there is a study as well, we can maybe ask for and there it is really about return on investment. We as GRC we didn't invest so much in proving that it is cheaper, for us it is more about the humanitarian impact you know. We are in a process now where we revise our early action protocols and I think most of them will be done until end of the year and then we start activating, so next year there might be more research on impact and on return on investment, cost-benefit. But in our first phase it wasn't so much a focus and even our ministries (GFFO) they are less interested in this financial aspect, it is more about proving that we are faster, we can avoid human suffering and I mean you always have this acting in vain so in fact you will have to make a long-term research there you have not only looked when once you activate but for several years and then you might activate in vain where you can have high costs as well, you know. so its quite complex issue for us. Now it is more about proving impact on FbF actions.

M: How do you manage the reputational risk of acting in vain?

A: We discussed it quite often with donor agencies and honestly they don't see it so critical and we always bring it up with no regret actions so in most cases if you implement certain FbF actions and you don't have real disaster most of the actions still have a certain added value if a disaster is coming one year later, but we don't have, I mean in the whole policy discussion we don't have the feeling that this aspect has reputational risks. Donors seem to be ready to accept that acting in vain might happen. It's not about. We are in discussion with a bank, Deutsche Bank, and they are interested in maybe setting up a fund that goes more in the direction of, not insurance, but a financial mechanism where you can invest as a company and there you really have to measure certain indicators and to prove that FbF is saving money instead of pure humanitarian assistance, but that is really early discussion.

M: It is also a very complex economical analysis, because what about all the actions that assist in developing the area and actions that help long-term. But regarding acting in vain, what about the beneficiaries, then it is more cry wolf effect, if actions are triggered all the time and nothing happens. Is it something you have experienced in the projects?

A: Good question. I am not sure if I can answer that. But I think our delegates always discuss that point as well. In most areas we have anyhow EWS in place so somehow communities are already face the situation and sometimes they are warned but nothing is really happening but together with distribution I mean in a lot of setups we can as well somehow wait to last minute and still stop distribution when we notice that for e.g. that flooding is not really happening and that is something we need more experience with as well.

M: Yes, and it his probably also related to the forecasting skills in this particular area. How do you manage if you have e.g. Mozambique, there is probably limited access to forecasts? Do you have national meteorologists or government to take care of that part and then NS to take out the actions?

A: Yes, exactly, I mean mostly meteorological office together with NS for the actions and sometimes e.g. Peru we were really as well trying to improve certain forecasting capacities of the MET office through some cooperation with international universities, so there are different set ups and in some countries we simply have to accept that the forecasts are not perfect and to adapt it to our actions. And because we said that we cannot only work with FbF in the perfect contexts where forecasting models are perfect, we want to have something as well, which you can use and adapt to quite vague data analysis and sets a very poor and

simple and maybe not very confident. So we always try to adapt to the different what is available.

M: Have you done any initial investments in technology in any of the countries before setting up the FbF stations, they might need a weather station or certain kind of software to be able to do forecasts two days before or 4 days before.

A: Normally that is not our approach but we did it in Peru, we bought Met office new computer and software and we have out Togo example where you have the ... reservoir and there they introduced a kind of algorithm and software and installed rain gauges up stream to have more data available for decision-making when to release water but that was somehow the exception, normally it is not really our approach. It is more looking what is available and sometimes using international forecasts to have a discussion with the national met office on what is used and whether they use international forecasts. Sometimes it is very political as well. But is .... I think that kind of questions you should address it with our Climate Centre.

M: Yes, I am going to talk with Catalina Jaime in April.

A: They have more information on this part.

M: You mentioned in The Philippines, was that a project in UIS?

A: No, not really. In the Philippines we are working with as well with FbF rural areas on flooding and cyclones, but we had a master student who looked into informal settlements in Manila. There is a NGO network working on setting up EWS in these areas so he went and did some research and some interviews and community discussion in this direction FbF you know about potential and challenges. It is something we have in mind and we could imagine doing one but we know as well that urban. In general DRR in urban set ups has really its own challenges. It is not the same as doing these programmes in rural areas, so at the moment we are rather careful, but we started now in Vietnam and there we will work on heat waves in urban setups and there is the whole part of informal settlements, it maybe less relevant in Vietnam, but I'm not sure, but it could play a role maybe. But I mean heat waves and this climate change and more cities and growing cities this aspect will be of importance to us.

M: How do you see implementing FbF in an UIS different from the rural? Or what is the reason you have only worked with FbF in rural areas so far?

A: Yes, good question. Urban settlements and informal settlements sometimes access is difficult, you need as well a clear mandate and then there is the whole organisational aspect you know. It is complicated, there is not so much experience on setting up EWS in urban areas. Yes, I don't know why we are focusing right now. I think also the risk is higher in rural areas but it depends because e.g. in the Philippines in Manila there are informal settlements with much higher risk than rural areas.

M: What about the size of. Because what I have seen from the documents from GRC and RCCC the pilots are maybe 2000 families in that size.

A: Yes, but that was the first phase, since we are applying now this more national approach it will get bigger but in fact we would have to check again because we wrote guidelines for the fund in Geneva and there are beneficiaries numbers mentioned, but I don't remember how much it is. So I can send you this document as well, you will have to keep it confidential. And there you can check. The problem is for the FbF fund in Geneva we are limited in terms of

funding so far, so I think we said up to one EAP can be up to 230,000 Swiss Francs so we are somehow always we have to limit our interventions but most probably as soon as we have more experience and maybe more money available as well, especially in the FbF fund in Geneva then we can scale up as well.

M: Do you see any ethical issues when you try to scale up the FbF whether it is rural or in an urban informal or just an urban settlement. Because I stumbled upon Elisabeth Stephens. She wrote about – if you have an urban informal settlement you could end up, if there is only room for 2000 households but the settlements maybe contain 4000 households, you would have to draw a line maybe, somewhere if you go for the geographical. But how could you include? Or is that the reason why you haven't worked more in urban informal settlements, because you would run into this problem because you would not be able to have 10,000 households. There would be too many households to include them all.

A: But it is the same in some rural areas. We have e.g. in Bangladesh where certain areas are highly populated, it is exactly the same question and we are discussing this regularly, this ethical implication of FbF, but honestly in normal humanitarian assistance after disaster we as GRC we always have to – we can only work in a certain number of villages because we don't have more funding. I mean the whole difference is that after a disaster you have more time somehow for proper assessment and needs based decisions so that is more complicated for FbF because as soon as the threshold is reached then your, your area is predefined and you only have certain. You know that you can only work with this money available certain areas, so yes it quite a challenge I would say. And we discussed it as well because we did some research in Bangladesh and we took comparison village and they didn't receive anything and our NS said that is not possible, we cannot do research and go with questionnaires to villages that didn't receive any assistance and yes, so it is really an issue, but as well here we need more experience, but at least we are always keeping it in mind and trying to adapt and trying as well to do this analysis in fact: which communities are the most vulnerable in a proper way beforehand to avoid this kind of ethical problems. You can ask that as well Catalina, because she is working a lot with this risk vulnerability assessments. And it is very much linked.

M: I guess when you do work in the rural areas the households they look at lot more alike, they are often not educated and they work farming and they are very homogeneous, whereas in urban informal settlements you can have a really heterogeneous community. Just out of curiosity how do you think this heterogeneity would affect implementing FbF?

A: That is a really relevant issue but I am not sure whether informal settlements in urban areas are really more heterogeneous than rural areas. Especially informal settlements maybe as well be quite homogeneous, but I'm not sure, so. But it is a good question and in rural areas we discussed it quite extensively for the Bangladesh case for cash transfers, where we from HQ site always said that they should do a difference and maybe not distribute cash for all families in the village and our project staff said that there is no way in excluding certain households so we really went for cash transfers for all households in Bangladesh and with FbF in fact it is much easier, or I mean it is almost impossible to do something as EA and then still have to assess and choose to whom distribute and to whom not distribute so yes that is a very challenging point. So mostly we will go in this direction to have actions we can just broadly distribute to all households and to work either accepting that you have some households who wouldn't need the assistance or you say that the differences are too big we can maybe not work in this area, but it would be a pity because you maybe have the most vulnerable people who would need the assistance so we don't have the perfect solution for this aspect yet but it is discussed regularly. So more experience needed as well.

M: Then I guess, earlier you mentioned. Sorry, then I guess you have also the issue of if you start giving out cash or aid in an area then people might hear about it and then they all want to move there because now there is aid in this village or this settlement is under this FbF programme and then it becomes more popular to live there. Is it something you have experienced?

A: No, I mean e.g in Bangladesh the flooding we were just some days before the flood with out cash transfers but then there was certain assistance after the flooding and we coordinated with different organisations to avoid that emergency aid is distributed in the villages where we implemented FbF.

M: So it links back to this direction and coordination, communication with other humanitarian agencies and organisations. So you don't duplicate and when the cash is transferred everyone does it at the same time.

A: Yes, but I can imagine that there will be as well challenges in this direction. For sure.

M: You mentioned in the Philippines they were trying to set up EW in this urban informal settlements. But in general I would think that the forecasting would be better in urban areas than in the rural areas or maybe I'm wrong?

A: I cannot answer you this question. I think it depends on the countries. I think maybe in the Philippines in Manila I think maybe yes, but I'm not sure. Maybe it is explained in the master thesis I will send you.

M: I will take a look. How is. It is related to the other question so you can probably not answer, I was just curious how forecasting would be different so I'm not sure you can answer.

A: Yes, I don't really know. Do you plan to do an interview with one of the field officers, with one of the delegates as well?

M: I have interviews planned with X from CC and he is doing a project in Tanzania, which is related to urban settlements and then I have planned with Catalina Jaime and Elisabeth Stephens and then Anne Mette Meyer from DRC as well. They have some small pilots in Malawi or Mali I'm not sure. But if you have some interesting interview persons or you can think of someone you think I should talk to I am really interested.

A: The one with the most experience I would say is Matthew Destrooper in Peru, he is our delegate and he has been working since 3 years in Peru on FbF. I can send you as well his contact, but he is very busy so I don't know if he can find some time.

M: I can try to contact him and see. I think I have also read a publication by him. Destrooper?

A: But I mean most of the information I think Catalina has already but ask Catalina if it makes sense to talk to Matthew and then maybe pick one specific case and go through it with him.

M: Okay, thanks you.

A: I will send you the documents.

M: Thank you very much for participating.

A: If you have any questions after reading the documents you can always come back to us. I have a colleague as well and she is working on the early action protocol as well.

## **Appendix 9.2: An anonymous representative, RCCC.**

Interview with an anonymous representative, Red Cross Climate Centre.

M: So, should we start?

