

Task B: Capacity Assessment Tool

Action B.4

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1. Introduction

CAPFLO is a consortium of five research institutes in Europe working on the social dimension of flood risk. The general objective of the CAPFLO project is to promote participatory capacity building processes for flood mitigation at local level. For this aim, the project pursues the following specific objectives:

I. To design two consistent tools (the Capacity Assessment Tool and the Participatory Tool) to assess and develop social and civic capacities, as urban resilient capacities, for flood mitigation; II. To assess social and civic capacities in 5 high flood risk urban river stretches in different Member States; III. To carry out, in these 5 pilot urban river stretches, participatory capacity building processes, implementing pilot actions aiming to develop social and civic capacities for flood mitigation; IV. To identify and share good practices on social and civic capacity building; and finally, V. To produce a Guideline on social and civic capacity building in order to facilitate the replication of participatory capacity building processes in other urban areas. Further information is available at the website: <http://capflo.net>.

The CAPFLO project focuses on flood risk mitigation strategies, further details on these strategies will be provided in the document. While the flood risk mitigation stage, especially preparedness is our main concern, capacity building process considers the role that different capacities play over the different stages of risk and flood event: ex-ante, during and ex-post.

Action B: The Capacity Assessment Tool Objectives

This document corresponds to the deliverable B.4 of Task B corresponding to the Capacity Assessment Tool design. It was elaborated by Lab'Urba, University of Paris-East, from March to October 2016, and updated systematically as the project advanced and new findings were considered relevant to feedback this task. Further feedback to this task may take place, mainly modifications to the indicators from new findings in the experimental tasks. The document was reviewed and enriched by the CAPFLO partners, the comments of two international experts and two workshops with experts, Vitry-sur-Seine municipality officials and members of local associations (CEPRI). We would like to thank all the people that contributed to the elaboration of the document.

The Capacity Assessment Tool (CAT) is part of the project main tasks; it involves three specific objectives described in the following paragraphs. Firstly, to define a typology of social capacity based on the literature review, which includes a set of specific resources and capacities categorised in five dimensions; secondly, a set of indicators to assess the specific

capacities of a local community and evaluate the state of the art; and thirdly, a methodology to obtain the information required to do the assessment.

The general hypothesis on which the project relies is that citizens, working with other actors, including government, taking their own initiatives and using their local knowledge and networks can contribute significantly to mitigate flood risk. This approach is particularly relevant in current debates on resilience. At long term, this process might enable communities to reframe their role in the Flood Risk Management structure (FRM) towards a more prominent one. This can occur if there is willingness to engage in participatory action from local groups and authorities, and a minimum level of social capital. This might increase the resilience not only at local communities level but at the FRM institutional level. A second working hypothesis is that social and civic capacities can be identified, enhanced and developed through a participatory process (Participatory Tool), which will be explored in Task D.

The Capacity Assessment Tool has been designed to be applied in different social and cultural contexts to identify general trends; the indicators and evaluation criteria were designed to be general enough to fit this diversity. However, the specific context and its social dynamics must be taken into account to overcome this limitation of the tool. The methodology to obtain the information relies on a set of evaluative questions which is the information that the analyst requires to define the capacity levels to evaluate each indicator. These questions are not the ones to be directly asked to the population, and should not be taken as a protocol. The specific methods to be used by the analyst are chosen accordingly to the characteristics of each case using quantitative and qualitative methods; the evaluative questions makes the comparison possible without compromising misinterpretations.

Assumptions

There are three assumptions of the project. Firstly, the enhancement of social and civic capacities at local level increases the resilience of the whole socio-ecological system as it moves from a centralized to a de-centralized management structure (i.e. government working with people; and people using local knowledge and different capacities to take an important role in flood risk management).

Secondly, socio-ecological systems are self-organising systems that continuously change. From a resilience perspective, understanding how they change and identifying the patterns that drive the process is a crucial fact not only to assess but also to build capacities.

Thirdly, the dominating patterns of organisation (e.g. institutional and informal frameworks) convey a set of values, a set of priorities and enable certain capacities rather than others. To understand Flood Risk Management and how the roles are defined and by whom, it is important to unveil the set of values and perceptions that govern that general system.

CAPFLO Main Concepts

CAPFLO framework is based on three main concepts: social capacity, civic capacity and social resilience. The use of these concepts let us work on how to involve the citizens in the different strategies to mitigate flood risk, i. e. develop civic capacity. Broadly, social capacity refers to all the resources and abilities embedded in multiple actors of society, institutional and non-institutional, and at multiple levels within organisations: individual, community, institutional, etc.. Social capacity, including resources and specific capacities are embedded in the FRM institutions but also in the communities. While in many countries social capacity is concentrated mainly in institutional actors (e.g. government, NGOs,...), in others it is re-distributed among institutions and local communities; multiple arrangements are possible depending on each society. This concept is used in general in disaster management context, and has been applied to flood risk. Civic capacity focuses on local communities (groups formed by citizens) and their ability to mobilise and self-organise to reach common goals and/or solve local problems. Local communities can be linked to other actors at multiple levels such as municipalities, regional authorities, NGOs, etc. to reach their goals, these networks are taken into account. The civic capacity concept is not related to disaster management, it is used in a more general spectrum to fields such as children education; an original contribution of CAPFLO is to introduce this concept to FRM to give special focus on community involvement in the FRM. Finally, the concept of resilience is used as an ultimate objective of the capacity building processes; adaptive capacity was considered as particularly important to capitalise learning experiences from flood events in an iterative process and improve behaviour over time. Resilience provides an interesting dimension to capacity building processes.

Below are given further details of these concepts and how they are used in this research.

1. Social Capacity

CAPFLO used the concept 'social capacity' developed mainly by the CapHaz-Net consortium as a starting point. This capacity refers to the set of specific resources and capacities, organised in five dimensions, that actors require to deal with flood in its multiple stages. Some of the important dimensions established by CapHaz-Net were used to build the CAPFLO typology, especially applied to more institutional forms of organisation.

The CapHaz-Net project was developed from 2009 to 2011 by a consortium of eight research institutes from six European countries (www.caphaz-net.org). CapHaz-Net developed an overview of current research on the social dimensions regarding natural hazards and disasters. CapHaz-Net developed a typology of social capacity unpacked in five different dimensions where specific capacities are involved: knowledge, motivation, networks, financial and participation, each playing an important role in the capacity building process.

From this approach, 'social capacity' has been defined by Kuhlicke et al. as follows:

'By social capacity we mean all the resources available at various levels (e.g. individuals, organizations, communities, institutions) that can be used to anticipate, respond to, cope with, recover from and adapt to external stressors (e.g. a hazardous event). These resources include skills, knowledge, social networks as well as institutions, structures and knowledge of how to elicit and use them' (Kuhlicke et al. 2010, 16).

Social capacity, as defined by CapHaz-Net, already took into account the importance of networks, especially to transfer multiple capacities and resources such as knowledge and motivation, especially to local communities. However, CAPFLO position is that the existence of networks doesn't necessarily imply civic capacity, especially because . To have civic capacity local actors need capacities to get together on their own initiative to solve community problems. Civic capacity indicators refer mainly to communities and their multiple resources and abilities, not necessarily flood related, to their build capacity to work collectively to mitigate flood risk. For example, residents have knowledge on their neighbourhood, they have networks, they communicate with each others, these capacities can be valued and used to

An important difference with the CapHaz-Net framework is that it uses a combined Top-down and Bottom-up approach. Top-down approach means that the different capacities are built from an institutional perspective in which government, and/or other government-related institutions such as agencies or public-private partnerships, take the leading role. Instead, a Bottom-up approach does it starting from a community level to the top. The CAPFLO project also takes into account what has been called the "bottom-linked approach", which refers to responses emerging from the local communities but linked to other scales or levels of governance (Eizaguirre et al., 2012). This approach recognizes the centrality of initiatives taken by those immediately concerned, while at the same time stresses the necessity of a multi-level governance strategy to enable community initiatives. This support can only be provided by governmental institutions. The participatory approach to build-up or

enhance local capacities is used mainly at the local community level but also focuses on the multi-scalar institutional levels that can enable these capacities.

2. Civic Capacity

Literature on disaster risk reduction and capacity building has shown that the capacities of affected population are an important source of resilience in dealing with disasters. Communities, for example have knowledge embedded in their culture on how to live in the environment at risk as well as capacity to undertake action, work collectively, mobilize, take innovative initiatives and deal with the situation at local scale (Kuhlicke et al. 2011).

'In over 25 years of experience, we have observed that in most disaster situations there is a tendency for all concerned to exaggerate the scale of damage and dislocation and to greatly underestimate the capacity of the affected population to resolve their own problems.' (Quarantelli 1973 in Davis 2004, 131)

Crisis situations, if taken in a positive way, can trigger citizens' capacities to deal with the different phases of the disaster; the capacities acquired during a traumatic event can also serve to challenge current social and governance structures towards the recognition of local needs, local capacities and knowledge (Davis in Campanella 2005). This capacity to capitalise a traumatic experience, this is directly related to civic capacity and resilience.

Civic capacity, is defined as the ability of local actors to act in concert around a matter of community wide import (Stone, 2001).

CAPFLO original contribution is to give a special emphasis to the resources and capacities of the local communities that can be identified, valued and mobilised to help them take a more prominent role in FRM. Some of these capacities and resources are not directly related to flood but can be used for flood mitigation purposes if properly oriented in this direction. For example, residents have knowledge on their neighbourhood and their own networks, this can be used to spread information on flood in a specific community by using already established social structures.

An interesting aspect of integrating civic capacity as part of a social capacity typology is to see the interactions between the institutional actors and frameworks, dominating FRM in most European countries, and the local communities actions. Local community actions cannot be analysed as separated from FRM at different scales. General FRM frameworks mould local communities' actions, as these actions are inserted in district and regional plans implemented at multiple scales by different authorities.

3. Social Resilience

The concept of resilience has gained importance in research related to natural hazards. It offers a new perspective on how societies relate, and develop an ability to adapt to the changing environment. Rather than prepare to face an exceptional disaster situation, resilience is about learning to live with a changing environment and eventually know how to change or adapt in the future in order to persist over time. These changes are related to climate change, but also to rapid urbanization and changing legal and planning frameworks. From this perspective, change is seen as normal and part of natural cycles that can be used as part of a learning-over-time process. In fact, the concept of resilience comes from the Latin word *resilire*, literally meaning *rebound*. It is related to the capacity of a system to survive by keeping its essential functions after confrontation with a major shock.

‘Resilience is the ability to reorganise after a crisis, continue to learn, evolve with the same identity and function, and also innovate and sow the seeds for transformation’ (Ostrom in Folke and Boyd 2012: p. xviii).

The concept of resilience is applied to flood risk management in multiple ways, some refer to resilience as adaptation of buildings, others refer to it as giving information to the citizens so that they know how to keep safe individually in case of flood (prepare a survival kit, evacuate, move valuable objects to the upper floors, etc.), which are different expressions of resilience.

In the CAPFLO project we are interested on resilience as the development of the collective capacity, both institutional (government, NGOs, private actors) and communities (citizens), to take initiatives to prepare for future flood events. **Social resilience** and is defined as the collective capacity that a social system has to minimize or overcome the damaging effects of an adversity. Former literature within the social resilience approach distinguishes three components that are shaped by the preeminent role of the symbolic dimension of social systems (Lorenz, 2013): coping, adaptive, and recently the participative capacity.

Coping capacity refers to the way different actors in the flood risk management system take advantage or not of a traumatic event occurred in the past. For example, some affected citizens will position themselves as victims reacting with anger and blaming government or other institutions, while others will consider the event as an opportunity to understand what went wrong to prepare for the next flood in a constructive, positive way, willing to collaborate with other actors to improve the situation for the community, this is called coping capacity.

Adaptive capacity refers to the capacity to capitalise past experiences by actors in the risk management system in a positive way to prepare the future, especially regarding 'learning to do better in the next iteration'. This capacity involves modification of actors' behaviour, change of mentality, and modification of the frameworks that establish the roles and tasks of actors in the flood risk management structure towards a more inclusive system, a task not easy to achieve.

Finally, **participative capacity** refers on one hand to the capacity of the citizens to engage in flood risk mitigation strategies at neighbourhood scale in multiple ways (deliberation on city plans, preparation of neighbourhood action plans, spread information on risk, etc.), on the other hand this capacity refers to the Flood Risk Management structure (FRM) ability to open spaces for community involvement, which again is not an easy task to achieve as it implies to share power on decision-making. Community bonding, self-organisation, coping capacity and adaptive capacity are part of the aspects that shape a local community participative capacity.

To build the indicators of the Capacity Assessment Tool, CAPFLO added specific abilities related to the **adaptive and participative capacity**, especially those related to learning from past experiences to take better action in the future. The evaluation of the capacities related to adaptive capacity, such as 'learning', requires to consider 'capacity to change' from past situations to new, more adapted, ones. This approach related to resilience requires a different perspective on time; if the assessment of social and civic capacities gives a 'photograph' of the state of the art, resilience gives a tendency to change over time; a 'film'.

CAPFLO ultimate aim is to empower local communities by helping them to engage in learning from past experiences, self-organise and engage themselves in the FRM mitigation actions. It is worth mentioning that participative democracy is difficult to achieve, there are many arguments against it, and not all governments are ready to share power with other actors, especially communities; acknowledging the latter, this is the stand of the project.

Document Outline

The document has three main parts. Firstly, in the next section we present a framework with the key concepts used to define the Social Capacity Typology and the list of specific resources and abilities associated to each of the dimensions of the social, civic and adaptive capacities. Secondly, the Assessment Tool is explained and a set of indicators -presented as evaluative questions- is proposed, including the criteria for evaluation. Thirdly, the methods to obtain the information to respond to the evaluative questions are developed through different protocols.

2. CAPFLO Key Concepts

In this section, the concepts used to build up the set of indicators of the Capacity Assessment Tool (CAT) is developed.

2.1 FRM strategies

In the literature different taxonomies of flood risk management strategies (FRMSs) can be found (see e.g. the UNISDR–UN Office for Disaster Risk Reduction; the EU Flood Risk Management Directive, 2007; and Hegger et al, 2014). Based on existing classifications, we adopt a taxonomy of FRMSs articulated into 4 main typologies that refer to the ex-ante, during, and ex-post phases of a flood event. The strategies are: mitigation, further distinguished between prevention measures; defence measures, and preparedness measures; response or relief; and recovery. Definitions and examples are provided in Table 1.

The CAPFLO project aims to contribute building social and civic capacities for flood mitigation. According to this taxonomy, flood mitigation is a flood risk management strategy made up of both structural and non-structural measures to reduce the adverse impacts and/or the risks of floods in a specific location. Within this category, the CAPFLO project focuses on non-structural, preparedness flood mitigation strategies. The complete taxonomy will be used to illustrate the existing flood risk management strategies in the different case study areas.

