

# A framework for stakeholder analysis and engagement when preparing for extreme and rare events in Coastal Regions

Work Package 5

Deliverable Report 5.1

© 2014 PEARL

*Acknowledgements*

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under Grant agreement n° 603663 for the research project PEARL (Preparing for Extreme And Rare events in coastal regions).

*Disclaimer*

The deliverable D 5.1 reflects only the authors' views and the European Union is not liable for any use that may be made of the information contained herein.



## Authors:

*Linda Sorg, Tobias Blätgen, Jörn Birkmann (IREUS)  
Patricia Gourgoura, Archontia Lykou, Christos  
Makropoulos (NTUA)*

With contributions from TUHH, UNSA, GISIG, CETaqua,  
UNESCO-IHE, DHI, and KCL

Angelika Gruhn (TUHH)  
Jelena Batika (UNSA)  
Alessandra Marchese (GISIG)  
Xavier Aldea Borruei (CETaqua)  
Patricia Gourgoura, Archontia Lykou (NTUA)  
Zoran Vojinovic (UNESCO-IHE)  
Arlex Sanchez Torres (UNESCO-IHE)  
Ole Mark (DHI)  
Arabella Fraser (KCL)



## Document Information

Project Number	<b>603663</b>	Acronym	<b>PEARL</b>
Full Title	Preparing for Extreme and Rare events in coastal regions		
Project URL	<a href="http://www.pearl-fp7.eu/">http://www.pearl-fp7.eu/</a>		
Document URL			
EU Project Officer	Denis Peter		

Deliverable	Number	D. 5.1	Title	Framework for stakeholder analysis and engagement when preparing for extreme and rare events in Coastal Regions
Work Package	Number	WP5	Title	Decision support and policy development for strengthening resilience of coastal regions

Date of Delivery	Contractual	12/31/2015	Actual	05/20/2016
Status	version 01		final <input type="checkbox"/>	
Nature	prototype <input type="checkbox"/> report <input type="checkbox"/> dissemination <input type="checkbox"/>			
Dissemination level	public <input type="checkbox"/> consortium <input type="checkbox"/>			

Abstract (for dissemination, 100 words)	This paper defines a framework for stakeholder analysis and engagement. Its aim is so identify key decision-makers and stakeholders in risk management, map key points of interactions and decision-making dependencies and pathways of influence. The framework will serve as a basis for creating the learning & action alliances (LAA). Furthermore it includes the application of the LAA in the individual PEARL case studies.
Keywords	Stakeholder analysis, Stakeholder engagement, Learning and Action Alliance, Risk management

Version Log				
Issue Date	Rev.No.	Author	Change	Approved by
03-09-2015		Tobias Blätgen	Draft text	
02-15-2016		Linda Sorg	Draft text	
02-19-2016		Patricia Gourgoura	Draft text	
03-22-2016		Contributors	Input CS	
04-05-2016		Contributors	Input CS Analysis	
04-10-2016		Sorg, Gourgoura	Amendments, Review	
05-11-2016		Jörn Birkmann	Review	
05-12-2016		Linda Sorg	Amendments, Revision	
05-16-2016		Patricia Gourgoura	Amendments, Revision	
05-17-2016		Christos Makropoulos	Review	
05-18-2016		Linda Sorg	Amendments, Review	
08-06-2016		Zoran Vojinovic, Arlex Sanchez	Review	

# Content

<b>1</b>	<b>Introduction</b>	<b>5</b>
<b>2</b>	<b>Stakeholder analysis and engagement in the context of extreme events</b>	<b>7</b>
2.1	Learning and Action Alliances	7
2.1.1	Definition and Introduction of LAA	7
2.1.2	Setup and functioning of LAAs	8
2.2	Chances and Challenges	9
2.3	From theory to praxis	10
2.3.1	Stakeholder Analysis	10
2.3.2	Learning and Action Alliances in theory and praxis	12
<b>3</b>	<b>PEARL Learning and Action Alliances</b>	<b>14</b>
3.1	PEARL LAAs Methodological framework	14
3.2	Organising PEARL Learning and Action Alliances	16
<b>4</b>	<b>Rethinking who is involved - Application of the stakeholder analysis and creation of LAAs in PEARL case study areas</b>	<b>19</b>
4.1	GERMANY, The Elbe Estuary (Hamburg)- TUHH	20
4.1.1	Initial Stakeholders analysis	20
4.1.2	Stakeholders actually involved in LAA procedure	23
4.1.3	Methodology	24
4.1.1	Evaluation of LAA so far	26
4.1.2	Conclusion	26
4.2	FRANCE, Les Boucholeurs- UNSA	26
4.2.1	Initial Stakeholders analysis	26
4.2.2	Stakeholders actually involved in LAA procedure	27
4.2.3	Methodology	28
4.2.1	Evaluation of LAA so far	29
4.2.2	Conclusion	29
4.3	ITALY, Genoa- GISIG	30
4.3.1	Initial Stakeholders analysis	30
4.3.2	Stakeholders actually involved in LAA procedure	34
4.3.3	Methodology	34
4.3.1	Evaluation of LAA so far	35
4.3.2	Conclusion	35
4.4	SPAIN, Marbella- CETaqua	36
4.4.1	Initial Stakeholders analysis	36
4.4.2	Stakeholders actually involved in LAA procedure	37
4.4.3	Methodology	39
4.4.1	Evaluation of LAA so far	39
4.4.2	Conclusion	40
4.5	GREECE, Rethymno, Crete- NTUA	42
4.5.1	Initial Stakeholders analysis	42
4.5.2	Stakeholders actually involved in LAA procedure	48
4.5.3	Methodology	49
4.5.1	Evaluation of LAA so far	51
4.5.2	Conclusion	52

4.6	PEARL case study areas that will not work with LAAs	56
4.6.1	DENMARK, Greve- DHI	56
4.6.2	St. Lucia, Caribbean- DHI	56
4.6.3	St Maarten, Caribbean- UNESCO- IHE	56
4.6.4	Thailand, Ayutthaya - AIT, UNESCO-IHE	57
4.6.5	Taiwan, Yilan Coast – NTOU	57
4.6.6	Japan, ICHARM	57
4.7	Summary	58

<b>References</b>	<b>59</b>
-------------------	-----------

<b>Annex I – Additional material from case study areas</b>	<b>61</b>
--	-----------

SPAIN, Marbella (CETaqua)	61
Additional Material from the first official stakeholder workshop on 12th of January 2016	61
Dissemination material and reporting in the local press	67
GREECE, Rethymno (NTUA)	71
Municipal decision in involvement in LAA Rethymno (14/04/2014)	71
Additional material from the technical meeting with stakeholders on 1 <sup>st</sup> of July	71
Additional material from the 1 <sup>st</sup> official LAA workshop on 1 <sup>st</sup> and 2 <sup>nd</sup> of October 2015	73
Dissemination material and reporting in the local press	76

<b>Annex II – PEARL guiding documents</b>	<b>80</b>
---	-----------

Milestone 14 - Setting up the PEARL Learning and Action Alliances LAAs (Blätgen, Gourgoura, Lykou, 2014)	80
PEARL Stakeholder Workshops - A practical framework for partners (Blätgen and Gourgoura, 2014)	130

# 1 Introduction

The PEARL deliverable 5-1 “A Framework for stakeholder analysis and engagement when preparing for extreme and rare events in Coastal Regions” is mainly based on task 5.1 of the PEARL DoW (European Commission Directorate-General for Research and Innovation 2013) and “[...] will identify key decision-makers and stakeholders in risk management, map key points of interactions and decision making dependencies and pathways of influence. This will serve as a basis for creating the learning & action alliances [...]” (PEARL DoW, European Commission Directorate-General for Research and Innovation 2013). Since „PEARL considers flood risk management as a long term strategy including both a ‘horizontally interactive’ as well as a ‘vertically institutional’ multi-actor engagement in order to foster flexible and dynamic planning“ (European Commission Directorate-General for Research and Innovation 2013) the output of task 5-1 and the deliverable 5-1 are contributing to the research success of PEARL. The final aim of building Learning and Action Alliances (LAA) will not only help delivering the research results in academia but also transport them into ongoing and/or future policy making processes. Therefore, the LAAs will „[...] identify: (a) long term visions that stakeholders have for the evolution of risk in their area (b) relevant questions/options for the assessment of the steps towards this vision (building blocks of the road mapping process in T5.6) and (c) relevant scenarios (future situations in the complete socio-technical environment) that the stakeholders would be interested to consider” (European Commission Directorate-General for Research and Innovation 2013).

Against this background, the report at hand contributes to the first three objectives of PEARL work package five<sup>1</sup> and summarizes the approaches and results that set the basis for the further work in the respective work package. The deliverable is partly based on PEARL Milestone 14 (MS 14: Setting up the PEARL Learning and Action Alliances, Blätgen et al. 2014) that has been delivered as an internal document. The deliverable 5.1 will make use of the content of Milestone 14 and of the reports from workshops carried out within the task 5.6 framework, and will extend it by the actual and content related work in the case study areas. MS14 document served as a preliminary work of this deliverable where the theoretical background and methodology was analysed. It also summarizes factors for success and failure of setting up and sustaining such alliances. The complete internal document was provided in month 8 by NTUA and can be found in the enclosed Annex II.

Against this background, the deliverable focusses on the analysis of stakeholders and engagement in the context of extreme events with a focus on the introduction of the concept of Learning and Action Alliances and their setup and functioning. Furthermore the application of the Learning and Action Alliances in the respective case study areas will be discussed under the concept of “Rethinking who is involved”, which will be introduced hereafter. Thus, it will cover all the way from case study involvement starting with a stakeholder analysis to the implementation and maintenance of a LAA.

Responsible for the content of the deliverable are IREUS and NTUA as lead partners and the case study partners as contributors (TUHH, CETAQUA, UNSA, DHI, GISIG, UNESCO-IHE and KCL). The respective partners are responsible for the description of the process of introducing the Learning and Action Alliances in their case study area).

Due to diverse political reasons, the set-up of first contacts and the implementation of LAAs have been complicated in some of the case study areas. These reasons will be delineated in the sections of chapter 4 describing the progresses in the respective case study areas.

---

<sup>1</sup>O5.1 Analyse key stakeholders, decision processes, risk perceptions and information flows to identify leverage points and appropriate scales/contexts, in which PEARL support would result in the most pronounced impact.

O5.2 Identify the best ways to involve key stakeholders throughout the project and benefit from their context knowledge and experience while exposing them to PEARL deliverables, cases and learning approaches.

O5.3 To develop a framework and related metrics for evaluation of different resilient strategies generic and for different contexts of the case study areas taking the resilience index as a basis.

In this context the particular partners are also raising the subject of a preliminary evaluation of the LAA approach aiming at a better understanding of the experiences and results in PEARL. This goes beyond the scope of deliverable 5-1 but is necessary to make the PEARL results usable on a theoretical and methodological level.

Even though some case study context conditions will make it impossible to conduct a fully structured Learning and Action Alliance, the results especially from Spain, Greece as well as Italy underscore that the LAA framework can be successfully applied. At this stage the LAA is not yet implemented in the stated case study areas, because the LAA as a functioning stakeholder cooperation does not completely run by itself. To achieve this final goal, the individual core groups still need external support provided by the PEARL partners. Further workshops are planned which will also include the outcome of several other PEARL work packages, such as results from household surveys associated with work package one. Table 1 provides a brief overview about raised issues in the respective case study areas, deriving consequences and proposed solutions. It also highlights the status of feasibility of a Learning and Action Alliance.

The test and application of the LAA approach and especially the implementation of workshops in Rethymno and Marbella has generated significant repeats in the local media and press. The interest of local media shows that the science-policy workshops are seen as important and relevant for the local case studies. The press repeats about the Learning and Action Alliances are an indicator of a successful engagement of local stakeholders. Extracts from the mentioned coverage can be found in Annex I.

The establishment of a functioning Learning and Action Alliance and therefore a self-reliant stakeholder group is an important step towards the co-production of knowledge.



## 2 Stakeholder analysis and engagement in the context of extreme events

Coastal floods are among the most dangerous and harmful natural hazards affecting urban areas adjacent to shorelines. Rapid urbanization combined with climate change and poor governance means a significant increase in the risk of local surface flooding coinciding with high water levels in rivers and high tide or storm surges from the sea, posing a greater risk of devastation to coastal communities. The threats posed need to be addressed not just in terms of flood prediction and control, but taking into account governance and socio-economic issues.

Ashley et al. (2009; referring to CEA, 2007, Commission of the European Communities, 2007 and 2009) state that urban floods are increasing across Europe (IPCC 2014). Furthermore the last years there is an obvious shift in flooding management from a technocratic approach to a more social one. A change which is usually mentioned as a shift from flood defence to flood risk management (Newman et al., 2011).

More and more scientists and experts highlight that collaborative planning needs to integrate flood risk management and urban planning. *“The integration of flood risk management and urban planning is in an early phase of its transition from ‘fighting against water’ to ‘living with water’ (Rijke et al, 2008; Newman et al, 2011) and needs innovative demonstration projects and the creation of networks to influence policy processes and change to regime (van Herk et al., 2010)”* (van Herk et al, 2011).

To achieve this there is a need for changing the practices in culture of engineers, professionals, key stakeholders and decision makers, while active learning through establishment of Learning and Action Alliances (LAAs) seems to be the most appropriate way to help different stakeholders (individuals or organizations) with different perspectives on risk to break their traditional approach and be part of an interactive social learning procedure (Ashley et al., 2011), which will support their performance and adaptation on future risks at local or national level.

### 2.1 Learning and Action Alliances

Learning and Action Alliances (LAAs) are a main corner stone of PEARL as a bridge between science, politics and key stakeholders to gain insights into local decision making processes, to communicate the constraints, needs and goals of single stakeholder and to reach finally a surrounding that guarantees decisions that are built on a broad discussion on flood management and relative risks in coastal zones.

Therefore this chapter will give a short overview of how other projects included LAAs as an interactive tool and decision making basis in the sequence of the research. After an introduction and some insights in the theoretical background of the concept the chapter will concentrate on the setup and functioning of LAAs as well as on chances and challenges that are described in the literature.

#### 2.1.1 Definition and Introduction of LAA

Decision makers all over the world have to deal with more and more complex challenges which are often referred to as *wicked problems* in the literature. Ashley et al. (2009) state (referring to Lach et al., 2005) that “Wicked problems such as those related to urban water, always occur in a social context; the wickedness of the problem also reflects the diversity of those involved in the issue”. But most decision making processes still exclude people or organisations who are legally not or just indirectly involved in both the process and the decision itself.

Taking this into account and open the discussion and decision making process to all entities that are concerned (social context) is the target of setting up LAAs.

*“[...] The organization of a LAA should enable the development, exchange and application of knowledge”* (Van Herk et al. 2011). With this statement the authors summarize the envisioned result of the work a group of stakeholders coming together under the umbrella of a LAA carries out. Batchelor and Butterworth (2008) define a *Learning Alliance* (LA) as **“a group of individuals or organisations with a shared interest in innovation and the scaling-up of innovation in a topic of mutual interest”**. Newman et al (2011) add *Action* as a second core topic to stress that an alliance like this is not just aiming at social learning but also at enabling the group and its members to take targeted action (Van Herk et al., 2011). The group itself consists of *stakeholders* who can be considered as *“[...] anyone with an interest in a particular decision. This interest can stem from the potential to influence the decision, and/or from the potential to be influenced by the decision. Stakeholders can act as individuals or as representatives of a larger group.”* (Gardner et al., 2009<sup>2</sup>).

### 2.1.2 Setup and functioning of LAAs

LAAs are built on the three *types of knowledge* as summarized by Van Buuren (2006)<sup>3</sup> (adopted to the LAA approach by Van Herk et al., 2011) and on *social learning* as a knowledge building process<sup>4</sup> (Van Herk et al., 2011 based on Tuinstra, 2008). Following these LAAs are constructed to cover two stream lines. The first builds on the above mentioned knowledge building and aims at (I) generating and exchanging factual knowledge (*fact*), (II) identify images (*image*) and (III) bringing stakeholders together voluntarily and in a way that they can freely discuss interests and views (*ambitions*). The second is more results-oriented and aims as (I) analysing and addressing problems, (II) developing and proposing solutions and (III) influence politics by seeking political commitment or bringing participants together (all based on Van Herk et al., 2011)<sup>5</sup>. Against this background LAAs are set-up in a four-stage model. Referring to Ashley and Blanksby (2009), Ashley et al. (2012), and Dudley et al. (2013) present a practical guidance for the design and running of a LAA (see Figure 1)<sup>6</sup>.

The authors describe an initial phase in which a “group of interested parties” is formed. After this first step a loop is entered which leads from “searching and scoping” and “creating a shared vision” via “implementation” to “capturing”. The last step then feeds back into the “scaling and scoping” process. Here the “stakeholder identification” (or analysis) is key because it sets the frame for all further activities in the LAA and makes sure that no potential individual or group is left aside in the forming process. All further activities follow the approach that has been presented in the theory section. The concrete steps and actions for LAAs have to be designed against the background of the respective project or problem.

<sup>2</sup> There are several definitions for the term „stakeholder“ in use. In this case the authors will keep the mentioned one to not narrow the following discussion in the project.

<sup>3</sup> (I) explicit, factual and impersonal, (II) socially constructed, normatively loaded reality definitions and images, (III) experience-based competencies and skills

<sup>4</sup> (I) single loop learning, (II) double-loop learning, (III) deutero-learning

<sup>5</sup> A closer description will be provided in chapter 3.

<sup>6</sup> Similar approaches were taken for various project:

Baltcica <http://www.baltcica.org/>

MARE <http://www.mare-project.eu/>

SAWA <http://www.sawa-project.eu/>

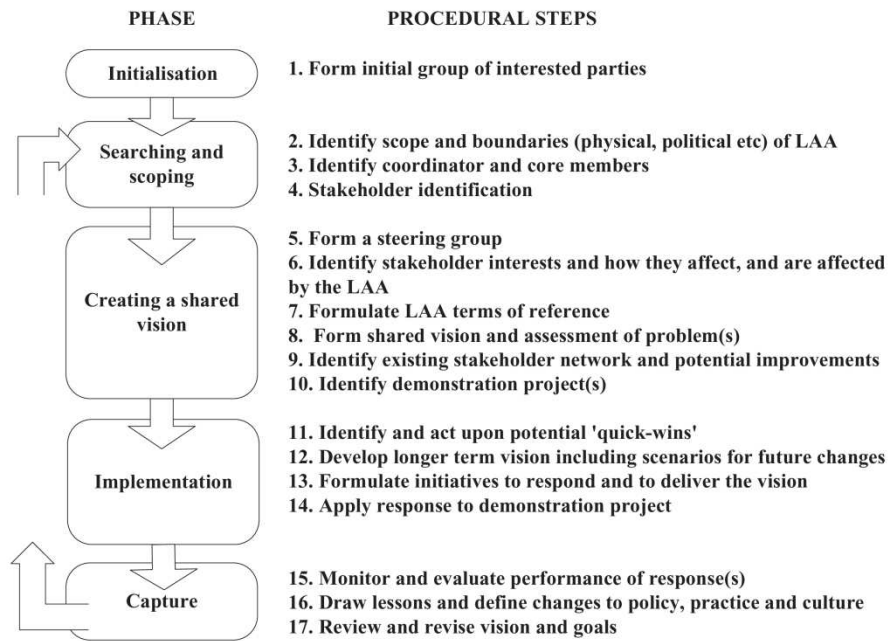


Figure 1: Establishing and running Learning and Action Alliances (Ashley et al., 2012)

## 2.2 Chances and Challenges

“The process of social learning (Lave and Wenger 1991; Scholz and Stieftel 2005) enhances resilience by providing access to knowledge (Ostrom 2010; Pahl-Wostl 2009) and platforms for coordination, negotiation and knowledge sharing (Thomalla and Larsen 2010) [...]” (Djalante et al., 2013). Considering LAAs as a chance to initialize an exchange process among stakeholders and to enhance social learning in relation to a specific topic they open the chance to build new capacities in planning, management and decision-making.