X: Yes please

M: First I think we are just going to start more in general and then go more specific with these urban settlements or urban informal settlements and your experiences and so on. But first of all what exactly is your. What do you work with exactly?

X: I work with RCCC as X

M: And you are based in?

X: X

M: What challenges have you experienced working with and implementing FbF?

X: I think one of the main challenges is getting the government to buy the idea of FbF. And I think that it is because that we didn't involve them a lot in the beginning of the project. But then also getting good forecasts within the country, we didn't have a good MET office, which was a challenge but that was later on to some extent solved by getting forecasts from ECM flood forecasts.

M: These are the two main challenges you have experienced in your work?

X: Yes, I mean there are the main ones, but others definitely. The others I can think about right now is having institutionalized FbF. To make it a part of institutions strategy whether it is governments institutions or RC it self. I think it would have higher chances of being successful if it is part of disaster management strategy of the national society rather than being implemented as a small project and in one of the triggers we had we, when we were still working preselected communities. The communities that were not a part of FbF complained and not beneficiaries of FbF and therefore they did not get items that were distributed ahead when we received the forecasts. They were not happy of course, because we ... community that suffered from floods. And others did not suffer so much because we intervened and I think that is a challenge and I'm so glad it informs the ... pilots which are now focusing on pre selected communities. I think that is about it.

M: You were talking about this institutionalizing. What partnerships, collaborations or cooperation's do you think are necessary to implement FbF more effectively?

X: It should be housed and championed by the officing of DRM and relief. Therefore in the ... country that office should be taking the lead and they should be a critical partner and another critical partner should be MET office but also beyond those you need other actors including NGO's that could come in when you know the government resources are not enough or sufficient. So other NGO's and I am ambitious that the private sector could also be interested e.g. telephone companies and perhaps CSR to leave the forecasts ahead of time maybe at a ... fee or totally free.

M: So they could kind be integrated into the process of EWS?

X: Yes.

M: You mentioned before about the beneficiaries and I talked to Alexandra R uth from GRC and I understood from her that GRC is now trying to have a more national approach with mobile teams and can therefore cover a larger area and maybe at a larger scale too. Is it not something you experienced in, you work in Uganda and Tanzania and Kenya or?

X: So, that was very ... and I am very sure that it was Uganda's case that inspired to think that new way of FbF. Therefore we have now moved from using preselected communities to beneficiaries to rather have or rather consider where we have good forecast and where we have vulnerability. We not select communities first, but we ... look at the forecasts and maybe the vulnerability.

M: Related to the forecasts you talked about. How are the. Is it very different from project to project how good the forecasts they are?

X: So, I think the quality of the forecasts definitely depends on the capacity of the forecasting institution so in countries where the forecasting capacity is low definitely the quality of the forecast go low but also scientifically I think especially when they are forecasting floods in areas near the lake usually had ... forecasts, so in instances where the capacity of the forecasting institutions are low I think it would be good to consider partnerships with institutions beyond the borders of the country itself to predict good forecasts. So as we did for Ugandas case.

M: Out of curiosity, are there any of the forecasts that are based on situational analysis or more eyewitnesses than science?

X: That is an interesting question. So I don't think, if you go maybe to the rural areas where they talk about using indigenous knowledge to forecasting then yes you definitely find many people talking about that. It is not very common just to use intuition and observing using your eyes to make a forecast.

M: Alright, have you worked. Can you tell me more about your experiences with FbF in an urban context or maybe urban informal settlements?

X: So, we have not had an extensive, we have not implemented FbF in an urban context except for Dar Es Salaam case. Also right now we are having one in Nairobi , which is just starting so there isn't so much to learn from it. In both cases it definitely involve many stakeholders as oppose to the rural context and the need to have both the national government and the local government communicating becomes very profound in urban context where cities to some extent enjoy some level of autonomy and they. You as someone championing FbF you need to make sure that you are talking to all, to both national government and the city level government. So mainly I think the focus, or one of the colleagues it talked to about FbF in an urban context they said that the focus may not change that much but the action that will change. The actions and the interventions will likely be more effective if you do them on community level rather than individual. The context is different. More actors and therefore also coming up with good forecast based actions will test collaborative effort with multiple stakeholders and then the actions will likely be different from the actions we have been implementing in the rural areas. Perhaps in the urban context we will start thinking about cash transfers if one to take actions at the household level but more generic activities like opening up drainage channels ensuring that the communities do not flood will become more effective

and for urban contexts we will have to look beyond the urban itself, we will have to look at the provision of social services, so ... we know that most of the food e.g. that is consumed in the urban come does not come from the urban areas themselves, therefore when we are thinking about FbA we think about transportation or accessing food from the near communities so ... being very much concerned about what will happen in this urban we will also concern about the peripheries, the areas where we get services for the urban centre.

M: Alright. Interesting. What about already existing networks in these settlements. Are there any existing networks already that you can utilize and help when you implement FbF? Is it something you have thought of?

X: Yes so in my previous engagement with people in informal settlements there are some groups sometimes it is certain groups you can work with but sometimes it is groups bringing people together doing the same job e.g. taxi drivers or sometimes it could be people who do informal work like ... traders coming together to form a group so they're already using existing infrastructure. There are already existing structures. Certain groups like communities that come together because they do similar work. We call them communities of interest.

M: And you have tried to include these networks when you do FbF or when you are planning to?

E: We are planning to. Remember up until now we did only have one single FbF pilot in Dar Es Salaam that was entirely focusing on urban but going for it, we are now going to have more urban areas as part of the FbF projects

M: In the urban settlements do you have EWS, is that normal or is it something you have to set up first?

X: So I think there are interesting things... access to technology and access to phones and Internet. Those are going to be very much important when we are setting up the EWS. When we are formalising the one existing in these settlements.

M: Access to smartphones and such is not a problem I guess. It is really high in Africa right?

X: In urban settings yes. I don't know the statistics, but access to the internet and smartphones is really, I should say it is high. It is going to be a very good tool to explore to enhance EW.

M: Have you experienced any initial investments in national societies to. Because they needed hardware software to do forecasting or maybe they needed some CB to implement FbF and so on. Is it something that is used, is it something you have experienced?

X: Definitely the NS do not do forecasting and they cannot. But the kind of support they need is to set up the system it self bringing the different actors together and identifying the correct or the right forecast based actions but also maybe more importantly understanding the forecasts themselves and the relevance of the forecasts to their. The relevance of forecast as a tool to improve on DRM.

M: I think about these actions. Are no regret actions something that you also think off when you try to come up with EA. The advantage of having no regret actions.

X: So definitely we do think about it and in Uganda's case at one point we acted in vain, meaning that there was a forecast saying there is high likelihood of flooding but we ended up

not having any floods and from this we conducted a study to gain perspectives from the communities and from the national societies themselves what they think about the acting in vain cause theoretically actions who benefits that continue irrespective on whether the forecast is realised or not where highly regarded as quite important and I think that is what may people call no regret actions. My friend prefers to call them low regret actions. We do think about actions that do benefit whether the forecast is realised or not.

M: What about something like lifetime when you try to come up with EA, do you think about lifetimes and how it is important?

X: Yes, we do. The lifetime of the action that we take are also allows us to know how frequent can we take this action. Is in the phase of multiple forecasts, so if we get a forecast there is a high likelihood of flooding and then maybe we distribute aqua tabs or chlorine tablets we would definitely know that the chlorine tablets would last the household of 3 people 7 days and therefore we cannot re distribute aqua tabs within 7 days even though we get a forecast or a trigger of distribution.

M: Have you experienced this in practice or is it only theoretically so far?

E: In practice we did experience this in Uganda, it was not exactly on aqua tab but it was on jerry cans so we distributed for people to keep their drinking water safe and then had a trigger I think less than two months after distributing the jerry cans but we know that a jerry can can be used for more than two months span in that case we did not re distribute jerry cans, we did instead distribute soap because the lifespan of soap is quite short.

M: Now urban settlements are still in the phase of planning FbF and you have only had one smaller pilot in Dar es Salam, but do you have any informal settlements that are informal in the sense of you will face land tenure problems, so to speak that the settlements are illegal?

X: Ah, okay. I am glad you brought that up. So I think that is going to be handled on a case-by-case basis. So e.g. we have not experienced that but we expect that it could come. We know that the informal settlements are illegal and we know RC we are auxiliary to the government but we also know that in RC we care about humanity so everyone is important. I think we would need to have close negotiations and discussions with the government on the criteria to take action in the informal settlements, which could be regarded as illegal by the government. But we have been talking about that, we have been thinking about it.

M: Do you see any other ethical issues related to working in these informal or urban settlements?

X: Mads, just a moment. Hi Mads, You had a question about ethical issues?

M: Yes, if you had experienced other ethical issues with urban settlements or you can think of any ethical issues you would experience in the future working in these settlements?

X: We have not experienced any ethical issues. But we do anticipate that there would be some. I can't think about some right now.

M: I was thinking of maybe if you implement FbF programme in a settlement and this settlements is in high risk of flooding e.g. then you leave other people not living in the settlement, they suddenly have a reason to move to this settlement because it is under a FbF programme?

X: Ah, you mean that our intervention in urban settlement could attract more people to the informal settlements.

M: Yes, so it might act as a pull factor.

X: We tend to say that it is not their desire to live in the informal settlements, which are ill serviced. Social services. When people get better usually they move out and go to live better areas so our desire if it is possible let the government formalize the informal settlements by providing social services to this people who live in informal settlements because they are part of humanity. So if our intervention ends up attracting more people to the settlements that would be unfortunate but I think that when you think about FbF itself, it's a short time, you take action to avoid danger that would come in the nearby future, its not like you are making a heavy investment in the informal settlements maybe creating jobs there for the informal settlements and more people will come for those jobs. That the way I think about it, so I tend to think that people do not really desire to live there... But it is good to bring that up.

M: Related to the size of the urban settlements they are often quite big compared to the villages to the rural areas that you work?

X: The size not really but the number of people settling in the area, yes.

M: Because I was thinking about if you have limits for the actions you could run into a problem where you would only be able to help or include maybe half of the settlement into the programme. Is that some discussions you have had?

X: So I think the concept that lies in how you choose who should be the beneficiary and now we want to choose the most vulnerable within the settlements. If it turn out that everyone is really most vulnerable and they are not decreased which I think that should not be the case, then yes it should be overwhelming. But I understand that there are decrease of vulnerability. There are some that are very vulnerable and it is those we want to target but also that why the relevance of multi stakeholder comes in, when you have a number of actors coming into intervene, perhaps we will be able to reach out to many vulnerable people in the informal settlements. RC does not have experience in food security and therefore we do not expect RC to participate in food security but then entity like WFP part of the FbF implementation would help so we should be looking for to getting multiple or many actors when it comes to implementing FbF in informal settlements.