Ex-ante flood event	
<p>Flood mitigation measures to reduce the adverse impacts and/or the risk of floods in a specific location</p>	<p><u>Prevention measures</u></p> <ul style="list-style-type: none"> • Spatial planning or land use policies aimed at building only outside areas that are prone to flooding • Adapting future developments to the risk of flooding • Promoting appropriate land-use, agricultural and forestry practices • Smart design of the flood-prone area which include measures such as spatial orders, constructing flood compartments, or (regulations for) flood-proof building <p><i>Main actors: actors involved in planning processes (governmental actors, private parties), citizens, project developers, water managers and other public and private actors.</i></p>
	<p><u>Defense measures (also called structural measures)</u></p> <ul style="list-style-type: none"> • Building infrastructural works such as dikes, dams, embankments and weirs, upstream retention or giving more space to the river within its current embankments. <p><i>Main actors: generally governmental water management actors at national/regional/local levels; private actors</i></p>
	<p><u>Preparedness measures</u></p> <p>Activities and measures taken in advance to prepare for a flood event and ensure effective response to the impact of floods, including:</p> <ul style="list-style-type: none"> • Informing and working with the population and communities on flood risks and what to do in the event of a flood • Promoting a culture of risk • Getting people at risk insured • Developing flood warning systems • Preparing disaster management, emergency response and evacuation plans <p><i>Main actors: governmental organizations like the meteorological office, flood forecasting centres, emergency services, local and regional governments, individuals and communities.</i></p>
During flood event	
<p>Flood response/relief</p>	<p>The provision of assistance or intervention during or immediately after a flood disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.</p> <p><i>Main actors: governmental organizations, emergency services, NGOs, volunteers, citizens themselves</i></p>

Ex-post flood event	
Flood recovery	<p>Decisions and actions taken after a flood event with a view to restoring or improving the pre-flood socio-economic conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce flood risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply flood risk reduction measures. Measures include physical reconstruction, rebuilding plans as well as compensation or insurance systems.</p> <p><i>Main actors: national governments establishing disaster relief funds, insurance companies as well as the affected citizens themselves.</i></p>

Table 1. Flood Risk Management strategies as defined by CAPFLO

2.1 Participatory FRM Approach

The paradigm on flood risk has changed from flood protection, driven by top-down expert-led planning to a flood risk management; this shift is promoted by the 2007 EU Floods Directive and is becoming institutionalised at different levels (IRGC 2012, Renn 2008, UNECE 2000, WMO 2009 in Challies et al. 2015). In a participatory risk co-management approach stakeholders are expected to take a proactive role, accept a certain level of risk, learn how to live with risk and work collectively to solve local problems. Stakeholder engagement and public participation are central to effective flood risk co-management (Challies et al. 2015).

Participatory process are not without difficulties, in some cases this process is conflictive as the interaction between different groups and stakeholders with different interests might render the decision-making process slow and inefficient, as shown in the 2013 Saxony case in Germany. Another related aspect of this approach is that the delivery of public goods, i.e. the river and its related problems, might become a club good managed by a group of locals increasing rivalry and excludability (Challies et al. 2015).

The participatory risk co-management approach focuses on developing and strengthening collaborative capacities of the different actors and stakeholders to give a collective response to flood risk. The approach recognises the value of rising awareness about the different interests and views among stakeholders and the importance to share technical and experienced-based knowledge on risk. An especial emphasis is given to the capacity to learn, individually and collectively, in order to give an adapted response to new challenges and stressful situations (adaptive capacity), this is particularly important to develop resilience in local communities.

While some management approaches tend to be centralized (driven by government and formal institutions) others are decentralized and more informal. As mentioned before, participatory flood risk co-management increases the resilience of local communities as it allows multiple actors to unfold their capacities, to innovate and to find solutions to stressful situations on their own. In fact, autonomy is an important attribute of resilient communities. People and communities use their knowledge, their capacities and resources to work collectively and solve problems without depending exclusively on the government to do it for them, which in certain situations is even impossible due to the magnitude of a disaster.

Recent research has shown that participatory approaches to flood risk management are more inclusive and successful in those environments in which there are already pre-existing networks of organized groups (Thaler and Levin-Keitel 2015 in Challies et al. 2015).

'In recent years, the interest in social networks, in resource management contexts, has increased (e.g. Lansing 1991, Schneider et al. 2003, Baker 2005, Crona and Bodin 2006, Ernstson et al. 2008, Bodin and Crona 2009, Ramirez-Sanchez and Pinkerton 2009). These arguments are further strengthened by numerous studies showing that the existence of informal social networks among and between various stakeholders and groups are very important in successful cases of bottom-up community based natural resource management (e.g. Gunderson 1999, Folke et al. 2003, Olsson 2003, Pretty 2003)' (in Folke and Boyd 2012, 16).

The participatory approach to risk co-management recognises that local communities are in general more sensitive to local changes and comprehensive in regard to their environment. It also highlights the role of local communities in acquiring and preserving knowledge over time about the environment and in perceiving any changes, and reacting or adapting accordingly (keep memory of past events and embedded knowledge). By integrating the risk co-management local communities unfold their capacities and use them to deal with risk in the different stages of a flood event, including the mitigation stage.

The underlying idea is that the integration of communities and networks to the flood risk co-management will increase the propagation of knowledge and creation of collaborative networks within different groups and stakeholders. At local level, propagation of knowledge helps to develop a culture of risk (learn to live with risk) and promote an active engagement of different actors and stakeholders to solve local problems.

2.2 Definition of Community and Typologies

The CAT refers to communities as group of people bonded by different relations that keep the group together. CAPFLO main focus is on communities related to citizens and their potential or current organisation to mitigate flood risk, which is the basic unit of analysis in the CAT. We are looking to identify the 'bonding properties' of those communities where capacities are embedded. For example, there are people that get together because they live in the same area and share cultural identity (rooted communities), or share religious features, others with similar interests (e.g. residents environmental associations), or which are together for a specific circumstance (e.g. children at school). Internal conflict is not excluded from communities and should not be overlooked, but despite tensions they still keep a bonding factor. In many countries there are specific words to describe these groups (*colectivos* in Spain, *associations* in French, ...); in the CAPFLO research we use the word 'communities' to be able to apply this category to multiple contexts. It is important to consider that communities are not as homogenous as conceptualised, this category is a tool to identify groups with specific capacities, special characteristics relevant to flood, or those lacking capacities such as vulnerable groups.

'Any community type is not one single actor, as their members are neither homogenous nor have a clearly defined stake in risk management. Rather, local and other communities are characterised by a number of diverse interests and internal social differentiation. Issues like social conflicts, social inequality and social exclusion need to be equally taken into account' (Kuhlicke et al 2011).

CAPFLO is searching to work with different communities mainly formed by inhabitants in an area exposed to flood risk,. Communities of especial relevance to this research are those already working to mitigate flood risk (or related issues), keeping knowledge based on past experiences and local culture, developing positive perceptions on risk based on their understanding of the environment and finally those undertaking actions to prepare for flood risk. Communities which are developing solidarity networks or have strong bonding properties are also relevant to develop a collective culture of flood risk.

Four types of communities are relevant to these aims (based on Kuhlicke et al. 2011):

- **Rooted community:** Is a group formed by a historical process living for a long time in the environment at risk. The community is characterized by an identity, and members' strong sense of belonging. In many cases individuals are bonded by a feeling of attachment to the place. This kind of community is formed through time

and represents a social capital resource. These communities are particularly relevant to flood risk mitigation because they keep memory of past events and embedded knowledge on how to prepare for the next event. Rooted communities might have knowledge of the area and strong social bonding.

- **Institutional communities:** These are communities formed within institutional contexts such as group of city majors with special bonding such as a shared political thinking. It might also include groups of people from different institutions (social services, NGOs, police prefecture, etc.) interested in developing culture of risk, etc. It is important to identify the communities within institutions and differentiate them from the ones formed by citizens as they are of very different nature.
- **Communities of circumstance:** It is a group that emerges due to a specific situation; in the case of a flood event a community of circumstance can be a primary school community, in many countries these communities are main objectives of the flood risk information campaigns. Another example of communities of circumstance are political groups such as “Los Indignados” in Spain or “Nuit Debout” in France, which bonding principle is to gather in a public plaza to share opinions on society issues. The bonding principle is the fact that all members are gathered around an event or a particular situation. There is a certain level of bonding in these communities generated by the prolonged interaction in a common setting that lead to develop similar ideas on specific topics (like-minded people). Communities of circumstance are particularly relevant for risk communication and education. They are also relevant to develop political engagement and discussion about local problems related to wider processes such as climate change and sustainability.
- **Communities of interest:** It is a group that share a common interest or legitimate stake in a certain issue, for example an association formed by affected population searching to solve a specific local problem related to flood risk affecting local residents, another example is people motivated to help spreading information on risk. There is a strategic bonding, generated by the fact that people, who may have different mind-set and ideas, aim to achieve a common goal. The main bonding principle is the common goal. These communities are relevant to form networks and coalitions that can work together (despite their diversity) to solve local problems affecting their immediate environment.
- **Vulnerable groups:** It is a group that presents a condition of vulnerability; this can be an informal settlement located in an area strongly exposed to flood risk, or specific gender related groups such as children or elderly people living on their own, poor

population, migrants. It can also be a group recently settled in an area such as new population that is not used to live in an at-risk area. This group is relevant to the capacity assessment as these groups might require capacity building in order to survive, especially networking with other groups to ensure the transmission of resources and abilities.

2.3 Definition of Capacity and Participatory Capacity Building

The objective of the participatory FRM is to develop and enhance capacities of different actors and stakeholders to be able to work collectively to deal with local problems related to flood risk. This approach promotes a collective response (including citizens) to deal with natural hazards. The term 'capacity' involves both resources and abilities to mobilize them.

According to Kuhlicke et al. 2010, capacity refers to:

'A context-related ability of an individual, a social group, an organization or institutional actors to decide and to behave successfully in a certain situation or to overcome the negative impacts of some event as well as to employ the necessary resources' (Kuhlicke, Steinführer, 2010, 11).

Capacities depend on wider contexts; in the case of flood, communities' capacities might be tightly related to the general FRM. A useful concept to understand this is 'capabilities in relational systems' proposed by Saskia Sassen. This approach links the specific capacities with the social, cultural and normative frameworks that enable or inhibit them (Sassen 2006). The different capacities cannot be seen in an isolated way, it is necessary to understand how wider frameworks promote or constraint the development of certain capacities rather than others. For example, high levels of trust in structural measures for flood mitigation (such as dam construction) is directly related to individuals' low motivation to prepare for flood at local level. Taking this into account, CAPFLO framework considers both capacity building at community level but also those aspects of the governance structure that ensure that these capacities can be actually unfold and used.

Capacities evolve over time; the crises situation might trigger them or make them evolve. For example a capacity of a local group to mobilize resources might be relevant during crisis to distribute resources among local groups but if the group becomes powerful and gets control of certain resources, then the capacity might be generating inequality. A follow-up of the capacities over time is required to monitor its development.

While the concept of 'capacity' is related to the existence or not of certain properties, 'capacity building' is related to a process related to mutual communication, learning, recognition and transmission of different resources and abilities among different actors and transmitted through networks. The process of building capacities is considered as important as the outcome itself.

Social capacity building is a process aiming to identify missing resources and abilities, and later implementing collaborative strategies that would enhance them in order to build more resilient communities (Dzialek et al. 2013).

Social capacity building is defined as:

'A long-term, iterative and mutual learning process which is based on the cooperation and interaction of a variety of individual and corporative actors and which is never finished.' (Kuhlicke et al. 2015)

CAPFLO undertakes a participatory approach to social capacity building; this approach recognizes that all actors involved play an active role in learning and sharing knowledge experiences. Different approaches consider authorities and experts as having the valuable knowledge while considering other actors as requiring "education". A participatory approach tries to give value to different forms of knowledge and rather promote two-way communication and a partnership relation. This is still a challenge as recent research in participatory capacity building has shown that authorities and experts keep a leading role in the decision-making process (Thaler and Levin-Keitel 2015 in Challies 2015).

2.4 Integrating Civic Capacity to the CAT

A definition of civic capacity is further developed in this part to explain how it is integrated to the CAT.

Civic capacity refers to the local communities' capacity to collaborate among members and to link with other actors at different levels (city authorities, private actors, financial institutions, NGOs, etc..

'Civic capacity includes social capital but extends the domain to the social requirements for successful democratic governance.' (Shinn 1999)

Thus, civic capacity is also about developing citizenship skills and knowledge required to engage with different kinds of political processes (Kemmis 1990 in Shinn 1999).

Civic capacity is defined by the Civic Capacity Research Group as:

'The ability of communities to respond to events, and influence political events, in ways that are self-consciously directed at shaping a common future' (Shinn 1999)

Thus, to be materialized, civic capacity requires going some steps forward than civic engagement or social capital. Civic engagement, following Putnam (Putnam 1995), is shown in behaviours and practices such as voter turnout, reading the newspaper, participation in such public forums as Parents Teachers Associations (PTAs), and in such private organisations as choral societies and bowling leagues. As Hyman notes (Hyman 2002), to qualify as civic engagement, behaviours neither have to involve others, be organised in any particular way, nor be directed at any particular action, goal, or outcome. Instead, the term social capital defines an asset representing actionable resources that are contained in, and accessible through, a system of relationships (Hyman 2002). Among these resources, depending on the authors, we could find relationships that allow individuals access to resources possessed by others (Bourdieu 1985), changing relations among people that facilitate action (Coleman 1988) or features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit (Putnam 1995).

Likewise social capital presumes and depends on individual civic engagement as a vehicle for building relationships (Hyman 2002), civic capacity needs social capital, the more the better, to be materialised effectively. Nevertheless, although both civic engagement and social capital are (or could be) important resources fostering civic capacity, these resources by themselves do not spawn civic capacity.

A self-conscious articulation of governmental and non-governmental sectors acting in concert to solve collective problems is the key element that civic capacity adds to civic engagement and social capital. Thus, civic capacity implies that a community has abilities for the interaction among its actors, for negotiation, for cooperation and for interchange, see Figure 1.

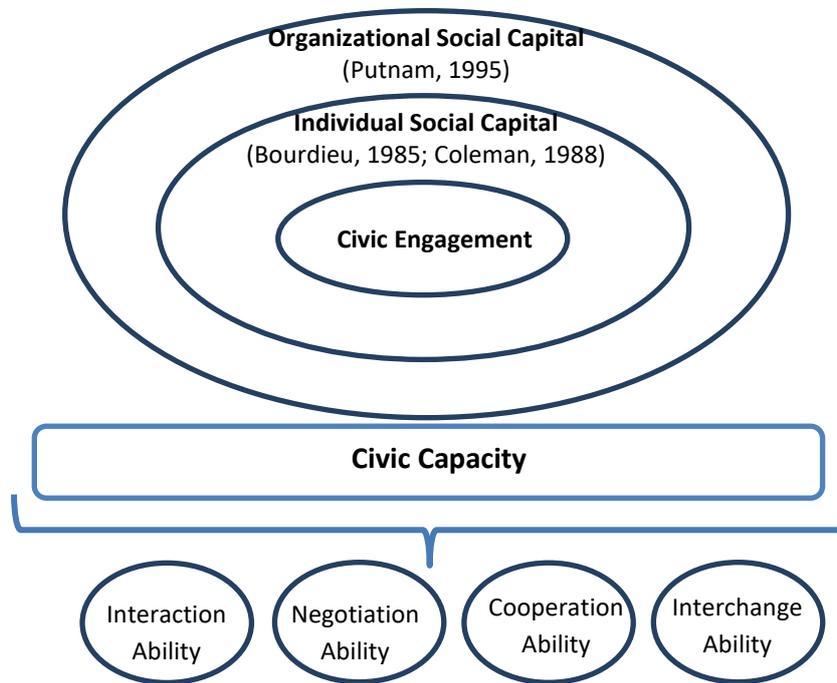


Figure 1. Civic capacity beyond civic engagement and social capital (source: CAPFLO elaboration)

For Elliott and Kaufman (2003) civic capacity consists of institutions, organizations, and individuals, the knowledge and skills embedded in them, and their ability to collectively resolve problems affecting shared space or resources.