But setting-up such an alliance one has to keep in mind the possible constraints stakeholders may have, problems that can occur and legal issues that might hinder the whole process. Finding facts that can be commonly acknowledged is e.g. a problem that can come up bringing together people and institutions from different professions and with different goals. Furthermore the *ambitions* or envisioned *solutions* can differ very much from stakeholder to stakeholder – here a strong core group is needed that sets the main topics of the group and advocates for these during the discussion processes. An additional problem can be to find common scales and scopes the alliance should concentrate on.

The problems listed above are just some of those that can hinder the process of setting up a LAA, or running it, single groups have to analyse the most important problems that could occur before starting the LAA to make ensure the success of the exercise. But even then a constant monitoring is needed to make sure that the alliance really works goal oriented.

Specific chances and challenges for the PEARL project are described in the following. Chapter 2.3 will give an overview of both stakeholder analysis and LAAs in theory in praxis and provide some guidance on the methodological framework of the PEARL LAAs as well as on the overall organisation of the LAAs on the ground.

## 2.3 From theory to praxis

### 2.3.1 Stakeholder Analysis

As mentioned in chapter 2.1.1 stakeholders can be considered as “[...] anyone with an interest in a particular decision. This interest can stem from the potential to influence the decision, and/or from the potential to be influenced by the decision. Stakeholders can act as individuals or as representatives of a larger group.” (Gardner et al., 2009). Thus stakeholder analysis is a process which results in the identification of all individuals and organizations that share this interest. Reed et al. (2009) define a stakeholder analysis in other words as “[...] a process that: i) defines aspects of a social and natural phenomenon affected by a decision or action; ii) identifies individuals, groups and organisations who are affected by or can affect those parts of the phenomenon (this may include non-human and non-living entities and future generations); and iii) prioritises these individuals and groups for involvement in the decision-making process”. Beside the aspect of the non-living environment this definition can be adopted for PEARL<sup>7</sup>.

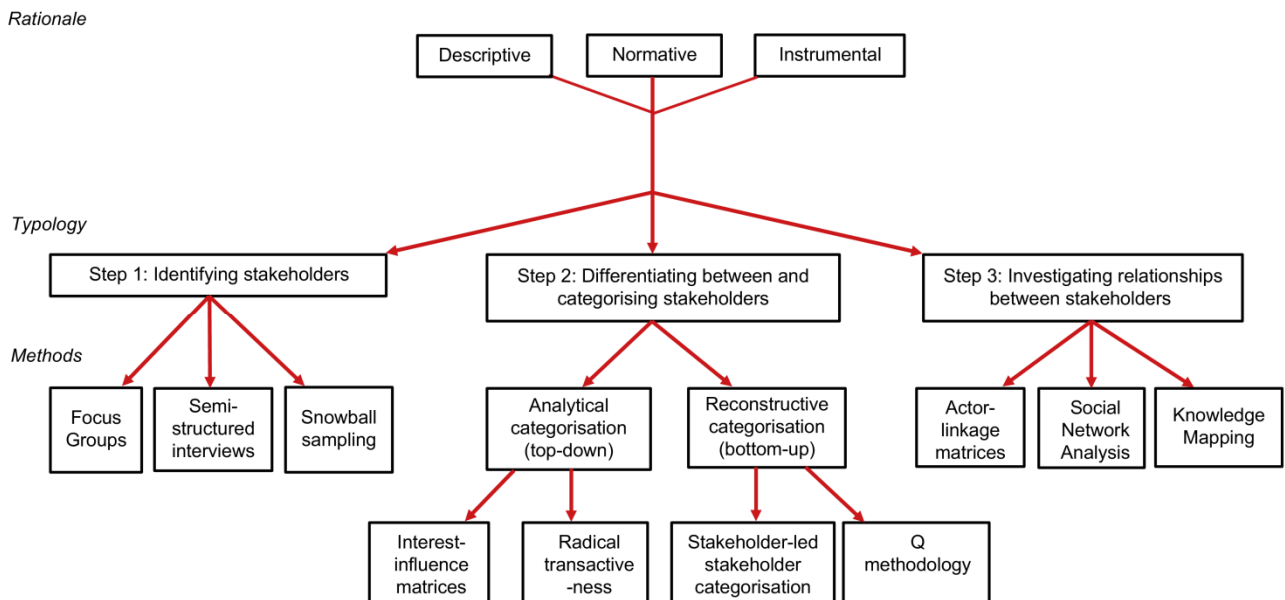


Figure 2: Schematic representation of rationale, typology and methods for stakeholder analysis. (Reed et al., 2009)

Figure 2 displays three main elements of a stakeholder analysis process (Reed et al., 2009). (1) Rationale: It has to be differentiated if the aims are of descriptive, normative, or instrumental nature. In the context of LAAs mostly normative approaches will be applied that may cover instrumental aspects depending on the decision-making results coming out of the LAA. (2) The typology points out which aspects of the stakeholder setting are to be analysed. Here the stakeholder themselves can be identified, the groups of stakeholder can be classified and the relationship between the stakeholders can be investigated. (3) The methods section proposes some approaches that can be applied to carry out the duties that are identified in the typology section. Several of these methods need to be deepened by the application of other methods.

<sup>7</sup> PEARL will focus on action-oriented, political processes and will leave these aspects aside.

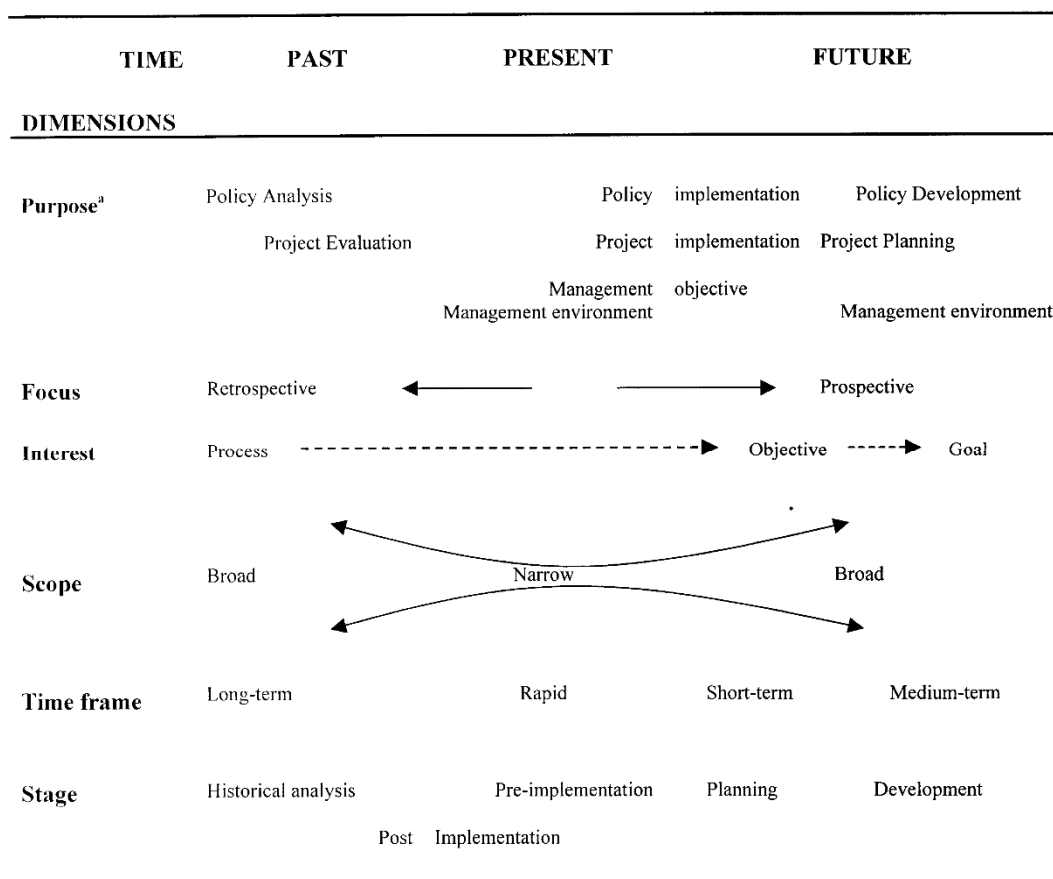


Figure 3: Time focus of a stakeholder analysis (past, present or future) by key dimensions to be considered in conducting the analysis. (Varvasovszky and Brugha 2000)

As shown in Figure 3 the researcher has to decide upon several issues that influence the stakeholder analysis in connection with the focus of the research (past, present and future). This includes: The purpose, focus, interest, scope, time frame and stage of the exercise. Varvasovszky and Brugha (2000) propose some aspects to determine such a focus.

For PEARL the stakeholder analysis will concentrate mainly<sup>8</sup> on the present situation with a strong implication for the future<sup>9</sup>. In the next steps the researcher has to define the context of the study on the one hand side and the level which it will target on the other hand side (Varvasovszky and Brugha, 2000). This decision is depending on the aim of the study and the extent of the study area (scoping and scaling).

Hereby the researcher has to keep open for influences / ideas group members or other sources may bring in over time. Thus the scope or scale of the LAA can change over time (e.g. by new aspects brought in by group members) and consequently the analysis itself has to adapt to the new situation.

Having clarified the scale and scope of the stakeholder analysis an initial step is to list all known / legally involved / responsible stakeholders in connection with the respective topic / problem.

<sup>8</sup> Here the strong inter-connection between WPs 1 and 5 come into play. Focusing in this case on the set-up of LAAs WP1 is highly interested in insights in decision making processes before, during and after events. Drawing back on the LAAs WP5 set up, WP1 will carry out its research taking a past, present and future perspective.

<sup>9</sup> Turn to "instrumental" stakeholder engagement, mentioned above.

Hereby “a mixed team of insiders and outsiders provides the opportunity for outsiders to draw on the contextual insights of insiders and for insiders to gain insights into how their assumption may be biasing the analysis” (Varavsovszky and Brugha, 2000). To get a profound overview of the stakeholders involved *snowball techniques* (Bernard 2000:179) are appropriate methods that can moreover be used to initiate first analysis<sup>10</sup>. As following steps Varavsovszky and Brugha (2000) propose a mapping of stakeholder characteristics (interest in issue, influence/power, position, impact of issue on actor), a prediction of the change in stakeholder position (e.g. by a forcefield matrix) and a categorization of the identified stakeholders according to their organizational position. All three methods can help to understand the group of stakeholders and to organize the envisioned LAA. The tangible method being used in each study is highly dependent on the scale and scope of the study, the foreknowledge of the researcher team and the situation on the ground. As shown in Figure 2 there are several more methods that can be applied. A short compilation of possible methods for PEARL can be found in chapter 3.1.

### 2.3.2 Learning and Action Alliances in theory and praxis

The traditional approach in terms of knowledge production has been linear, or so called “mode one” type of knowledge production (Lundy et al., 2008 referring to Gibbons et al, 1994 analysis). Under this analysis, knowledge is produced by researchers or experts and transferred to those who need it, in order to innovate or change, by ignoring several aspects like social and institutional learning, capacity development, dynamics of multiple sources of knowledge (Lundy et al., 2008 referring to Hall et al, 2004a). Lundy et al., based on experience from the Rural Agroenterprise Development Project of the International Center for Tropical Agriculture (CIAT), argue on the reasons that the above mentioned linear approach in knowledge development fails to deal with complex issues, and although this process has proved successful in several cases it seems unsuitable to give solutions to events, risks or problems that occur in a rapidly changing complex environment. The number one reason of failure seems to be that knowledge is generated by experts or researchers without the involvement of stakeholders who need it or will use it. Verhagen, Butterworth and Morris (2008) also point out the switch from linear knowledge production to incorporation of stakeholders’ and local actors’ knowledge to research development.

#### Co-Production of knowledge

Under this analysis, the Learning Alliances approach comes to act as a “mode two” type of knowledge production based on “[...] *the interaction of multiple actors with multi-layered sources of knowledge to cope with the complexity of fostering continuous technological, social and institutional innovations to respond to rapidly changing contexts and demands*” (Lundy et al., 2008 referring to Gibbons et al, 1994). Verhagen, Butterworth and Morris (2008), further argue on the necessity of this different approach in order to improve the impact of research and development, urge innovation and achieve an impact at scale. A greater emphasis on the rapidly changing socio-economic, political and environmental contexts is given and the importance of diversity of key actors and organizations in effecting an innovatory environment and facilitating the scaling-up is recognized. “[...] *Scaling up in this context is understood to refer to long-term sustainability (scaling up in time) and 100% coverage (scaling up in space)*” (Verhagen, Butterworth and Morris, 2008).

---

<sup>10</sup> Depending on the sampling size the researcher can e.g. draw on the results of the snowball analysis to analyze the interconnections between different stakeholders.

The emerging concept of LAAs is utilized under several research and development projects the last years (SWITCH, MARE, SAWA – see also above) and seems that “[...] LAAs are becoming a very popular vehicle in delivering innovation as they provide new forms of partnerships and they recognize that the challenges faced today require a change in thinking and working” (Dudley et al., 2013). Analysis of procedures, methodology and results from the several cases (Germany, Netherlands, UK, Norway and Sweden, SAWA and MARE projects’ cases), where LAAs were established in order to deal with flood risk or Integrated Water Management, proved that actually there is no single and ideal model or form of such an initiative (Ashley et al., 2011).

Each LAA itself constitutes a dynamic organization and its evolution depends on the participants’ perspectives, the local conditions, the aims and objectives that the LAA will set, the available funds and finally the rewards that participants will gain. Most individuals who participate in LAAs commit their time and skills on voluntary basis without having any direct benefits for themselves. Consequently their commitment should be clearly rewarded in terms of knowledge and innovation (Dudley et al., 2013).

After all “the main output of any Learning and Action Alliance is knowledge [...]” (van Herk et al., 2011, referring to Wenger, 2000) and how this knowledge can be successfully applied in complex decision making procedures such as integrated planning (van Herk et al., referring to Lindblom and Cohen, 1979). Finally how this knowledge needs to be incorporated in land use and urban development decisions, as a basis for developing flood resilient cities (van Herk et al., referring to White, 2008).



## 3 PEARL Learning and Action Alliances

Main objective of a PEARL Learning and Action Alliances is to establish a participatory process among all involved decision makers related to flood management integration in urban planning. The decision making process in urban planning is multi objective and complex and therefore needs “[...] *decision makers who are capable to accommodate uncertain futures*” (van Herk et al., 2011). At the same time there is not such a case of a single stakeholder that has the absolute control over an urban or spatial development plan (van Herk et al., 2011 referring to Sellers, 2002). Interactive decision making with increased and wide stakeholders involvement is required in order to achieve consensual decisions (Ashley et al., 2009; van Herk et al., 2011). Dudley et al. (2013) state as crucial elements in order to understand LAAs the “[...] *‘power’ and who has it*”. The case study of City of Dordrecht in MARE project evidenced this. The LAA in this case operated outside the standard decision making structure and allowed innovation and knowledge delivery into the formal procedures resulting in innovatory designs for the area (van Herk et al., 2011a).

### 3.1 PEARL LAAs Methodological framework

Taking the project’s spatial and problem context into account the definition of PEARL LAAs can be kept rather open:

**“A PEARL Learning and Action Alliance is a convention of individuals and/or organisations who are involved in or effected by decision making processes and their outcome in the context of coastal risk and/or disaster management, risk related spatial planning or any other political and economic decisions that could alter the group members situation or capacities before, during or after and extreme event.”**

PEARL’s LAAs establishment will be based on the methodology suggested by van Herk et al., 2011. According to this approach, the organizing of LAAs is built around *three groups of interactive activities* that contribute to collaborative planning via *three threads* and *three streams*. Here we cite the analysis of the interaction among these threads and streams in generation and application of knowledge and innovation.

#### a. Threads.

Van Herk et al., 2011 (based on the study of Van Buuren 2006 on the role of knowledge in decision making for urban planning) analyses ***three important interrelated threads*** when coming to organize an LAA.

- i. **To establish facts.** This thread generates knowledge that: is coherent and not contradictory, has a proven quality and serves to reduce uncertainty and has been established without unacceptable influence from the wishes and opinions of the parties involved;
- ii. **To create images.** This thread supports *frame reflection* in which parties identify their view of reality and discuss it, look for images or meanings that they share, and create renewed and more creative images as a result of the interaction;
- iii. **To set ambitions.** This thread supports the negotiations on aspirations of the parties towards implementation.



### **b. Streams.**

It is already mentioned that effective functioning of a LAA requires the understanding of complex decision making processes related to urban development and planning. Van Herk et al. (2011) propose Kingdon's stream model (1984), who defines decision making as the interconnection of three concurrent streams of problems, policies/solutions and politics or participants. Following this approach an LAA is to be organized in order to:

- i. Analyse and address problems;***
- ii. Develop and propose solutions; and***
- iii. Influence politics by seeking political commitment or bringing participants together***

### **c. Activities.**

A PEARL LAA is to be established in order to generate and apply knowledge and contribute to integration of flood management in urban planning via the above threads and streams. According to van Herk et al., 2011 a LAA can be effectively organised around three groups of activities that will contribute to threads and streams.

- i. System analysis***
- ii. Collaborative design***
- iii. Governance***

The methodological framework of van Herk et al. (2011) is summarised in the diagram below (Figure 4), which presents the inter-linkages among threads, streams and activities.

## **3.2 Organising PEARL Learning and Action Alliances**

Following the analysis of MARE and SAWA projects' outcomes (see also footnote 6) Dudley et al. (2013) identify that although all LAAs are unique and different from each other, they all have a three stages life cycle: *a. establishment, b. functioning and c. sustainability.*

In each of these stages the formal decision making processes play a crucial role and defines how effective will an LAA will be in terms of innovation and change.

### **a. Establishment**

This initial stage refers to the LAAs setting up. In PEARL an initial group needs to be formed by the case study partners in order to push the LAAs start up. This group will need to proceed to a thorough stakeholder's analysis in order to identify the key decision makers and organisations that are involved in flood management and urban planning in the examined case study areas. The individuals or / and organizations that are capable and interested at the same time in participating in an alliance must be identified and approached.

Once the participants will be defined each LAA will start setting its own establishment procedure by designating the challenges and interests, the structural function and legitimacy of the alliance, levels of participants' time and skills commitment, goals in terms of innovation and influence of the standard decision making procedures, and timetable of activities.