M: So I guess what you just said is also related to because the urban settlements the communities are often really heterogeneous in the sense of people work different jobs, different salaries and you can have people in these urban settlements that are actually doing pretty good and you can have someone that is really vulnerable, but I guess you said that you look at the individual households and how vulnerable they are so you are not including everyone without looking at the beneficiaries.

X: Yes, and I would go back to the point I made earlier. The FbA in the city must not likely be household level but community level, So yes, rather than. In some instances you might need to reach out to most vulnerable people with maybe cash transfer or whatever but the forecasts for urban FbF should move away from households because the numbers are many and too focus on access to social services. And access making sure the water channels are open, the clinics that are located in the areas get to have access to forecast information and

maybe they could do something so they are not badly affected by coming floods, so it is going to be mainly at the community level than household level. That's my gut feeling.

M: But you also mentioned cash transfers?

X: So that is. I think that there could be instances where you know there is need to end up being at the household level and that is where things like cash transfers come in. But I would still advocate for actions that are beyond the household level.

M: It is really interesting how important or how different the actions they are from community to community when you look through the different evaluations of projects. And it seems like the key is to identify the specific actions for each community that are crucial or essential for their livelihood, but that can be quite difficult I guess.

X: Yes, for sure. The actions are going to be very difficult.

M: Have you worked with mapping of these urban settlements?

X: So we had a project some time back that was mapping of urban settlements. Making sure you know where the access routes are, we know where the critical infrastructure is or the critical services, where they are. Yes, it was a project that we had and it was implemented in Kampala, but I also think in Nairobi they done this.

M: Was it something that assisted the risk analysis?

X: It was mainly for risk analyses. So risk mapping part of risk analyses.

M: You mentioned the vulnerability. This general vulnerability is it something. How would you say that. There are specific actions and actions aimed at community level, how do you think that goes along with people's general vulnerability?

X: Could you please ask that again?

M: Maybe I should ask more like. You already mentioned households, so it might be the same answer, but what kind of actions would be appropriate to lower the general vulnerability of these settlements and maybe not just flooding or but the fact that there is a general vulnerability?

X: So the actions that I think about. You mean FbA. Maybe before I do answer that, I think that it is better for any organisations implementing FbF not to suggest actions to the communities but to facilitate a conversation that helps the community to come up with these different actions. In many cases there will be actions that the community has been doing like I already told you about water channels, sometimes, but there could be new actions coming up. I was so amazed with the case study coming up from Kenya, even though it was not entirely urban, whereby they seized an opportunity to take action, you know to plant seeds in an arid area when the forecasts where high chances of getting more rain, high chance of flooding. So to sum it up. It is not good to have pre prescribed actions but rather facilitate a conversation to get actions and then the main important thing is to have a criteria, a selection criteria for these actions. Making sure that the actions selected are feasible and to make sure that they are within the means of the implementing agency or the community themselves. Some of the things would be as simple as call the old woman in the informal settlements to let them know that there are high chances of getting heat waves in the city and therefore they maybe need to

go and visit their relatives elsewhere, maybe to stock more water because of the heat waves, so the actions definitely be defined by the hazard we are talking about and then they will also depend on the existing information the community has or the institution that are working within the community has. For heat waves those are two things that I cited you, for floods other than the water channels, because of the coming rains people could start urban farming, small gardens, however, perhaps it is even better to think about long-term actions maybe to. So the FbF could start a conversation of people in the informal settlements and the local authorities to have access to say ... and clean water, to have access to drugs to malaria, to have access to alternative sources of power in case of critical infrastructure is damaged by floods, still to have access to services, alternative routes that bring in food from peri-urban areas. What else can I think about, general ... campaigns about the danger of floods, the danger of heat waves and what people could do to make sure they are not ...

M: You also mentioned before with planting the seeds to utilize potential asset gains or take advantage of the forecasts in another way – is it something you could see in urban settlements as well.

X: We cannot rule it out, but we cannot prescribe it to the community. So there are potential plans in some cities we have seen ... promoting urban farming where people grow crops from very small pieces of land or in food towers, in ... so if people it has happened in some cities it means that it can still happen. But I want to emphasize that everything that we eventually do should be informed by an extensive consultation and should also be coming from the community that we are working with. I definitely don't want to prescribe something, just because it has worked elsewhere, doesn't mean it will work here.

M: No blueprint, one-size-fits all. I think that was pretty much what I wanted to ask you. Thank you so much for your time. If you have any questions for me?

>Talk outside interview<

### **Appendix 9.3: Interview with Catalina Jaime, RCCC.**

Interview with Catalina Jaime, Red Cross Climate Centre.

C: I was reading the questions and they were really interesting and it was very nice because it made me reflect again.

M: The idea was to just start out with some of the challenges you have experienced and then we kind of work our way towards the urban settlements and the challenges there

C: So do you want to go question by question the ones you sent to me?

M: We can do that?

C: You can do the questions in the order you want. I am open for anything.

M: That's fine. First one is, what actions you have experienced have the most success?

C: So we have implemented so far or let me say activated so far around 6 times in Peru, Mongolia, Bangladesh, Uganda and in Togo. All the actions have implemented, the ones that in which we had actually a proper kind of analysis is the one in Bangladesh. So last year we did an activation for the floods, distributing cash, I mean cash transfers program and I think, in my opinion it is one of the most successful actions because we managed to see the reduction of the impact that we were expecting reduced. So it was like really punctually you know. One of the assumptions we had when we did the full analysis why selecting cash is that poor people will have less need to get loans and with very high interest rate, so basically we distributed the money because when people had the money in the pockets they didn't need to get these extra loans and I think that was a significantly impact, positive impact of the action. Same thing with Mongolia. In Mongolia we actually distributed cash and also like a kind of salt that you give to the livestock because they have a hazard that is called "Suut" which is a combination of drought and snow that kill livestock. So we did this early distribution of these blocks of salt. Like which reduced basically the mortality of the livestock. And I think that was great.

M: Okay, interesting. Is it something when you have these actions, do you think about having no regret actions, is it something you try to preferably choose actions that have no regret.

C: Yes, totally. The point here is that not only of the RC ... organisations you know like trying to implement actions that are no regret that independently we implement them they will make any positive impact ... to the to the life of our communities. In this case we distributed the cash, even if it is in vain, the cash might be used by the family for something useful that will contribute and the same thing with you know the salt or feather for the animals. So I think that is a little bit the policy which is also a little bit tricky because of course we have to be very cautious when we select the actions because there is, you know for more that we said that we have a no regret policy and we will act whenever we have a trigger we have to avoid as much as possible the donor fatigue where we just act and act and act and nothing happens. This could have a precaution so when we do the selection of the actions and develop the FbF system this is one of the key criteria you know what would be the impacts of acting in vain, what would happen at organisational level, community level, donor level, so we kind of have a clear picture of what could we face.

M: What are the main challenges you have experienced in your work with FbF?

C: Okay, this is a very big question. I am going to go back a little bit to the lessons that we have learned that are linked to the challenges that we face from the very beginning. So we started to implement projects back in 2013, 14, 15 we learned a lot of lessons. How do we make sure a FbF system would really work. The first challenge that we had was in terms of the scale so we were implementing and developing FbF systems at a very low lower geographical scale so we were kind of doing traditional DRR approach which is to select communities and then we were trying to develop like the FbF system and the triggers for that specific area. And one thing we realised was that it was not very efficient because the forecast level is a higher scale and we would facing the situation where we have developed a system in these few communities but then we have a cyclone that hit the communities next to them and we didn't have anything there, so that was one of the first things, you know, we needed to have higher scale approach and covering larger geographical areas, river basin, whole coastal area or the whole country in general. The other challenge is in terms of measuring the impact of the actions. So one of the priorities for us is to make sure that we can demonstrate that we are reducing the impacts in the window of opportunity between the forecast and the potential disaster so having a really good EWS that will allow us to do proper impact evaluation is like super essential and that is a big challenge because giving the conditions where we work and where this is implemented that is very complicated if we want to have a rigorous kind of evaluation. The other element of challenges is the integration of the concept into government priorities and government strategies and even within the RC, kind of DRM strategies so that is challenges of how do we make sure that this is not just seen as another project and as another kind of isolated strategy and rather as a part of a DRR strategy that focus on how do we do preparedness so that are one of the challenges we face and we have learned from that and are now part of our priorities.

M: Is that. Regarding the 3. Is that challenges related to NS because they lack capacities of funds or what ever?

C: Two things basically. What I referred to, as a challenge was the integration into the policies was more like political level, you know how do we integrate this new kind of approach into policy and already existing strategies. Another level of the challenge is what you just said the capacity of implementation and knowing that NS have capacities to act earlier, have the capacity to develop FbF system, so are challenges that are considered into what we call the EAP so there has to be a very clear description in the protocol of you know what is the capacity of the NS and what is basically feasible and realistic to do. So it is a challenge but at the same time we kind of make sure that its clearly reflected and we are not just proposing something that is impossible to do.

M: Have you ever done any initial investments in technology or so to help NS or MET offices to have the right equipment to carry FbF out?

C: Not at first, like not exactly in that sense that we are saying providing technology to the NS. I mean there are programmes that are piloted with FbF that kind of contribute to the general disaster preparedness but also response that have already the implementation of technology tools, e.g. I don't know if you are familiar with this open data kit that use of a smartphone for data collection, for distributing of cash so I think that those programmes exist in some of the NS and what we are doing is making sure that for the FbF setup we can integrate the use of that technology into the work that we do, so that is for our angle. Then for the other angle of working with the MET offices its not really our mandate to provide equipment or innovation, that's is more the role of WMO, that are many programmes that are

focusing on improving the capacities of national meteorological services. So we normally work really close with them more on the soft component, so we work together when doing the analysis of forecasting skill in some of the cases, I already explained how FbF can be improved, also how the MET offices could potentially integrate other forecasting services, e.g. we work really closely with GloFAS which is like a global flood forecasting so we are kind of like ... that potential integration, its is more on the soft.

M: Yes, I get it. So why is FbF not more common in urban areas?