Shinn has identified three components of civic capacity: civic or social capital, civic competency, and civic enterprise where 'Civic capital is the network of social and cultural institutions (...). Civic competency is the set of knowledge, skills, and capabilities collectively possessed by the community. Civic enterprise refers to the shared history of the community and their tradition of joint action.' (Dent 2008).

These aspects are included in some of the indicators of the CAT; however, while analysing the communities at risk with whom experts are working to evaluate and enhance their different capacities, it is important to take into account these elements: the social capital (resources they can get through relationships), civic competency (set of resources or abilities possessed by the community) and civic enterprise (experience of joint action), this will help to identify potential capacities to be developed or used in relation to flood risk.

According to Elliott and Kaufman (2003) civic capacity has both intra-group and inter-group facets, see Figure 2.

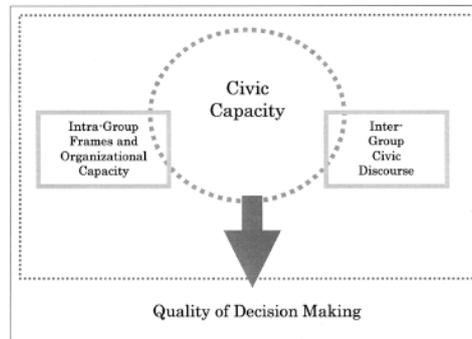


Figure 2. Civic capacity built upon intra and inter group capacity (source: Elliott and Kaufman 2003 p 268)

According to them, 'Intra-group capacity entails the ability of a large number of individuals with shared interests, such as members of a community or members of an agency, to act in concert—formulating visions, goals, and strategies, and acting to implement them', whereas, 'Inter-group capacity refers to a group's ability to operate effectively in its context, understanding government rules and procedures and legal aspects of their situation, and knowing where to find external resources and information, as well as assistance from political and other sources'.

This body of literature was used to establish the CAT indicators, especially the specific resources and abilities regarding the local communities and their capacity to undertake collective actions to mitigate flood risk.

2.4 The Five Dimensions of Social Capacity

The five dimensions of social capacity were defined initially by the CapHaz-Net consortium; the specific resources and abilities corresponding to each dimension were redefined accordingly to the CAPFLO approach; using the literature on civic capacity and adaptive capacity. The fifth dimension defined as 'governance' was changed to 'participation' and its content was also adapted to the interest of this research.

Inter-related Levels of Action

All social capacities (included civic and adaptive capacities) are embedded in four inter-related levels that frame interaction among different actors (Kuhlicke, Steinführer, 2010, pp 21-23):

- **At individual level:** This level relates to individuals or a collective body of individuals. It mostly concentrates on specific practices or skills (e.g. managerial, communicative etc.) and takes place in an organizational and/or community environment. The aim of focusing at individual level is to evaluate the individuals' capacities to collaborate within organizations and communities.
- **At organizational level:** This level relates to structures, processes and management systems of organizations; they list several types of organizational capacities: Strategic planning, financial management, information management, communication networks as well as resource development and management.
- **At community level:** This level relates to communities and/or community-based organizations (even though not defined as such), and more precisely to people's capacity to determine their own values and priorities and organize themselves to act on this" (Eade 2005, 2-3).
- **At institutional level:** This level relates on one hand to institution building ('mobilization and commitment of individuals, the contingent unity of meanings, and the constitution of collective forms of action' into a stable institutional pattern, and on the other hand to institutional design (rules and norms structuring the interaction of people and creating the 'power to achieve purposes that would be unreachable in their absence'). Kuhlicke et al. (2010) consider the institutions related to the different levels of government, but also those not government related such as NGOs and private firms such as insurance companies.

According to Kuhlicke, Steinführer the 4 levels overlap, as shown in the figure below. For example, community capacity to participate in the flood risk management is framed by the individuals' motivation to proactively take action and by the institutional frames that assign roles and tasks to the different actors. Following this example, it is relevant to understand the inter-dependences of these levels to ensure that participation and collaboration between multiple actors can actually take place.

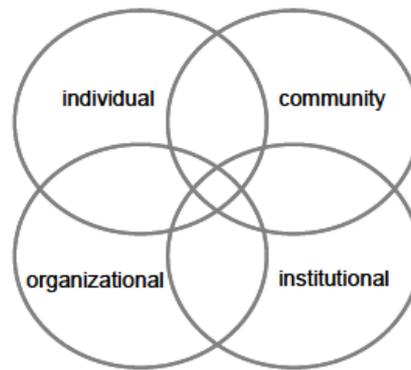


Figure 3. The multi-levelled nature of social capacity building (source: Kuhlicke, Steinführer, 2010, 23)

Five dimensions of capacities were identified: **Knowledge, motivation, network, financial and participation**. Each dimension is explained as a separate aspect; however, they are closely related and often work together, especially knowledge-motivation, knowledge-motivation-social networks, and social networks-governance (Kuhlicke et al. 2011).

Each of the dimensions is important to identify the resources and abilities associated to it and the role it plays in strengthening the collective response to flood mitigation. However, there are two critical dimensions to the CAPFLO framework: networks and governance. Each of the dimensions and its role in the capacity building process is explained below.

Knowledge

Knowledge is related to the level of understanding of flood that different actors have. While experts and authorities develop technical knowledge, local groups and rooted communities have knowledge on the environment embedded in local culture. The level of knowledge on risk is important to change perceptions on risk and be able to undertake actions that suits the problems. For example, the research done in Poland has shown that isolated communities used to think that flood is related to supernatural events, as a consequences individuals did not think in prepare in advance to mitigate the risk as is considered "out of their control" (Dzialek et al. 2013). This examples show that perceptions of risk, knowledge about its origins and mechanisms is highly related to the capacity to undertake proactive actions to mitigate the risk.

Information and communication abilities of different stakeholders are highly relevant to propagate knowledge and be able to share views and establish a dialogue among different actors.

Motivation

This kind of capacity is related to the willingness to take notice of and deal with natural hazards. It includes awareness, responsibility and ownership as a means to trigger risk-related motivations. Those identified are:

- Emotions (e.g. related to previous experiences),
- Incentives (e.g. available co-funding for hazard-proof buildings),
- Interests (e.g. assets are in areas of risks),
- Trust (e.g. among authorities or other members of community),
- Perceptions (e.g. mid-sets related to risk related to past experiences and knowledge on risk).

The capacity to undertake action to mitigate risk is firstly related to motivation of individuals and groups. In the cases in which motivation is required, it is important to understand those factors that inhibit it. For example, the research in Poland has shown that a high level of trust in structural measured is strongly correlated to low levels of individual and community motivation to mitigate flood risk (Dzialek et al. 2013). In this case, communication on risk might be important to raise awareness of the importance to participate actively in flood risk mitigation.

Networks

CAPFLO project gives particular importance to collaboration among different actors and “participation” to the flood risk management, for this reason the networks dimension is considered particularly important in the assessment of capacities. In addition networks are function as connectors to other dimensions and transmitters of resources and abilities (e.g. knowledge is transmitted through collaborative networks among different communities, some having the resources and other lacking it).

Networks dimension relates to the possession and exploitation of social capital which describes the 'aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition' (Bourdieu 1986, 248 in Kuhlicke et al. 2015). Social networks can include those formed through ICTs (Information and Communication Technology). The term 'social networks' is used in this research beyond ICTs to describe collaborative relations.

A study in Poland has shown that social networks have a key role to enhance other type of capacities mainly related to knowledge and motivation dimensions. Social networks are also

important in participatory, bottom-up approaches to capacity building and communities' empowerment. To act collectively two kinds of social capital resources are relevant: 'bonding' and 'bridging'. The first related to cohesion of communities (sense of belonging, identity, collaboration, shared norms and values) and the second to the links that stretch beyond a shared sense of identity, for example associates, distant friends, acquaintances; both are identified as kinds of "social capital". Besides the capacity to bond and bridge, individuals acting collectively need trust, networks and norms that enable them to do so effectively and to pursue shared objectives.

Bonding plays an important role in the mitigation stage to keep memory of past experiences and transmit information about risks and behaviour (Dzialek et al. 2013). Bridging plays an important role to help vulnerable populations and marginalized individuals and communities to reduce their vulnerability by getting resources from other groups with whom they are collaborating (Cutter et al. 2003, Adger et al. 2005 in Dzialek et al. 2013). The presence of these kinds of social capital, including trust, is critical to facilitate collaboration and to develop participatory risk management models.

In the research conducted in Poland (Dzialek et al. 2013), two kinds of networks have been analysed: (1) collaboration between community members and (2) collaboration between inhabitants, local authorities and different actors; we are using this typology as a starting point.

Financial resources

This capacity includes incentives, public and private funds as well as insurance policies. There is a strong link to governance capacities as financial resources are related to issues of distribution, transparency, and perceived justice/injustice. The availability of funds coming from individuals' insurance has shown to be fundamental during a flood event and recovery. In some cases individuals with low level of motivation are not aware of the importance of these funds in case of flood; knowledge and motivation are interconnected to this dimension.

Participation

This capacity relates to participation opportunities and fair rules of interaction. Across Europe there is a diversified governance landscape of risk management (e.g. strong, weak, paternalist, non-paternalist). Governance capacities relate to risk governance settings and relations among actors involved in risk management. To understand how the system of actors is working is relevant to understand who is taking which decisions and at which level.

The five types of social capacity are closely interrelated as is explained in the following paragraphs. Network capacities have a key role to enhance the other types of capacities; bonding and bridging are important resources to develop social capacity. The existence of rooted communities, networks and bonding capacity is necessary to develop successful participatory approaches for social capacity building (Dzialek et al. 2013).

Communities with social bonding capital and strong ties developed through historical processes are prone to have individual and collective memory of past experiences, to have better understanding of the context and to develop feelings of attachment to the place (knowledge). These factors might raise awareness and motivation to take proactive actions to mitigate flood risk at individual or community level (motivation). If the communities have bridging capacities they will be able to search support from local authorities and other bodies to solve their problems on a self-help basis enhancing their self-organization capacities (network). Rooted communities might be able to help more vulnerable groups (new populations) to transfer their knowledge and capacities; this kind of collaboration can promote social cohesion but might create conflict and inequality among groups competing for resources such as public funds (financial).

The current risk management approach establish a frame (rules and relations between actors) that enhances or limits their participation in the management of flood risk (governance). In many countries, flood risk it is still perceived as a government affair and responsibility, thus individuals are not ready to participate actively to contribute collectively to mitigate the flood risk. As mentioned before, more independent, self-organized, informed, motivated, collaborative individuals and communities represent an important resource (social capital) to prepare for, cope with and recover from a flood disaster.

3. Capacity Assessment Tool

The Capacity Assessment Tool (CAT) does not assess individuals or single actors' capacities but rather the collective response to flood mitigation; however, specific capacities are embedded in different levels and specific actors. The evaluation guide is a set of twelve indicators responding to the five dimensions described above: knowledge, motivation, networks, financial resources and participation. The table contains the information that experts need to get, evaluation criteria and methods.

Setting the unit of analysis

The unit of analysis are set up at local scale, it can be a neighbourhood, small district, town or similar in an area at risk of flood. The evaluation takes place at local scale but relating it to multiple scales related to the FRM (national, regional, city, local). The evaluation requires to identify firstly the area of analysis, and secondly the communities to be included in the evaluation as well as the networks.

The evaluation demand a distinction between institutional organisation related to different levels of government, NGOs, and private firms involved in the FRM and the communities (of citizens) organised formally (associations) or informally (social groups). The evaluation undertakes a multi-scale, multi-actor analysis approach. The main objective is to identify where the specific resources and capacities are embedded and the potential to use existing resources, such as networks, to develop other such as spreading lacking knowledge on risk. The identification and evaluation of the specific capacities is important but equally relevant is to consider the synergies among those capacities.

Organization of the Capacity Assessment Table

The Capacity Assessment Tool is divided in five dimensions (knowledge, motivation, networks, financial, and participation) that could be applied to different flood risk management strategies. All the capacities included in these tables are components of a typology of Social Capacity. In total, the assessment tool has twelve indicators as shown in Table 2.



CAPFLO Capacity Assessment Tool									
Knowledge		Motivation		Networks		Finance		Participation	
K.1 – Flood risk knowledge		M.1 – Motivation to mitigate flood risk		N.1 – Network performance		F.1 – Flood insurance		P.1 – Community participation in flood decision making	
Resources	Abilities	Abilities		Resources	Abilities	Resources	Abilities	Resources	Abilities
Presence of communities with flood risk knowledge embedded in local culture	Existence of a two-way communication strategy between authorities and communities	Communities’ motivation to prepare for flood events		Presence of networks collaborating on flood risk mitigation or on other issues	Ability of networks to collaborate among members and with other actors	Presence of individuals insured against floods	Understanding of individuals about the importance of being insured against floods	Power of communities to influence flood decision making in the form of political/financial leverage, leadership and negotiation capacity, high level of organization	Ability of communities to participate proactively in FRM decisions
K.2 – Learning capacity		M.2 – Motivation to work collectively		N.2 – Network autonomy		F.2 – Financial resources for community action		P.2 – Participation dynamics	
Abilities		Abilities		Abilities		Resources	Abilities	Abilities	
Ability of the flood risk management structure to integrate communities experience-based knowledge into the structure (capacity of the structure to learn and adapt)		Communities’ motivation to collaborate intra-group (bonding) and inter-groups (bridging)		Self-organization capacity of networks		Availability of funds for community action	Abilities of community organizations and networks to obtain and manage funds	Ability of the flood risk management structure to enable proactive participation of communities in flood decisions by supporting communities inclusion and redistribution of roles and tasks	
		M.3 – Motivation dynamics				F3 – Financial resources dynamics			
		Abilities				Resources	Abilities		
		Change in communities’ perception and level of motivation to prepare for flood events				Change in funds allocation and availability for community action	Change in capacity of communities to obtain and manage funds		

Table 2. Use Likert scale below to quantify indicators; intensity of red colour reflects scale: level 0, level 1, level 2, level 3.

Likert scale to quantify indicators

K.1 – Flood knowledge

Level 0: There are no communities with knowledge on flood risk or have wrong information; there is no communication between communities and authorities.

Level 1: There are few communities with knowledge on flood risk; authorities communicate little with communities.

Level 2: There are some communities with knowledge on flood risk; authorities inform on flood risk, mainly technical information (one-way communication).

Level 3: Local communities have knowledge on flood risk; authorities communicate technical knowledge and communities communicate their experience and knowledge about flood risk (two-way communication). Communities help to propagate information and knowledge on flood risk.

K.2 – Learning capacity

Level 0: There is no evidence of changes to integrate experienced-based knowledge from communities' past experiences.

Level 1: There are few changes, mostly regarding identification of knowledge embedded in culture but this kind of knowledge has not been integrated in the FRM.