At this stage a clear common vision in terms of understanding the problem and acting towards the emergence of potential solutions and innovation, is essential to be created (Ashley et al., 2011), so the participants will be able to commit themselves in a specific goal. In terms of available sources and budgets related to PEARL project the alliances will be formed through:

- **Workshops** that will be held in the selected case study areas;
- **Targeted interviews** with key decision makers and organizations affecting or affected by decisions;
- **questionnaires**; and
- **Project's web based learning and planning platform.** This platform will be developed in a way that stakeholders will be able to interact, investigate/visualise their impacts under different scenarios for each case area. What if questions and visualization of effects will support stakeholders so they will be able to experiment in a safe environment

In some cases it was difficult to find and convince individuals and organizations to participate in such Learning and Action Alliances organized workshops. Therefore, the degree of implementation of "formal" LAAs differ along the various PEARL case study sides. The underlying causes for this circumstances will be addressed in chapter 4.

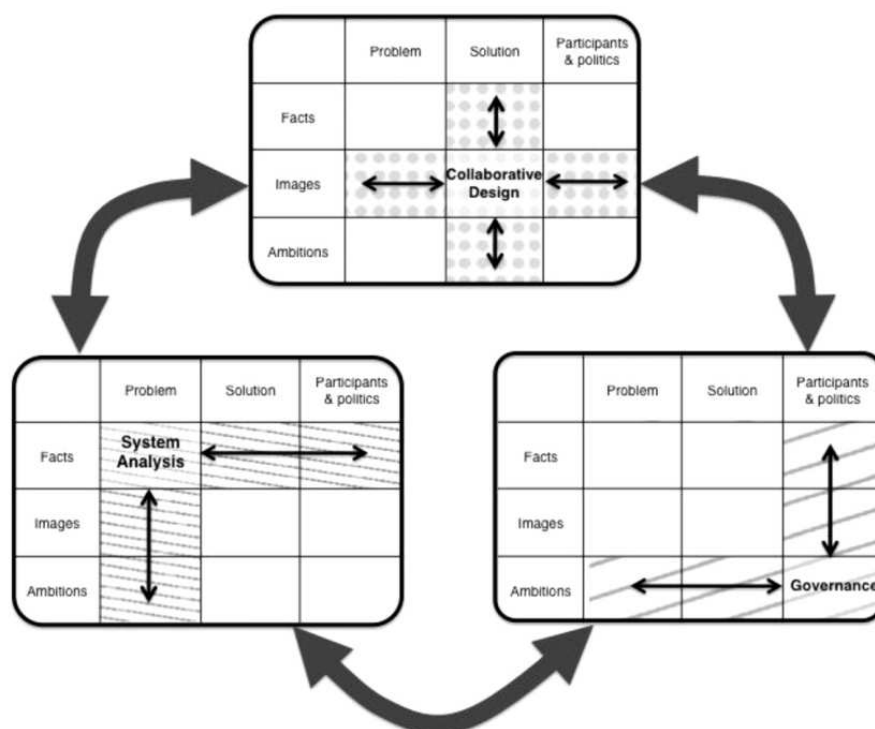


Figure 4: Interactive LAA activities contributing to collaborative planning via 3 threads (facts, images, ambitions) and 3 streams (problem, solution, participants and politics). (VAN HERK et al., 2011:547)

## **b. Functioning**

Once the LAAs are established clear roles need to be defined within the alliance. Limited time of participants is usually a problem since their avocation and commitment is on voluntary basis. To this point allocation of roles and tasks help to support an effective function of the alliance. Experience from MARE and SAWA has shown that each LAA need to include *leaders, facilitators and champions* (Dudley et al., 2013). Leaders are the ones who will inspire and motivate participants to learn and act in order to deliver the alliance's visions. Facilitators ensure that tasks and activities of the alliance is in a well function mode (meetings and activities are implemented on time). Finally champions are all the members of the LAA and they try to deliver the alliance's vision and innovation message to the wider world (Dudley et al., 2013 referring to van Herk et al., 2011 b).

In addition to the clear roles' allocation there are some key principles or primary characteristics as named that ensure the successful functioning of a LAA: delivering on the visions on terms of legitimacy, mutual respect and trust (Dudley et al., 2013). Since participants have different backgrounds and represent different organizations, they need to share their knowledge and experience in a free way, out of entrenched positions and negotiation mood (van Herk et al., 2011 referring to Pahl –Wostl et al., 2007). Personal and organizational barriers and conflicts (usually derived by the standardised decision making procedure) need to be overcome in order the participants will be enabled to really listen to the others, present their personal opinion and be open to produce new knowledge and finally innovation (Dudley et al., 2013 referring to SAWA Wandse alliance).

## **c. Sustainability**

The sustainability stage substantially refers to the continuation of the LAA function after the end of the project's life. So far the established LAAs were initiatives taken under the framework of a specific project (MARE, SAWA, etc.). These LAAs functioned in a more or less successful way during the project's life-cycle but when this was over the alliance's sustainability was not ensured at all. *"Maintaining interest is a major requirement of continuing LAA activity [...]"* (Dudley et al., 2013). Although active learning is a very good motivation and reward at the same time for all professionals and decision makers the experience from past projects has proved that maintaining participants' interest is best achieved through a project focus (Dudley et al., 2013), so the alliance's members are committed to specific aims and objectives. The availability of funding is also crucial since it will define the future action of any alliance.

To this end the LAA itself at some point and while has ensured the successful functioning should try to find potential sources of funding in order to ensure sustainability (other research or development projects, private or governmental funds, donations, etc.). The following chapters set a reference to the practical guidelines that have been produced in WP5 and deal with the implementation of LAA in the respective case study areas.

## 4 Rethinking who is involved - Application of the stakeholder analysis and creation of LAAs in PEARL case study areas

According to the PEARL DoW “the main objective of WP5 is to develop and test the platform through which PEARL stakeholders will interact with key PEARL processes, tools, methods and frameworks” (European Commission Directorate - General for Research and Innovation 2013). The methodological framework and the definition of the PEARL Learning and Action Alliances have been introduced in the previous chapters. Additionally the guideline “PEARL Stakeholder Workshops. A practical framework for partners” (Blätgen and Gourgoura, 2014) provides practical information. The complete internal document can be found in Annex II. It includes an outline on how to implement stakeholder workshops in the PEARL case study areas.

Figure 5 shows the four main parts of PEARL task 5.1 (Rethinking who is involved). After analysing the key stakeholders and the establishment of an initial LAA, the stakeholders ought to deal with the three interrelated threads (*establish facts, create images, set ambitions*) as defined by Herk et al. (2011). The aim of the task is to create a long term vision among all participants and define acceptable levels of risk with the aid of scenarios. Concerning the engagement of stakeholders the “Rethinking who is involved”-process is designed to be ‘*horizontally interactive*’ as well as ‘*vertically institutional*’.

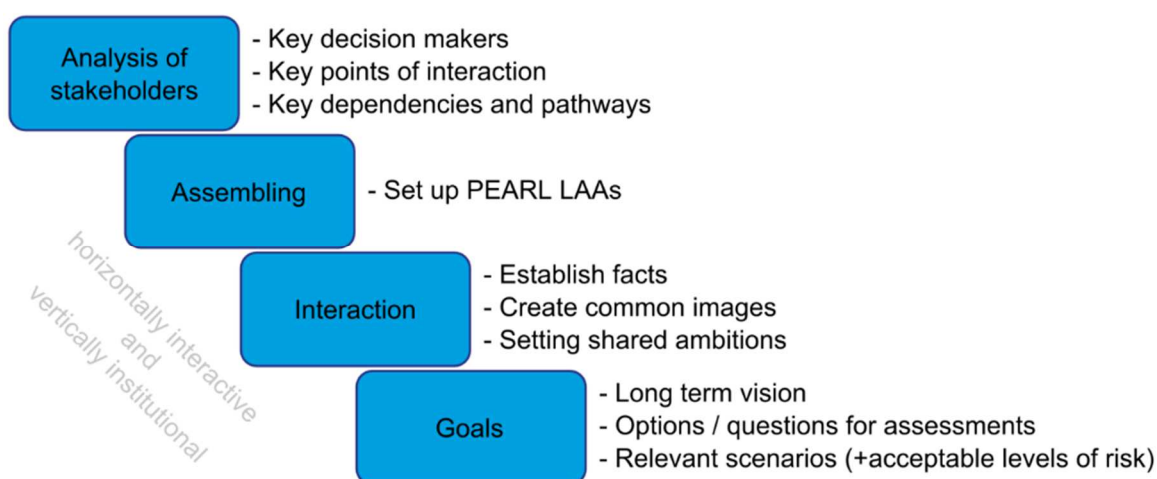


Figure 5 PEARL task 5.1 “Rethinking who is involved” Identification of main steps. (Blätgen and Gourgoura 2014)

Each case study area is unique regarding their circumstances and background. Every workshop leader has to take local conditions and individual challenges or conflicts into account. Hence there are no stringent instructions to follow and the content of the workshop has to be adjusted for the respective case study area. In view of the above, the gathered information can be utilized as feedback for the PEARL Risk and Root Cause Assessment (RRCA) of WP1. Moreover the results of PEARL’s WP5 and WP1 will also pass on to WP3.

This chapter introduces the current status of stakeholder analysis and the establishment procedure of LAAs with a summary of the respective workshop reports provided by the particular case study partners. Additional material from the individual workshops, which is available for Marbella and Rethymno case study area, is incorporated into Annex I. The particular case study partners are responsible for the description of LAAs in their case study area.

## 4.1 GERMANY, The Elbe Estuary (Hamburg)- TUHH

### 4.1.1 Initial Stakeholders analysis

The Elbe Estuary is a complex physical but also a socio technical system, which crosses administrative borders at the state and local level and involve a range of stakeholders. The key stakeholders in the Elbe Estuary can be grouped into the following categories:

- Administration
- Politics
- Associations and NGOs
- Private stakeholders and their (informal) representatives (e.g. public action groups)
- Research
- Public and media

Also the Elbe estuary system contains a number of tributaries that are dependent on the dynamics in the river Elbe and as such have to be considered for the overall planning.

The main stakeholders of the Elbe estuary broken down in the three main levels (federal, state, local) and following the main categories as given above can be summarized as:

#### a) The Agency for Roads, Bridges and Waterways (Landesbetrieb Straße, Brücken und Gewässer -LSBG)

Category: Administration

Level: State/City level (Note: Hamburg is one of the 16 federal states of Germany)

LSBG is an agency that is directly assigned to the Ministry of Development and Environment (BSU) of the City of Hamburg and is responsible for the planning, construction and maintenance of technical infrastructure. In particular the fields of responsibility are related to planning, design, construction, maintenance and operation of the following technical infrastructure elements:

- Coastal and inland flood protection
- Urban watercourses (excluding the federal waterways)
- Hydraulic structures (e.g. bridges, weirs, pumping stations)

The flood management of the River Elbe in Hamburg belongs to the coastal protection as it is located in the estuarine section of the Elbe river.

#### b) Ministry of Interior Affairs- Hamburg

Category: Administration

Level: State - The City of Hamburg

The Ministry of Interior Affairs - Hamburg is responsible for public security. It also implies the activities related to the disaster management including the flood and storm surge disaster on the Elbe river.

**c) Hamburg Port Authority (HPA)**

Category: Administration

Level: State - The City of Hamburg

The HPA is responsible for the harbour management of the City of Hamburg including all associated administrative affairs. It implies the strategic development and operation of the port facilities as well as the operation and maintenance of the port infrastructure. It is the authority to be contacted for all questions regarding the shipping traffic on the River Elbe, real estate in the harbour area and the water and inland facilities within the port of Hamburg.

Together with the BSU and LSBG, the HPA is responsible for the public flood and storm surge protection in the port of Hamburg. It develops the prevention strategies, as well as the early warning systems that is coordinated with the Hamburg storm surge warning service and port unit

Flood protection infrastructure in the Hamburg port encompasses the technical elements such as pumping stations, dikes and walls but also operation of ice breakers, in order to keep the water level under the critical level.

**d) Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH)**

Category: Administration

Level: State - Schleswig Holstein

The LKN-SH is the executive body of the Ministry for Agriculture, Environment and Rural Areas of the federal state Schleswig Holstein (MLUR).

The LKN-SH is responsible for monitoring, planning and approval of the coastal infrastructure, unless the responsibility is directly assigned to the Ministry. Further, LKN-SH is in charge of the construction and maintenance of the flood protection infrastructure (e.g. dikes) and the associated structures at the state or regional level. It can also take over the assessment and feasibility and economic viability of the planned coastal protection related projects.

**e) Federal Maritime and Hydrographic Agency (BSH)**

Category: Administration

Level: Federal

The BSH is a higher federal authority that supports maritime shipping and the maritime industry, promotes sustainable use of the oceans, ensures the continuity of measurements, provide competent information about the status of the North and Baltic Seas. One of the main tasks of the BSH is the provision of warning services (water level forecasts and tide predictions, storm surge warning service, ice service). It provides latest updated water level forecasts, storm surge warnings, tidal predictions as well as the information about sea states, which is an input data for the modelling of the Elbe estuary.

**f) Federal Waterways Engineering and Research Institute (BAW)**

Category: Administration and Research

Level: Federal

The Federal Waterways Engineering and Research Institute (BAW) is a higher federal authority within the area of responsibility of the Federal Ministry of Transport and Digital Infrastructure (BMVI). The BAW develops projects related to structural, geotechnical and hydraulic engineering. The Hydraulic Engineering Departments carry out project-related studies for Germany's inland and coastal waterways. The results consist of impact forecasts and basic decision-making documents for planning both maintenance and upgrading work (e.g. river engineering concepts, hydraulically optimized waterways structures, fairway dimensions) and also for efficient operation of the natural and manmade waterways.

**g) Waterways and Shipping Office-Hamburg (WSA)**

Category: Administration and Research

Level: City/State level - Hamburg

The WSA - Hamburg is one of 39 Offices in Germany and is responsible for the section of the Elbe river from the port of Hamburg to St. Margarethe close to Brunsbüttel (the whole section is located in the estuarine part of the River Elbe and as such, in the PEARL study area). The WSA- Hamburg is inter alia responsible for the maintenance of the federal waterway Elbe and its tributaries.

**h) German Association for the Protection of Nature (NABU)**

Category: NGO and associations

Level: Federal/Local

The NABU exercises a non-party political engagement with the focus on the improvement of the nature and the habitats, including the water ecosystems. It is involved in the affairs of the local administration that are related to the nature protection

**i) Friends of the Earth - Germany (BUND)**

Category: NGO and associations

Level: International/Federal/Local

The BUND is an NGO with the main focus on the nature protection and promotion of the ecologically friendly solutions and services (e.g. renewable energy). It also emphasizes the importance of the protection of ecologically valuable areas and landscapes as well as the environmentally friendly agriculture and forestry including the ones in the Elbe catchment.

**j) World Wide Fund for Nature (WWF)**

Category: NGO and associations

Level: International/Federal/Local

The WWF is one of the largest international nature protection organizations. It is focusing the problems related to the nature conservation and environmentally friendly solutions for services and solutions.

**k) Dike Associations**

Category: NGO and associations

Level: Local

The Dike Associations are water associations with a special task of river or coastal protection. They are responsible for the maintenance and renewal of the dikes in their area. An example is the Artlenburger Deichverband, which is responsible for the Elbe section in the estuarine area.

**l) Public action groups and initiatives:**

Category: Private stakeholders and their informal representatives

Level: Local

Along the Elbe estuary and its tributaries, there is a number of the public actions groups and initiatives, whose main missions range from the rather general ones such as the protection of the river Elbe ("Hamburg für die Elbe") to the very locally specific e.g., protecting the interests of the fruit farmers in the agricultural part of the Elbe catchment.



#### m) Political fractions represented at the local authorities

Category: Private stakeholders

Level: Local

The main and executive political bodies in the cities and municipalities in the Elbe estuary (e.g. Hamburg) and its tributaries (e.g. Buxtehude) are responsible for the final adoption of the decisions and actions in respect to the flood and coastal protection at the local level. In Hamburg, the Senate is the highest political body (currently SPD, since March 2011).

#### n) Private stakeholders

Category: Private stakeholders

Level: Local

Private stakeholders or dwellers are either the people that live along the river Elbe or its tributaries or may be affected by the planned interactions (e.g. polders). They will be selectively approached during PEARL and if applicable, considered for the LAAs.

### 4.1.2 Stakeholders actually involved in LAA procedure

In order to perform the stakeholder analysis for the holistic risk management planning in the Elbe Estuary, the four step approach has been applied and is given as summarised in Figure 6. Details of the stakeholder analysis are given in MS14 and Blaj (2015).

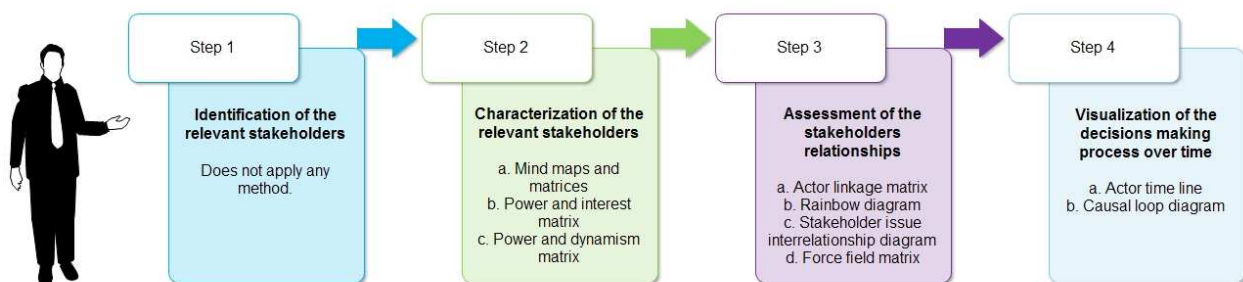


Figure 6 Steps undertaken for stakeholder analysis

Within PEARL, a reassessment of the main actors in the Elbe Estuary has been performed. As the Elbe Estuary or its parts have been addressed in a number of national and international projects (e.g. KLIMZUG-Nord and XtremRisk or FP7 Project CORFU), the first step has been to collect the information about the stakeholders and their involvement and reassess its actuality. Finally, the main stakeholders of the Elbe estuary can be summarised as:

1. The Agency for Roads, Bridges and Waterways (Landesbetrieb Straßen, Brücken und Gewässer -LSBG)
2. Ministry of Interior Affairs - Hamburg
3. Hamburg Port Authority (HPA)
4. Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH)
5. Federal Maritime and Hydrographic Agency (BSH)
6. Federal Waterways Engineering and Research Institute (BAW)
7. Waterways and Shipping Office - Hamburg (WSA)
8. German Association for the Protection of Nature (NABU)



9. Friends of the Earth- Germany (BUND)
10. World Wide Fund for Nature (WWF)
11. Dike Associations
12. Public action groups and initiatives
13. Political body represented at the local authorities
14. Private stakeholders

Out of the assessed key stakeholders, the following ones have been selected based on their influence and relevance for the flood risk management in the Elbe Estuary, existing contacts with the PEARL project team and declarative interest in the methods and tools being developed in PEARL:

1. The Agency for Roads, Bridges and Waterways
2. Ministry of Interior Affairs - Hamburg
3. Hamburg Port Authority (HPA)
4. Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH)
5. Federal Maritime and Hydrographic Agency (BSH)
6. Political body represented at the local authorities

The selected stakeholder groups form the inner PEARL stakeholder circle and will be analysed and addressed in more detail within the PEARL project.