C: So yes, okay. Very interesting. Because in a way, from all the projects we are having at the moment we have more or less 15 countries that are implementing. The new focus is having like a national level scale interventions, which in practice cover the cities. It really will depend on the vulnerabilities and exposure and how exposed they are to the specific hazard. In theory the cities are covered with this national level and scope. However, we are trying to with some of the projects to have a better understanding of like how FbF can be developed and adapt for the particular ... of urban settings so there are so on-going analysis. There was actually a project provided by ARC and implemented by TRC in Tanzania, which actually looked into that, how do we do a flood in urban FbF in Dar Es Salam, so there was some kind of interest analysis with governments, like the role of the government and the use of government funds for the activation of EA, so that was like one of the first attempts that we did. So there has been also, there is going to be a project very soon that is for heat waves in Hanoi in Vietnam, so knowledge is also very localized and very focused on specific vulnerabilities in certain areas of the city and there is another research project which I think I share with you already, that is a UK funded research project called FORPACK, it's run by Sussex University who looks into urban floods in Nairobi and I think basically one of the main challenges why we haven't really gone into the specific focus on urban areas is because of the forecasting, in the case of Nairobi there is no flood forecasting for Nairobi, so basically what this project is doing, because it is very kind of climate science oriented is trying to develop these flood forecasts for Nairobi so yes that is a growing area, I think I introduced you to my colleague X so we have urban FbF task force that is trying to understand all these details, how do we work better there?

M: But I would think that maybe the forecasting would be better in urban areas compared to rural areas or not?

C: Yes, I think it depends on the city. You are right, but it really depends on the city. There has been also an attempt or research project in Manila to do an impact based forecasting model for metro Manila in which fit very well because I think the forecasting in Manila is actually very good. It wouldn't say very good, I don't know the skill but I would think that it's way better than rural area. So yes, it really depends on the city I guess.

M: Alright, interesting. Do you see any ethical issues emerging if you implement FbF in an urban context?

C: Not necessarily. I think that is way the process of choosing the actions is so important. So we have actually developed a guideline that gives a lot of the like key criteria that has to be taken into account like e.g. one of the elements that has to be analysed is the social acceptance of the actions, like to really understand what is the reduction of risk that they are producing. We encourage all the NS to make sure that they have a good theory of change in each of the actions, so to make sure if it makes sense or not to implement, and I think once these processes are really implemented thoroughly you kind of like minimize any kind of ethical compromise or ethical problem, I guess.

M: Looking at the literature you see quite often urban areas, the communities are quite heterogeneous compared to rural areas, so I was just wondering if you could run into some issues with beneficiaries and vulnerabilities. I talked to Alexandra R uth and I asked her the same question and she said that you might be able to answer that because you work with risk analysis and vulnerabilities and so on.

C: So basically, this is also an important thing. It also applies for rural areas, because for us the risk analysis part of FbF is super essential to really understand who are the vulnerable groups we are targeting with the EA. So in the earlier stages of the whole setup process we try to determine what have been the major impacts, who have been mainly impacted and in the case of the cities that would be the case, we would analyse for the hazards that we are targeting: who are our target people, who are the ones that are more affected and who giving the lead-time that we have, because sometimes it is very short, realistically who could we target and what could be the key actions that we could do, that can be very feasible in sometimes social knowledge in short period of times so really in this case for us the understanding of who could we target and what we are targeting and what could be the implications of just for instance targeting one specific .. group rather than a bigger ... group is very important because we can have like, we have a little bit of these situations, in Bangladesh when we were having the question of that okay we are distributing cash transfer, should we do like a blanket distribution or shall we just distribute to the people that are in the category of the extreme poorest. You have to induce theory of change, you have to question what are the implications in terms of security, in terms of social problems you can produce if you just distribute to one part of the population so and I think in urban setting that such an important thing particularly when you have areas with high level of violence and for us I think that could be an extremely important consideration, to avoid that any EA we did would generate a cascade of hazards. I think that those kind of cascading risks and potential impacts of the actions are an essential part of the selection process of the actions.

M: Have you thought about if you implement FbF in an area, whether it is rural or it's an urban context that you might attract people from elsewhere from other areas because this programme is not set up?

C: This is very interesting because its like I think compared to the regular response, because I have worked a lot on risk, you have a lot of that problem because the distribution process is more visible and you know which are the areas that are affected so people even they live in another area, but they know that that areas was affected then you have that possibility quite a lot. In the case of FbF, because first of all you don't, nobody have thought in advance, what could be affected, so there is not this possibility that someone living in this neighbourhood moves to the other neighbourhood, it's a bit more difficult. So I think in that sense it's going to be a bit more complicated to have that. We are also trying to understand how we could do a really efficient selection of beneficiaries which is a really critical questions depending on the actions that we will do. Because one of the strategies could be should we use already existing lists from the government potentially from social protection safety net programmes. Or do we use new lists developed by RC or do we do blanket distributions so all these kind of questions are each very particular for each of the cases in developing the systems. So I think all these kind of risks should be described clearly when we develop the process.

M: I think you are on the article on social networks too. Is this something there are more. It would be easier to implement on an urban area with social protection networks?

C: I don't know if easier or not because we haven't done it, so I couldn't but in my

assumptions I don't know. It is kind of complicated actually because what the social protection, lets say potentially lists, already existing lists could help us is because they are already predefined, we would know where people is, so knowledge that would be kind of effective, so we should just send the teams and implement the actions, it could be for a urban area or a rural area, I don't thinks there is going to be a big difference. It might be that given that in an urban area where people are concentrated logistically speaking it might be easier than rural area where people are scattered in a massive area so in that sense it might potentially be easier or it could be very difficult because in an urban area people is not living in their house all the time, people are working, you will need to have that into account e.g. working hours, and also I guess simple ... like traffic and you know all these kinds of things. So I think, I couldn't say if it would going to be easier to using the safety nets already existing lists in each of the rural or urban?

M: How is it with EWS. Is that always set up when you start the pilot or do you start out by having some kind of EWS?

C: So the first the that we have into the process is to do an analysis of what are the EWS that already exist in the country or in the area so not depending on the hazard, so because basically the concept of FbF is to build on EWS so kind of improve EWS. Just to go back a little bit of the recent, you know why FbF makes sense. We have been implementing EWS for many years and the two pick ups that we identified in them from one side is that many times we can not implement actions because there is no financial mechanism behind EWS that allowed to implement the actions and that is where the financial part of FbF comes, its basically having a disaster risk financing mechanism, a funding mechanism that allowed us to implement those actions. And the other element of the system is normally if you look into the alert level the categories they use kind of like the forecasting information, they are based on the magnitude giving by the forecasts but in FbF we are moving towards impact based forecasting which is having this combination of forecast analysis, hazard analysis and the potential impact and I think that part, if you look into community based EWS they just focus on the forecast they don't focus on the impacts so what we are trying to do, this is like an example of that is happening in Kenya. So one of the... projects is analysing the drought EWS of the government so there are actually working with the government, the government is a part of the project and then they are looking to all the different indicators that the EWS has and then they are trying to understand how some of the indicators can be more forecastable, they can be more anticipatory because the ... system is a little bit to late, it's a really good one but is a already declaring an alert when the problem is already there, you know when the animals have died. So one of the things that are very crucial to set up the FbF system is to see how the indicators can be a little bit better and to be more anticipatory and if you add to that a good funding mechanism then your EWS will be improved because you have a FbF component on it. So I means there a approaches and areas with EWS.

M: Are you limited with the amount of money when you implement an action or activate are you then limited the funding in terms of that it cannot be higher than a certain amount?

C: Yes, so there is funding limitation. For the RC each of the different projects we have been implementing so far they have own back up donors and a limit to the funding for the activation so the actions and the capacity to reach certain numbers of beneficiaries is limited based on that. Now we are in the process to develop a new funding mechanism at the IFRC level, so this will be a global FbF funding mechanism and that funding will also have a limit so each of the EAP will have a maximum amount that they could access, but then that is going to be a long-term issue for us, so how do we coordinate and cooperate with different actors so that different organisations and the government can target different actions in the

same system. Imagine one trigger system that that can activate actions for different organisations and different government agencies on different levels.

M: Yes, e.g. WFP will have their triggers activated for their food security programme and the same might activate your flood actions, so like that?

C: Exactly, but lets say yes. Because each of the EAP is for one specific hazard so it has to an agreement so we are all focusing on floods and then the floods on this specific river basin, the country or whatever the area is really and then there going to be some pre agreed triggers so hopefully, at the moment we only have them at the activation of the RC actions, so we have our triggers for our actions but ideally because we are limited in terms of funding one day potentially the same triggers could be used by e.g. WFP and they can activate all the kinds of actions where they have ...

M: So you will spread the funding to many actors instead of...

C: Yes, we actually have an experience of that very recently which is very exiting. So we developed an FbF system for Mongolia, for Suut, and in which the British RC was supporting the Mongolian RC with the funding and the Mongolian RC and FAO they actually coordinated in a way and that they distributed the areas that were implementing the actions, its interesting because the government because already produced kind of a FbF tool like a map, it's a government level tool and basically we and FAO used that and then we kind of agree who will go where based on the already high risk areas that we knew where there could be an impact and that's a very great example on how we can demise funding and kind of logistics and all that.

M: Something I stumbled upon in the literature a couple of places is also the possibility of utilizing potential asset gains so, I think the e.g. was in Kenya I think it was UK AID and there was a higher probability of more rain and they distributed seeds to grow more crops and then utilise so they could have more food and utilise the whole situation. Is it something you think could be more common in the future with FbF?

C: Yes, we are very keen to exploring that and we are actually calling that FbF for prospecting and yes basically the logic of thinking of forecast analysis you know allow us to do actions that will benefit in this case the agricultural sector and this is something that is like under a lot of interest but also the only case we have so far was done Kenya by the British RC so I think this is a big area for exploration.

M: Is it something you have discussed in your pilots and projects.

C: Yes, its is something that is on the table and discussion however in terms of EAP that we have so far they are all really focused on reducing impacts. So far. We don't have yet any specific EAP that is focusing on this prosperity context. But that is something that is going to come up in the next years.

M: Yes, it seems like you can not only reduce but also... it's kind a win-win if you can also utilise more rain or such or heat waves or whatever.

>Talk outside interview<

## **Appendix 9.4: Interview with Aynur Kadihasanoglu, ARC.**

Interview with Aynur Kadihasanoglu, American Red Cross.

M: I am interested in your work in these UIS and what impediments, obstacles, challenges you have had working in these areas. I know its kind of a wide question, but I think within the next 20 minutes we can probably narrow it down as we go along. What are the main challenges you have experienced working in UIS?