Level 2: There are some changes, mostly to give "voice" to communities to improve flood risk mitigation but these changes are not institutionalized at the FRM level.

Level 3: There is evidence of change to facilitate the integration of experienced-based knowledge, this includes giving "voice" to communities and an active role in risk mitigation institutionalized at the FRM level.

M.1 – Motivation to mitigate flood risk

Level 0: Communities are not motivated to prepare for flood events.

Level 1: Most communities have low level of motivation; they are not undertaking proactive actions to mitigate flood risk on their own initiative.

Level 2: Most communities are motivated to mitigate flood risk, but they undertake limited actions to do it, and when they do it, it is only in the form of seeking information.

Level 3: Most communities are motivated to mitigate flood risk; some of them are undertaking proactive actions to mitigate flood risk.

M.2 – Motivation to work collectively

Level 0: Communities are not motivated to collaborate.

Level 1: Communities are motivated to collaborate with other community members but not with other kind of actors.

Level 2: Communities are motivated to collaborate with other community members and only few likeminded actors, especially those with whom they common goals and interests.

Level 3: Communities are motivated to collaborate with other community members and with a diversity of actors, despite difference.

M.3 – Motivation dynamics

Level 0: There has been no change in the perception of flood risk and in the motivation to prepare for flood events.

Level 1: There has been some change mostly in the perception of flood risk but this has not changed the motivation to prepare for flood events.

Level 2: There has been some change both in flood risk perception and motivation to prepare for flood events; however, communities have not undertaken proactive actions to prepare for flood events.

Level 3: There has been deep change in flood risk perception and motivation to prepare for flood events; furthermore, communities have undertaken proactive actions to prepare for flood events.

N.1 – Network performance

Level 0: There are no networks collaborating on flood risk mitigation.

Level 1: There is no consistent network or networks are only formed temporarily in response to specific circumstances (e.g. flood emergency). Ability to collaborate among actors is very limited.

Level 2: There are networks working on flood risk mitigation, most of them are formed among similar actors and communities are not part of these networks (low density of the network); ability to collaborate is limited to likeminded actors. These networks mostly perform simple tasks like propagating information and supervising the river level.

Level 3: There are networks working on flood risk mitigation, they are formed with a diversity of actors, including communities (high density of the network). Collaboration is based on well-developed communication and negotiation skills of members. These networks can perform sophisticated tasks like develop a flood risk management plan or a flood mitigation strategy .

N.2 – Networks autonomy

Level 0: There are no networks collaborating on flood risk mitigation.

Level 1: Most networks have low level of self-organization capacity and only exist in limited timeframes.

Level 2: Most networks have a certain level of self-organization capacity but depend on other institutions or organizations to persist over time (for example to obtain funds).

Level 3: Most networks are capable of self-organize and as a consequence are able to persist over time.

F.1 – Flood insurance

Level 0: Individuals in local communities are not insured against flood and do not think it is important to be insured against flood.

Level 1: Some individuals in specific communities are insured against flood, but in general most individuals do not think it is important to be insured against flood.

Level 2: Individuals in local communities are insured against flood because it is compulsory by law, but in general most individuals do not think this insurance is so important.

Level 3: Individuals in local communities are insured against flood (insurance can be compulsory by law) and think it is important to be insured against flood.

F.2 – Financial resources for community action

Level 0: There are no funds available for community action; communities struggle to perform their activities.

Level 1: There are only limited funds available for community action; funds are difficult for communities to access; only the communities with more developed fund raising and management capacities are able to obtain the funds.

Level 2: There are adequate financial resources available for community action; however, funds are difficult for communities to access; only the communities with more developed fund raising and management capacities are able to obtain the funds.

Level 3: There are adequate financial resources available for community action; communities are able to obtain and manage the funds.

F3 – Financial resources dynamics

Level 0: There has been no change in the availability of funds and in the way they are distributed; the capacity of communities to obtain and manage funds has not changed.

Level 1: There has been some change in the way funds are distributed but not in the amount of funds available; communities have not improved their capacity to obtain and manage funds.

Level 2: There has been change in both the availability of funds (new funds are made available by new actors) and in the way they are distributed; in spite of the fact that communities have to some extent improved their capacity to obtain and manage funds, these new funds are still not easy to access for them.

Level 3: There has been change in both the availability of funds (new funds are made available by new actors) and in the way they are distributed; communities have substantially improved their capacity to obtain and manage funds, including the new ones.

P.1 – Community participation in flood decision making

Level 0: The flood risk management approach does not enable participation of communities to flood decisions (interventionist approach); communities have no power to influence flood decisions and do not undertake action or take any responsibility.

Level 1: Only “passive” participation is possible, e.g. informative sessions; communities have little power to influence flood decisions and their participation in flood risk management is limited to few simple tasks.

Level 2: Participation takes place; communities have some capacity and power to undertake actions and take responsibilities related to flood risk mitigation, but they do not participate in the flood decision making process.

Level 3: Participation takes place; communities have capacity and power to undertake actions and take responsibilities related to flood risk mitigations, they participate in the flood decision making process and they are supported by the authorities to institutionalize their participation in the process.

P.2 – Participation dynamics

Level 0: There have been no changes in the flood risk management structure.

Level 1: There have been some changes in the flood risk management structure towards public participation but not induced by communities.

Level 2: There have been changes in the flood risk management structure, communities are integrated in the decision making process but they are not inducing any change (their opinion is not taken into account for decisions).

Level 3: There have been changes in the flood risk management structure, communities are integrated in the decision making process and they are able to induce changes in the flood risk management decision process.

A second set of tables are used to identify in which stage of a flood event are displayed currently the specific capacities. In some cultures mobilisations of citizens take place during the flood crises and lacking in the prevention stage, while others seem to be particularly developed in the mitigation stage.

Two tables are prepared one assessing the FRM structure as a collective response including different levels of government, NGOs, private firms and institutional communities; this response is the official and structured response to flood risk.

An 'X' is inserted in the cells when the capacity is currently present in that specific stage.

Assessment of the capacities of the FRM structure over time:

Dimension	Indicator	Ex-ante			During	Ex-post
		Prevention	Defence	Preparedness	Response	Recovery
Knowledge	Flood risk knowledge					
	Learning capacity					
Motivation	Motivation to mitigate FR					
	Motivation to work collectively					
	Increase motivation					
Networks	Network performance					
	Network autonomy					
Financial resources	Insurance					
	Community funds					
	Funding innovation					
Participation	Community participation					
	Participation influence					

Table 3.1 Capacities in relation to the different stages of a flood event.

The second table assess the collective response from the different communities in the area of analysis; this response is the self-organised, unofficial response to flood risk from the part of social society.

Assessment of the capacities of the communities over time:

Dimension	Indicator	Ex-ante			During	Ex-post
		Prevention	Defence	Preparedness	Response	Recovery
Knowledge	Flood risk knowledge					
	Learning capacity					
Motivation	Motivation to mitigate FR					
	Motivation to work collectively					
	Increase motivation					
Networks	Network performance					
	Network autonomy					
Financial resources	Insurance					
	Community funds					
	Funding innovation					
Participation	Community participation					
	Participation influence					

Table 3.2 Capacities in relation to the different stages of a flood event.

Indicators' Individual Table

Each indicator has a table with the necessary information to do the evaluation. The first part of the table has different cells reporting the characteristics of the indicator: code (the code takes the first letter of the dimensions, for example knowledge related indicators will start with a 'K'), name, dimension, definition and scale, features (if it is or not a civic and/or an adaptive capacity) and, the most important information to measure it: evaluative questions and evaluation reference. The set of evaluative questions will guide the expert on the information he or she needs to get. These questions are not to be asked directly in an interview, but indicate the information that is required to do the evaluation. The evaluative questions are divided in "resource-oriented questions", "abilities-oriented questions" and trend-oriented questions". In this box the scale of evaluation is established and also a set of non-compulsory questions that could be useful for the Participatory Tool. The evaluation reference contains the criteria for evaluation for each of the four levels.

The second part of the table is to be filled by the expert doing the evaluation, it has two main columns. The first refers to the methods used to obtain the information to evaluate

including specific questions asked in the survey (see section 4 of this document). The second column is the place where the expert assigns a scale from 0 to 3 and a lighter or darker red colour depending on the level of capacity development.

Code	Indicator name	Evaluation reference
Dimension	Definition and evaluation scale	Evaluation criteria: 0, 1, 2 or 3; assign light red colour to cell when 0 and increase to darker red towards 3.
Features	Information to obtain by experts (evaluative questions)	
Civic: yes/no Adaptive: yes/no	Resource-oriented questions Abilities-oriented questions Relevant information for Participatory Tool design / implementation (non-compulsory):	

Methods suggested to obtain information	Scale	
	Resources	Abilities
Pre-survey preparation. Questionnaire for communities (quantitative, structured interview): In-depth interview questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant): Semi-structured questions for authorities:	Evaluation: assign colour or scale accordingly	Evaluation: assign colour or scale accordingly

Table 4. Indicator individual table example

Evaluative Questions

The evaluative questions are those key questions that will guide the expert doing the assessment. They help the expert to understand which information has to be gathered to do the evaluation despite the methods (and specific questions) that he or she decides to use. Some degree of personal judgment is inevitable while deciding on the criteria for evaluation, to minimize this it is important to cross-check with at least two observers who have taken part in the process (focus groups and interviews).

The evaluative questions correspond to each of the five dimensions explained before: networks, knowledge, motivation, financial and governance. The questions are grouped in two types: "resource-oriented questions" and "abilities-oriented questions". The objective is

to accurately identify those missing resources and the abilities to mobilize them, which are the aspects to address in the participatory capacity building process.

Evaluation Criteria

The criteria have to be evaluated with four options: level zero, level 1, level 2 and level 3. Colours or numbers are assigned to the cell accordingly to the reference scale. A lighter colour will be used when the capacity is low and darker when the capacity is optimal (see reference in the table), the idea is to identify the lighter cells to develop the necessary capacities. The criteria for each indicator are explained in the tables. The indicators have equal value, which means that there is no weight assigned to specific indicators, they show which are the aspects with low level and those with higher level of development.

Assessing Knowledge related capacities

The 'knowledge' dimension has two indicators: K.1 Knowledge on flood risk and communication abilities, and K.2 Learning capacity. The importance of this dimension is to identify those communities that have developed knowledge, related to flood risk and to how to collaborate with others to mitigate risk, and have (or need to develop) abilities to transmit the knowledge to other communities that require this knowledge to reduce their vulnerability. While K.1 considers current 'capacities', K.3 assess current 'capacity to change', namely 'capacity to learn and adapt'.

Assessing Motivation related capacities

The 'motivation' dimension has three indicators: M.1 Motivation to prepare for flood event, M.2 Motivation to collaborate collectively (intra and inter-group) to mitigate flood risk and M.3 Capacity to change perception to increase motivation to prepare for flood event. The importance of this dimension is to identify those factors that increasing the communities' motivation to undertake actions to prepare for flood event and those which are reducing it. To understand and propagate motivation is prior to develop networks that actively undertake actions to mitigate risk. Without motivation community participation cannot take place. While M.1 and M.2 consider current 'motivation', M.3 assess current 'capacity to change', namely 'capacity to modify perception on risk and increase motivation'.

Assessing Networks related capacities

The 'networks' dimension has two indicators: N.1 Networks performance and N.3 Networks self-organization capacity. This dimension is particularly relevant as networks function as



transmitters of other abilities and resources such as knowledge, motivation, financial, etc. The evaluation of networks by the Assessment Tool considers not only the existence of current networks but also their abilities to collaborate, negotiate, form coalitions among members and other communities and actors. It also takes into account the performance of the networks in terms of the kind of tasks they are ready to undertake. This kind of networks assessment is particular to the CAPFLO approach.

The difference between communities and networks relies on the kind of relationship among participants, the distinction is sometimes difficult because both categories are very similar. Networks are characterised by interactions and connections based on helpful linkages related through entities that work as nodes, they have more strategic interaction. Participants in a network might be connected by an entity but might have no relationships directly. Communities relate to the development of a common identity that represents a collective intention, bonding is distributed within the members.

Assessing Financial related capacities

The "financial" dimension has three indicators: F.1 Insurance and funds, F.2 Communities' capacities to get funds and F.3 Funding innovation. This dimension is important to support communities and networks to keep developing their capacities in the future. Funds are particularly critical during disaster and post disaster, for example individual insurance, but they are also important to support communities to become better organized in the mitigation stage.

Assessing Participation related capacities

The 'participation' dimension has two indicators: G.1 Community participation and G.2 Participation influence. This dimension is important to define the role that communities and networks will play in the flood risk management. It also evaluated to what extent the flood risk management is able to change its structure to give a more prominent role to communities and networks.

Below each of the twelve indicators is described individually.



K.1	Flood risk knowledge		Evaluation reference	
Knowledge dimension	<p>This indicator evaluates communities' knowledge on flood risk. Knowledge is related to understand why flood happens and which actions (individual and collective) have to be taken to mitigate flood risk. A biased understanding of flood is not considered knowledge. Knowledge includes how to establish an efficient communication strategy adapted to the public and the context.</p> <p>Unit of analysis: communities at local level, especially rooted communities and city authorities (municipality).</p>		<p>Level 0: There are no communities with knowledge on flood risk or have wrong information; there is no communication between communities and authorities.</p>	
Features	<p>Information to obtain by experts (evaluative questions)</p>		<p>Level 1: There are few communities with knowledge on flood risk; authorities communicate little with communities.</p>	
<p>Civic: No</p> <p>Adaptive: No</p>	<p>Resource-oriented questions:</p> <ul style="list-style-type: none"> - Do communities have knowledge on flood risk? - Which communities have embedded knowledge in their local culture (i.e. community members understand the environment and know how to "live with flood")? - Is there any "material" available from past experiences and used by local groups to mitigate flood risk (stories, websites, etc.)? - Which means are dominantly used to propagate information and knowledge on flood risk (media, social networks such as facebook/ twitter, personal contact, etc.)? - Do local authorities give value to local knowledge on flood risk and propagate this knowledge? - Are there any communities with knowledge on how to work collectively to solve local problems related to flood risk? <p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Is communication on flood risk between authorities and local communities one-way based (informative) or two-way based (dialectic). If necessary, ask questions on how this communication is established to evaluate on actions rather than discourses. <p>Relevant information for Participatory Tool design/implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Which vulnerable communities require flood risk knowledge? - Are there any communities with knowledge on flood risk in the river basin? These communities can help propagating knowledge on flood risk. 		<p>Level 2: There are some communities with knowledge on flood risk; authorities inform on flood risk, mainly technical information (one-way communication).</p> <p>Level 3: Local communities have knowledge on flood risk; authorities communicate technical knowledge and communities communicate their experience and knowledge about flood risk (two-way communication). Communities help to propagate information and knowledge on flood risk.</p>	
<p>Methods suggested to obtain information</p>			<p>Resources</p>	<p>Abilities</p>
<ul style="list-style-type: none"> • Pre-survey preparation. • Questionnaire for communities (quantitative, structured interview) • In-depth interview questions for community members (e.g. survey open questions, focus group or in-depth) • Semi-structured questions for authorities 			<p>Presence of communities with flood risk knowledge embedded in local culture.</p>	<p>Existence of a two-way communication strategy between authorities and communities.</p>



K.2	Learning capacity	Evaluation reference
Knowledge dimension	<p>This indicator focuses on integration of experience-based knowledge from communities in FRM. Changes can be related to the identification of knowledge embedded in local cultures, give value to this knowledge and propagate it, give "voice" to local communities to participate in different mitigation strategies with authorities.</p> <p>Unit of analysis: Flood Risk Management structure (FRM): flood risk management authorities at river basin scale.</p>	<p>Level 0: There is no evidence of changes to integrate experienced-based knowledge from communities' past experiences.</p> <p>Level 1: There are few changes, mostly regarding identification of knowledge embedded in culture but this kind of knowledge has not been integrated in the FRM.</p>
Main features	Information to obtain by experts (evaluative questions)	
Civic: No Adaptive: Yes	<p>Abilities-oriented questions:</p> <p>- Is there any evidence of recent changes in the flood risk management facilitating the integration of new kind of knowledge (for example experienced-based knowledge from communities) from last flood experiences?</p> <p>Relevant information for Participatory Tool design/implementation (non-compulsory):</p> <p>- How does the integration of new experienced-based knowledge from communities has improved (or not) current flood risk mitigation?</p> <p>-How this knowledge has been used to improve flood mitigation?</p>	<p>Level 2: There are some changes, mostly to give "voice" to communities to improve flood risk mitigation but these changes are not institutionalized at the FRM level.</p> <p>Level 3: There is evidence of change to facilitate the integration of experienced-based knowledge, this includes giving "voice" to communities and an active role in risk mitigation institutionalized at the FRM level.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation. • Questionnaire for communities (quantitative, structured): (none) • Semi-structured questions for authorities 		Ability of the flood risk management structure to integrate communities experience-based knowledge into the structure (capacity of the structure to learn and adapt).