#### 4.1.3 Methodology

The Elbe Estuary area as a PEARL case study implements the PEARL LAA methodological framework and its generic idea and concept<sup>11</sup>. However, due to specific features of the stakeholder involvement in the area, local culture and the level of the risk awareness, the overall concept has been adjusted to suit the local needs. The specific situation and features related to the Elbe Estuary study area are mainly related to the intensive engagement of the key stakeholders in the previous initiatives and participatory planning actions undertaken within several national and international projects (BMBF KLIMZUG-Nord and XtremRisk projects or FP7 Project CORFU). The experience obtained in those projects has been taken as a baseline for the LAA development within PEARL. Building up on this experience, a more tailored approach to the stakeholder involvement has been followed, in which different stakeholder groups are addressed in their specific needs and interests in regards to PEARL, rather than or prior to addressing them all together in form of open joint sessions and workshops. In that sense, the approach to be applied in the Elbe Estuary can be understood as a further refinement and development of the general LAA concept and of the previous projects.

Based on the performed stakeholder analysis and the assessed characteristics of the key stakeholders, a tailored approach to the communication and engagement of the selected groups and actors has been undertaken. It has been implemented in a form of (regular) face-to-face meetings.

All selected stakeholders have previous experience in the participatory planning actions and projects related to the climate change and flood issues in the Elbe Estuary, which as a consequence has the higher awareness of the relevance and benefits of such activities, but at the same time caused *fatigue* towards such activities.

Consequently, in this phase, the main objective has been to increase interest in PEARL and demonstrate in which way it is beneficial for their activities related to flood risk management. The individual meetings started in June 2014 and

---

<sup>11</sup> A PEARL Learning and Action Alliance is a convention of individuals and/or organisations who are involved in or effected by decision making processes and their outcome in the context of coastal risk and/or disaster management, risk related spatial planning or any other political and economic decisions that could alter the group members situation or capacities before, during or after and extreme event.] (PEARL- MS 14).

addressed the selected stakeholder groups, focusing the communication on their interests in PEARL methods and tools. The most meetings have been scheduled with the Agency for Roads, Bridges and Waterways, which is the responsible Agency for the coastal flood protection in the city of Hamburg and the Hamburg Port Authority, responsible for the coastal flood management in the port of Hamburg.

As Hamburg is the most significant urban area<sup>12</sup> in the Elbe Estuary (2<sup>nd</sup> largest city in Germany, 2 largest port in Europe), the main focus has been put on the activities in the Hamburg flood prone areas. Occasional meetings have been scheduled with the Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH). With the Federal Maritime and Hydrographic Agency (BSH), the working meetings have been scheduled as PEARL extends their work on early warning systems (MOS forecasting tool in WP4). The relevant Ministry is regularly updated on the progress within PEARL, as well as the relevant parties.

The interests of the key stakeholders and the way they of their engagement are given in the table below:

<b>Key stakeholder</b>	<b>Assessed Interest in EPARL</b>	<b>Way of engagement</b>
The Agency for Roads, Bridges and Waterways (LSBG)	Hazard and risk assessment, modelling tools developed, EWS	Regular face-to-face meetings on a monthly basis with the key representatives in the period of June 2014-June 2015 (ongoing)
Ministry of Interior Affairs- Hamburg	Evacuation model	Initial meeting in December 2015, regular meetings including the feedback sessions planned
Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH)	Hazard and risk assessment for the Schleswig-Holstein area, modelling tools developed,	Occasional personalised meetings 2014- ongoing
Hamburg Port Authority (HPA)	Hazard and Risk assessment in the port of Hamburg area, EWS	Regular face-to-face meetings with the key representatives in the period of June 2014-June 2015 (ongoing)
Federal Maritime and Hydrographic Agency (BSH)	EWS	Active involvement and exchange of experiences; support in the development of the EWS Working meetings in the period of November 2014-ongoing
Ministry of environment and spatial planning (Political body represented at the local authorities)	Final results, policy briefs	Occasional meetings planned

After the phase 2 has been finished and the motivation and interest of the key stakeholders have been generated or increased and the PEARL methods and tools developed and implemented, the key stakeholders will have an opportunity to jointly apply them and discuss the impacts of their decisions. This is planned for the period of M36-M48. Their interactions will be analysed and suggestions for improvement made. It will feed into the final roadmap document, including the feedback on the models and tools.

<sup>12</sup> Which is the focus of PEARL

#### 4.1.1 Evaluation of LAA so far

The tailored approach has achieved the necessary interest of the key stakeholders to participate in the further discussions and create the problem and tools ownership. For further activities, it will be necessary to readjust the concept in order to avoid the fatigue of stakeholder i.e. the saturation with the participatory process of the same kind. An ongoing cooperation of the stakeholder group is envisaged.

#### 4.1.2 Conclusion

The tailored approach applied in the Hamburg case study brought the necessary interest of the key stakeholders to participate and make use of the PEARL outputs (e.g. the Ministry for Interior Affairs expressed high interest in the evacuation tool). The addressed group is very well aware of the flood situation in Hamburg, therefore the most benefit of the LAAs can be achieved by involving them into the design and development of the PEARL methods and tools, creating common problem and tools ownership. In that sense, the work performed related to the LAAs crosslinks the tools and methods being developed in WP2, 3 and 4. Also, involving the key stakeholders in the development of the tools, creates a very good basis for the future collaborations.

### 4.2 FRANCE, Les Boucholeurs- UNSA

#### 4.2.1 Initial Stakeholders analysis

##### a) National Level

**Ministry of Ecology, Sustainable Development and Energy (Ministère De L'écologie, Du Développement Durable Et De L'énergie):** This Ministry is responsible for State Environmental Policy with a focus on Preservation of Biodiversity, Climate Kyoto Protocol Application, Environmental Control of industries, etc. The following sectors are covered within the ministry: (i) energy, air and climate, (ii) water and biodiversity, (iii) risk prevention, (iv) sustainable development, (v) transport, (vi) sustainable city planning and sustainable construction, (vii) marine life and (viii) ecological transition.

##### b) Basin Level

**Water agency:** Public institution of the State with administrative nature under the supervision of the Minister for the Environment. In the basin or group of basins, the water agency implements the master development and water management scheme (SDAGEs) and development plans and water management (SAGE), promoting a balanced and efficient management of water resources and aquatic environments, the drinking water supply, flood control and sustainable development activities economic. It leads, in addition, a land policy for the protection of wetlands approved by the Watershed Committee. Its resources come mainly from charging fees on withdrawals and water pollution. The water agency provides financial support for measures of common interest that contribute to the balanced management of water resources and aquatic environments, such abatement, quantitative resource management or restoration and enhancement of aquatic environments.

##### c) Regional Level

The region where the case study side is located is called Poitou-Charete.

#### **d) Departmental Level (Charete-Maritime)**

The préfet Charete-Maritime as a part of a department Poitou-Charete is responsible for establishment of document PPRI. This plan is directly controlling the urbanization of flood prone areas and therefore preventing huge flood damages. The plan is an instrument for the central government to control urbanization of flood prone areas. The measures taken by central government are focused more on traditional and preventive flood risk management.

#### **e) Intermunicipal Level (La Rochelle)**

As an inter-municipal unit within the Charete-Maritime the city of La Rochelle is in charge of Programme d'Actions de Prévention des Inondations (PAPI) or flood action plan, established in order to present result of concerted and joint discussions with all stakeholders regrading flood risk. This plan is under PPRI plan.

#### **f) Local Level (La Châtelailon-Plage)**

The mayors of the surrounding cities came together to create a public structure with subject to the protection of persons and property against the risk of coastal flooding: the SILYCAF (Syndicat du Littoral Yves-Chatellaillon Aix-Fouras). This union has a major project for the protection and defense against the risk of coastal flooding, including a specific component to common Yves and Châtelailon-Plage. The objective of SILYCAF is to organize and protect property and people against the risk of flooding and flood the entire coastline of the Bay of Yves.

The mission of SILYCAF can be divided into following directions:

- Provide technical, administrative and financial monitoring of projects
- Establishment of a protection and defense against flooding (PAPI)
- Creation of protective structures (contracting authority)
- Provide oversight and maintenance of protection works
- Keep the device operational crisis management
- Develop preventive actions.

### **4.2.2 Stakeholders actually involved in LAA procedure**

The identified stakeholders for case study area follow the bottom down approach starting from state level up to the local level. On the state level there is a Ministry of Ecology, Sustainable Development and Energy (Ministère De L'écologie, Du Développement Durable Et De L'énergie) with the responsibility for state environmental policy with a focus on preservation of biodiversity, climate Kyoto protocol application, environmental control of industries, etc. France is divided into six water basins and Water Agency is responsible for each one of them.

The French case study area belongs to Loire-Brittany water agency for the basin level. The water agencies implement the objectives and provisions of the Water Development and Management Master Plans (SDAGE - schéma directeur d'aménagement et de gestion des eaux; French management plans of the Water Framework Directive), by fostering well-balanced, efficient management of water and of the aquatic environment, the drinking water supply, flow regulation and the sustainable development of economic activities.

The next level is regional. This is under administrative division and belongs to region level, Poitou-Charentes and then departmental level Charente-Maritime. Their role is to narrowing down the activities defined under SDAGE to regional and departmental level. The préfet Charete-Maritime as a part of a department Poitou-Charete is responsible for establishment of document PPRI. This plan is directly controlling the urbanization of flood prone areas and with that it's preventing huge flood damages.

Following the path of bottom down approach the further identification of stakeholder is on inter-municipal level, under the city La Rochelle. As an inter-municipal unit within the Charente-Maritime the city is in charge of Programme d'Actions de Prévention des Inondations (PAPI) or flood action plans, established in order to present result of concerted and joint discussions with all stakeholders regarding flood risk. On the municipal level, La Châtelailon-Plage, who is responsible for the implementation of planning, can be identified as a stakeholder.

The society SILYCAF focuses on actions on municipal level. The mayors of the surrounding cities came together to create a public structure with subject to the protection of persons and property against the risk of coastal flooding: the SILYCAF (Syndicat du Littoral Yves-Chatelaillon Aix-Fouras). This union has a major impact for the protection and defence against the risk of coastal flooding, including a specific component to common Yves and Châtelailon-Plage.

### 4.2.3 Methodology

In line with the envisaged establishment of the LAA framework and methodology, the actions tied to the French case study are conducted by organizing a meeting with local stakeholders in the Châtelailon-Plage. The respective meeting was held on Friday 24<sup>th</sup> April 2015 in Châtelailon-Plage.

The stakeholders that participated the meeting were: The mayor of Châtelailon-Plage, director of city services, director of technical services, deputy mayor and officer of the sea and coast area, representative of SILYCAF union (Syndicat du Littoral Yves-Chatelaillon Aix-Fouras) and members of ARTELIA project team.

The presentation during the meeting focused on the introduction of the PEARL project, discussions and issues related to existing PAPI plan (Les programmes d'actions de prévention contre les inondations). PAPI includes a program and actions for flood protection.

Regarding the establishment of a self-reliant Learning and Action Alliance for the French case study based on the PEARL objectives, case study objectives, especially social, political, institutional and environmental conditions **the following targets are set:**

- Preserving established connections among stakeholders on the local level
- Set up the existing questionnaire for the stakeholders
- Adapt FRI matrix to correspond to Xynthia event
- Agreement on data transfer related to Xynthia event

When speaking about stakeholder involvement the actions are and will be done on the local level. **The situation after Xynthia event is highly sensitive in legal and social way.** This is creating an obstacle for collaboration but for now the LAA has conducted exchange of data and opinions on local level. Therefore, the application of existing and methods that will be developed focuses on local level (just on case study area addressed).

The actions done in French case study by now correspond to the first three phases presented in the description of the LAA framework. That means that initial group of interested parties is set and stakeholders are identified. Also, the stakeholder interests are identified. The focus is set on the willingness to participate and to receive feedback from PEARLS's research.

Further steps related to the establishment of a Learning and Action Alliance are:

- The improvement of connections among stakeholders
- Update and presentation of the results obtained from PEARLS's research and outcomes
- Schedule an upcoming project meeting for June 2016 with the aim of stakeholder involvement on the municipal level to take active part in participation and discussion

#### **4.2.1 Evaluation of LAA so far**

The LAA is not fully applicable for the French case study. The reasons for this limitations are quite complex and relate to political and social restraints. Various stakeholders are either not willing or are not allowed to participate in a Learning and Action Alliance. For now, just the local authority is involved in the PEARL project, therefore the LAA methodology can only be partly implemented. As this is a very sensitive social thematic, the cooperation is possible, but not on the level where the official written agreement is available. In addition, the opinion exchange and dissemination of results achieved within PEARL are welcomed.

#### **4.2.2 Conclusion**

The workshops and meetings will be organized in smaller group for now. UNSA is looking forward to the next project meeting to achieve a better engagement of stakeholders. If there is a possibility and if the situation (legal and social) allows it, later during the project the LAA will be fully applied on the French case study. The sensitivity of the subject is strong among city officials but there is a possibility to engage a local organization named SILYCAF (Syndicat du Littoral Yves-Chatellaillon Aix-Fouras), the association which was created after the storm Xynthia. They were launched in order to provide protection and defense against the risk of coastal flooding, including a specific component to common Yves and Châtellaillon-Plage (they are identified as a one of stakeholders on local level). Also, there is a closed cooperation with University La Rochelle as they a part of RISC KIT project (<http://www.risckit.eu/>). In conclusion, the commitment of interest of parties is not officially feasible due to the ongoing court processes connected to Xynthia storm.

## 4.3 ITALY, Genoa- GISIG

### 4.3.1 Initial Stakeholders analysis

There are three distinct categories of stakeholders identified in Genoa, these include the national, local and private level. Figure 5 shows the organi-sociogram of the identified stakeholders.

#### a) National Level

- i) **Ministry of Environment:** The Ministry of Environment has functions relating to the environment, ecosystem, protection of marine resources, pollution, as well as the Environmental Impact Assessment, the Strategic Environmental Assessment and the Integrated Environmental Authorization. It has expertise in the field of protection of soil from desertification and in protection of the hydrogeological asset. Coordinates and oversees the functions of the Environmental Code, namely the Decree n.152, April 3, 2006, laying down Environmental Regulations, which has overtaken the former legislation.
- ii) **ISPRA (Institute for Environmental Protection and Research):** The Institute for Environmental Protection and Research, ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale), has been established by Decree no.112 of 25 June 2008, converted into Law no.133 (with amendments) on 21 August 2008. ISPRA performs, with the inherent financial resources, equipment and personnel, the duties of:
  - ex-APAT, Italian Environment Protection and Technical Services Agency (article 38 of Legislative Decree no. 300, July 30, 1999, and subsequently amended);
  - ex-INFS, National Institute for Wildlife (Law no. 157 of February 11, 1992, and subsequently amended)
  - ex-ICRAM, Central Institute for Scientific and Technological Research applied to the Sea (Decree no. 496, article 1-bis, December 4, 1993, converted into Law no. 61, Article 1, January 21, 1994, with amendments).

The Institute acts under the vigilance and policy guidance of the Italian Ministry for the Environment and the Protection of Land and Sea (Ministero dell'Ambiente e della Tutela del Territorio e del Mare).

- iii) **Italian Civil Protection Agency:** The Civil Protection Department has been grounded in the offices of the Presidency of the Council of Ministers since 1982. It has a guiding role in agreement with regional and local governments, of projects and activities for the prevention, forecast and monitoring of risks and intervention procedures that are common to the whole system. The Department coordinates the response to natural disasters, catastrophes or other events that intensity and extent and should be faced with extraordinary powers and means. Moreover (also in agreement with the regional governments and local authorities) the Department is working on the drafting of legislation, on the prevention of risks and regulatory measures needed to cope with disasters and minimize damage to people and property. It promotes drills, national and international training projects and activities that contribute to spreading the culture of civil protection.

#### b) Local Level

- i) **IREN Group (Genoa water utility):** IREN, a multi-utility company listed on the Italian Stock Exchange, operates in the sectors of electricity (production, distribution and sale), thermal energy for district heating (production and sale), gas (distribution and sale), the management of integrated water services, environmental services (collection and disposal of waste) and services for the local authorities. IREN Acqua Gas is the company dedicated to the management of public services of gas distribution and management of water services.
- ii) **Liguria Region:** The region is responsible of policies for soil protection, herein including compliance with the provisions of European Directives and of Italian laws. Moreover it is the executor of most of the reporting activity, at Italian and at EU level.



In case of events it is responsible for deliberating and funding urgent interventions in collaboration with the other administration levels, also because in most cases if events happen in small municipalities, which do not have appropriate structures (machinery, knowledge) and funds to do it autonomously.

- iii) **Genoa Province:** The province is responsible for the release and monitoring of basin plans, for the control of their implementation and related sanctioning actions. It is responsible for monitoring and control of the ordinary road network. Moreover it is responsible for authorization of any work implying realizations in concrete and a preliminary structural calculus. In case of events it is responsible for the implementations of interventions and for their validation and approval.
- iv) **Genoa Municipality:** It is responsible for the liaison with citizens and whatever concerns safety and health. The responsibility refers both to ordinary situation (authorization of works on buildings and existing structures, control of any activity having impact) and to extraordinary situations. In case of emerging events it is responsible for the decision about safety of buildings and structures, and consequently about their use by citizens (e.g. fitness for habitation), and about health of citizens (e.g. use of damaged aqueducts).
- v) **Civil Protection Agency Regione Liguria:** The Civil Protection of Regione Liguria performs the activities and pursues the objectives of the regional and national legislation. The main activities are:
  - Management of "Centro funzionale meteo idrologico di Protezione Civile della Regione Liguria (Cfmi-pc)" (Functional Centre Weather Hydrological of Civil Protection of Regione Liguria) and management of "weather alert" in forecasting and prevention.
  - Mapping of areas subject to criticality.
  - Raising public awareness on the problems of flood risks.
  - Regional system of emergency communications.
  - Educational activities in the school environment.
  - Management of Volunteers
  - Technical and administrative management of EU projects.
  - Technical and administrative management of the interventions to overcome the damage caused by natural disasters or catastrophes.
- vi) **Centro Funzionale Meteo-Idrologico di Protezione Civile della Regione Liguria (CFMI-PC):** CFMI-PC is the ARPAL (REGIONAL AGENCY FOR ENVIRONMENTAL PROTECTION - LIGURIA) structure which deals with meteorology (monitoring and forecasting of weather and marine) hydrology (assessment of the hydrological effects of rainfall on streams) and climatology (validation, storage and statistical processing of meteohydrological data observed) in Liguria.

Summary of activities:

- collects, gathers, processes, stores and validates the meteohydrological data observed in the region, through the direct management of the monitoring network of the Liguria Region (OMIRL), the direct management of the primary station receiving from geostationary satellite and the acquisition of data from outside (GTS data, radar, lightning strikes, etc.).
- manages the daily weather and hydrological modelling chain, on which they are based the forecasts and the meteohydrological valuations;
- processes the weather and marine forecasts on the Region and the hydrological assessments of the effects of heavy rainfall on the ground;
- providing operational and technical-scientific support in the context of forecasting and meteohydrological risk management to Civil Protection of Regione Liguria.