A: I think it's probably also know very well. Informal settlements are very much part of the city fabric. They provide the labour and all the, from a urban planning perspective or maybe city authority they are informal, but they are very much a part of the city system, so that is very important. And they also have their own systems basically; they maybe out of the formal systems, but that doesn't mean they don't have their own system. They can actually be very structured. I mean everybody knows who is doing what, who's role is what. There is a hierarchy, groups are controlling everything piece of the life there, there is a group providing water and there could be other groups doing this and that, so it is very structured, but it can be very invisible to us, because they are not easy recognisable to external observers. If you walk by all you see is that OMG there is nothing, no infrastructure, what is going on here. You don't see it at all. So to be able to do anything that is viable in this kind of environment you have to really invest in understanding what is happening, what is all these structures, all these systems that are not so easy to see and understand. So that is one part of it of course and the second part of it is that whatever we do I think there is a huge advocacy part, I am talking about humanitarians perspective, meaning that we have to use all our power to make these settlements part of the formal city system meaning that instead of bringing extremely expensive drinking water, the municipalities can provide clean and safe drinking water, but they are usually not willing to do it because of informality. But there are also examples in the world that; like I am from Turkey. In Turkey we had these kinds of problems mainly starting from 1950' up to, I means still continuing the migration but these kind of informal settlements are very much now converted into formal settlements, which work both ways. So there are solutions but why people are not doing it and why municipalities are not doing it, can be different for many different reasons. But we should advocating for that, we should be advocating that these people, these areas need basic services and also the equities are a huge issue, they pay much more for everything the other areas are getting. They pay more for water; they pay more for everything, transportation probably so these are the aspects, which we have to pay attention. The challenges, of course all of these means huge challenges for everybody that want to work in informal settlements, but that shouldn't stop us because these areas are also extremely resourceful because these are areas where population are very dynamic and very aspirational. They come here because they want to change their life, they want a better life, so it's a huge asset actually. They are motivated to do something, but doing something is an interesting concept because in many rural areas or other more stable settlement areas you rely more on social cohesion, the community concept maybe you can't find this in UIS but you find something else that people want better lives and once you offer them something they are willing to be part of it, but you have to offer them something. Usually it has to be something very short-term. So they are less willing to invest in long-term maybe benefits, because they don't really see themselves staying there. It's the psychology of they want to move out anyway as soon as possible. So for disaster situations unfortunately for certain types of hazards requires very long-term perspective, like earthquake preparedness, you don't know when its going to happen right so it is extremely difficult to get their attention but flooding can do if the area is frequently flooded, that something you can get their attention. So what matters to their life and immediate future is very important. So there need programmes so we really pay attention to these things, we really try to understand what is it that they need most, what is it that they prioritize most, whatever it is and usually use that as

an entry point. And then you build around that, because you need a very strong entry point to be able to do anything, because it is very difficult to penetrate the fabric, the structures, the system, so you have to be relevant. I think these are over all how we approach programming in informal settlements.

M: Have you had any challenges with the communities being very heterogeneous?

A: Yes, but I have to tell you my personal opinion here, because I really don't think it's a problem. As I mentioned it's about whether its relevant to them or whether it resonates to them or not, its as simple as that. If you dealing with or trying to address a problem that matters to them it doesn't matter, they come together, if not there is no way. So they don't have time for you or for, I mean maybe another day you could get by but no. So it is not a challenge, I think that it also brings a lot of diversity and different skills and also you have to add up everything e.g. we as RC have vulnerable capacity assessment methodology which could take sometimes a week and in a rural area more homogeneous community everybody is there and supports it. But in an informal settlement if you try to do the same no, but you don't have to try to do the same of course. You add up different methodologies, you maybe shorten it, you maybe give people different options for different hours so that they can join it at their own time. So the ... we need to turn it into an advantage, into a more diversity and be very flexible and give people flexibility in everything.

M: All right. Have you worked any rural areas too?

A: Not personally. But we have many programmes in rural areas, but personally I haven't done it.

M: Would you say that working DRM programmes maybe the access, is easier or it's more accessible. Are there any benefits or does the urban part make it easier compared to rural areas?

A: It completely depends on the approach I think. I mean now there is a lot of resources learning but 5 maybe 10 years ago we didn't have that much experience, but now there are so many resources, so many cases like these and people are learning fast so I wouldn't say that its easier or more difficult – its just different. You just have to adapt different methodologies, it takes longer because you have to invest in building trust and building relation and that is also overlooked a little bit. I mean you walked into a rural area and you just bond with the or sit down with village elderly and boom you have all trust of the community right. If they subscribe and are willing to partner with you. I mean it's not impossible in urban areas but you have to invest in it in the beginning. You have to like, you cannot just show up and expect people to work with you.

M: What about EWS in urban areas, is it something you have experience with?

A: Yes, we had are very interesting fire EWS project in Nairobi slum areas of Nairobi. It was very successful actually. Again same idea, the community decided that fire was top priority. There are so many fires and every time there is a fire hundreds of houses are completely burned. And it's so easy to catch fire in things. Anyway so that their top priority and we had a long consultation with the community to understand what is the problem and how can we find a solution. We partnered with technology companies; two technology companies, who are interested in developing fire sensors for informal settlements, not just smoke detectors that we have in the west. They developed two types of fire sensors that can distinguish the cooking fire from real fire e.g. And it's cheap – like super cheap. And also we developed, as RC we

organised a community and we kind of trained community response teams when there is a fire, how do they get messages. It's all connected to mobile phones, because everyone has mobile phones so all these messages go through mobile phones and not only the fire department get the notification but also ... community responders get the notification as well, so they can respond much faster and also you can see where the fire started so there is kind of also in the community, who has fire sensors and who doesn't, so it kind of put some pressure ... So I mean again, if you really invest in understanding the context and understanding the priorities there are extremely willing to participate in that sense it is almost easier, because they can almost do it themselves once you show them the model and if the model is working they can just do it themselves, you don't have to do everything yourself.

M: Working in UIS have you come across any ethical issues and challenges in your work setting up EWS or doing preparedness in general?

A: I can name a problem. Usually setting up any system is that getting the buy in for local government city authorities, because whatever you do you have to connect it to formal systems, it doesn't work otherwise. So there can be some ethical issues. In some areas they might not be willing to serve certain groups e.g. which you have to overcome these things like maybe you know create dialogue processes, bring different parties together. Again you have to invest time and really try to convince them that they need to serve these people so there could be but for us RC, this is one of our principles, so we definitely pay attention so that everybody gets the same services. Not discriminating, but sometimes there could be some local politics involved in it, its possible.

M: What about the land tenure challenges of UIS and having a mandate to work there?

A: For RC? We don't have a specific mandate, no. Our mandate is to serve whoever is suffering or whoever is vulnerable; there is no specific mandate for this group or that group. There is no discrimination or identification of any group for that matter.

M: What I meant was more the land tenure. The challenges of land tenure in these areas. The local government or national government is maybe not willing to serve? How have you persuaded or how have you managed to work in these areas despite the informal settings?

A: I mean this always come up but recently in the Philippines after the hurricane we had to deal with these issues, we just partner with local organisations. There are always some local groups and we just work with them. We don't have to have this expertise or we don't have to deal with it directly. We just work with these groups. In Philippines this is how we did it and again investing in ... consultation dialogue process bringing different parties together so our role in this kind of situation are more like being a facilitator, so that the solution is found locally. It's really about convincing that local government. First, I mean you have to understand what happening, what is the issue, and then formulate it in a way so you can go and talk to authorities and find a solution for that. And you need all these kind of supports that are existing in a local context actually, because we found local NGO's specialising in this kind of expertise, we found certain woman groups e.g.. You just have to find them really. Volunteers ... who have this expertise so they all bring together so you don't find just yourself its really bringing all the local actors together and they find their own solution. We don't have a ready solution.

M: Okay, yes. So you find all these different communities and then they.

A: We act like a facilitator and we call it stakeholder engagement process, so you just invest in stakeholder engagement, really create a dialogue, create the space where each people they can talk and they find their own solution. Again we don't have – that's how we do it because every context is completely different. We did it very different solution in Haiti, very different solution in Philippines because the laws are different, the tenure situation is different, everything is different.

M: Have you experienced that these informal settlements increase in population when you roll or launch a new programme in the area?

A: I don't know. I cannot answer that question. But overall they are always attracting new people if it is a city like Nairobi, Jakarta. It is a known fact that population is increasing, but I cannot say that for every situation.

M: It was just out of curiosity.

A: I mean in general, yes. I think. In big cities definitely.

M: Also when you work with EWS and DRR, preparedness work. In these informal settlements have you ever been limited by the funding so you could only serve maybe only half of the households or do you set it up in way so you can include the whole settlements or do you pick certain groups that are vulnerable or exposed significantly to a specific hazard?

A: It almost never happened that we could cover the whole settlement.

M: Then how do you limit?

A: I mean. Top priority is if it is in a recovery situation e.g. this whole beneficiary selection is a process. You identify your criteria and base on your criteria you choose who to serve and in general top priority is the most vulnerable, who doesn't have any resources. It could be elderly; it could be single, woman headed households, families who are previously living in the most high-risk areas and the need to be relocated, or those kinds of things. Mostly we do this risk vulnerability analysis and that show us who is the most vulnerable and that is where we focus, but I mean it is extremely difficult to cover a hundred per cent. Depends on the situation of course. If we are talking about a big city of course it is out of question.

M: I think that was the questions I wrote down. It has been really good. I learned a lot. And it's interesting to talk with someone who walks specifically with urban setting, because most of the FbF programmes are located in rural areas and there are some differences in the work, so it was interesting.

>Talk outside interview<

## Appendix 9.5: Interview with Anne Mette Meyer, DRC.

Interview with Anne Mette Meyer, Danish Red Cross.

M: Hvis vi bare starter sådan helt overordnet. Hvad er det for nogle fordele i har oplevet ved FbF i de programmer i har?

A: Dansk Røde kors er stadig sådan meget forsøgsordning. Piloteringer kalder vi det. Vi laver lidt i Malawi, Mali, Nepal, Madagaskar og i Sudan. Det er stadig, vi har ikke rigtig set resultatet for det vi gør. Men vi har jo så set resultaterne for det IFRC gør og især Tysk Røde Kors og det drager vi ligesom vores erfaringer på og der ser vi at det ser ud som om at det er ret succesfuldt. Meget af det her med at man snakker om at man kan udnytte det der ”Window in between”, at man reelt har de der forecasts, man har informationerne, man skal bare bruge de informationer strategisk og før noget sker. Og det i sig selv er selve gevinsten. Og så er der nogle som tror, det er der her i huset og det arbejder jeg hårdt på at overbevise dem om at det ikke er sådan, at man bare skal lave sin traditionelle respons før, dvs. Alt det man normalt gjorde efter katastrofen skal man nu bare gøre før, sådan er det ikke. Det du skal gøre før er ikke nødvendigvis det samme, som det du responderer på. Du skal i virkeligheden have meget mere fokus på de her preparedness measures, eller EAP. Vi kalder dem alle mulige ting. Og det synes jeg er rigtig interessant at få de der ting på plads så man reelt mindsker omfanget/konsekvenserne af en katastrofe og det er så en vejr betinget katastrofe i den her sammenhæng. Det synes jeg er interessant. Og så Catalina, jeg ved ikke om hun har fortalt dig om det, men hun har jo udarbejdet de der ”building blocks” fra stage 1-10 på hvordan man starter FbF op. De er ret interessant. Du må gerne få lov at se på det og jeg kan sende filen til dig. Men netop hvordan starter man fra scratch og hvordan får man overbevist dem man arbejder med at det her er den rigtige måde at gøre det på. Hvordan får man overbevist at dem der skal betale for det om at man tager en risiko og måske lykkes man, måske lykkes man ikke. Så det er ret interessant.