M.1	Motivation to mitigate flood risk	Evaluation reference
Motivation dimension	<p>This indicator looks at the motivation that communities and their members have to be prepared for a flood event. Factors related to increase of motivation could be a recent flood event, culture of risk, a mind-set of anticipating negative effects, etc. These factors respond to the local context.</p> <p>Unit of analysis: communities at local level.</p>	<p>Level 0: Communities are not motivated to prepare for flood event.</p> <p>Level 1: Most communities have low level of motivation; they are not undertaking proactive actions to mitigate flood risk on their own initiative, and they do not participate in actions promoted by others.</p>
Main features	Information to obtain by experts (evaluative questions)	
Civic: No Adaptive: No	<p>Ability-oriented questions:</p> <ul style="list-style-type: none"> - Which communities are motivated to mitigate flood risk? - Which are the underlying feelings, perceptions on risk and ideas related to increase of motivation to mitigate risk? <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Which communities are not motivated and require this capacity? - Which factors are related to increase of motivation? This question is particularly important in contexts where motivation is low. - Is low level of motivation related to high level of trust in structural measures? - Are there any highly motivated communities in the river basin that can help propagate this capacity among other communities? 	<p>Level 2: Most communities are motivated to mitigate flood risk, but they undertake limited actions to do it, and when they do it, it is only in the form of seeking information. Communities participate in actions promoted by others.</p> <p>Level 3: Most communities are motivated to mitigate flood risk; some of them are undertaking proactive actions to mitigate flood risk. Communities participate in actions promoted by others.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation. • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 		Communities' motivation to prepare for flood events.

M.2	Motivation to work collectively	Evaluation reference
Motivation dimension	<p>This indicator measures to what extent communities and their members aim to collaborate among them. This is particularly important if the current networks are low in number, motivation can explain the underlying reasons for this.</p> <p>Unit of analysis: communities at local level, especially communities such as interest based communities (associations) and communities of circumstance.</p>	<p>Level 0: Communities are not motivated to collaborate.</p> <p>Level 1: Communities are motivated to collaborate with other community members but not with other kind of actors.</p>
Main features	Information to obtain by experts (evaluative questions)	
Civic: Yes Adaptive: No	<p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Are communities motivated to work collectively with other community members? - Are communities motivated to collaborate with other actors such as local authorities, non-governmental organizations, private actors, and other local communities? <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Which are the "bonding" factors of current communities working collectively (e.g. cultural identity, common interests, circumstance such as recent flood event, value share such as solidarity, etc.)? - Which are the "bridging" factors of communities collaborating with other actors (e.g. common interests, common problems, incentives, etc.)? - Which communities need to increase motivation to collaborate with members and other actors? 	<p>Level 2: Communities are motivated to collaborate with other community members and only few likeminded actors, especially those with whom they have common goals and interests.</p> <p>Level 3: Communities are motivated to collaborate with other community members and with a diversity of actors, despite difference.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 		Communities' motivation to collaborate intra-group (bonding) and inter-groups (bridging).



M.3	Motivation dynamics	Evaluation reference
Motivation dimension	<p>This indicator looks at the capacity of the communities to increase their motivation to undertake actions to mitigate flood risk based on past experiences.</p> <p>Unit of analysis: Communities at local scale .</p>	<p>Level 0: There has been no change in the perception of flood risk and in the motivation to prepare for flood events.</p> <p>Level 1: There has been some change mostly in the perception of flood risk, but this has not changed the motivation to prepare for flood events.</p>
Main features	Information to obtain by experts (evaluative questions)	
Civic: No Adaptive: Yes	<p>Abilities-oriented questions:</p> <p>- Is there any evidence of factors (past experiences) that have increased motivation, so that communities take responsibility of local problems and undertake collective actions to mitigate flood risk? These factors can be a recent flood event, information campaign, new political agenda, etc.</p> <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <p>- Which are the ideas that dominate risk perception and motivation?</p> <p>-Which factors have changed communities' perception of risk.</p> <p>- How these ideas are correlated to other capacities (structural measures, no flood event since long time, etc.)?</p>	<p>Level 2: There has been some change in both flood risks perception and motivation to prepare for flood events; however, communities have not undertaken proactive actions to prepare for flood events.</p> <p>Level 3: There has been deep change in flood risk perception and motivation to prepare for flood events: furthermore, communities have undertaken proactive actions to prepare for flood events.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 		Change in communities' perception (mind-set) and level of motivation to prepare for flood events.



N.1	Network performance		Evaluation reference	
Network dimension	<p>This indicator focuses on the existence of networks and their performance. Performance is related to the capacity of the network to reach its goals.</p> <p>Unit of analysis : Networks refer to multi-actor collaboration (e.g. authorities, individuals, private actors, different communities, NGOs, etc.). Networks can collaborate on flood mitigation or on other directly or indirectly related issues.</p>		<p>Level 0: There are no networks collaborating on flood risk mitigation.</p> <p>Level 1: There is no consistent network or networks are only formed temporarily in response to specific circumstances (e.g. flood emergencies). Ability to collaborate among actors is very limited.</p>	
Main features	Information to obtain by experts (evaluative questions)			
<p>Civic: Yes</p> <p>Adaptive: No</p>	<p>Resource-oriented questions:</p> <ul style="list-style-type: none"> - Which networks are currently working on flood risk mitigation in the area of analysis? - Which kind of networks are these (kind of actors collaborating together)? - Are rooted communities, or any other communities, collaborating with current networks? <p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Which are the bridging abilities of these networks (including capacity to form coalitions with other actors, capacity to communicate and negotiate)? - Networks are able to carry out sophisticated tasks such as collaborate with authorities to do a plan or a mitigation strategy or simple tasks such as propagating information? Sophisticated tasks involve: form coalitions with multiple actors to solve a common problem, collaborate with authorities to establish a plan, take initiatives and responsibility for some mitigation strategies. Non-sophisticated tasks involve: propagate information, supervision of river level, prepare flood alert (these are just examples). <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Which are the "bonding" factors that keep networks working together (values, common interest, incentives, etc.)? - Which networks need to increase their bridging abilities? - Are there any communities with knowledge on how to work collectively in the river basin? 		<p>Level 2: There are networks working on flood risk mitigation, most of them are formed among similar actors, communities are not part of these networks (low density of the network). Ability to collaborate is limited to likeminded actors. These networks mostly perform simple tasks like propagating information and supervising the river level.</p> <p>Level 3: There are networks working on flood risk mitigation, they are formed with a diversity of actors, including communities (high density of the network). Ability to collaborate is based on well-developed include communication and negotiation skills of members. These networks can perform sophisticated tasks like develop a flood risk management plan or a flood mitigation strategy.</p>	
Methods suggested to obtain information			Resources	Abilities
<ul style="list-style-type: none"> • Pre-survey preparation: • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 			<p>Presence of communities with knowledge on how to collaborate and networks collaborating together to mitigate flood risk.</p>	<p>Ability of networks to collaborate among members and with other actors.</p>



N.2	Network autonomy	Evaluation reference
Network dimension	<p>This indicator focuses on the autonomy of networks and their ability to persist over time.</p> <p>Unit of analysis : Networks refer to multi-actor collaboration (e.g. authorities, individuals, private actors, different communities, NGOs, etc.). Networks can collaborate on flood mitigation or on other directly or indirectly related issues.</p>	<p>Level 0: There are no networks collaborating on flood risk mitigation.</p> <p>Level 1: Most networks have low level of self-organization capacity and only exist in limited timeframes.</p>
Features	Information to obtain by experts (evaluative questions)	
Civic: Yes Adaptive: Yes	<p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Are current networks able to develop autonomy and as a consequence persist over time (for evaluation take into account past experience)? <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Based on successful cases: Which are the specific resources and abilities that were required to develop autonomy (e.g. managerial abilities, fundraising abilities, highly motivated members and partners)? - Are there any networks that have developed autonomy in the river basin? They can help networks in the area of analysis lacking this capacity with their experience. 	<p>Level 2: Most networks have a certain level of self-organization capacity but depend on other institutions or organizations to persist over time (for example to get funds).</p> <p>Level 3: Most networks are capable of self-organize and as a consequence are able to persist over time.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation. • Community questionnaire (quantitative, structured): • In-depth interviews (survey open questions, focus group, key informant): • Semi-structured questions for authorities: 		Self-organization capacity of networks.

F.1	Flood insurance		Evaluation reference	
Financial dimension	This indicator measures to what extent individuals are or not insured in case of flood. Unit of analysis : Individuals in local communities.		Level 0: Individuals in local communities are not insured against flood and do not think it is important to be insured against flood.	
Features	Information to obtain by experts (evaluative questions)		Level 1: Some individuals in specific communities are insured against flood, but in general most individuals do not think it is important to be insured against flood.	
Civic: No Adaptive: No	Resource-oriented questions: - Are individuals exposed to risk insured? Abilities-oriented questions: - Is insurance compulsory for individuals or they understand the importance of being insured on their own and are able to take the initiative? Relevant information for Participatory Tool design / implementation (non-compulsory): - Which communities are not insured and why? - Are there any insured communities with experiences on how insurance was critical in the different stages of a flood event that can share their experience with communities lacking this capacity?		Level 2: Individuals in local communities are insured against flood because it is compulsory by law, but in general most individuals do not think this insurance is so important. Level 3: Individuals in local communities are insured against flood (insurance can be compulsory by law) and think it is important to be insured against flood.	
Methods suggested to obtain information			Resources	Abilities
<ul style="list-style-type: none"> • Pre-survey preparation. • Questionnaire for communities • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities: communities to be insured? 			Presence of individuals insured against floods.	Understanding of individuals about the importance of being insured against floods.



F.2	Financial resources for community action		Evaluation reference	
Financial dimension	This indicator looks at the availability of funds for communities and their ability to obtain and manage those funds. Unit of analysis : Communities at local scale		Level 0: There are no funds available for community action; communities struggle to perform their activities.	
Features	Information to obtain by experts (evaluative questions)		Level 1: There are only limited funds available for community action; funds are difficult for communities to access; only the communities with more developed fundraising and management capacities are able to obtain the funds.	
Civic: Yes	Resource-oriented questions: - Are there any available funds to help communities to run their organizations?		Level 2: There are adequate financial resources available for community action; however, funds are difficult for communities to access; only the communities with more developed fundraising and management capacities are able to obtain the funds.	
Adaptive: No	Abilities-oriented questions: - Do communities are able to get funds and manage them?		Level 3: There are adequate financial resources available for community action; communities are able to obtain and manage the funds.	
Relevant information for Participatory Tool design / implementation (non-compulsory): - Are there any communities in the river basin with abilities to get funds and manage them that can share their experience with communities lacking this ability?				
Methods suggested to obtain information			Resources	Abilities
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 			Availability of funds for community action.	Abilities of community organizations and networks to obtain and manage funds for community action.



F.3	Financial resources dynamics		Evaluation reference				
Financial dimension	This indicator looks at changes in the way funding is provided for communities working on flood risk mitigation based on past experiences. Unit of analysis : Communities at local level.		Level 0: There has been no change in the availability of funds and in the way they are distributed; the capacity of communities to obtain and manage funds has not changed.				
Features	Information to obtain by experts (evaluative questions)						
Civic: No Adaptive: Yes	Resource-oriented questions: - Is there any funds coming from new actors such as private actors (for example crowd-funding)? Abilities-oriented questions: - Is there any evidence of change in the way funds are distributed at local scale to provide funding for communities to take their own initiative? Relevant information for Participatory Tool design / implementation (non-compulsory): - Which are the factors that triggered that change in funding communities? - Who has mainly promoted them?		Level 1: There has been some change in the way funds are distributed but not in the amount of funds available; communities have not improved their capacity to obtain and manage funds Level 2: There has been change in both the availability of funds (new funds are made available by new actors) and in the way they are distributed; in spite of the fact that communities have to some extent improved their capacity to obtain and manage funds, these new funds are still not easy to access for them. Level 3: There has been change in both the availability of funds (new funds are made available by new actors) and in the way they are distributed; communities have substantially improved their capacity to obtain and manage funds, including the new ones.				
Methods suggested to obtain information			<table border="1"> <thead> <tr> <th data-bbox="1525 1110 1800 1142">Resources</th> <th data-bbox="1800 1110 2072 1142">Abilities</th> </tr> </thead> <tbody> <tr> <td data-bbox="1525 1142 1800 1295">Change in funds allocation and availability for community action</td> <td data-bbox="1800 1142 2072 1295">Change in capacity of communities to obtain and manage funds.</td> </tr> </tbody> </table>	Resources	Abilities	Change in funds allocation and availability for community action	Change in capacity of communities to obtain and manage funds.
Resources	Abilities						
Change in funds allocation and availability for community action	Change in capacity of communities to obtain and manage funds.						
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities: 							