- vii) **River Basin Authority (Regione Liguria):** The reorganization of the Basin Authority, operated by the Regional Law n.58/2009, provides greater partnership of the local authorities in the assessments and decisions, in order to ensure a more effective and shared action, as well as greater efficiency in terms of time and management of the activities. It is, in fact, identified the Basin Technical Committee as a unique technical body of scientific and technical advice of the Basin Authority, composed of representatives of the Region and of the Provinces, as well as by the ministerial representatives and experts in various fields. The work of the River Basin Authority is ensured by the regional and provincial structures, identified for this purpose by the Regional Council.

c) **Private Stakeholders/Citizens**

- i) **Association "Amici di Pontecarrega":** The association was founded by the spontaneous initiative of Genoese citizens after the floods that hit Genoa in November 4th, 2011. The members act for the protection of an area with great hydrogeological risks and they struggle to avert the demolition of the historic Ponte Carrega.
- ii) **Civil Protection Volunteer Teams:** Civil Protection Volunteering Teams can be used in forecasting, prevention and rescue. In case of emergency the volunteer organizations are involved at the request of the authorities and are coordinated by them.
- iii) **Civil Protection Volunteer Teams:** Civil Protection Volunteering Teams can be used in forecasting, prevention and rescue. In case of emergency the volunteer organizations are involved at the request of the authorities and are coordinated by them.
- iv) **UNIGE (University of Genoa, Dipartimento di Ingegneria Civile, Chimica e Ambientale - DICCA):** The Department of Civil, Chemistry and Environmental Engineering (DICCA) was founded in 2012 from the union of the Department of Construction, Environment and Territory Engineering (DICAT) and the Department of Chemical and Process Engineering "GB Bonino "(DICheP). The Department is part of the Polytechnic School of the University of Genoa, in clearly defined cultural areas (the Civil Engineering and the Chemical Engineering) and united in order to improve the interventions on the Environment and Territory, in view of the definition of a single point of reference, educational and scientific.
- v) **APCOA:** is the leading operator of parking services both in Italy and in Europe. APCOA carries not only the management but also all the activities related to this: the economic and financial feasibility studies through project financing, project consulting, management and administration. In addition to the "Off Street" management (in multi-storey car parks, underground or on the surface) APCOA PARKING Italy has a lot of experience with the "On street" management.

## GENOVA STAKEHOLDERS ORGANI-SOCIOGRAM

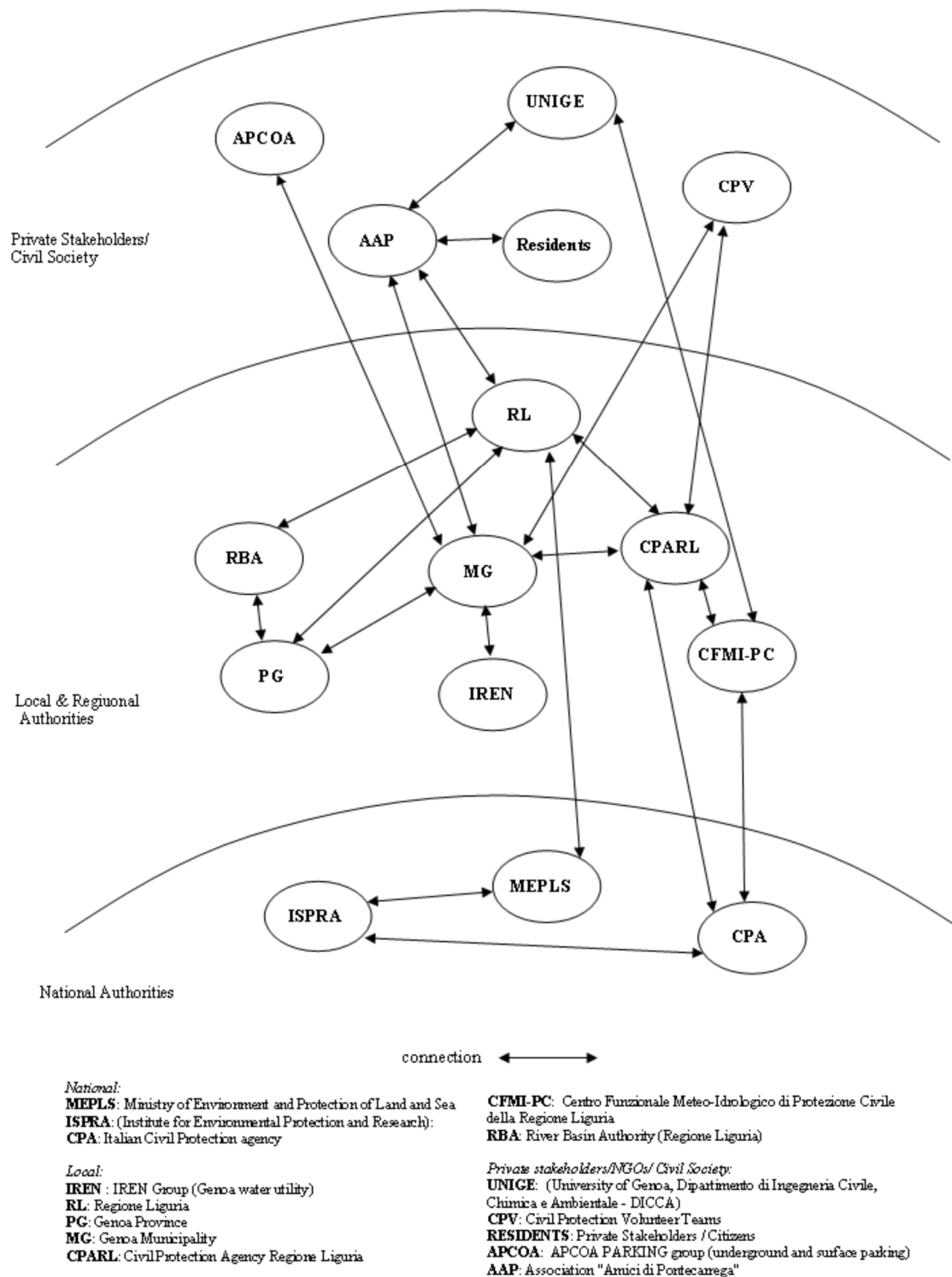


Figure 7 Genoa stakeholder organi-sociogram

### 4.3.2 Stakeholders actually involved in LAA procedure

The first official LAAs meeting for the Genoa pilot was held in July 2015. The meeting has been organized by GISIG, the resident PEARL partner responsible for the implementation of the Genoa pilot in the Bisagno basin. Local partner of RISC KIT project and Fondazione CIMA collaborated with GISIG to organize the meeting and to define the agenda, as well as points of discussion. The meeting was also seen as a clustering initiative between PEARL and RISC KIT projects, which is highly recommended by the European Commission.

Due to the fact that the Regional Government was under construction after the recent elections, by the time the workshop was held, the meeting gathered rather few stakeholders.

#### Participating stakeholders were:

- *Genoa Municipality* – Civil Protection
- *Fondazione CIMA* – RISC KIT local partner, responsible for a pilot case in Magra Basin, and operational branch of National Civil Protection.
- *IREN* – the water and gas company of the city of Genoa, in the person responsible for the management of network services in emergency situations (including floods).
- *University of Genoa* – Civil, Chemical and Environmental Engineer Department (DICCA).

### 4.3.3 Methodology

The meeting was opened by GISIG with a short presentation of the Association and its main activities and a general presentation of PEARL, the Bisagno pilot and all the related activities carried out within the project in different work packages. GISIG explained that, within the next months, different activities of elaboration of data and modelling of the Bisagno pilot will start.

Then the participants spoke about the concept of resilience and the work to be done to create a resilient community in the city of Genoa and in the areas prone to flooding events.

GISIG informs the Municipality of Genoa that the Flood Resilience Index will be applied at city level for the event of October 2014, and that in the course of September/October 2015 PEARL will start household interviews, in the framework of the vulnerability assessment task, addressed to citizens living in the flood prone areas, in order to assess their awareness about critical situations and behaviors to be kept in emergency situations. The municipality of Genoa demonstrated their interest in these PEARL activities and informed that a similar initiative is foreseen by the administration in 2016, when habitants from around 1500 critical buildings will be interviewed in order to get detailed information on criticalities (e.g. people with disabilities).

Finally, the aspect of raising awareness of populations was deeply discussed. The group agreed that the awareness raising should be supported in an early stage, especially starting in lower levels of the school. Fondazione CIMA recalled the experience of public participation carried out in the framework of RISC KIT, helped by experts in participating processes. Communication and training in the emergency field must be made at institutional level. However the Municipality of Genoa states to be unable to do so due to the lack of personnel to carry out initiatives in a capillary way. The group agreed that it would be helpful to develop professional figures, qualified and recognized by the administrations for the training and awareness raising of citizens in emergency situations. The participants ask if this activity can be done in the framework of PEARL training and dissemination tasks, or proposed as some potential follow-ups of the project.

Another meeting at the presence of the Civil Protection and the Municipality of Genoa was held in November 2015, during the launch of the household interviews and the training of the interviewers by the University of Stuttgart. In this occasion the representative from the Municipality of Genoa informed the interviewers about critical aspects of the area from social and environmental point of view. It was also an occasion to introduce the new regional warning system "with colours" which was implemented in September 2015 for the Liguria Region.

The interviewer were also provided with official leaflets by the Municipality of Genoa about the new warning system to distribute during the interviews, with the double purpose to facilitate them in getting in touch with citizens and to disseminate the new warning system into a capillary way.

Informal and conversation meetings about PEARL are regularly held with the Italian Environmental Agency (ISPRA) that is tightly connected with GISIG, due to two common projects eENVplus ([www.eenvplus.eu](http://www.eenvplus.eu)) and LIFE+IMAGINE ([www.life-imagine.eu](http://www.life-imagine.eu)). LIFE+IMAGINE, which is coordinated by GISIG and includes ISPRA as scientific partner in particular, deals with the estimation of impacts by landslides and soil consumption and with the vulnerability assessment for different exposed elements. The consortium of LIFE+IMAGINE acts for several years and the establishment of a network with PEARL would be appreciated. Preferably possible synergies and interactions between the two projects and the respective pilots can be achieved.

#### **4.3.1 Evaluation of LAA so far**

In general, the goals of the LAAs official and informal meeting organized in the Genoa pilot are:

- **To constitute a stakeholders group for the project and the pilot area**
- **To enforce the liaison with RISC KIT project**
- **To present current status of PEARL works and available results**
- **To individuate common visions and hints for new collaborations**
- **To individuate common objectives, needs and to propose future activities inside or outside PEARL**
- **To put the basis for the organization of other stakeholders workshops/meeting.**

These objectives are in line with the guidelines for establishing LAAs in the PEARL pilot site. The organization of meetings and therefore the promotion of stakeholders involvement is, moreover, done taking into consideration the hierarchical level of each involved administration and its role in the territorial management and planning.

Communication about the project is usually given by taking into consideration the stakeholder's background and the provision of information, development of an appropriate content and availability material (Powerpoint slides, information sheets). The aim is to communicate as clear as possible and to address target audience directly.

#### **4.3.2 Conclusion**

Official and informal meetings with the stakeholders of PEARL project and pilot are addressed directly to the audience involved with the aim to make the project activities as known as possible and to achieve optimal adaptation to the users' needs. GISIG, as the local organization responsible for the pilot, highly focusses on the link of activities and expected results with respect to the needs of the local administrations and other important stakeholders. This in addition to the final goal to assure the exploitation of project results and optimize the project funding will ensure that activities are oriented towards the actual need of end-users and real operational and management problems.

The municipality of Genoa, in the person of the responsible and the deputy mayor of the civil protection, is really interested in the vulnerability assessment and in the results of stakeholder's interviews, as methodology to be potentially replicated to all the Bisagno basin and to the whole population at risk. Due to this circumstance, a second official LAA meeting is scheduled for March/April, when the results from the household interviews are available and can be possibly shared with the stakeholder group.

On the occasion of the second LAA meeting, the contacts with the new Regional Government (Environment and Civil Protection) will be established and enforced. Finally, GISIG considers the final workshop of LIFE+IMAGINE as a good opportunity to foster the PEARL stakeholder group. The workshop will be organized in November 2016 in the presence of main regional and local stakeholders and will deal with data, services and interoperable systems to improve the management of territory at high hydrological risk and for the environmental communication.

## 4.4 SPAIN, Marbella- CETaqua

### 4.4.1 Initial Stakeholders analysis

#### a) National Level:

- i) **Ministry of Environment:** The Ministry of Environment - MAGRAMA (Ministerio de Agricultura, Alimentación, y Medio Ambiente), has functions, amongst others, on agriculture and food, the environment, ecosystems, water, protection of marine resources, etc.
- ii) **The General Water Directorate:** DGA (Dirección General del Agua), is part of this Ministry and is in charge of building the water infrastructures at basin level and in coastal areas, assuring the implementation of the WFD and the Floods Directive, and hence is promoting the implementation of flood risk management plans, by helping the River Basin authorities with information and tools to do so.

#### b) Local Level

- i) **Anadalucía Water Agency:** The Andalucía Water Agency – AMAYA (Agencia de Medio Ambiente y Agua de Andalucía) is the institution that manages environment and water in the region of Andalucía. It depends on the regional government of Andalucía (Junta de Andalucía), and manages the watershed of the Atlantic rivers as well as the coastal areas (the river basins of some big rivers in Andalucía (Guadiana, Guadalquivir...) are independent and directly depend of the MAGRAMA). AMAYA deals with the protection, conservation and improvement of environment and water. It plays an important role during the situations of emergency. However, they are not involved in the decision making within urban areas and hence, their relevance in relation to the case study area is not so high.
- ii) **Municipality of Marbella:** The Municipality of Marbella (Ayuntamiento de Marbella) is the main authority at local level. Their involvement is widespread, so all the PEARL issues are related to one or another area of the Municipality. Within their structure, the Department of Environment (Área de Medio Ambiente) is the one dealing with some of the PEARL issues, specially focusing on the beaches and the receiving waters. On the other hand, all the issues related to the network and the operations depend of the Department of Civil Works (Área de Obras y Servicios Operativos). Although some other entities also belonging to the Municipality of Marbella are important (such as civil protection, or the port authority), they are explained separately in the following.
- iii) **Fire Department of Marbella:** The Fire Department of Marbella has an important role regarding flood emergency and recovery. The department depends of the Marbella Municipality. In addition to all the regular tasks that they do, they act when a flood occurs, as well as help to come back to the normal state of the city after the extreme event.
- iv) **Civil Protection Department of Marbella:** The Civil Department depends of the Municipality of Marbella. It is an organization mainly formed by volunteers that help disinterestedly when emergencies occur. Although there is a Civil Protection department that belongs to the Regional Government (Junta de Andalucía), the level of the issues that will be dealt in the Marbella case study mainly correspond to the local Civil Protection Department. The two of them work independently, with the Marbella one always reporting to the Municipality and not to the Junta.

- v) **HIDRALIA:** Hidralia is the company managing the water distribution network and the sewage network in Marbella. The company (previously called Aquagest Andalucía) belongs to the Agbar group, which is the same one to which CETaqua belongs. The water distribution contract started in 1992 and will last for 50 years. The management of the sewer network was granted on 2012, and will last 25 years. The first thing that will be done within this contract, is the development of a Drainage Master Plan (DMP) (that will be done by Aqualogy, CETaqua's third party in the PEARL consortium) and the acquisition of new equipment to clean and maintain the network. The DMP is still in its initial stages, building the GIS of the network. The instrumentation and modelling of the network will be done in parallel with PEARL, benefiting from the synergies that this can bring.
- vi) **Mancomunidad de Municipios de la Costa del Sol Occidental:** Although the whole city sewers are managed by Hidralia, the Waste Water Treatment plants and the interceptors are managed by another company – ACOSOL. ACOSOL is a public company that depends on the Mancomunidad de Municipios de la Costa del Sol Occidental, an association of the several coastal municipalities from the Costa del Sol area. Given that waste water treatment and the interception of the sewers belongs to them, collaboration with them is crucial to undertake a coordinated sewer management and minimise the water discharges to the sea.
- vii) **Asociación de Comerciantes del Casco Antiguo:** This is the association of the several retail shops that are located in the Marbella old town, where the PEARL case study will be focusing. The association fights for the benefit of these type local businesses and professionals, and hence they would be really interested in mitigating the effects of extreme events in the area, due to their negative effect in commercial transactions.
- viii) **Asociación de Empresarios y Profesionales de Marbella:** This is the association of the Marbella businesses and professionals, mainly related to commerce, industry, but more specifically, tourism. Their objectives are to improve the environment, the economic transactions and the relationships between the several, with the final goal of promoting tourism in the city, which is one of the main pillars of the local economy.
- ix) **Puerto Deportivo de Marbella:** The sportive port of Marbella as it is today was created in 1980. However, the area was used for maritime transport since the XVIII century, changing the typology of its main use several times throughout history. Currently the port is indirectly managed by the Regional Government (Junta de Andalucía) and can host 377 small ships (up to 20 m long). Although there are three more ports in Marbella (a commercial one, a fishing one and another sportive), this one is right at the bottom of the case study area.
- x) **Federación de Vecinos Barrios de Marbella:** This is the federation of all the neighborhood associations from Marbella. Given that the case study area belongs to several different neighborhoods, the Federation is the best contact to address all of them at the same time, being able to collect the interests and concerns of the people living in the area.

#### 4.4.2 Stakeholders actually involved in LAA procedure

The first LAA workshop was held on January 2016 and aimed at gathering together for the first time a group of potential stakeholders as big and multidisciplinary as possible. In this first workshop, the main goals were to assess the interest of the different stakeholders and to evaluate the main issues and concerns regarding flood management in Marbella. In future meetings, a more reduced group of stakeholders will be selected to work on a vision for the future of flood management in the city. Thus, the total number of participants in this first workshop was 62 people, which showed a very positive response from the local stakeholders. It was ensured that the participants represented different kind of entities from Marbella (institutional, civil population, water operators and emergency services) and nearby municipalities. As a result it was possible to obtain feedback not only from the actors involved in Marbella, but also from nearby coastal municipalities located in the Costa del Sol, which face very similar problems (flash flood events) and could also contribute to gather additional insight relevant for the case study area. Therefore, the participant list was broadened from the initial stakeholder identification for this first workshop.

The detailed list of entities that took part in the meeting is:

1. ACUAMED, public company dedicated to infrastructures construction and maintenance.
2. Aguas de Cádiz, water management company of Cádiz
3. Aguas de Valencia, water management company of Valencia
4. Alfiz 97. Ingeniería y arquitectura, business engineering
5. AQUALAURO, water management company of Alhaurín de la Torre
6. ASTOSAM, , water management company of Torremolinos
7. Alhaurín de la Torre City Council
8. Álora City Council
9. Coín City Council
10. Fuengirola City Council
11. Marbella City Council
12. CEHIUMA, Centre of Hydrogeology of the University of Málaga
13. CETAQUA Andalucía
14. Professional association of civil engineers
15. Neighbourhood association of Marbella
16. GIAHSA, water management company of a grouping of municipalities
17. HABITEC, technology centre based in Málaga
18. HIDRALIA, water management company of Marbella
19. Álora Civil Protection
20. Marbella Civil Protection
21. RAMTOR, water instrumentation company
22. Fire prevention, extinction and rescue services from Marbella
23. SGS Academy, inspection, verification, testing and certification company
24. SOFTCRISIS, mobile crisis management company
25. TOC Ingeniería, civil engineering company
26. Castilla-La Mancha University
27. Málaga University

Furthermore, entities involved in the PEARL project, either as a partner, third party or stakeholder, were involved in the organization of the meeting. These entities are the following ones:

- AQUALOGY
- HYDS
- UNESCO-IHE
- CETAQUA



### 4.4.3 Methodology

The first step in the set-up of the LAA was to hold a first workshop, which served both to introduce the project to a broad audience of stakeholders and to collect their experience and knowledge on flood events in the Marbella area.