M: Det er også noget med noget ensartethed i programmerne, så man ved at det er gjort efter den samme fremgangsmåde.

A: Så tænkte jeg du kunne få den her. Som er sådan en, jeg ved ikke om Catalina har givet dig den. Det er et case studie om succes i Togo og Uganda. Du har fået den så.

M: Jeg har læst det meste inden fra deres hjemmeside.

A: Fordelene ved det er, at basalt set er det at du reelt kan spare en masse penge samtidig med at du kan redde nogle flere liv mindske omfanget af katastrofer. Sådan ser vi på det lige nu. Så siger vi det er som en lidt innovativ at arbejde på, det er anderledes. Det her med at mobilisere folk og penge til at gøre noget før noget reelt bliver slemt. Og få folk til at tro på at det faktisk har en effekt. Det er jo op af bakke. Og det her med at tænke, det er jo altid svært at få folk til at lave forebyggelse. Det kender vi jo fra Danmark. Alene her i DK så det er endnu sværere når man kommer ud hvor folk er meget kortsigtet og ikke særlig langsigtet i deres planlægning, dvs. nogle af de største udfordringer nogen steder er ikke nødvendigvis donorerne der kommer med pengene, så kommer vi til det NS som godt kan have lidt tvivl om det, men når vi kommer helt ud til dem der skal hjælpes er det ikke nødvendigvis dem som synes det er helt fantastisk fordi deres planlægning er kortsigtet, så det skal pludselig engagere sig i noget der måske sker eller måske ikke sker.

M: Og det er måske ekstra slemt i urbane områder fordi de bor i nogle slum områder og det er

måske ikke et sted de har tænkt sig at blive. Så det bliver måske endnu værre i de her områder.

A: Der er lidt den her med: Ja, det kan da godt være der kommer en oversvømmelse, men lige i dag er mine problemer et helt andet omfang og det er dem jeg skal forholde mig til i dag og hvad der sker i morgen eller om en uge det kan jeg ikke overskue. Så jeg tænker at man skal have den der kortsigtet/langsigtet tidshorisont indover det, hvor vi i den vestlige del af verden har overskud og ressourcerne til at tænke langsigtet. Det har man nødvendigvis ikke andre steder i verden.

M: Det er noget der måske kunne hjælpe at have sådan nogle. Hvilke nye samarbejder har i måtte finde for at få det til at fungere?

A: For det første det her med at indgå, vi har haft en lille bitte smule, men ikke så meget, men nu skal vi indgå et reel samarbejde med forsknings/service providers, altså meteorologiske institutter og selvfølgelig DM authorities forskellige steder, DM authorities har vi generelt altid samarbejdet med, men meteorologiske service providers er jo sådan nogen mennesker som i bund og grund er ekstremt tekniske og taler et sprog som man virkelig skal arbejde for at oversætte og meteorologer sidder og har den her viden om hvad der kan og vil ske men det de siger er ofte så vanskeligt at forstå for mennesker uden for deres sfære så i Røde Kors snakker vi meget om at vi agerer som den der oversætter så vi bringer det de siger videre til først og fremmest nationale selskaber, men også myndigheder og ude i lokalbefolkningen. Det synes jeg er sjovt, jeg kan godt lide det men det er også at sidde med meteorologisk center i Bamako. Hvor man tænker "Yes", og i Malawi også og i Sudan, hvor vi arbejder med sudanesiske myndigheder men også med WMO og der bliver talt i en kode og der bliver lavet nogle ting, men det er jo det som er fordelene ved FbF, det er jo at kunne få de her tekniske meget højtekniske budskaber og analyser ud og oversat så de bliver forståelige og anvendelige. Så tænker jeg at vi ser muligheder i at formidle det her til nye donorer, altså anderledes, ikke nødvendigvis EU, ECCO, DANIDA, men store private virksomheder som ønsker at pudse deres CSR. Det er sådan noget at hvis man får det fortalt på den rigtige måde, så virker det så oplagt. Så vores kommunikationsafdeling kan rigtig godt lide det her, så det bliver "pitchet". Der kommer en artikel om det er 360 grader i den næste udgave, den der kommer til juni tror jeg. Du ved de der 360 grader der hed "Udvikling" engang, det er udviklet af DANIDA. Det er en journalist der har været nede på vores projekt i Malawi og besøgt og fortæller om det. Og så prøver vi at sælge det til store fonde. Altså Ole Kirks Fond får vi penge fra, der har vi solgt det. Novo Nordisk.

M: Og de køber ideen?

A: Ja, de synes den er interessant. De synes den er anderledes. Novo Nordisk har ikke købt den endnu. Ole Kirks har købt den. Og DANIDA har jo så sagt til os at vi må bruge 25%, vi har sådan nogle fleksible midler, dem må vi bruge baseret på forecasts. Dvs. 25% af de penge vi får kan vi sætte af til at gøre noget før noget er sket. Det er jo så ret flot.

M: Så DK er med fremme blandt de få lande. Der er jo ikke så mange.

A: Tyskland, DFID

M: Men jeg kunne forstå på Alexandra at GRC er det også primært fordi at den tyske regering office for humanitarian ... kaster penge efter dem, helt vildt. Så de har ret fordelagtigt. Ja, de sad ret godt sagde hun.

A: Tænk at være GRC og have de privilegier. GRC har så gjort det at de har rippet markedet for folk som ved noget om det her. Så da vi skulle ansætte en delegat til Malawi kunne vi ikke finde nogen fordi GRC havde taget alt hvad der var fordi GRC havde taget alt hvad der var. Så det var op af bakke. Jeg kan godt forestille mig at hvis man engagerer sig i det her område, så hvis det fortsætter som det gør lige nu, så er det helt sikkert noget man kan få job på, så du har valgt det rigtige.

M: Interessant. Det er der ikke nogen som har nævnt før, det her med at GRC de ligesom har, men det giver meget god mening, når de har så mange projekter.

A: For det første har de enormt mange ansat på hovedkontoret, der arbejder med det. Og så har de jo projekter i Peru, Togo, Mozambique, Zambia, Filippinerne, Myanmar tror jeg. Bangladesh.

M: ... Oplever i nogle udfordringer med C&C når i kommunikerer med alle de her forskellige partnere og nu snakkede du lidt om før at i har meteorologer og der kunne være nogle kommunikations vanskeligheder når i oversætter. Er der nogle udfordringer lavpraktisk på jorden derude?

A: Og få det her fortalt. Nu taler vi igen om det her kortsigtede/langsigtede måde at tænke og arbejde på i Malawi og der har jeg indtryk af at ikke altid, det kan komme til at fremstå som meget kompliceret og få de lokale NS folk til ikke helt at forstå eller synes at det er meget svært og det er noget vi gerne vil og ikke nødvendigvis noget de gerne vil. Og der skal du lægge til at der ikke er synlighed i det på samme måde. Hvis nu du kommer du og redder noget liv eller nogle folk der ligger og drukner med din RK vest og du sejler ud og henter dem så er der ekstremt synlighed. Det viser du er effektiv og du reagerer og du redder liv. Så kommer du ud her og gør noget før noget sker. Tænk nu hvis det der sker ikke blev så slemt som man forestillede sig. Det er også svært nogen gange at se hvad man reelt har gjort af forebyggelse når noget sker, for du vil ikke se hvor meget der ville være sket hvis du ikke havde gjort noget. Det er du altid op imod, når du laver forebyggelse.

M: Men det her med "Acting in vain". Er det noget i ser som en udfordring?

A: Nej, vi ser i RK bevægelse at "Acting in vain", ja det gør man nogen gange men det man så gør er ikke noget som vil være harmfuldt. Okay, hvis vi laver en cash distribution på basis af at vi forventer at der kommer en oversvømmelse og så kom der reelt ikke nogen oversvømmelse, de penge du så har givet de her mennesker er jo ikke noget der skader dem. Okay hvis du så laver et eller andet NFI distribution af noget er det jo ikke fordi de her mennesker, at der sker noget ift det de har fået, de kan jo altid bruge det til noget andet. Så kan man sige CB, det eneste sted jeg kan se at "acting in vain" kan blive problematisk er hvis du evakuerer en masse mennesker. Og de så reelt bliver tvunget væk fra deres hus og hjem og deres ting og de er sure over at de skal afsted. Og så sker der ikke noget og så mister de nogle ting og ja alt muligt kan ske og det bliver sådan lidt ulven kommer. Fordi næste gang når RK frivillige kommer og siger at de skal flytte sig fordi der kommer en oversvømmelse, så tænker de bare tilbage på sidste gang der skete så noget og der skete jo ikke noget, så der har man et problem. Men jeg ser ikke de andre ting vi gør som et problem. Hvis man laver CB eller træning af frivillige i first aid osv. det er jo ikke fordi at den træning er ubrugelig efter.

M: Det kan man aldrig rigtig få for meget af kan man sige.

A: Nej, så på den måde ser jeg det ikke. Og når vi kommunikerer med donorer så siger vi at der er en risiko og vi kan reelt fejle og det har ECCO og DANIDA været med på og det ser også

ud som om at tyskerne ikke har noget problem med deres bevillinger på at nogen gange, altså den cyklon oversvømmelse der kom i Bangladesh, som alle ventede på den drejede jo, så de fik jo reelt ikke den enorme katastrofe som de forventede. De lavede en cash distribution, men reelt var det ikke så stor en katastrofe som de forventede. Så det sker.

M: Hvad er det så for nogle actions som er interessant for jer? Er det fortrinsvist kontanter eller?

A: Ja, vi har cash og det er egentlig noget af det som vi synes er mest interessant fordi det er nemt og det giver folk en valgfrihed og du pålægger ikke mennesker at modtage noget som du tror de vil have som de reelt ikke har behov for. På en anden måde er det rent logistisk også nemmere, bare transporten af spande af ting og sager, madrasser og tæpper. Det kan være stort. Hvis markedet der hvor du udleverer dine cash er velfungerende, så støtter du også lokal økonomien, så i virkeligheden er det sådan en win-win situation, når du laver en cash distribution, men selvfølgelig nogen gange er der ikke noget markedet og der er ingenting og så bliver du nødt til at gøre et eller andet. Så har vi sådan nogle NFI og især det mest succesfulde er distribution af vandrensningstabletter i forbindelse med oversvømmelser og skal folk selvfølgelig lære at de ikke skal spise dem som nogen gør. Også evakueringer, så er det jo sådan hardcore preparedness measures hvor du fjerner folk fordi der kommer den her cyklon og hvis de bliver så dør de og derfor skal de væk.