P.1	Community participation in flood decision making	Evaluation reference	
Participation dimension	<p>This indicator focuses on one hand, on communities’ participation from below; and, on the other hand, on the public administration approach to risk management - to what extent it promotes communities participation-.</p> <p>Unit of analysis : Flood Risk Management structure (FRM): flood risk management authorities at river basin scale.</p>	<p>Level 0: The current FRM approach does not enable participation of communities to flood decisions (interventionist approach); communities have no power to influence flood decisions and do not undertake action or take any responsibility related to flood risk mitigation</p>	
Features	<p>Information to obtain by experts (evaluative questions)</p>	<p>Level 1: Only “passive” participation is possible, e.g. informative sessions; communities have little power to influence flood decisions and their participation in flood risk management is limited to few simple tasks;</p>	
<p>Civic: Yes</p> <p>Adaptive: No</p>	<p>Resource-oriented questions:</p> <ul style="list-style-type: none"> - Do communities have power to take a prominent role in the flood risk management, such as political support, financial support, high level of organization, strong leadership, personal connections, etc.? Take a prominent role means to take responsibility of some task and be included in the decision making process. <p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Do communities are currently participating in the flood risk management decision-making process? - Do communities' participation is taking place outside formal arrangements? If yes, Is there any initiative undertaken by authorities to formalize and support their participation? - Is the current flood risk management approach enabling participation from communities (co-management approach)? - To what extent this participation is possible (only to get approval or to participate in the decision making process?) <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - Are there any communities in the river basin taking a prominent role in the flood risk management? These communities can be helpful to share their experience with communities that lack this kind of capacity. - How are roles and tasks of actors in the flood risk management structure distributed (mention formal and informal tasks)? -Which are the difficulties to enable participation from a top-down approach? 	<p>Level 2: Participation takes place; communities have some capacity and power to undertake actions and take responsibilities related to flood risk mitigations, but they do not participate in the flood decision making process;</p> <p>Level 3: Participation takes place; communities have capacity and power to undertake actions and take responsibilities related to flood risk mitigations, they participate in the flood decision making process and they are supported by the authorities to institutionalize their participation in the process.</p>	
<p>Methods suggested to obtain information</p>		<p>Resources</p>	<p>Abilities</p>
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 		<p>Power of communities to influence flood decision making in the form of political/financial leverage, leadership and negotiation capacity, high level of organization.</p>	<p>Ability of communities to participate in FRM decisions.</p>

P.2	Participation dynamics	Evaluation reference
Participation dimension	<p>This indicator focuses on the changes induced to the FRM by the communities' participation, in some cases communities participate but they are not influencing the FRM. Influence of FMR regards mainly roles of different actors, including communities, and distribution of tasks.</p> <p>Unit of analysis : Flood Risk Management structure (FRM): flood risk management authorities at river basin scale.</p>	<p>Level 0: There have been no changes in the flood risk management structure.</p> <p>Level 1: There have been some changes in the flood risk management structure towards public participation but not induced by communities.</p>
Features	Information to obtain by experts (evaluative questions)	
Civic: Yes Adaptive: Yes	<p>Abilities-oriented questions:</p> <ul style="list-style-type: none"> - Do communities have shown political engagement (social mobilizations) to challenge current flood risk management? - If yes, Which is the impact of these mobilizations in the definition of the roles and tasks of different actors in the risk management? - If any changes are done, do participation of these groups has increased as a consequence of re-definition of roles and tasks related to flood risk management? <p>Relevant information for Participatory Tool design / implementation (non-compulsory):</p> <ul style="list-style-type: none"> - How the change in the FRM occurred, and promoted by whom? - Which were the interests behind these changes? 	<p>Level 2: There have been changes in the flood risk management structure, communities are integrated in the decision making process but they are not inducing any change (their opinion is not taken into account for decisions).</p> <p>Level 3: There have been changes in the flood risk management structure, communities are integrated in the decision making process and they are able to induce changes in the FRM decision process.</p>
Methods suggested to obtain information		Abilities
<ul style="list-style-type: none"> • Pre-survey preparation • Questionnaire for communities (quantitative, structured) • In-depth questions for community members (e.g. survey open questions, focus group or in-depth interview with key informant) • Semi-structured questions for authorities 		<p>The flood risk management structure is able to change to enable proactive participation of communities in flood decisions by supporting communities inclusion and redistribution of roles and tasks.</p>

4. Methods Used to Evaluate

The methods to be used to answer the evaluative questions are chosen by the experts applying the CAT, this is to facilitate the comparison between cases on the same kind of information while avoiding problems of misinterpretation and translation from one culture to another. The methods chosen for each case are those more appropriate to obtain the information, protocols are designed in the language to be used and taking into account the cultural context. Specially the qualitative methods should use adapted words and questions that make sense to the local population.

A set of protocols are provided in Annexes as a suggestion of methods.

Some aspects require qualitative information while others can be quantitative or structured. Even though not all the proposed methods have to be used in each case study; a proper combination of (some) of these methods must guarantee that enough information is gathered to fill up all the indicators of the assessment tool.

Four suggested methods are explained in the following paragraphs.

- *Survey*: Two surveys have been designed, a door-to-door survey for common citizens and an on-line survey to be answered by stakeholders. The first one is useful to get information on citizen's perceptions and knowledge, while the second one is more specific for key actors. The door-to-door individuals' questionnaire has to be carried out through a representative sample (according to the total population of each case study).
- *Semi-structured Interview, in-depth interview*: Some kind of information is difficult to obtain only with direct questions, for example underlying ideas related to the level of motivation, or perception of risk. In these cases qualitative methods are suggested. Two semi-structured protocols have been designed, one for local actors and the other one for authorities. The protocol consists of a list of general questions that guide the conversation. Semi-structured questions allow the interviewee to have an idea of the kind of information that is required with specific questions. This method considers that people speaks from a particular position which can entail consciously or unconsciously specific interests, to interpret a discourse it is important to situate it in a relative position from which the actor is speaking and interpret it beyond the sentence itself.

- *Focus group:* A focus group is a group of around 20 persons that can discuss and share their views on certain aspects related to the evaluation. This method is recommended in relation to details on the collective collaboration and motivation. Two protocols are proposed, one for focus groups with common citizens and another one for focus groups with public bodies and stakeholders.

5. Conclusions

The Capacity Assessment Tool uses three important umbrella concepts: social capacity, civic capacity and social resilience. Especial emphasis is given to collaboration among different actors and stakeholders to give a collective response to flood mitigation, especially involvement of communities in the FRM.

Social capacity is related to the different resources and abilities that configure a collective response to flood mitigation considering multiple levels. Civic capacity has been integrated to the CAPFLO typology of social capacity, this concept focuses mainly on the capacity of local groups to work with other actors (including various levels of government) to solve common problems. Adaptive capacity is a dynamic variable, it considers capacity to learn and change.

CAPFLO focuses on current capacities and its development for flood mitigation but it is worth noticing that capacities are used in the different stages of a flood event and evolve over time. Capacities can also change their valence as they operate in different relational systems. For example, empowered groups after a flood crisis can use their capacities to gouge more resources than other groups, creating inequalities. This aspect is not addressed by the Capacity Assessment Tool but should be taken into account over time.

To assess the capacities an individual table for each of twelve indicators is proposed, a group of evaluative questions is the main reference to obtain the information and do the evaluation. The questions are organised in 'resource-oriented questions' and 'abilities-oriented questions'. The informed table will show a scale from 0 to 3 and a lighter or darker assigned colour.

The capacities from different dimensions are interdependent to each other. Knowledge and motivation are dimensions that could be considered as 'passive', but they are very important to understand capacity to 'undertake informed actions' to prepare for flood risk. For example, if a community hasn't being confronted to a flood event recently, they will have little interest in creating networks with community members and authorities to mitigate the risk. The absence of networks, in this hypothetical case, cannot be explained without the correlation of the different dimensions.

Another important correlation is the capacities to collaborate among different groups and networks and the capacity of the flood risk management system to actually integrate these networks (formally or informally) in the flood risk mitigation. A change towards a participatory approach requires both: the flood risk management to integrate public

participation and local groups and networks to develop abilities so that participation can actually take place.

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ANNEX I

Protocols for the capacity assessment

Survey, interviews, focus group





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Annexes

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1. Survey-Citizens

Good day, we are XXXXXXXX from XXXXXXX. We are conducting a survey for a European research project called CAPFLO which is about how citizens prepare and deal with floods/high waters. We would like to ask you a few questions. It will take 8-10 minutes. All information is confidential.

Please, put a circle around the appropriate answer.

About you

- What is your gender? male / female
- How old are you? <18 19-30 31-50 51-70 > 70
- What is your level of education?
- What is the name of the town where you currently live?

- How many years have you lived in this town? All your life / n. of years

- Do you have a first or second nationality that is not Dutch? Yes / No

About your knowledge on flooding

1. Have you ever experienced floods yourself? Yes / No (If no, go to question 2)

1a) If yes, when? (indicate year):

1b) If yes, did you have any damage to your properties? Yes / No

1c) Specify (select as many options as it is appropriate)

- House
- Crops
- Car
- Other: _____

2. Do you think you are prepared to deal with a flood event?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	

3. Do you feel informed about flood risk management?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	

4. Where do you find information when there is a flood threat? (select as many options as it is appropriate)

- Media (radio, TV, internet, newspapers, emails, etc.)



- Material disseminated by public authorities (e.g. leaflet, brochures, guideline books, etc.)
- Face-to-Face contact with fellow citizens
- Face-to-Face contact with public authorities (e.g. public meetings, training exercises on emergency management)
- Other: _____

5. Do you share your knowledge/experience on flooding with other fellow citizens?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	

6. Do you think that authorities use citizens' knowledge/experience to make flood policies?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	

7. Can you bring in your knowledge into flood risk management?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	

About your motivation to prepare for flood events

8. How do you feel about floods?

- It is a critical emergency that always requires intervention of the public authorities
- It is an inevitable natural event that I have to be prepared to deal with by myself without intervention of the public authorities
- It is an inevitable natural event I have to be prepared to deal with by myself and only in more critical situation the intervention of public authorities is required
- Other: _____

9. Do you think is it important for you to be prepared for floods?

- Yes, because I do not trust authorities and emergency services to be effective
- Yes, because public authorities even if they are efficient they cannot help everybody
- Yes, because I have valuable assets that I need to protect against the water
- Yes, because the idea of being flooded scares me and I do not want to feel unsafe
- No, I trust that emergency services and my fellow citizens will help me
- No, floods are rare here thanks to high dikes that protect us (Maaswerken)
- No, it is a natural event I cannot do anything about
- Other: _____



10. Have you been/are you involved in any flood-related initiative?

No / Yes (specify type of initiative)

10a) For what reason? (select as many options as it is appropriate):

If yes:

- I have knowledge on the issue that I want to share
- I am interested in the issue and want to learn more
- I am potentially affected by floods and I want to be prepared
- Past flood event made me realize I need to be more prepared
- I was invited by authorities to participate and collaborate
- Other: _____

If no:

- I am not interested
- I do not have enough knowledge on the issue
- Floods are rare here, we are well protected
- There are no initiatives in my town
- I have not been invited by authorities to participate to their initiatives
- Participating would be too expensive (e.g. travel costs, time of meetings)
- My concerns are sufficiently represented by others
- Other: _____

11. Is your concern about floods in your town higher or lower than in the past, approximately 15 years ago?
Higher / Lower / Not changed

11a) If higher, why? (select the most important)

- I do not trust the dikes that have been constructed
- The new dikes make it more difficult to predict the incoming floods
- Climate change may cause more floods
- Other: _____

If lower, why? (select the most important)

- I know better how to deal with a flood thanks to initiatives of my fellow citizens
- I know better how to deal with a flood thanks to initiatives of public authorities
- I feel safer because higher dikes have been constructed
- Other: _____

11b) Has your concern about floods influenced your motivation to actively participate in flood related initiatives?

0	1	2	3	Don't know
Not at all	To some extent	Mostly	Completely	



Your connection with local groups and organizations

12. To what extent do you interact with one of the following groups? (check the pertinent box)

	Not at all	To some extent	Mostly	Completely	Don't know
Local groups (e.g. neighborhood groups, sport/music etc. associations)					
Environmental conservation groups					
Municipality of Maastricht					
Province of Limburg					
Water boards					
Rijkswaterstaat					
Safety regions					
Other:					

13. Does this interaction concerns flood issues? (cross on the pertinent box)

	Not at all	To some extent	Mostly	Completely	Don't know
Local groups (e.g. neighborhood groups, sport/music etc. associations)					
Environmental conservation groups					
Municipality of Maastricht					
Province of Limburg					
Water boards					
Rijkswaterstaat					
Safety regions					
Other:					

14. In case of a flood related problem (e.g. flood warning), would you interact with these groups for e.g. exchange information, seek help, offer help?

	Not at all	To some extent	Mostly	Completely	Don't know
Local groups (e.g. neighborhood groups, sport/music etc. associations)					
Environmental conservation groups					
Municipality of Maastricht					



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Province of Limburg					
Water boards					
Rijkswaterstaat					
Safety regions					
Other:					

Financing flood risk management

15. Who should bear the costs of protecting citizens from flooding? (select as many options as it is appropriate)

- The national government
- The national government together with local authorities (province, water boards, safety regions, municipalities)
- Citizens living in flood risk areas
- Local authorities and citizens living in flood risk areas
- All the above listed
- Other: _____

16. Are you insured against flood damage? Yes / No / Don't know

17. Is there money available to support initiatives of citizen groups' regarding flood preparedness?

Yes / No / Don't know

18. Is there in general money available for the creation and management of citizens groups?

Yes / No / Don't know

Public participation and influence in flood related decisions

19. Are there opportunities for you and your fellow citizens to be involved in decisions about floods?

0	1	2	3
Not at all Completely	To some extent	Mostly	

20. Do you think citizen involvement influences decisions about flood?

0	1	2	3
Not at all Completely	To some extent	Mostly	



Would you like to participate in further activities related to our project in 2017?

In spring 2017 we will organize meetings with the citizens and the authorities to learn together more about how to be prepared and deal with floods in your area. Would you like to be informed on when we will do these meeting and receive our newsletter (once every two months)? If yes, please share with us your email address and/or your phone number. Your data is confidential and will be only used for communication about the project.

We will keep you posted!

Name: _____

Email: _____

Phone n.: _____



Results will be available on our website www.capflo.net

Stay tuned!



2. Survey-Stakeholders

In the following, we would like to ask you questions related to our research project ‘Local resilience capacity building for flood mitigation’. It should take around 15 minutes to fill in the questions. We indicate throughout the questionnaire how to follow through, and you always have the possibility to answer with ‘I don’t know’. We will ask you some basic demographic questions at the beginning. You will not be asked to provide your name or any unique identifying information. It would be very helpful for our project if you would take the time and complete the questionnaire, your knowledge is very important for us.

Which actor group are you mainly representing (please only one answer)			
▪ Municipality	<input type="checkbox"/>		
• Public (Administration)	<input type="checkbox"/>		
• Private sector including agriculture	<input type="checkbox"/>		
• Civic (representative of a non-profit organization, such as NGOs)	<input type="checkbox"/>		
• Citizen association (representative of a temporary and issue-related initiative)	<input type="checkbox"/>		
• Community member (individual, not representing anyone)	<input type="checkbox"/>		
• Other	<input type="checkbox"/>		
Main area of representation/ interest (e.g. housing conservation, environmental topics, land use planning):			
Institution:			
Gender:	<input type="checkbox"/> Female	<input type="checkbox"/> Male	<input type="checkbox"/>

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly/ Mainly	Completely	I don't know
1. Do you feel informed about flood risk management*?	<input type="checkbox"/>				
2. Is enough access to information on flood risk provided?	<input type="checkbox"/>				
*Flood risk management: strategies and planning preparing for floods, during flood emergencies and in order to mitigate damages .					