The workshop had to be initially postponed due to the conduction of local and national elections in 2015. It was considered that it would not be possible to engage the relevant local and regional authorities until after the elections. For this reason, the holding of this first meeting was postponed until January 2016. However, a previous meeting with the Marbella municipality had already taken place during April 2014. The following paragraphs present the methodology followed in this workshop. A single day meeting was thought to be the best solution to ensure the maximum participation of the local stakeholders and to facilitate the participation of entities from other municipalities. Due to this fact that the methodology used to gather information had to be intensive rather than extensive. It was decided to split the meeting in two blocks:

- The first phase was used to present the PEARL project, establish the objectives of the LAA, explain who is involved in it, define the Marbella case studies, and in general setting the scene.
- The second phase, which contained the workshop, was used to gather knowledge and feedback from the stakeholders, and to enhance discussion between them in order to confront different facts and feelings about flood events.

The first phase included the welcome from the hosts, the local water utility (Hidralia) and from a representative of the Marbella City Council. Then, three presentations were shown in order to explain the PEARL project and the Marbella case studies as well as explaining some issues related with floods that affect Marbella and how early warning systems and network modeling can help to cope with these issues.

The second phase of the workshop was fully dedicated to the workshop. Due to the limited time available and the numerous questions that arose during the setting of the meeting, the attendants were split in 4 groups, resulting in about 10 people per group. Having different groups made it possible to get more information because each attendant had more time to explain his thoughts and confront them with the other people's thoughts. The LAA organizers decided who would be involved in each group, merging local people and people from surroundings, and people implied and non-implied in decision making.

Every group was led by a researcher who is directly involved in the PEARL project. The four group leaders were Arlex Sánchez (UNESCO-IHE), Xavier Llorca (HYDS) and Xavier Aldea and Jaume Amorós (CETAQUA). The group leader had the job of gathering all the information, opinions and discussions from the group. Some support materials were produced beforehand in order to make easier to guide the discussion. Three materials were produced:

- The question sheet resulting from analyzing the topics (see questionnaire in Annex I),
- A map of the city of Marbella so that participants can easily identify areas with frequent flooding problems (see also Annex I),
- A diagram with the flow of information in case of an extreme event, as stated in the emergency plan.

#### 4.4.1 Evaluation of LAA so far

The LAA has been successfully started in the city of Marbella. A first workshop with positive response and feedback from stakeholders involved was held in January 2016. Future workshops will aim at creating a vision for the city of Marbella with a reduced group of local stakeholders, which will form the core group of the LAA.



This core group will be selected from the participants in the first workshop who can better contribute to the goals of the project and the LAA. With this second workshop, which is scheduled for February 2017, it is expected that the LAA will be fully set-up in the Marbella case study.

The workshop held in Marbella managed to fully comply with the expectations, gathering together several actors involved in the flood management of Marbella, and identifying the main issues in the management of flooding events.

Feedback from the stakeholders identified some interesting results in all the discussion areas. Overall, different groups produced similar answers, meaning that there is a general consensus on the main issues regarding flood management in the city of Marbella. The organization of the LAA followed the general guidelines, although the final agenda and activities were adapted to the local requirements in Marbella.

Overall, this workshop set the scene for future LAA workshops to be held in the framework of the PEARL project. Future workshops will address the creation of a common vision for the city using the outputs from this first meeting to create a roadmap which addresses the main issues for the city.

#### **4.4.2 Conclusion**

Actions for the establishment of the Marbella LAA have successfully started in the city of Marbella, with the workshop organized and implemented in January 2016.

Stakeholders did not generally know about the PEARL project and it was received with interest. Feedback on the LAA workshop was also positive. Many local stakeholders were willing to collaborate actively during the workshop and to share their knowledge and experience of past flooding events. Overall, this positive response is a good prospect for future activities concerning the LAA of the Marbella case study, although there is yet no commitment to create a local working group which can continue to work autonomously after the finalisation of the project activities. This will be further emphasised in the next meeting, where the objective will be both to create a shared vision and to establish a more local, small working group, involving relevant stakeholders at a municipal level, with a specific timetable of actions.

The main findings from the workshop session in January 2016 are presented below, systematized along four different topics:

##### **1. Exposure and impact on the assets and population in a climate change context.**

- Critical and problematic issues in the city of Marbella were mentioned by the citizens and identified by the local entities. They are mostly related to natural courses that were urbanized and experienced for example failure in land-use planning.
- There is a lack of gutters, causing an underuse of the underground channelized streams, which could admit more water in case of heavy rain. Some problems related with gutters and lack of network cleaning came up during the workshop. However, there are already works planned by the municipality to address the lack of gutters in critical areas, such as the Arroyo de la Represa stream.
- Individual flood-fighting structures are not used in Marbella. Population does not know any company that produces or sells it. The general perception is that the flash flood events are as frequent and intense as they used to be, but the exposure and vulnerability are much higher due to the fact that urban planning is not taking these flood risks into consideration.

## **2. Post-flood event: returning to normality.**

- The events in Marbella are flash floods, and therefore their temporal scale is hours. The post-flood effects last for days rather than weeks. The spatial scale is very local, because convective storms occur locally. However, if impacts in transportation networks were considered, the scale would be broader.
- The affected businesses are used to closing during the cleaning and restoration time, which can last for 2-3 days. Typical damages are due to cleaning, repainting and changing skirting boards and some furniture close to the floor. The reparation and cleaning is usually done directly by the owners with no intervention of insurance companies.
- There are some points of disagreement when talking about insurances. It seems that there is not a clear pattern in insurance coverage. It depends a lot on the neighbourhoods and on the property type of the house. Usually, it is mandatory in case of mortgages, which make them the main driver to have insurance.
- Nevertheless, the overall feeling is that insurances never cover the full damage. The main reason seems to be that the insured usually avoid listing some goods when contracting in order to pay a lower fee.
- In contrast to the general feeling, the insurance companies make the bureaucracy quite fast and they usually pay in about a month after the event or reclamation.

## **3. Preparedness and early warning systems in urban flooding.**

- Early warning systems are not known by the civil population. Technicians know that there are two systems, WiCast and Cowama, but they still need an improvement in calibration and precision. There is also a national system from Aemet, national meteorological agency, but it is only known by the responsible entities.
- There is not enough knowledge or culture about flood risk among the population. It causes the price of shops and properties not to be affected by the impacts of potential floods. Moreover, business owners are not used to calculate the business losses caused by flooding events.
- It is known that the municipalities make preventive network cleanings but it is also agreed that these cleanings are not enough. The council representatives say that there is not enough money to improve it.
- There are also some traffic cuts in the most problematic points, and there are no signals in flooding zones.
- Overall, there is a lack of information on what to do in case of flood emergency.

#### **4. Decision-making process and procedures in case of flooding.**

- Citizens receive warnings through local media. Civil protection and local police are in charge of informing population.
- The improvement of warning systems is felt less important than improving education, risk perception and consciousness-raising about floods. It is felt that there is a big chance of improvement in prevention.
- It is difficult to manage this kind of sensitive information. There are touristic places and tourists are not aware of this problems. There is not enough available information for them.

Regarding the acceptable risk levels, it is difficult to present a clear conclusion, but the general perception is that there may not be enough knowledge or culture on flood risks among the population. Therefore, some problems caused by extreme events can be perceived as tolerable, as they might be seen as natural events and therefore it can be considered that there is not much that can be done about it. In some particular cases, the perception is that the municipality could do more to solve specific problems in certain areas which experience regular problems when there are flooding events.

### **4.5 GREECE, Rethymno, Crete- NTUA**

#### **4.5.1 Initial Stakeholders analysis**

To get a comprehensive overview of the institutional situation in the case study area of Rethymno, NTUA had to analyse existing problems and conflicts (as good as possible) beforehand. Stakeholders were identified after initial research work and meetings with Municipality of Rethymno and other local stakeholders (first six months of the project lifecycle). During those meetings PEARL and the LAA objective was presented to stakeholders. As a result of this initial contact, the Municipality of Rethymno included the willing of involvement in PEARL and LAA in decisions of the official regular Meeting of the Municipal Council of 14<sup>th</sup> April 2014 (available in Annex I. Material from Rethymno).

More specifically the technical meetings, discussions and contacts with representatives of local authorities and services were the following:

- 3<sup>rd</sup> -5<sup>th</sup> March 2014. Internal meetings among NTUA members and local authorities. Those stakeholders were the Deputy Mayors and Directors of the Technical and the Planning-Development and Innovation department, as well as representatives of the department of Urban Planning. Further informal meetings involved representatives of the Regional Unit of Crete, the Sailing Club of Rethymno, the association of hoteliers and private stakeholders/citizens e.g. meteorologists, free-lance civil engineers, journalists and business owners in the Old Town of Rethymno where most of the flood events have been occurred. Main objectives of those meeting, depending on who was involved in, were the comprehension of Rethymno's flood problems during the past years, the solutions/strategies/measures implemented towards flood defence, their future plans and ambition, as well as the interdependences among the different authorities, the flow of information and the hierarchy in flood related issues, the data collection, the sharing of their experiences, their risk perception regarding Rethymno's floods and the knowledge how flood problems affect(ed) their life.
- 1<sup>st</sup> July 2014. Meetings among KCL/IREUS/NTUA members and key stakeholders. Meetings held on Rethymno, during of which PEARL project and work was exposed to key stakeholders. In more detail, those meetings took place at the premises of primary stakeholders such as the Municipal Port Authority, the Municipal Water Supply and Sewerage Company and the Civil Protection Volunteer Team of Rethymno (please refer to pictures in Annex I).

The former mayor, who has valuable experience of the past flood events of Rethymno and the construction of flood defence infrastructure which were implemented during his term of office (which lasted 27 years), also attended one of the aforementioned meetings.

- 29<sup>th</sup> October 2014. Meeting with representatives of the Regional Unit of Rethymno.

At a National Level contacts through official letters have been made with the Special Secretary for Water, the General Secretary for Regional Planning and Urban Development and the MEDITERRANEAN SOS Network.

Combining the preliminary research work and information gained from the above meeting the following organisations and units are identified as the main key stakeholders for the Rethymno case study area. National and local authorities' functions are described in order to provide a clear view of all involving parties in decision making procedure related to urban development and flood management. Below the respective roles of the identified organizations is analysed. Finally a chart aims to illustrate the flow of communication and information among the organizations and/or their services (Figure 8).

There are four distinct categories of stakeholders identified in Rethymno: National, Local, NGOs, Private Organizations/Citizens.

#### a) National Level

- i) **Ministry of Environment, Energy & Climate Change:** The Ministry has been established in order to confront the continuous environmental problems and to adopt a new development model – the model of Green Development - that will secure a better quality of life for every citizen. The Ministry works to achieve the protection of the natural environment and resources, the improvement of quality of life, the mitigation and adjustment to the implications of climate change and the enhancement of mechanisms and institutions for environmental governance. Towards this mission the Ministry has developed a strategic plan based on 4 pillars amplified into strategic objectives: *i) Combating Climate Change by moving towards a competitive economy of low carbon consumption; ii) Natural resource protection and environmental enhancement; iii) Improve quality of life with respect to the environment; iv) Enhancement of environmental governance mechanisms and processes.* There are two key services of the Ministry of Environment whose involvement in PEARL project is considered crucial due to their actual role and mission.
- ii) **Special Secretariat for Water:** as one of main national authorities is in charge for the formulation and implementation of all public works (structural or non) related to Water Resources management and protection, as also for the coordination of all respective institutions/organizations/services on local and national level. Key responsibilities and activities of SSW are: *the incorporation in national legislation of Water and Floods Framework Directive; Flood Framework Directive; Wastewater reuse and management; monitoring and assessment of water quality and quantity; Marine Strategy Framework Directive; Bathing coasts and Blue Flag operation and finally all international and transnational Mediterranean water issues.* The Secretariat collaborates closely to the Regional Water Directorates in order to establish national and local projects in terms of sustainable water resources management.

- iii) **General Secretariat for Regional Planning and Urban Development:** Also one of the main authorities in charge for national spatial and land use planning, coordination of all activities (industrial, rural, urban, touristic, commercial, residential, etc.) and services under a rational allocation, structure and development of natural resources. Key activity of GSRPUD is the formulation and implementation of development projects towards sustainability, social cohesion, environmental resources conservation, competitiveness and quality of life for all residents. Moreover GSRPUD is in charge for all urban and building regulations, requirements and relevant legislation of building on national level, taking into account the special conditions and conservation of architectural heritage on local level.

b) **Local Level**

- i) **The Regional Unit of Rethymno:** The Unit replaced the former Prefecture of Rethymno and is the one of the four Regional Units of Crete. Its Technical Department monitored and supervised the construction and the expansion of Port Facilities throughout the years, therefore their knowledge will enlighten PEARL team about the existing infrastructure and the reasons which led to the Port Planning. Problems that had to be solved were related to high N-NW winds and the harbour siltation phenomena which led to interruptions of sailing of ships. Another challenge for the PEARL team will be to understand the actual role of the Civil Protection Department and how it is connected with the one supervised by the Municipality of Rethymno.
- ii) **Municipality of Rethymno:** The Municipality of Rethymno is the primary authority on the local level. Along with the Technical Department and the Department of the Urban Planning implements several development-oriented actions aiming at improving the quality of life and achieving, among others, economic growth. Within the Municipality, key decision-makers and stakeholders will be identified and help PEARL team to become aware of the decision dependencies and pathways of influence in Rethymno. Initially, creating common images will be attempted while at a next step, long term visions will be shared. Their contribution towards the creation of possible future scenarios is of high importance especially in the complete socio-technical environment. A characteristic example of paramount importance is the new government bill concerning the setting of boundaries, management and protection of coasts and beaches. Its enforcement would change radically the urban planning and would pose real threat on coastal communities. Municipality's stand on the aforementioned bill will highly affect the creation of the future scenarios and will define their perspective towards flood risk.
- iii) **Municipal Port Authority Trust of Rethymno:** The Municipal Port Authority Trust of Rethymno continues its historic course which started in Rethymno in 1914. The aforementioned department actively contributes to the development of this region of Crete and carries the great responsibility of administering the only entrance gate to Rethymno's prefecture to date, as well as maintaining the facilities of all its ports and fishing resorts. The Municipal Port Authority Trust of Rethymno provides public utility services and contributes to the commercial, passenger, tourist and fishing traffic and generally to the smooth operation of the ports in its authority. Through our cooperation, PEARL team aims to understand the flood problems/damages occurring in the port facilities and in the wider coastal area the recent years and also to be enlightened about their preferences, ambitions and plans towards the development and the exploitation of the port facilities and the adjacent coastal zone.
- iv) **Municipal Water Supply and Sewerage Company SA:** The Municipal Water Supply and Sewerage Company SA of Rethymno has the responsibility of water and sewerage services of the Regional Unit of Rethymno as well as the storm water network and the flood prevention works. The aforementioned department was established in 1981 whereas it actually started its function in 1985. Their goal is that all residents are able to enjoy water in sufficient quality and quantity, to provide treatment and disposal facilities of sewerage throughout the Regional Unit and to contribute towards the general protection of the environment. Their presence throughout the design, the construction and the operation of the water related infrastructure will enable the comprehension and the assessment of its functionality regarding the flood risk reduction.

- v) **Development organization of Crete S.A.:** The Organization is a newly established enterprise which is supervised by the Hellenic Ministry of Development and Competitiveness and acts throughout the area of Crete. Within the domain of the aforementioned enterprise are, among others, the subscription, maintenance, operation, administration, management and exploitation of land reclamation and the development and exploitation of water resources and wastewater. Particularly for Rethymno case study, the Development organization of Crete SA is responsible for the supervision, maintenance and management of the Potamoi Dam which is constructed in the main watershed in Rethymno and interrupts the flow of Platania River (the only river in Rethymno with base flow). Through the collaboration with the organization the PEARL team will understand the reservoir system operation planning and decision making which is of primary importance for flood simulations, will create a common image regarding flood risk based on the Dam Break Study that has been implemented and will consider and examine possible future scenarios regarding the consequence of a dam break. The results of PEARL project will contribute to the reservoir system operations optimization by taking into consideration the flood risk mitigation. Furthermore, the personnel and their high level of expertise e.g. geologist, civil engineers etc. will transfer personal knowledge concerning the Rethymno case study.
- c) **NGOs:** The role of NGOs is crucial to the participatory process since they derive from society and are close to local communities. NGOs represent a significant part of civil society, while they proceed to several interventions to public authorities (governmental and local level) towards conservation frameworks, environmental policies changes, legislation changes and incorporation of the EU framework directives on both local and national level. Their involvement will be valuable as they will bring to the LAA a kind of knowledge (citizens' perspectives) which is usually ignored by authorities and experts.
- i) **Civil Protection Volunteer Team:** This unit is registered in the General Secretariat for Civil Protection (GSCP) which is the national integration agency of Voluntary Organizations (VOs) and Expert Volunteers (EVs). The VOs and EVs are included in the human resources of civil protection to be in charge of supporting disaster prevention, response and recovery actions.  
Their contribution in PEARL project will enable the PEARL team to understand the role of the Civil Protection Agency of Rethymno and the procedures followed during the occurrence of extreme urgent phenomena such as floods. Of extreme importance is the comprehension of the role of a volunteer team in small community like Rethymno and the possible confrontation between them and the local authorities, including services like fire brigade.
- ii) **MEDITERRANEAN SOS Network:** MEDSOS is also one of the most dominant Environmental NGOs in Greece with an experience and activity of more than 20 years each on local, national and European level, towards environmental awareness. MEDSOS is specialized in Water Resources Management and Integrated coastal zone management, has significant presence at local and national level and involves thousands of citizens in voluntary activities on annual basis.
- iii) **Environmental Association of Rethymno:** The Association is a local environmental NGO member of the ECOCRETE network (network of all Cretan environmental NGOs), active since 1999 towards environmental protection and sustainability. The association although local has a very active presence in several issues and very good connections to other NGOs. It is specialized in water resources management issues, climate change & energy, waste management and recycling.
- d) **Private Stakeholders/Citizens**
- i) **Sailing Club of Rethymno:** The Club was founded in 1992 and it has been active ever since. Besides the organization of sailing schools for children and adults, the Sailing Club of Rethymno participates in local, national and international regattas, organizes seminars and lectures and also participates in local sports and environmental activities. Sailing is one of the most common sport activities in a coastal city which is highly affected by problems/damages occurring in the coastal zone and the port facilities.



Their participation will contribute to the impact assessment especially concerning the sea conditions (waves, wind, coastal erosion, harbour siltation, etc.)

- ii) **Association of hoteliers:** Tourism plays a key role in the economy of the Municipality of Rethymno as high percentage of the economically active population is employed in activities directly related to it (hotels and restaurants). Along the northern coastal area of Rethymno, restaurants, shops, hotels and hotel units contribute to the economic exploitation of the area and offer jobs to Rethymno's community. Hence, problems related to high wind exposure, storm surges, and coastal erosion highly affect the economic activity of Rethymno.

Aiming for the development of novel models for assessing the economic impact, PEARL team will learn through their perspective and will take possible impacts of flood risk related problems into consideration for the creation of possible economic scenarios.