M: Og det er så en af de ting hvor man måske, det er sidste udvej. Der er

A: Det er absolut sidste udvej.

M: Der er vel også forskel på hvilke forecasts man har? Om der er to dage, fordi nogle actions vil tage længere tid end andre. Cash er måske en af de hurtige fordi det skal faktisk bare godkendes eller?

A: Det kræver et lille arbejde før at lave det her cash setup, det har vi så gjort i Malawi. Du skal have hele det her marked assessment på plads, du skal have en aftale med en service provider, det bedste er egentlig via mobile phones, men fx i Malawi, der hvor vi er har ikke alle mobiltelefoner og mobilnettet er ikke særlig stærkt, så det bliver sådan noget "cash in envelopes", hvilket er mere besværligt, men det kan lade sig gøre. Så er der sådan nogle kuponer man også kan distribuere hvor de så kan gå ud i butikker og købe, men så igen du har så mange aftaler du skal have i stand, med både sælgere og service providers og hvem der skal dele det ud sikkerhedsmæssigt, men vi laver en del af så nogle beneficiaries accountabilities hvor vi spørger folk bagefter om de var glade for det de fik, om de har brugt det og jeg ved at der var en cash distribution i Bangladesh i forbindelse med den der cyklon og efterfølgende har man lavet en undersøgelse der viser sig at 5% af dem der fik de her penge, brugte pengene på noget de ikke skulle gøre.

M: Men 5% er jo heller ikke ret meget

A: Det er jo ingenting. Den der frygt for at folk går ud og køber sprut og cigaretter og laver andre ting der slet ikke er til gode for dem og deres familie er i virkeligheden overdrevet.

M: Hvilken størrelse eller scale arbejder i med på jeres projekter. Altså hvor mange beneficiaries har i og hvor stort rent fysisk eller geografisk område har i inkluderet?

A: Vi startede med udfra det erfaringer som klimacenteret og GRC har gjort med at fokusere på et bestemt område i en bestemt region og oplever så at det ikke sker der. Det drejer lige

som i Bangladesh og i Uganda var det også tilfældet. Lige pludselig er oversvømmelsen ikke særlig stor der hvor alt beredskabet var sat til, men var værre i nabo området hvilket så betyder at du har et problem. Så fremover er en af anbefalingerne at man ikke er lokal, kun lokalt, men går helt op på national niveau og står deroppe så scalen bliver større og større, hvilket så også kræver meget mere beredskab på plads. Og meget mere styrkelse af, når du snakker RK selskaber, af de nationale røde kors selskaber DRM afdelinger, for de skal faktisk være redde til at agere i hele landet og ikke kun i den region, så ja det er en udfordring. I vores Malawi projekt har vi beneficiaries der er omkring 20.000 mennesker.

M: Okay, det er mange. Er det i hele landet eller hvad?

A: Nej nej, det er kun en region. 20.000 mennesker mener vi potentielt kan blive berørt af det her. Så har vi en cash distribution hvor vi har udvalgt 2.000 ekstra sårbare og de er udvalgt på baggrund af hvor de bor, virkelig udsat, når vandet stiger er deres hus væk og i øvrigt er de sårbare og ofte er man jo sårbar når man bor så udsat. Det er jo klar at jo mere sårbar du er jo mere udsat bor du, det kan vi også se i byområdet. Sådan gør vi sådan der. De 20.000 er hele regionen som får varsler om at noget er på vej så de kan sikre sig og de 2.000 af dem er så de ekstra ekstra sårbare som får hjælp fordi når oversvømmelsen kommer så forsvinder deres livsgrundlag.

M: Dækker i nogen byer?

A: Vi har ikke konkret noget omkring urbanisering på FbF, men vi arbejder i byområder. Vi har det her store urban risk reduction program i 7 slum områder i Nairobi og så har vi i Kathmandu hvor vi laver "earthquake preparedness" og så har vi i Myanmar hvor det også er oversvømmelser. Og så har vi i Madagaskar noget omkring nogle urbane områder hvor det især er pest bekæmpelse, rigtig lækkert. Der var pest udbrud i efteråret og det kom tilfældigvis samtidig med. På Madagaskar har man den her tradition med at grave de døde op og så vender man dem og så graver man dem ned igen og rotterne de er overalt. Når man begynder at grave i jorden på den måde så forstyrres alle deres gange og så kommer de op og så er de alle vegne og så er der pest udbrud og så spreder de sygdommen endnu mere. Pest er jo sådan en sygdom, det vidste jeg faktisk ikke, det fandt jeg først ud af da vi havde det her appel, at det i virkeligheden er en sygdom som er ekstremt fattigdomsorienteret og du har pestudbrud i USA fordi de er så møgbeskidte og lever blandt rotter, så har du pest.

M: Det vidste jeg heller ikke, der kan man bare se.

A: Så du har de der pest udbrud på Madagaskar fordi der er, hvis du skal finde et område med byer der er møgbeskidte så er det Madagaskar.

M: Spændende. Er det noget i har planer om at udvide det til nogle urbane områder, FbF?

A: Ja, det tænker jeg. Altså vi har haft fokus på, også fordi byer, det er jo bare sådan at verdens byer vokser og der er størst vækst i byer. Pt er den største vækst i byer i Afrika. Vi ser en øget sårbarhed og udsathed i byområderne. Engang var det jo sådan at hvis man skulle forbedre sin status flyttede man til en by og fik det så lidt bedre og var mindre udsat, nu er det nærmest sådan at hvis du bliver på landet er du mere sikker end hvis du flytter til byen for hvis du ender i byen er du godt nok udsat og sårbar. Det er de mest kummerlige forhold folk bor under.

M: I forbindelse med min BA var jeg også ude på landet og interviewe nogle farmere der boede langt ude på landet i Bangladesh. Og det er lidt den samme oplevelse. Nogen

overvejede at flytte, nogen ville ikke flytte og nogle var kommet tilbage igen og det var helt. De mister hele deres sociale netværk og hele deres grundlag, når de flytter ind til byen så de var bare – de havde intet når de kom derind. Og det var noget de ikke lige havde tænkt over fordi i deres dagligdag var det utrolig vigtigt med de her naboer og mors søster lige lidt længere nede.

A: Jeg har også set det når vi, vi lever jo rigtig meget af vores frivillige og det der med at rekruttere frivillige på landet er jo ekstremt nemt. Folk er jo så engageret og der er også en eller anden form for social organisering som er meget mere til stede og det handler rigtig meget om at hvis folk forpligter sig til noget kan de ikke stikke af, for der er en form for social kontrol. Nu har du jo forpligtet dig til noget og så gør du det også samtidig med at du får enormt meget anerkendelse for det du gør fordi dit netværk er så tæt. Kommer du til byen er der bare tusindvis af tilbud. Du flytter dig konstant og hele tiden, den der cohesion den er væk og den der forpligtigelse til ligesom at gøre noget, den forsvinder også. Du oplever og vi kan særligt se det i Nairobi, en mistro for hvad du egentlig har gang i og hvad er det du planlægger med os og det man kan få hos jer, kan man få meget bedre et andet sted fordi der er så mange tilbud hele tiden. Det er virkelig svært for os at finde byområder, slumområder hvor vi kunne være da vi skulle starte det her urban risk reduction program fordi der var så mange NGO'er. Så i Kibera, som er det der kæmpe store slumområde som alle kender og snakker om der er jo ikke til at være for internationale og nationale NGO'er.

M: Ja, det er klart. Det udfordrer lidt koordinering og at man ikke bare laver det samme alle sammen i virkeligheden. Har i nogensinde måtte investere i noget udstyr eller et eller andet på forhånd uden at i har implementeret programmet i Malawi eller hvor vi nu er?

A: I Zimbabwe. Vi har faktisk lavet noget, det er ikke FbF, men mere EWEA på Kariba søen, hvor fiskerne får SMS'er. Der fungerer mobiltelefonen jo fantastisk. De får nogle SMS'er og på Kariba søen, jeg ved ikke om du kender den, det er sådan en kunstig sø, der opstår da man laver Kariba dæmningen, man har jo vandkraft og der får man sådan en kæmpe kæmpe kunstig sø der har sådan nogle vildt syrede vindforhold ude, sådan nogle kastevinde nærmest og der er masser af fisk og folk fisker jo. Men så sender vi sådan nogle som meteorologisk institut fra Zimbabwe har vejrstationer liggende og de sender de her warnings til fiskerne enten de skal søge ly, på sådan nogle øer, eller at de skal lade være med at sejle ud. Men for at få det på plads blev vi nødt til at investere i at få nogle vejrstationer op for at få det til at fungere så der var nogle ting vi gjorde. Og vi har gjort det samme i Mali, hvor vi har sat regnmålere op og hjulpet med ting. Så det er sådan noget hardware som indimellem skal på plads før vi kan agere.

M: Der skal nogen gange noget udstyr til for at kunne gøre de ting. Hvis nu i skulle have et FbF projekt op og stå i et slumområde eller en urban setting, hvad er det så nogle udfordringer du forestiller dig i kunne løbe ind i?

A: Okay, lad os bare tage i Nairobi. Før det første skal du forholde dig til den usikkerhed folk lever under, så vi skal have nogle frivillige, vi skal have rekrutteret nogle frivillige, der skal vise interesse for det her. Det er så hvis man er et sted allerede og har engagement, så er det ikke noget problem, men hvis du ligesom skal starte op helt fra scratch så skal du simpelthen arbejde så meget for at overbevise de her mennesker om at vi vil dem det godt. Det er nummer 1. Så få etableret komiteer og grupper af frivillige der reelt kan arbejde og så handler det rigtig meget om at snakke med de rigtige mennesker på de rigtige tidspunkter og når man er i de her byområder, jeg ved i Nairobi fx en her vold, altså økonomiske vold, sociale vold, politiske vold, der hele tiden kører så du har jo de her gangs alle vegne der kontrollerer ting. Så har du politisk, det er så i Nairobi især, fordi du har alle de her politiske fraktioner, det er

op af bakke fordi pludselig befinder du dig i et område hvor en bestemt etnisk gruppe er som har den og den politiske overbevisning ift et andet sted, hvor du så ikke kan bevæge dig ind. Så det ville være op af bakke ja, men ja vi kunne sagtens gøre det. Jeg tvivler ikke på det og jeg ved det er sådan et område at X arbejder rigtig meget på og ser hvordan det kunne gøres på den bedst mulige måde og med Aynur også. Vi har sådan nogle Urban Task Force Skype møder arrangeret hvor vi snakker sammen og der bliver nu et stort urban forum i Nairobi hvor de mødes og snakker om hvordan det er at arbejde i urbane forhold hvor der bliver et lille FbF del hvor jeg tror X kommer og snakker.