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at	To some	Mainly	Compl	I don't
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	all	extent		etely	know
3. What is your source of information regarding flood risk management?					
▪ Media (e.g. radio, TV, internet, newspapers)					
▪ Material disseminated by (responsible) authorities (e.g. brochures, guideline books)					
▪ Face-to-Face contact with fellow citizens of my community (e.g. conversations, stories on former events known by everyone)					
▪ Face-to-Face contact with public authorities (e.g. public meetings, training exercises on emergency management)					
Other:					
4. Can you bring in your knowledge into flood risk management?					
 How? Please give a brief description:					
5. Do you think external (from others than public authorities usually deciding) knowledge is appropriately included into flood risk management?					
6. In how far do you think that external knowledge improves flood risk management?					
7. To what extend do you think you can provide additional knowledge otherwise not available to authorities?					
8. Do you share your knowledge on flood risk management with others (apart from responsible authorities) in your community/municipality?					
9. Do you share your knowledge on flood risk management with other communities/municipalities?					

<i>Please fill in a cross in the answer field you agree with most.</i>	Yes	No	I don't know
10. Have you been/are you participating in flood risk management?			
 If yes, how? (Multiple answers possible)			
▪ Officially organized participatory processes (e.g. information meetings, forums, workshops)			
▪ Flood Partnerships			
▪ Contact with the respective administration (e.g. talks, visits)			
<i>Please fill in a cross in the answer field you agree with most.</i>	Yes	No	I don't know



<ul style="list-style-type: none"> Outside officially organized processes without contact to administration (e.g. community initiatives, citizens association) 			
Could you briefly write the name/ type of participation, in particular if it is different from the above questions:			
 If yes , for what reasons? <i>(Multiple answers possible)</i>			
<ul style="list-style-type: none"> Knowledge on the issue Interest in the issue (Potentially) Affected by floods Recent flooding event Initiatives in my community Invited to official collaboration forums Professional role in flood risk management Other: 			
 If no , for what reasons? <i>(Multiple answers possible)</i>			
<ul style="list-style-type: none"> Not interested Not enough knowledge on the issue (Potentially) Not affected by floods No recent flooding event No initiatives in my community Not invited to official collaboration forums Collaboration would be too expensive (e.g. travel costs, time of meetings) Too time intensive Concerns are already sufficiently represented by others Other: 			
11. If you are participating in an officially organized participatory process, how did you join?			
<ul style="list-style-type: none"> I was invited I joined on my own initiative 			

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly / Mainly	Completely	I don't know
12. Do you think that all relevant interests are represented adequately in the current flood risk management approach?					
 If no, who is missing?					
13. To what extent did the process you have been participating in allow for open exchange?					
<ul style="list-style-type: none"> Other: 					



 (if applicable) How would you describe the conversation mode? <i>(One answer per bullet point)</i>					
▪ constructive					
▪ rational/ following arguments					
▪ conflictual					
▪ emotional					
▪ fair (in the sense that everyone could speak freely when he/ she wanted to give input)					
14. Having exchanged with other participants, did you feel that other participants understood your views/ arguments /concerns?					
15. Did you learn about flood risk management through the participatory process?					
16. Are you satisfied with how the process was run/ moderated?					
17. Do you think the process you participate(d) in did achieved appropriate results for flood risk management ?					
18. Do you think the process you participate(d) in achieved environmentally beneficial results?					
19. Do you think your input had been satisfactorily integrated into further planning?					
20. Do you think under the current FRM process, management of flood risks became worse?					
21. Does the time of the participatory process make it difficult for you to participate?					
22. Do certain costs (travel expense, loss of working time) make it difficult for you to participate in the process?					
23. Who should bear the costs of flood risk management? <i>(Multiple answers possible)</i>					
▪ The (national/ federal) state					
▪ The state and lower public authorities					
▪ Municipalities					
▪ Citizens living in a flood risk area					
▪ Other:					
24. Whose responsibility is it to prepare for a flood event? <i>(Multiple answers possible)</i>					
▪ The (national/ federal) state					
▪ The state and lower public authorities					
▪ Municipalities					
▪ Citizens living in a flood risk area					
▪ Other:					
25. Who is responsible in the case of a flood event?					
▪ The (national/ federal) state					
▪ The state and lower public authorities					
▪ Municipalities					
▪ Citizens living in a flood risk area					
▪ Other:					
26. What do you associate with a flooding event? <i>(Multiple answers possible)</i>					
▪ Crisis situation					
▪ Event that my community has to learn to deal with					
▪ A threat that is already controlled sufficiently					



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(e.g. through technical measures)
<ul style="list-style-type: none"> ▪ A threat that has to be controlled
<ul style="list-style-type: none"> ▪ Other:

<i>Please fill in one cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly / Mainly	Completely	NA
27. Did your understanding of flood risk in your area change during the last 5 to 7 years?	<input type="checkbox"/>				
If yes, why did your understanding change? (Multiple answers possible)					
<ul style="list-style-type: none"> ▪ Additional/ new information ▪ Flood event (not personally affected) ▪ Flood event (personally affected) ▪ Conversations with other members of my community ▪ Initiatives in my community ▪ Participation in flood risk planning or preparation structures ▪ Other: 					
If yes, did this influence your motivation to participate in flood risk management? (Please fill in one cross as above)					
	<input type="checkbox"/>				

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly / Mainly	Completely	NA
28. Do you feel well connected in your region regarding flood risk management?	<input type="checkbox"/>				
If yes, with which actor groups? (Multiple answers possible and please one cross per actor group if possible)					
Members of my community	<input type="checkbox"/>				
Environmental conservation associations (ENGOS)	<input type="checkbox"/>				
Private actors (e.g. insurance, chamber of commerce)	<input type="checkbox"/>				
Other associations	<input type="checkbox"/>				
Municipalities	<input type="checkbox"/>				
State agencies	<input type="checkbox"/>				
Other:	<input type="checkbox"/>				
If yes, for what reasons (Multiple answers possible and please one cross per actor group if possible)					



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	We have a common goal/ interest that we pursue	We are already working together/ in contact for a long time, so we continue	We are in contact/ working together when it is necessary	Because of the participatory process indicated above	Other
Members of my community					
ENGOS					
Private actors					
Other associations					
Municipalities					
State agencies					

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly/ mainly	Completely	I don't know
29. Is the working atmosphere in this network/ group of contacts trustworthy and honest?	<input type="checkbox"/>				
30. Does the working dynamic of the network/ group of contacts contribute to solve problems?	<input type="checkbox"/>				
31. Is the network open instead of closed (e.g. reach out for communicating and negotiating with other groups or forming coalitions)?	<input type="checkbox"/>				
32. Is your network included in planning tasks within flood risk management?	<input type="checkbox"/>				

Questions for municipalities:

Municipality affected by a flood before (since 1990s):	Yes	No
If yes, more than once?	Yes	No
If yes, when was the last time?:		

<i>Please fill in a cross in the answer field you agree with most.</i>	Not at all	To some extent	Mostly/ Mainly	Completely	I don't know
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		extent			
33. Do you think that your municipality is prepared for a flooding event?					
34. Do citizen associations exist that are engaged in flood risk management?					
35. Do you think that your citizens are informed about flood risk?					
36. Is there a strong social cohesion in your municipality?					

Thank you very much for participating!



3. Interview questionnaire for local groups /networks members

Before starting the interview

- Introduce yourself: name, affiliation, your role in the institute
- Introduce the research project: clearly identify the case study region, what the interview is about and the content of the questionnaire: questions are organized around a number of topics that aim to understand the capacity of local communities to prepare and respond to flood events and the role of authorities in fostering this capacity.
- Inform the interviewee about how the interview information will be used:
 - Interviews will not be anonymous unless explicitly requested. Off the record statements will be treated with confidentiality. If we quote you directly, you will be informed and will be able to comment and suggest improvements. If anonymity is preferred, only the name of the organization/group will be quoted.
 - A report will be written up on the basis of the interview data and the document analysis. He/she will receive a copy of the final report.
- Ask for tape recording. State that you can turn the recorder off any time during the interview, if requested and that they can always decline to answer a question.

Background information

0. What is your main occupation/job?

Experience and knowledge about flooding

We first would like to hear about your experience with flooding.

1. Have you ever experienced floods yourself?
 - a. If yes, when?
 - b. Did you have any damage to your properties (e.g. house, car)?
 - c. How did you behaved in that occasion? e.g. you worked together with other fellow citizens and emergency services to rescue people, you waited for help, you were prepared and could take care of yourself, etc.
2. Could you share with us any story related to past floods? Do you know of images or objects existing in your town that reminds of past floods?
3. Do you think information on floods is easily accessible and comprehensible for everybody?

Local groups and networks of local actors engaging in flood related issues

We are interested in understanding the capacity of local groups and networks to collaborate on flood related issues. Groups can be citizens associations, environmental organization, business organizations, etc. Networks are made up of individuals, groups and organizations that have a common goal. Both local groups and networks may engage in flood related discussions, or may become active in flood emergency situations.



We were told/you mentioned that you are involved in flood-related initiatives.

4. Do you work with other fellow citizens in a group/organization or are you/your group part of a network? Provide details: what is this group/network about? Is it a formal or an informal collaboration? How long has this collaboration been going on for?
5. What type of flood related initiatives is the group/network involved in, e.g. preparedness of citizens to floods, flood policy discussions?
6. Why have you decided to collaborate on local flood-related issues in this group/network?
7. Which kind of tasks do you and the other group/network members perform in relation to flooding: e.g. spread information, alert neighbours of incumbent floods, clean up after flood event, participate to design flood policies with authorities?
8. What kind of flood-related knowledge has the activity of your group/network generated that has been or could be shared with others? Provide details.
9. How would you describe the interaction among group/network members: e.g. cooperative, effective, based on open communication, trust, honesty and solidarity? Provide example.
10. How would you describe the interaction between your group/network members and authorities: e.g. cooperative, effective, based on open communication and trust, based on honest negotiation? Provide example.
11. What do you think are the key factors that enable your group/network to exist and thrive: e.g. capacity to obtain public funds, capacity to self-funding, connection with authorities, leadership capacity, management capacity, negotiation capacity?

Financial resources for local communities

We now would like to understand how local communities arrange for funding for their initiatives.

12. How are the group/network and its activities financed? E.g. self-financed, public money, etc.
13. Do you think public funds for local initiatives are easily accessible?
14. Do you think your group/network is efficient in managing its functioning and its initiatives?
15. Has there been any change on the way funds are distributed to local groups/networks, e.g. more money available, more flexible requirements to access funds, etc.?

Public participation and influence of local communities in flood related decisions

We are interested in public participation to decision-making about flooding

16. How are citizens involved in decision related to flooding, e.g. information supply, proactive participation, integration of citizens knowledge in flood decision-making? Provide examples.



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17. Has this involvement changed over the last years? If yes, how: e.g. attribution of more prominent role to citizens in flood decisions, more integration of citizens knowledge in decision-making? What was the trigger of change?
18. How can citizens involvement be improved?
19. When citizens participation leads to change policies or the way policy-makers see problems and solutions, we can say that they have been influential. Do you think citizens are influential in flood decision making? Could you provide examples of changes that public participation has produced in flood management policies? And what about changes that participation produced in citizens themselves (e.g. more awareness about flood risk)?
20. Anything else you would like to share with us?

-----END-----

Thank the interviewee and ask if you can get back to him/her by phone for further clarification if needed.

Inform that **we will organize meetings with the citizens and the authorities to learn together more about how to be prepared and deal with floods in this area.** Would you like to be informed on when we will do these meetings (newsletter)? Please share with us your email address and/or your phone number. We will keep you posted!

Name:

Email:

Phone n.:



4. Interview questionnaire for authorities

Before starting the interview

- Introduce yourself: name, affiliation, your role in the institute
- Introduce the research project: clearly identify the case study region, what the interview is about and the content of the questionnaire: questions are organized around a number of topics that aim to understand the capacity of local communities to prepare and respond to flood events and the role of authorities in fostering this capacity.
- Inform the interviewee about how the interview information will be used:
 - Interviews will not be anonymous unless explicitly requested. Off the record statements will be treated with confidentiality. If we quote you directly, you will be informed and will be able to comment and suggest improvements. If anonymity is preferred, only the name of the organization/group will be quoted.
 - A report will be written up on the basis of the interview data and the document analysis. He/she will receive a copy of the final report.
- Ask for tape recording. State that you can turn the recorder off any time during the interview, if requested and that they can always decline to answer a question.

Background information about the interviewee

0. What is your role in flood risk management?

Knowledge about flooding

We first would like to understand citizens knowledge about flooding.

1. Have you ever experienced floods yourself?
 - a. If yes, when?
 - b. Did you have any damage to your properties (e.g. house, car)?
 - c. How did you behaved in that occasion? e.g. you worked together with other fellow citizens and emergency services to rescue people, you waited for help, you were prepared and could take care of yourself, etc.
2. Do you think citizens are prepared to deal with a flood event? In your opinion, who are the least prepared and the most prepared? (e.g. citizens groups, individuals, elderly, young generations).
3. Do you think citizens are provided with all necessary information to prepare for a flood event? Provide details of the type information.
4. When a flood occurs and the emergency protocols and operational procedures are activated, how is the interaction between authorities and citizens? Is knowledge and experience of citizens of help?



Motivation of citizens to prepare for floods

We now would like to ask some questions about citizens motivation to prepare for floods and engage in flood policy discussions.

5. In your experience, how is flooding generally perceived by citizens? E.g. as critical emergency that always requires intervention of the public authorities, an inevitable natural event that they have to be prepared for, etc.
6. In your opinion, has the perception of citizens about flooding changed since the implementation of the Maaswerken and other flood protection measures? If yes, has this change influenced citizens' motivation to prepare for flooding (e.g. they feel safe and think they not need to prepare or be informed)?
7. In your experience, are citizens interested in being informed and prepared for flood events? Why?

Local groups and networks of local actors engaging in flood related issues

We are interested in mapping local groups and networks and understand their capacity to collaborate on flood related issues. We start with groups, like citizens groups, environmental groups, business organizations, etc.

8. Can you mention community groups/organizations that are proactively engaged in flood related discussions, e.g. about preparedness, protection infrastructure, policy? Provide details (e.g. name of members to contact)
9. How is the interaction between these groups/organizations and your organization? E.g. open, transparent exchange of information and proactive engagement in the development of flood policies; conflictual, contested discussion about flood issues, etc.

Networks are made up of individuals and/or groups and organizations that have a common goal. These networks may engage in flood related discussions, or may become active in flood emergency situations. In light of this definition

10. Can you mention networks that proactively engage in flood related discussions, e.g. about preparedness, protection infrastructure, policy or that become active in flood emergency situations? Provide details (e.g. name of members to contact. Provide details.
11. How is the interaction of these networks and your organization? E.g. open, transparent exchange of information and proactive engagement in the development of flood policies; conflictual, contested discussion about flood issues, etc.

Financial resources for local communities

We now would like to understand how local communities arrange for funding for their initiatives.

12. Are there any public funding schemes at national, provincial or local level for:
 - a. to support local community initiatives related to flood mitigation and preparedness? Provide details.



- b. the creation and management of community groups/networks in general? Provide details.