- iii) **Citizens:** Apart from the organizations who are involved or affected by the decision making procedures related to urban planning and flood management, there have been identified insulated citizens/personalities who although not represent a specific institution or unit have a valuable experience and knowledge from the study area of Rethymno. Since they live and work in Rethymno they can provide in the LAA the perspective of citizens who are usually affected on the first hand by a natural disaster in terms of human lives' loses, properties' damages or financial activities pausing, while they are aware of historical events, data and procedures related to the general planning of city of Rethymno. Such personalities are:

- **Former Mayor of Rethymno:** His term lasted 27 years and he also served as a president of the Municipal Water Supply and Sewerage Company of Rethymno for the periods 1979-1982, 1995-1998, 1999-2002 and 2002-2006. During his term, important infrastructure projects were carried out related to water supply and sewerage networks, as well as flood prevention works. His participation in the aforementioned works and his past flood experiences as a resident of the Old Town of Rethymno, where the past flood events mostly took place, will contribute to a greater understanding of flood risk in Rethymno case study.
- **Meteorologist, Air Force Officer:** Citizen whose contribution will mostly be related to past flood events, data acquisition and knowledge sharing on extreme events.
- **Civil Engineer specialized in Hydraulic works:** Freelance civil engineers and SMEs in a small city like Rethymno have been asked to study and construct hydraulic and flood related works and infrastructures without having any previous studies/knowledge or experience to be based on, but rather simplifying assumptions of the literature. Even in a case of constructing a small house near a stream or a torrent, a study that will define the local surface flooding area is obligatory. Our collaboration with civil engineers will enable PEARL team to identify the shortcomings in the design and the construction mainly for flood related works and guide local stakeholders to deal with the problem holistically rather than individually.
- **Journalist in a Cretan Newspaper:** Her position will enable the dissemination of PEARL project work and results and her experience will provide input for possible ways on how to engage the local stakeholders. In addition, information related to past flood events and damages will be available through the newspaper records.
- **Owner of a restaurant in the Old Town of Rethymno:** A restaurant placed in the Old Town of Rethymno and especially in the Old Venetian Harbour will serve as a representative example of how highly affected is a sector of Rethymno's economy. Moreover, comprehension of possible problems/damages on Port facilities and particularly on areas where fishing boats and yachts docked will be achieved.

The above analysis has been illustrated in the Organogram/Sociogram of Rethymno stakeholders' participation in decision making procedures (see Figure 8).

STAKEHOLDERS ORGANO-SOCIOGRAM  
RETHYMNO CASE STUDY

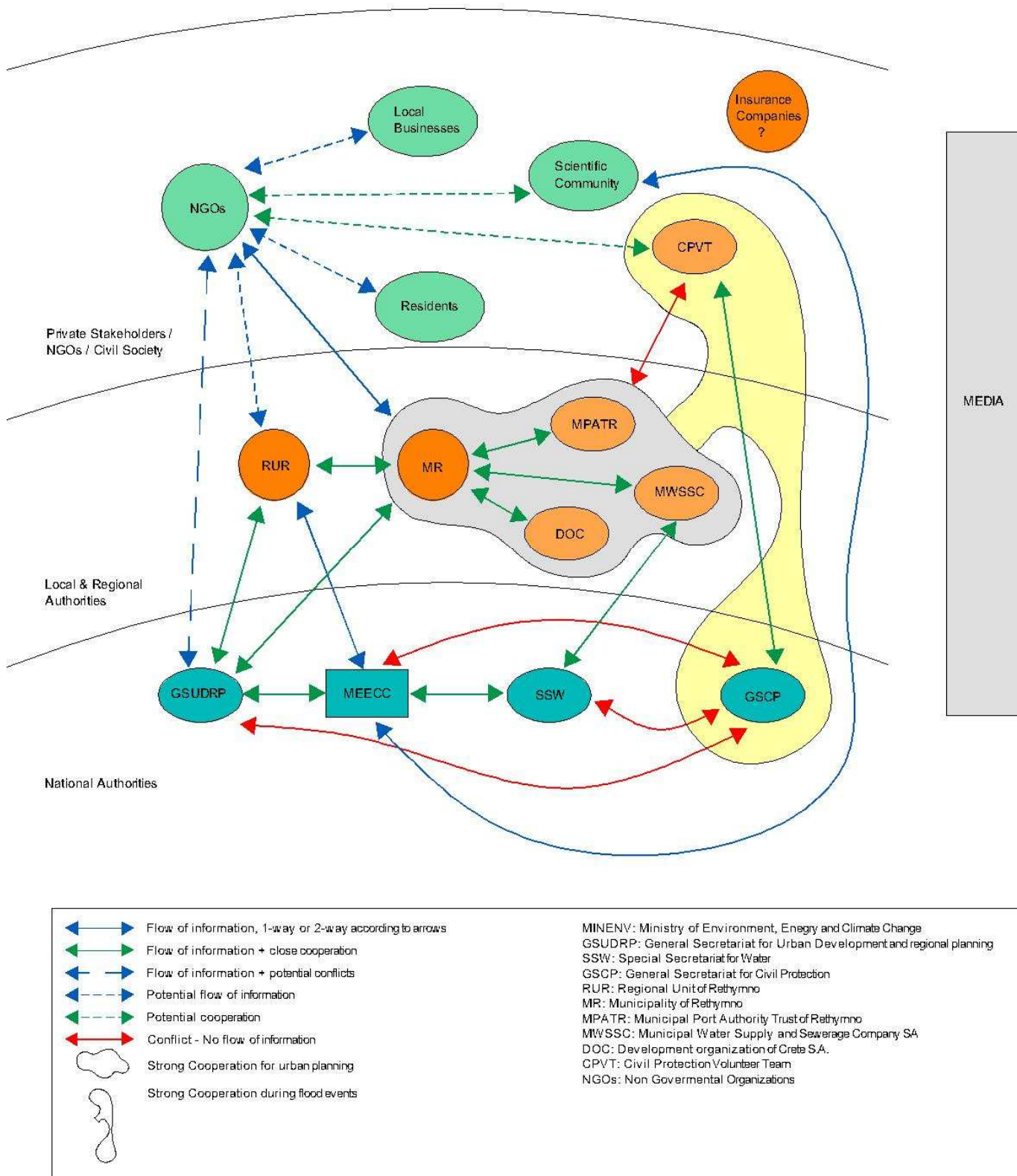


Figure 8 Rethymno stakeholder organi-sociogram



#### 4.5.2 Stakeholders actually involved in LAA procedure

Although the initial aim (according to previous analysis) was that national authorities would be represented in the LAA establishment procedures and the workshops, unfortunately the continuous unstable political situation in Greece as a result of the financial crisis (National elections in January and September 2015) has caused a low interest of key Directorates and Ministries for such initiatives. **Due to repeated changes in Ministries' structure and departments, the responsible people were either not officially in charge to represent the Ministry or not willing.** Indicative example is the case of Special Secretariat of Water Resources of Ministry of Environment, which is the national authority in charge for the implementation of the Flood Directive in Greece. The General Secretary is appointed by each Government. A gap in the position occurred after January's election which was covered around spring of 2015, but during September and the pending new election result, the department was again non active. This problematic situation in Central Government and Ministries forced NTUA team to **abandon the attempts of involving national authorities** in the Rethymno LAA and PEARL objective and **rely only to the local and regional units, which play a more crucial role** in any case as responsible for flood management on local level.

Consequently the 1<sup>st</sup> workshop addressed to individuals and organizations who act on local level and are involved or/and affected by decisions taken related to flood management in the city of Rethymno.

More specific, the following groups/individuals/representatives of authorities were invited and actively participated in the event:

- Municipality of Rethymno: Civil Protection Service, Technical Department, Planning-Development and Innovation Department
- Regional Unit of Rethymno: Civil Protection Service, Technical Department, Planning-Development and Innovation Department
- Port Authority of Rethymno
- Municipal Water Supply and Sewerage Company
- 2 Local NGOs: Civil Protection Volunteers Team and SINPOLIS (Group of active citizens working on several aspects e.g. environment, financial crisis, cultural activities and events etc.)
- Fire Service of Rethymno: Direction of Operations
- Institute of Geology and Mineral Exploration (Crete Department)
- Development Organisation of Crete : Direction of Transportation and Hydraulic works
- Civil Society /Citizens: Former Mayor, Former Deputy Mayor

Other groups of interested parties were also invited but didn't respond to the call for reasons that are interpreted by researchers as low level of interest at this time. These groups are:

- Association of Local Hoteliers
- Decentralized Administration of Crete

### 4.5.3 Methodology

Based on the framework and methodological approach described in chapter 3 of this document, PEARL's MS14 Document and on the practical guidance Ashley et al.(2012) suggest for setting up the LAA (see *Figure 1*) the **1<sup>st</sup> workshop** in Rethymno **aimed actually to satisfy** the phases 2 "Searching and scoping" and 3 "Creating a common vision" of the procedure, since phase 1 referring to "Initialization" is considered to be *completed* during the stakeholders' analysis and the round of technical meetings with the stakeholders during the 1<sup>st</sup> year of the PEARL lifecycle.

In order to accomplish the above steps of LAA establishment, NTUA research team worked on the design of specific interactive activities targeting to each single point. Moreover, the activities were also aiming in gaining input for all WPs of PEARL, as stated in the Introductions of this report and elaborated below e.g. for WP3 and the development of the agent-based-modelling, and for WP5 and the identification and mapping of the general overview of political decision making processes and influence of single stakeholders, and the identification of the most vulnerable critical infrastructures, etc.

The **initial aim** of the Rethymno workshop is the **establishment** of the local **LAA**, the **engagement** and commitment of **stakeholders** in this initiative and the **creation of a common vision** (WAREMA INTERREG IIIB. Methodological Procedures.2007).

In order to reach these goals there is the need of setting up a frank atmosphere where representatives from different organizations will be able to overcome their personal, structural and institutional barriers in order to interact, gain knowledge, share experience and finally create a common vision under a feeling of mutual trust. Towards this goal NTUA chose to host the event in the Centre of Social Welfare of Rethymno in a room which was actually designed to serve as citizens' internet access point with working tables and PCs, instead of audience chairs and distanced podium for speakers, which are usually included in amphitheatrically rooms.

Workshops need to be attractive and not boring to the participants, especially during the initial establishment stage. Since participants will be engaged on a voluntary basis, they do not have clear tangible profits from this procedure. All benefits consist of knowledge growth and innovation (Dudley et al., 2013). Consequently they need to have the feeling "*it worth's to spend my time here*". Blended workshops with a mix of interactive activities usually are more interesting for participants than plain speeches or presentations (PRO-IDEAL Plus, Concept and methodology of Interactive Workshops.2010, INMARK, EMF).

Within this framework and approach, NTUA team choose to apply a mix of activities in Rethymno considering the local conditions and stakeholders' interests and the generic aims of the event in terms of LAA setting up. Pre-defined subjects or/and scenarios (worth considering/fitting to Rethymno case study) depending on the expected outcomes were prepared while a step to step guide with specific instructions was made for the support of the facilitators-researchers who actually coordinated the activities.

The first day was mostly dedicated in "*establishing facts*" and "*creating images*" (the first two threads described by Van Herk et al., 2011) in terms of setting up the LAAs, but also to fully comprehend Rethymno case study related to its flood problems, its flood protection infrastructures, flood management procedures and stakeholders' engagement in every part of the decision chain.

During the activities carried out, the researchers aimed to identify stakeholders interests, search their perspectives (institutional and personal) on flood risks in Rethymno city, identify the city's problems and collect the necessary data that is missing in terms of Rethymno's risk assessment, search for common views, define the different roles in hierarchy of decision making and identify boundaries related to flood risk management, as well as the key players in decision making. After the introduction of attendees and their identities, short presentations were made in order to introduce participants in PEARL project and the idea of LAA. The presentations had short descriptions of project's aims and objectives, mention on tools and methods, introduction on LAA methodology (What is it? Why is it needed? Best practices from other projects).

The first day's activities with **Working groups** aimed to **establish facts** in terms of **stakeholders' flood risk perception** and **problems' identification** (areas at risk and reason why). Participants were separated in groups according to their institutional identity (Municipality, Region, NGOs, citizens, industry/business, etc.) and asked to create kind of **offhand risk maps** and at the same time rank in order of importance the flood risks of the city.

Subsequently the groups worked on the identification of all the existing measures (engineering, structural maintenance etc.) in Rethymno and commented on their effectiveness in terms of flood management or prevention.

Historic data and past events, as well as initial results related to Rethymno's risk assessment, were afterwards presented to stakeholders, aiming to compare results from working groups and experiences of stakeholders to the ones derived by desk based study (data collection carried out by NTUA under WP6).

**Focus groups and brainstorming work** aimed to **identify current flood management plans** and actions of each stakeholder in terms of **preparedness-prevention/treatment/restoration**. The action aimed to spot the people/institutions that are affected by the hazards, that are responsible for early warning, evacuation, disaster management procedures and that are in charge of (future) planning processes. The session also supported the creation of images. A special questionnaire was designed in order to cover specific axes of discussion and gain information on action plans before, during and after a flood event. A discussion coordinated around each topic aiming to spot the common points, interesting aspects and conflicts among the different organizations/stakeholders.

Objective of the second day of the workshop was the accomplishment of the **creating images and setting ambitions**. As described also previously, during the second thread *frame reflection* is supported, in which parties identify their view of reality and discuss it, look for images or meanings that they share, and create renewed and more creative images as a result of the interaction. The third thread supports the negotiations among different parties towards the implementation (van Herk et al., 2011). Moreover during this day researchers attempted to gain mandate from participants in the actual establishment of the LAA Rethymno, and draft a preliminary plan of its work. Using the knowledge gained from the establishment facts phase (1<sup>st</sup> day), the visionary phase focuses on developing personal visions for future development. The work took place in theme groups so people could focus on their theme and formulate a number of visions. The whole idea was based on future workshop scenario methodology (SURE URBACT II Programme, 2012).

**Working Group** activity aimed to identify the current view of participants in terms of decision making procedure and flow of information/knowledge on flood risk management, by asking them to design **sociogramms** as they realize it from their own perspective. They had to name and connect all the organizations or groups of people they think are involved in decision making procedure regarding flood management. The discussion that followed the activity attempted to identify more stakeholders, gaps in collaborations or/and communication, gaps in hierarchy and authorization of each service or institution.

After working on the establishment of facts, identification of situation, involved parties and decision making procedure the participants were actually asked **to design the ideal LAA through a working group activity**. More specifically they were asked to:

- **Set the structure of their LAA:** From which stakeholders do they think it should be parted from? (e.g. Do we need media? Do we need insurance companies' representatives?)
- **Name their vision:** Which is the vision of your LAA? (e.g. Rethymno will be a flood resilient city by 2020)
- **Design an LAA Action plan:** The actions they would wish the LAA do towards their vision fulfilment

A discussion among participants fostered the common and interesting aspects, best ideas, in order to identify the common baseline for the setting up of the Rethymno LAA. The facilitators mapped on a plain paper the common structure, vision and actions of the LAA as agreed, aiming to gain the engagement of participants towards this goal of the LAA setting up and future functioning. Moreover and towards to the engagement of participants in the **LAA establishment** a session dedicated to **the next steps was prepared**.

Having in mind that NTUA is based on Athens, not so close to Rethymno, the research team needed to have a ground of communication with participants in order to keep contact and maintain their interest in the LAA. A closed **Facebook group** was already made (called LAA Rethymno) and participants who wished to be members of the LAA were asked to:

- Join it in order to share opinions, data, information on flood events etc.
- Call other individuals or organizations to join the group (selected calls to people who could support, or are influenced by flood risk management decision making procedure).
- Gather, upload and circulate through the Facebook group data and material related to flood events and risks in Rethymno: photos (related to historic events, identified problems/causes of flood risk, past studies, articles and press publications, etc.)
- Download and use the Water Detective application which would be a very useful tool for the LAA function

Finally **tools** developed within PEARL in order to support flood risk governance and future LAA were demonstrated to stakeholders (**PEARL Knowledge Base, Water Detective application, Web Learning and Planning Platform**). The participants had the chance to interact and use those tools. More specific, the knowledge base link was ready and set for everyone to use through the PCs which were available in the venue, whereas the Water Detective app was set up in mobile phones and tablets that were given to participants in order to have a first impression of the app's interface and create new reports. The stakeholders realised the importance of the knowledge base and how this could be utilised for policy making purposes, as it is and will be a repository of resilience measures worth considering for Rethymno's flood problems. The demonstration of the very early version of the web learning and planning platform gave the chance to initiate a discussion on the possible future scenarios of flood risk, which the stakeholders would like to examine within LAA and enable them to consider and visualise in a "safe environment" future plans.

#### 4.5.1 Evaluation of LAA so far

Despite the increased interest expressed by all participants and stakeholders' representatives, several doubts and concerns were raised at the same time. Indeed there is a general sense that a LAA in Rethymno would be an asset in terms of flood management for the city, and all participants agreed to give a chance to an innovative approach towards building a flood resilient city, but on the other hand many of them rely on a pessimistic view that not many things can be done towards this direction. The fact that no "leaders" were identified among the participants, who will be willing to actually run the LAA turns the success of the initiative doubtful. The main reason as expressed by participants, for generating this kind of concerns is the general level of public participation in Greek society. Although through the last years civil movements are increased there is always a low level of active participation and at the same time many communicational gaps and hierarchical barriers among the different levels of authorities.

Most decision making procedures exclude people or organizations, who are directly involved in, from both the process and the decision itself, as also from the urban planning management. At the same time the majority of citizens (as expressed several times during the workshop's activities) have a subconscious and sometimes even conscious believe that authorities (local and national) are in charge for crucial issues such as flood management and not themselves.

Moreover, the financial and political crisis in Greece occurring the last years has caused an increase of citizens' disappointment and a general depreciation of the role of local and regional governmental structures (extended analysis of the influence of financial crisis on implementation of environmental policies is also presented under WP1 RCCA Rethymno report, S. Mavrogenis, 2016). Citizens turn to lose their trust in state and democracy (which is the basis of every participatory procedure), while the different authority levels (local, regional) also act leeringly towards central government, e.g. municipalities are very disappointed by the central government as they consider that they are excluded from central decision making processes, especially the last years due to several laws and measures that are obliged by the memorandums and they are not derived from an open dialogue with the society or the local government.

This general downgrading acts like a domino and influences all initiatives and aspects of governance (citizens don't trust authorities, local authorities don't trust central government). Taking into account this general feeling and the local conditions in Rethymno NTUA will have to maximize efforts in order to achieve the establishment of the local LAA's, which needs monitoring and guidance in order to be properly set up and active.

At this point although positive results and comments followed the workshop a clear evaluation of the LAA itself is not feasible since the LAA is not yet self-running, and potential members of it have not taken any action. The future workshops and NTUA's activities in the case study are, as well as the completion of tools development (PEARL platform, knowledge base, and water detective application) will further support and promote the LAA initiative, as it will help participants to work on specific scenarios/activities and accordingly act or/and collaborate. Consequently the LAA could be considered to be still in the establishment and not in functioning stage.

#### **4.5.2 Conclusion**

Conclusions are based on the outcomes derived from the activities and the insights gained from the discussions with the participants and stakeholders during the 1<sup>st</sup> workshop.

The envisioned output is mainly related to the initiation of the interaction process mentioned in Figure 5 and the establishment phase of the Rethymno LAA.

Key findings relate to each specific axis of interest that could be subject of the future LAA or/and PEARL's interconnected WPs and tasks. More specifically:

##### **1. WP1: Understanding formation of vulnerabilities and risk in coastal regions:**

- Valuable knowledge related to past flood events occurred in Rethymno from physical, socio-economic and governmental perspective.
- Information in terms of expert knowledge of root causes of risk / disasters and on political (spatial planning) processes, disaster risk management and adaptation planning.