M: Kunne man forestille sig at det at man ligesom på forhånd siger at det her område eller den her bydel er under det her program, kunne man så forestille sig at det blev mere attraktivt at bo der fordi man ved at man bliver hjulpet på den ene eller den anden måde.

A: Det kunne man godt forestille sig, men jeg ved reelt ikke om folk flytter for det. Der er jo sådan en totalt i Nairobi i sådan en uformel settlement, som de helst vil have vi siger, de kan ikke lide at vi siger slum i Nairobi i Kenya røde kors. Folk flytter jo hele tiden, lige så snart regeringen kommer ind eller counsel fra byområdet kommer ind og opgraderer huse og lægger vand og elektricitet så stiger huslejen og så flytter folk og så kommer der nogle nye ind som har råd til at bo der. Og folk flytter, det ved jeg. Folk flytter for fødevarer distributioner, så WFP har oftest nogle hvor de udleverer mad og så bliver huslejen faktisk dyrere når du er i de områder, hvor der er uddelinger af mad. Og folk flytter derhen for at være en del af den community som så er berettiget til at få den her ... og det er jo sådan en, de der byer er jo sådan en organisme som konstant er i forandring. Det kan godt være du tror du ved hvordan det ser ud lige nu, men sådan ser det ikke ud om 14 dage så vi har lavet noget MapsMe, hvor frivillige har gået rundt og mappet de her områder, hvor kirker ligger hvor der ligger en lille kiosk, hvor der er en vandboring, hvor der er, fordi vi har noget om brandforebyggelse, der er spande, hvor der er vandhaner, brandhaner, hvor slanger er, så man kan simpelthen se hvor tingene er. Og det der sker er at de konstant og hele tiden opdaterer de her kort fordi det hele flytter sig.

M: Det er i hvert fald noget af en udfordring at følge med, når det ændrer sig så hurtigt. Hvad med så nogle, er der problemer med, hvis de egentlig ikke må bo der? Er det noget i oplever hvor regeringen, der er måske nogle samarbejdsvanskeligheder fordi den lokale kommune eller hvad det nu er egentlig ikke er interesseret i at der bor nogen der?

A: Ja nogen gange tager de lige en bulldozer og fjerner det hele. Altså i RK og rigtig mange nationale RK selskaber kan faktisk ikke lide at arbejde i byområder, fordi de er RK og de har de her 7 principper med deres uafhængighed og upartiskhed, så de vil ikke engagere sig i nogle af de her ting for så kommer de pludselig til at blive en del af en sag og så skal de tage parti og det vil de ikke. Kenya RK siger så at de blander sig ikke i noget som helst med ulovligheden med at folk bor der. De ser bare at de her mennesker er udsatte, sårbare og har brug for hjælp og så hjælper de dem. Og fx har de haft den her holdning til, at de her mennesker tapper elektricitet ulovligt fra forskellige elektricitets forsyninger og det er en brandrisiko af dimension plus en masse mennesker bliver dræbt fordi de får stød og de har simpelthen advokeret for at elektricitets forsyningen fra Nairobi har været ude og gøre det lidt mere sikkert vel og mærke at det er ulovligt stadigvæk og det sker, men uden at blande sig i og sætte spørgsmålstegn ved om det er lovligt eller ej, bare at du sikrer liv. Du sikrer at de her mennesker ikke omkommer enten fordi der er brand eller fordi de får elektriske stød. Så ja men det er svært og det er op af bakke. En ting og det er det her med at holde "duty bearers" ansvarlige for det de har pligt til, så vi skubber dig og vi siger at de her mennesker har brug for det og det. I Vest Afrika er, der er en forsker fra KU geografi der arbejder med byudvikling er hedder Jytte Agergaard, hun er meget interessant, hun har noget forskning om

peri-urbane settlements især i Vest Afrika i forbindelse med migration fra Vest Afrika mod vores del, altså Europa, hvor det faktisk viste sig at, lad os tage et land som Mali eller Nigeria. For nogle mennesker er det sværere at komme til Lagos eller Bamako end det er at komme til en peri-urban by, sådan en by der egentlig ikke er en by, så bosætter de sig der og det er fuldstændig ekstreme forhold de bor under og deres ønske er egentlig at de skal videre mod noget mere by, men det er sværere for dem at komme ned til Lagos end det er at rejse hele vejen op gennem Sahara nogen gange. Så de her by områder vil regeringen ikke anerkende som byer fordi det gør at de får nogle forpligtelser til at tilbyde vand, infrastruktur og ting og sager. Så du har nogle af de her accelererende by og kæmpe slumområder midt ude i på landet som bare vokser eksplosivt hvor mennesker staves sammen under de mest forfærdelige forhold og så kan det nogen gange reelt føles nemmere for dem bare at rejse op mod Europa end at rejse ned mod Lagos.

M: Når i nu skal vælge beneficiaries til jeres programmer, hvad er det så i går ud fra, hvordan gør i det? For i har jo ikke alle med, tænker jeg. Går i så fra husholdning til husholdning eller er der nogle parametre i måler på?

A: Vi laver sådan nogle assessments og så er vi jo. Det at vi arbejder med en partner, RK har jo altid en partner. Vi arbejder jo altid med det nationale RK selskab og vi arbejder altid igennem det nationale RK selskab. Vi ville aldrig arbejde med mindre vi gør det igennem det nationale RK selskab, så fx hvis vi skulle arbejde i en eller anden lokal NGO, så ville det være Kenya RK som indgik samarbejdet med en lokal NGO der forbedrer forholdene for prostituerede kvinder i en slumbebyggelse i Nairobi. Det her nationale selskab kender jo om noget de områder og steder fordi de har lokal afdelinger, ligesom vi har lokal afdelinger herhjemme, så i de her slumbebyggelser i Nairobi er der jo så lokalafdelinger som sidder ude og kender hvem der er. Så ofte når vi skal starte et projekt så laver vi noget der hedder en vulnerability and capacity assessment. Det er sådan en process man går igennem. Den er udarbejdet i midt halvfemserne og så er den videreudviklet og den fungerer egentlig ret godt fordi, den gør ikke folk til ofre. Den siger vulnerability, vi ser hvor sårbare og de er selv med til at se deres sårbarhed, og se deres risici der omgiver sig med og så snakker vi rigtig meget om deres kapacitet. Så det handler rigtig meget med tage dem og sige hvad gjorde du sidst?, hvordan kom du igennem det? Hvad skete der? Hvad var det hos dig selv, i din familie, i din landsby der gjorde at i klarede den?, hvordan kan vi bygge mere på det?

M: Okay, så ja det er en proces med også hvad er det for nogle actions som der er relevante også.

A: Og i den process udvikler vi så hvad det er for nogle actions vi godt kunne tænke os at lave i den her del, så for nogen af de her slumbebyggelser i Nairobi handler det rigtig meget om brandforebyggelse og så handler det om respons ift brand, så handler det om hygiejne, så handler det om at rengøre vandkanaler, så du ikke får, altså drainage, så når du får vand at det ikke vælter ud fordi det ikke kan afledes. Så har vi sådan nogle små sack plantages som er sække med jord så du kan plante tomater oppe på taget for du kan ikke plante noget nede på jorden, fordi det er for ulækkert.

M: Der er helt sikkert nogle. X snakkede meget om det her med hvad er det for nogle actions der kunne gavne folk. Jeg lavede sådan et scoping study, jeg kan ikke huske hvor mange artikler det var, en 20-30 stykker og de handlede om urbane forhold og EA og det er også primært det man støder på i litteraturen, det er det der med drainage channels og et eller andet system hvis de har elektricitet, der kan slukke for det hele hvis der kommer en oversvømmelse.

A: Og så nogle små indkomst skabende aktiviteter på lokal. Fordi enkelte lokalafdelinger derude, give dem et bord og 20 stole, 20 plastik stole og et sammenklappeligt bord så kan de leje det ud til andreorganisationer, eller møder eller fester. Indsamling af plastikposer og fletter kvinderne sådan nogle tasker.

M: Det er nogle sjove lav praktiske ting nogen gange som gør en forskel. Der er også en del af artiklerne der nævnte sådan et hejsesystem i deres hus, så når der kommer oversvømmelse kan de lige hejse deres vigtige ting op under loftet.

A: Eller det her med at putte dine ting i en flaske. Dine vigtigste papirer.

M: Sådan nogle småting. Det er ret sjovt. Nogen gange er det ikke mere der skal til for at. Lad mig se engang. Jeg tror jeg nemlig vi har været meget godt rundt.

A: Jeg tænkte at du skrev noget om cost-benefit, jeg vil bare vise dig noget som jeg selv så. Det blev præsenteret til en konference. Det kan være Alexandra allerede har vist dig det.

M: Er det nogle af dem fra WFP eller FAO?

A: Dem har jeg også. Det er den her cash transfers. Benefits og avoided losses, hvor meget man reelt kan give og hvor meget man så vil ende med at give.

M: Var det 1/3 i Bangladesh. Hvilket jo er rigtig meget i sådan en henseende. Det er mange flere mennesker.

A: Ja, det er mange flere mennesker man kan redde. Så på den måde er det utroligt.

M: Det bliver spændende i år og næste år. Jeg kan forstå at mange af de pilot projekter skal slutte i år og så må man jo kunne lave nogle studier.

A: Ja jeg ledte. For der var sådan et cost-benefit studie fra Bangladesh. Men så tænkte jeg den der, den kunne jeg sende til dig.

>Talk outside interview<

## **Appendix 9.6: Email from Elisabeth Stephens, Reading University.**

Email from Elisabeht Stephens. Received March 16 2018

”Dear Mads,

Good to hear from you. I would be happy to talk via Skype if that would be best?

There is actually an urban FbF working group that you may be interested in joining, I can put you in touch with X who is leading it.

With respect to forecasting and impact-based forecasting, in some ways for urban areas it is actually easier, as we tend to have more data in urban areas that can help us with verifying the forecasts and assessing potential impacts. However, forecasting floods will be more difficult where there are water management measures and urban drainage systems that influence the likelihood of floods.

I think that the main challenges relate to how ethical it is to implement FbF in informal settlements, e.g. does it increase population exposure to natural hazards because more people will be inclined to move there if they know they will be getting help if a flood occurs? Also, populations are much more dense, so for small scale pilot projects one could easily end up helping one side of a street and not the other, which isn't appropriate.

Next week I will be in Nairobi for the Africa Forecast-based Financing Dialogue Platform. I would be happy to share you project objectives, any key questions and your contact details if that would help you.

Best wishes,  
Liz

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