Participation of local communities in flood management decisions

We are interested in how local communities are embedded in the flood management structure through participatory processes

13. In your opinion citizens have sufficient opportunities to effectively contribute to flood management decisions?
14. How are citizens involved in the development of flood management decisions: e.g. share information, proactive participation, integration of citizens knowledge in flood decision-making? Provide examples.
15. Has this involvement changed over the last years? If yes, how: e.g. attribution of more prominent role to communities in flood decisions, more integration of citizens knowledge in decision-making? What was the trigger of change?
16. How can citizens involvement be improved?
17. When citizens participation leads to change policies or the way policy-makers see problems and solutions, we can say that they have been influential. Do you think citizens are influential in flood decision making? Could you provide examples of changes that public participation has produced in flood management policies? And what about changes that participation produced in citizens themselves (e.g. more awareness about flood risk)?

-----**END**-----

Thank the interviewee and ask if you can get back to him/her by phone for further clarification if needed.

Inform that **we will organize meetings with the citizens and the authorities to learn together more about how to be prepared and deal with floods in this area**. Would you like to be informed on when we will do these meetings (newsletter)? Please share with us your email address and/or your phone number. We will keep you posted!

Name:

Email:

Phone n.:



5. Focus group with citizens

8-10 participants

Presentation of CAPFLO and goals of the focus group

Good morning/afternoon, we are X from X. This focus group is part of the European research project CAPFLO, which is about how communities prepare and deal with flood episodes.

We would like to discuss with you today a few issues regarding floods in this area.

The discussion will last 1-2 hours and will be divided into 3 parts: a brief introduction meant to know each other, an individual reflection on some issues related to floods, such as information and knowledge system, motivation for floods preparedness, and governance.

After a first roundtable, we will ask you to divide yourselves into two groups and work together on the questions below (thinking about section).

Each group should select a group leader that will present the group's opinion during the "joint discussion" session. You will have around 30 minutes for all questions included in the "thinking about" section A. Each group should then present their opinion, justifying it and providing, if possible, a relevant example. I will synthesize your presentation by filling in the summary charts while you speak. Following we will discuss together a series of other issues related to floods information and knowledge system.

We will do the same for section B.

All the information shared with us will be confidential and results will be processed in an aggregated way.

Would you like to hear about our project and participate in further activities in your community?

We will organize meetings with the citizens and the authorities to learn together more about how to be prepared and deal with floods in this area. Would you like to be informed on when we will do these meetings and receive our newsletter (once every two months)? Please share with us your email address and/or your phone number. We will keep you posted!

Name: _____

Email: _____

Phone n.: _____

For more info check regularly our website www.capflo.net



ROUNDTABLE

- Before introducing participants, take the time to reconstruct the timeline of the area. The facilitator should ask each participant to identify the main events and year that he/she associates with the respective area in the last 30 years. The facilitator should create a visible timeline.
- The facilitator should ask citizens to indicate if they have been involved in the last flood event and how (affected party; volunteer; representative of public or private bodies involved in floods management, etc).
- The facilitator should ask citizens to state the first word¹ with which they associate floods. The facilitator should take note of all words.
- The facilitator should ask citizens to describe their memories on the last flood event in that area in one word. The facilitator should take note of all words.

A. KNOWLEDGE

Thinking about

Each group should fill in the following charts and think about one relevant example and justifications of their opinions on the following issues:

- *Information sources, actors producing/diffusing them and their use*

Information sources ² (list)	Actors providing/diffusing information (e.g. River basin authority)	Phases (before/during/after flood events) of the floods events when they are used	Use level of the source for flood events: 1= most used 2= often used 3= little used 4=not used 5= I do not know	Accessibility 1= Accessible also to special categories, such as disabled, immigrants etc 2= Accessible to the general public 3= Accessible only to technicians/experts
e.g. Risk management plan of the River Basin				
Website...				

- *Completeness of the information system*

¹ e.g. risk prevention; environmental protection; solidarity; responsibility; escaping; damages, etc

² i.e. specific public websites on floods, and in particular local public websites, website of the municipality, civil protection body, sms information system of my municipality, apps on floods, floods risk management plan; local media (newspapers, radio, tv), social media (Facebook, Twitter, Instagram, Youtube, etc), face to face contacts



In this area the information system is:	Select one answer
1 Complete: there are different sources of information in all floods stages, updated information on all stages of floods, information accessible to all, including disables, etc	
2: Partial = information diffused only in certain stages of the floods; information diffused unsystematically and mainly by media/social networks; information accessible to specific categories such as professionals, especially the official one; etc); information complete, but not updated	
3= Lacking: no specific sources of information on floods; some information only during the flood event; etc)	

- *Knowledge on floods in the area*

If I had a new neighbour, I would tell him the following things on:	Fill in
Reasons on why floods occur in this area	
How to obtain information on floods in this area before, during and after the floods event	
How to behave to prevent and/or cope with floods in this area	
How to contribute to the decision-making process on floods prevention and management in this area	
How to collaborate with local actors in this area to prevent and/or cope with floods	
How to participate in floods drills and floods rescue operations in this area	
How to recover from floods	

How much you agree with the following statements?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I do not know
Knowledge on floods made me more responsible about my own actions to prevent/cope with floods (i.e. sustainable building, etc)					
Knowledge on floods made me proactive in participating in actions to prevent/cope with floods					
Knowledge on floods made me cooperate more with other citizens and/or with public actors and stakeholders to prevent/cope with floods					

- *Integration of knowledge in the floods prevention and management system*

I strongly agree with/partial agree with/totally disagree with/partially disagree with/do not know that lessons I learnt from the last flood event are now integral part of the risk management system. Explain why and give examples

Joint discussion on knowledge

The facilitator asks each group to present its answers, justifying its opinions and providing one relevant example. The facilitator synthesizes information presented by participants in one chart for each of the above mentioned issues.

The facilitator should engage participants in providing their opinion on:

- Which are the main problems that the area faces in terms of floods prevention and management? Has there been any change since the last flood event? Which?



- Considering the last flood event, what do you think you and people in your area should have known more on floods? Explain why
- Which are the main lessons that you learnt from the last flood event?
- Is there any example of public policies/interventions that integrate your knowledge/learning on floods prevention and management?

B. MOTIVATION AND GOVERNANCE

Thinking about

The facilitator should divide participants in small groups (max 10); he/she should ask participants to identify a group leader that will present the group's opinion on the issues below.

Each group should fill in the following charts and think about one relevant example and justifications of their opinions on the following issues:

- *Motivation*

How much you agree with the following statements?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I do not know
Floods is an inevitable annoyance that I can always deal with by myself					
Floods is an inevitable annoyance I have to be prepared to deal with by myself and only in more critical situation the intervention of public authorities is required					
Local bodies are not effective in preventing/managing floods and this is why I have to know and take action to prevent/cope with floods					
Risks of damages in case of floods are very high and this is why I am engaged in preventing/coping with floods					
It is very important for the community that I do my part in preventing/coping with floods and in cooperating with others on this issue					
I have an extensive knowledge on floods and I know that it is important that it is important I protect the environment and take actions to prevent/cope with floods					
I have gone through a dramatic flood event and now I know how important it is that I am prepared and take action to prevent/cope with floods					
Cooperation with others on floods, made me realize that I have to be prepared and take action to prevent/cope with floods					
I have an extensive knowledge on floods and I want to help others to understand how to					



prevent and/or cope with floods					
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- *Costs of floods*

How much you agree with the following statements?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I do not know
In case of floods, I and my neighbours living in the flood area should bear the costs of floods					
In case of floods, the national government together with provincial and local authorities should bear the costs of floods					
In case of floods, the national government should bear the costs of floods					

- *Cooperation on floods in this area*

List the main relevant actors and your assessment on their cooperation on floods (intense cooperation/medium/none cooperation; formal/informal; before, during, after floods events)				
	Actor 1 (ex. Water Basin Authority)	Civil protection
Actor 1 (ex. Water Basin Authority)		Formal Intense All stages		
Civil protection	Formal Intense During and after floods			

How much you agree with the following statements?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I do not know
I was involved in the definition and implementation of local policies/interventions on floods prevention and management by local bodies (municipality, civil protection, etc)					
I was involved in the definition and implementation of local policies/interventions on floods prevention and management by regional/national bodies					
I participated in events/actions taken by associations/research centres/etc to engage citizens of this area in floods prevention and management					
It is normal for me to cooperate with my neighbours on floods prevention and during floods					
In case of floods, I will interact more with local bodies					
In case of floods, I will interact more with regional bodies					
In case of floods, I will interact more with local associations					



Joint discussion on knowledge

The facilitator asks each participant to present their answers, justifying their opinions and providing one relevant example. The facilitator synthesizes information presented by participants into one chart for each of the above mentioned issues.

The facilitator should engage participants in providing their opinion on:

- Which were the most relevant participative/cooperation actions you participate in? Why were they relevant for you? By whom were they promoted?
- Do you know other actors that generally promote participative actions to prevent/cope with floods?
- How do local public bodies support cooperation in this area?
- Which were the main difficulties you faced in being involved in participative actions and in cooperating with others (i.e. neighbours) to prevent/cope with floods? How did you overcome them?



Humanitarian Aid
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6. Focus group with public bodies and stakeholders

8-10 participants

Presentation of CAPFLO and goals of the focus group

Good morning/afternoon, we are X from X. This focus group is part of the European research project CAPFLO, which is about how communities prepare and deal with flood episodes.

We would like to discuss with you today a few issues regarding floods in this area.

The discussion will last 1-2 hours and will be divided into 3 parts: a brief introduction meant to know each other, an individual reflection on some issues related to floods, such as information and knowledge system, motivation for floods preparedness, and governance.

After a first roundtable, we will ask you to divide yourselves into two groups and work together on the questions below (thinking about section).

Each group should select a group leader that will present the group's opinion during the "joint discussion" session. You will have around 30 minutes for all questions included in the "thinking about" section A. Each group should then present their opinion, justifying it and providing, if possible, a relevant example. I will synthesize your presentation by filling in the summary charts while you speak. Following we will discuss together a series of other issues related to floods information and knowledge system.

We will do the same for section B.

All the information shared with us will be confidential and results will be processed in an aggregated way.

Would you like to hear about our project and participate in further activities in your community?

We will organize meetings with the citizens and the authorities to learn together more about how to be prepared and deal with floods in this area. Would you like to be informed on when we will do these meetings and receive our newsletter (once every two months)? Please share with us your email address and/or your phone number. We will keep you posted!

Name: _____

Email: _____

Phone n.: _____

For more info check regularly our website www.capflo.net



ROUNDTABLE

- Which is your experience with floods?
- What is your organization's role in the flood system in your area?
- In which floods events had your organization been involved?

A. KNOWLEDGE

Thinking about

Each participant should fill in the following charts and think about one relevant example and justifications of their opinions on the following issues

- *Information sources, actors producing/diffusing them and their use*

Information sources ³ (list)	Actors providing/diffusing information (e.g. River basin authority)	Phases (before/during/after flood events) of the floods events when they are used	Use level of the source for flood events: 1= most used 2= often used 3= little used 4=not used 5= I do not know	Accessibility 1= Accessible also to special categories, such as disabled, immigrants etc 2= Accessible to the general public 3= Accessible only to technicians/experts
e.g. Newspaper				
Website...				

- *Completeness of the information system*

In this area the information system is:	
1 Complete: there are different sources of information in all floods stages, updated information on all stages of floods, information accessible to all, including disables, etc	
2: Partial = information diffused only in certain stages of the floods; information diffused unsystematically and mainly by media/social networks; information accessible to specific categories such as professionals, especially the official one; etc); information complete, but not updated	
3= Lacking: no specific sources of information on floods; some information only during the flood event; etc)	

- *Knowledge on floods in the area*

³ i.e. floods risk prevention and management plan; websites on floods and/or past floods events; apps on floods; information diffused by local media, including TVs, radio, newspaper; information diffused through social media; information diffused only through personal contacts; information diffused in other ways



Which of the following sentences do you agree with?	I strongly agree	I partially agree	I partially disagree	I totally disagree	I don't know
Local public authorities, stakeholders and citizens know why floods occur and how to behave to prevent them					
In this area the legal framework on floods prevention is generally respected by all					
Local public authorities, stakeholders and citizens of this area generally know and understand data on floods					
Local public authorities are generally able to implement measures on floods prevention and management based on data					
Local public authorities and stakeholders know very well how to get financial resources for preventing and coping with floods events					
Local public authorities know how to engage and cooperate with citizens and stakeholders before, during and after floods events					
People know how to behave in case of flood events					

Joint discussion on knowledge

The facilitator asks each participant to present their answers, justifying their opinions and providing one relevant example. The facilitator synthesizes information presented by participants into one chart for each of the above mentioned issues.

The facilitator asks participants to discuss the following issues:

- *Gaps in the information/knowledge system and their overcome:* considering the last flood event, which were the faults in the information/knowledge system on floods prevention and management, if any? For whom⁴? Have these faults been corrected since then? How? Give examples
- *Integration of knowledge from past flood events into current public policies:* is there any example of public policy or practices integrating this knowledge?

B. MOTIVATION AND GOVERNANCE

Thinking about

Each participant should fill in the following charts and think about one relevant example and justifications of their opinions on the following issues

- *Motivation to prepare for floods in this area*

⁴ i.e. public bodies at local and/or other levels; professionals; associations; citizens...



Which of the following sentences you agree with?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I don't know
In this area, both citizens and stakeholders wait for the intervention of public authorities to prevent/cope with flood risks/events					
The high level of risk in this area makes people act to prevent/cope with floods					
People in this area are engaged in floods prevention thanks to ad-hoc information campaigns					
There is a strong sense of community/solidarity that compel people to cooperate for preventing/coping with floods					
Cooperation is effective in this area and people tend to solve problems when floods occur					
In this area, public authorities, stakeholders and citizens have increased their motivation to prepare for floods since the last flood event					

- *Costs of floods*

How much you agree with the following statements?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I do not know
In case of floods, citizens living in the flood bear the costs of floods					
In case of floods, the national government together with provincial and local authorities bear the costs of floods					
In case of floods, the national government bears the costs of floods					

- *Cooperation on floods in this area*

List the main relevant actors (including citizens) and your assessment on their cooperation on floods (intense cooperation/medium/none cooperation; formal/informal; before, during, after floods events)				
	Actor 1 (ex. Water Basin Authority)	Civil protection
Actor 1 (ex. Water Basin Authority)		Formal Intense All stages		
Civil protection	Formal Intense During and after floods			

- *Citizen's participation in preventing and coping with floods*



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Which of the following sentences do you agree with?	I strongly agree	I partially agree	I totally disagree	I partially disagree	I don't know
Citizens participate intensely and continuously in actions to prevent/cope with floods					
Citizens are involved and have a relevant role in the decision-making and implementation processes regarding floods in all phases (before, during, after floods)					
Citizens' knowledge is highly mainstreamed in the floods risk management system					

Joint discussion on motivation and governance

The facilitator asks each participant to present their answers, justifying their opinions and providing one relevant example. The facilitator synthesizes information presented by participants into one chart for each of the above mentioned issues.

The facilitator asks participants to discuss the following issues:

- *Obstacles and support to cooperation*: which are the main obstacles to cooperation⁵? How cooperation in floods prevention and management is sustained in this area and by whom?
- *Lessons learnt from cooperation*: Which are the main lessons learnt from cooperating with stakeholders and citizens?
- *Availability of funds for stakeholders and citizens to prevent/cope with floods*: are there any funds for citizens/stakeholders to act for preventing and/or coping with floods? Have they had difficulties in managing them?

⁵ E.g., mistrust, lack of feedback on participation in floods risks prevention and management, etc