##### **2. WP3: Holistic and Multiple Risk Assessment**

###### **• Risk assessment:**

- ✓ Frequent flood problems that the community is dealing with and also their evolution and change throughout the years.
- ✓ Additional risks less known have been identified, due to their small extends or newly encountered due to infrastructure that is being constructed lately (highway interchange of Amari).
- ✓ Flood problem of the violent wave overtopping of port facilities monopolised the interest of the attendees who are currently looking for solutions.
- ✓ Flood protection measures and the period of construction in combination with the flood problems and their evolution enabled the in depth understanding of flood risk.

- **Agent Based Development:**

- ✓ The city of Rethymno has already implemented flood defences and it is **more important to implement operational measures** that will educate stakeholders regarding how to protect themselves and the city of Rethymno from flood, rather than to construct new structural measures. This conclusion feeds into the decision making process of the agents by increasing the importance of the operational measures
- ✓ The economic crisis has led the city of Rethymno to try and use as much as possible the existing capital, both in terms of workforce and infrastructure.
- ✓ The institutional Agent Based Model will focus more on simulating the maintenance of existing structures, the cooperation of the authorities with the stakeholders and the behavior of the commercial sector, and less on the simulation of making decisions regarding the implementation of different flood protection measures. Outcomes will further connect to the development of the city Road map and the LAA action plan

### 3. WP4: Flood forecasting and early warning systems for coastal regions.

- **A citizen-based observatory of water** through the use of Water Detective application
- **Early Warning Systems:** the lack and the need of an Early Warning System in Rethymno was highlighted down multiple times. Special interest was expressed by the representatives of the Fire Service since they are the first in line activated during a flood event.

### 4. WP5 : Decision support and policy development for strengthening resilience of coastal regions

- **PEARL Knowledge Base** will support and **enhance flood management decision making**, since authorities are no longer seeking engineering solutions but measures for awareness raising, maintenance of existing infrastructures and in general they orientate themselves to operational and non-structural measures for supporting the city's defences
- **Stakeholders involved/identification of key players:**
  - ✓ preliminary stakeholders analysis carried out by research team was very close to reality.
  - ✓ Most key players are already identified and participated in interactive process.
  - ✓ More groups could support the process of the LAA and participate in it
  - ✓ Conflicts and good collaboration among the many different services and organisations as also groups of special interest were raised and discussed.
- **Risk perception:** Acceptable levels of risk according to stakeholders' preferences and ambitions were defined



- **LAA establishment.**

- ✓ **Facts** on the flood risk in Rethymno were **set**, major **problems/concerns pointed out**, **needs** in terms of measures (structural and non –structural) were **recognised**, **common visions and images** of stakeholders were **expressed**.
- ✓ It was really effective to **bring all key players** around the same table and attempt **to excite their interest**, **mandate their willingness** and engagement, **highlight their contrasts**.
- ✓ Participants **expressed their enthusiasm in the idea and the necessity of a LAA** which could provide significant support to the current authorities and municipality's work towards flood management and future city planning. **Opposite opinions also expressed** and some of the participants didn't really believe in the idea and tried to debunk the whole initiative.
- ✓ **Gaps in communication among the many services and bureaucratic procedures** were **highlighted** by most of the stakeholders. Identical was the opinion of a representative from the Regional Unit of Rethymno *"As long as 2 services or organisations need to collaborate everything is perfect. When we come to larger groups of 3 or 4 then nothing moves due to lack of central monitoring. The questions which always rises in this cases is "who is in charge?"*
- ✓ The **need for awareness raising actions** was pointed out since major problems derive from citizens' ignorance and private activities. It was commonly agreed that activities sensitizing citizens and building of a more responsible civil behaviour are of primary importance and should be first implemented.
- ✓ Participants concluded on a common base for the **Rethymno LAA establishment and functioning**. Major points discussed were on the **structure of the LAA, the action plan and the vision of it** which could be *"Rethymno to be a flood aware city"* within the next 2-3 years, the possible **barriers, concerns** that could be raised, the **monitoring of the alliance**. **Interesting here is that although the** need for a specific person to take the role of the team leader and monitor all actions was identified, at the same time no one of the participants wanted to take this lead and responsibility. Researchers didn't recognize any leader or facilitator but only champions, i.e. only persons who are willing to be members of the alliance and spread the message to the wider world
- ✓ **Seasonality of the problem:** A serious concern that stakeholders raised deals with the perception of people on flood risk and relative activities. Usually people concern on flood when it happens and it seems to be difficult for them to think proactively. This is an important barrier for both stakeholders' activation with the LAA structure and citizens' response in awareness campaigns.
- ✓ **Risk Management Roadmap for Rethymno case study:** the whole consultation procedure was highly beneficial towards that goal since input/suggestions were indirectly collected by local stakeholders through the LAA discussions

## **4.6 PEARL case study areas that will not work with LAAs**

Due to a combination of circumstances some PEARL case study areas (as per DoW) will not work with the LAA approach or performed significant alterations. The underlying conditions in the respective case study areas will be elaborated in the following parts.

### **4.6.1 DENMARK, Greve- DHI**

The case study partners decided right from the start to put forward the conditions to provide all kinds of high quality data and models, but they would not take part in the LAAs or similar activities. The reason for this is that the case study partners in Greve anticipated to merge with several other utilities. The respective merger took place on the 1<sup>st</sup> of January 2016. In view of this circumstance they did not consider themselves to be in a position to provide consistent input to PEARL throughout the project.

### **4.6.2 St. Lucia, Caribbean- DHI**

The St. Lucia case study area is not a part of the LAA approach, but merely engaged in early warning systems done by DHI. The reason for this is a staff turnover within the authority during the proposal writing. On the basis of limited resources the successor of the previous contact person decided not to work with the PEARL concept. Nevertheless, the authority enabled PEARL to gain access to their data to develop a remote early warning system.

St. Lucia as a case study area has been retained as it provides insight to what it takes to get an early warning system running under very basic conditions in a data sparse area. In this context St. Lucia is opposed to the case study area Greve, which is extremely data-rich in any aspect.

### **4.6.3 St Maarten, Caribbean- UNESCO- IHE**

In St. Martin there is no active process of stakeholder involvement through PEARL, other than informal contacts through individual PEARL team members. The method of the Learning and Action Alliances would have to be significantly adjusted to the local conditions, therefore it was felt that the implementation of such a formal action group would not be possible for the respective case study area.



#### **4.6.4 Thailand, Ayutthaya - AIT, UNESCO-IHE**

The study site Ayutthaya in Thailand includes many complex challenges as they are typical of urban environments. The peculiarity is, however, the tremendous cultural heritage endangered by flood related hazards. In course of the case study three MSc reports were created.

Quantitative and qualitative analysis due to the assessment of flood risk and risk perception has been implemented. Among other things, this includes field work with intensive stakeholder involvement and meetings to incorporate local knowledge. The methods range from interviews and questionnaires to consultation meetings and workshops. The overarching objective was to combine quantitative and qualitative aspects in order to develop a holistic approach for flood risk assessment (Vojinovic et al., 2015).

#### **4.6.5 Taiwan, Yilan Coast – NTOU**

Taiwan/Yilan Coast is not directly involved in WP5. As presented at the 5th Project Committee Meeting in Marbella, Spain in January 2016 the Taiwan case study, above all, is included in WP6, WP2 and WP3. It also contributed to WP 7 within the scope of Task 7.4 (Thematic and Regional Workshops) and Task 7.6 (Wider Publicity). In 2015 a PEARL Taiwan workshop took place, including one day with indoor presentations and three days of field visits. In the context of the event, ten presentations (5 EU, 5 local) were held and more than 80 interested persons participated. Present stakeholders were representatives from the Water Resources Agency (central government), the River Bureau and the Water Resources Bureau (local government). One of the next steps will be the arrangement of a PEARL mini symposium within the International Conference on Hydrosience and Engineering (ICHE) which will be held in November, 2016 in NCKU, Tainan, Taiwan.

#### **4.6.6 Japan, ICHARM**

Japan will contribute to the PEARL project with information about case studies in Asia. Furthermore, there is no information available regarding the implementation of Learning and Action Alliances.

## 4.7 Summary

This subchapter includes a brief summary and a perception, if the implementation of a Learning and Action Alliance in the individual case study areas will be feasible. Table 1 shows the issues raised, the deriving consequences and possible solutions. It is an updated and compressed version of the table presented in the 1<sup>st</sup> PEARL progress report (PEARL Consortium, 2015).

*Table 1 Case study areas, issues raised, consequences/proposed solutions and feasibility*

Case Study Area	Problem	Consequence, Solution	Feasibility of LAA
<b>Spain, Marbella</b>	Municipal elections	Delays	LAA feasible
<b>Greece, Rethymno</b>	Municipal and national elections, finance crisis	Delays	LAA feasible
<b>Italy, Genoa</b>	Limited resources	Tight connections to other projects	LAA feasible
<b>Germany, Elbe Estuary</b>	Stakeholder fatigue	Compressed and more focused meetings in smaller groups tailored to the needs of stakeholders	LAA feasible with modification
<b>France, Le Boucholeurs</b>	Political and social constraints, ongoing law suits	Most stakeholders are not willing or allowed to be part of LAA, reduced LAA in smaller groups on local level	LAA feasible with modification (LAA only on local level)
<b>Denmark, Greve</b>	Small case study side	Provision of data for PEARL, but CS will not be part of LAA approach	LAA not envisaged
<b>St. Lucia, Caribbean</b>	Limited resources, change in staff	Successor of previous contact person decided to not work with LAA approach, engaged in providing information concerning early warning systems	LAA not envisaged
<b>St. Maarten, Caribbean</b>	No active stakeholder involvement through PEARL WP5	Informal contact through individual PEARL team members	LAA not envisaged
<b>Thailand, Ayutthaya</b>	No active stakeholder involvement through PEARL WP5, already existing stakeholder involvement	Stakeholder involvement through qualitative and quantitative assessment of flood risk, master theses and research conducted by UNESCO-IHE	LAA not envisaged
<b>Taiwan, Yilan Coast</b>	No involvement in PEARL WP5	Different approach of stakeholder involvement	LAA not envisaged
<b>Japan</b>	No information concerning stakeholder involvement	Provision of different data for PEARL	LAA not envisaged

## References

- Ashley R.M. and Blanksby J.R. 2009. Learning and action alliances in relation to urban water and flood risk management. Discussion document.
- Ashley, R.M., Blanksby, J., Newman, R., Gersonius, B., Poole, A., Lindley, G., Smith, S., Ogden, S., 2009. Learning and Action Alliances to build capacity for flood resilience. Under review. *Journal of Flood Risk Management*.
- Ashley R.M., Blanksby J., Newman R., Gersonius B., Poole A., Lindley G., Smith S. & Ogden S. 2011. Learning and Action Alliances to build capacity for flood resilience. *J Flood Risk Manage*.
- Ashley, R. M., J. Blanksby, R. Newman, B. Gersonius, A. Poole, G. Lindley, S. Smith, S. Ogden, and R. Nowell. 2012. Learning and Action Alliances to build capacity for flood resilience. *Journal of Flood Risk Management* 5 (1): 14–22.
- Batchelor C. and Butterworth J. Learning Alliance Briefing Note 9: Visioning (draft). 2008. Available at [http://www.switchurbanwater.eu/la\\_guidance.php](http://www.switchurbanwater.eu/la_guidance.php) (accessed 5 November 2008).
- Bernard, H. Russell. 2000. *Social research methods. Qualitative and quantitative approaches*. Thousand Oaks: SAGE.
- Blätgen, T. and Gourgoura, P. (2014). PEARL Stakeholder Workshops. A practical framework for partners (internal document of PEARL project)
- Blätgen, T., Gourgoura, P., Lykou, A. (2014). PEARL Milestone 14. Setting up Learning and Action Alliances internal document of PEARL project
- Blaj, I.-A. (2015): Contribution to the development of methods and tools for the holistic risk assessment, Project work, Hamburg University of Technology, Institute of river and coastal engineering.
- CEA. Reducing the social and economic impact of climate change and natural catastrophes insurance solutions and public-private partnerships. 2007. Available at <http://www.cea.assur.org/> (accessed 15 February 2008).
- Commission of the European Communities. 2007. Floods directive. 2007/06/EC.
- Commission of the European Communities. Adapting to climate change: towards a European framework for action. White Paper. COM (2009) 147 Final. April 2009.
- Djalante, Riyanti, Cameron Holley, Frank Thomalla, and Michelle Carnegie. 2013. Pathways for adaptive and integrated disaster resilience. *Natural Hazards* 69 (3): 2105–2135.
- Dudley, Elizabeth, Richard Ashley, Natasa Manojlovic, Sebastiaan van Herk, and John Blanksby. 2013. Learning and Action Alliances for innovation and active learning in a European context.
- European Commission Directorate-General for Research and Innovation (2013): Annex I – “Description of Work”. Version date: 2013-10-02. THEME [ENV.2013.6.4-3]. In European Commission Directorate-General for Research and Innovation (ed.): Grant Agreement Number 603663 – PEARL. Preparing for Extreme And Rare Events in coastal regions. Collaborative Project (generic) FP7-ENV-2013-two-stage.
- Gardner, John, Anne-Maree Dowd, Claire Mason, and Peta Ashworth. 2009. A framework for stakeholder engagement on climate adaptation. CSIRO Climate Adaptation Flagship Working Paper 3.
- Gibbons, Michael, C. Limoges, H. Nowotny, S. Schwartzman, P. Scott, and M. Troww. 1994. *The new production of Knowledge*. London, U.K.: Sage
- Hall, A. J. B. Yogan and, J.H. Crouch, and N.G. Clark. 2004. “The Evolving Culture of Science in the Consultative Group on International Agricultural Research: Concepts for Building a New Architecture of Innovation in Agri-biotechnology.” In *Innovations in Innovation: Reflections on Partnership, Institutions and Learning*, edited by A.J.Hall, B. Yoganand, R.V.Sulaiman, Rajeswari Raina, S., C.S. Prasad, Guru C. Naik and N.G. Clark, 135-62. Andhra Pradesh, India: CPHP, ICRISAT and NCAP
- IPCC [Intergovernmental Panel on Climate Change] (ed.). 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Summary for Policy Makers*.
- Lach D., Rayner S. & Ingram H. Taming the waters: strategies to domesticate the wicked problems of water resource management. *Int J Water* 2005, 3, (1), 1–17.
- Lave, J., and E. Wenger. 1991. *Situated learning: legitimate peripheral participation*. Cambridge University Press, Cambridge, UK.
- Lundy, Mark, Maria Verónica Gottret, and Jacqueline Ashby (2005). *Learning Alliances: An Approach for Building Multi-Stakeholder Innovation Systems*. ILAC Brief 8.

- Mavrogenis, Stavros (2016). PEARL RCCA Rethymno Report. PEARL work package 1: Understanding formation of vulnerabilities and risk in coastal regions. Internal project document
- Newman, R., Ashley, R.M., Molyneux-Hodgson, S., Cashman, A., 2011. Managing water as a socio-technical system: the shift from 'experts' to 'alliances'. In: Proc. Institution of Civil Engineers Engineering Sustainability Issue ES1.164, pp. 95– 102.
- Ostrom E (2010) Beyond markets and states: polycentric governance of complex economic systems. *Am Econ Rev* 100(3):641–672
- Pahl-Wostl C., Craps M., Dewulf A., Mostert E., Tabara D. & Taillieu T. Social learning and water resources management. *Ecol Soc* 2007, 12, (2), 5. Available at <http://www.ecologyandsociety.org/vol12/iss2/art5/> (accessed 14 September 2011)
- Pahl-Wostl, C. (2009) A conceptual framework for analysing adaptive capacity and multi-level learning processes in resource governance regimes. *Glob Environ Chang* 19(3):354–365
- Reed, Mark S., Anil Graves, Norman Dandy, Helena Posthumus, Klaus Hubacek, Joe Morris, Christina Prell, Claire H. Quinn, and Lindsay C. Stringer. 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of Environmental Management* 90 (5): 1933–1949.
- PEARL Consortium (2015): First Progress Report January 2014 – June 2015, internal document
- PRO-IDEAL Plus. FP7 Programme. Concept and methodology of Interactive Workshops. 2010. INMARK, EMF, retrieved from: [http://www.ubique.org/Pro-ideal\\_Plus/Results/D3.2\\_Concept\\_and\\_methodology\\_of\\_interactive\\_workshops.pdf](http://www.ubique.org/Pro-ideal_Plus/Results/D3.2_Concept_and_methodology_of_interactive_workshops.pdf)
- Rijke J.S., De Graaf R.E., Van de Ven F.H.M., Brown R.R. & Biron D.J. 2008. Comparative case studies towards mainstreaming water sensitive urban design in Australia and the Netherlands. Proceedings of the 11th International Conference on Urban Drainage (ICUD), Edinburgh, Scotland, 31 August–5 September 2008.
- Scholz JT, Stiftel B (eds) (2005) Adaptive governance and water conflict: new institutions for collaborative planning. RFF Press, Washington
- Sellers J.M. Governing from below, urban regions and the global economy. Cambridge: Cambridge University Press, 2002.
- SURE URBACT II Programme. Participative Planning Methods. 2012. Newsletter I, retrieved from: [http://urbact.eu/fileadmin/Projects/SURE/documents\\_media/1\\_newsletter\\_PP.pdf](http://urbact.eu/fileadmin/Projects/SURE/documents_media/1_newsletter_PP.pdf)
- Thomalla F, Larsen RK (2010) Resilience in the context of tsunami early warning systems and community disaster preparedness in the Indian Ocean region. *Environ Hazards* 9(4):249–265
- Tuinstra W. Learning and evaluation in Integrated Sustainability Assessment. *Int J Innov Sustainable Dev* 2008, 3, (1/2), 128–152.
- Van Buuren A. Competente besluitvorming: het management van meervoudige kennis in ruimtelijke ontwikkelingsprocessen. Den Haag: Centraal Boekhuis, ISBN 9059314794, 2006.
- van Herk, Sebastiaan, C. Zevenbergen, J. Rijke, and R. Ashley. 2011a. Collaborative research to support transition towards integrating flood risk management in urban development. *Journal of Flood Risk Management* 4 (4): 306–317.
- van Herk, Sebastiaan, Chris Zevenbergen, Richard Ashley, and Jeroen Rijke. 2011b. Learning and Action Alliances for the integration of flood risk management into urban planning: a new framework from empirical evidence from The Netherlands. *Environmental Science & Policy* 14 (5): 543–554.
- Varvasovszky, Zsuzsa, and Ruairi Brugha. 2000. How to do (or not to do) A stakeholder analysis. *Health Policy and Planning* 15 (3): 338–345.
- Verhagen J., Butterworth J. & Morris M. Learning alliances for integrated and sustainable innovations in urban water management. Proc. 33rd WEDC International conference, Accra, Ghana. 2008.
- Vojinovic Z., Hammond M., Golub D., Hirunsalee S., Weesakul S., Meesuk V., Medina N., Sanchez A., Kumara S. & Abbott, M. (2015). Holistic approach to flood risk assessment in areas with cultural heritage: a practical application in Ayutthaya, Thailand. *Natural Hazards*, 1-28.
- WAREMA INTERREG IIIB CADSES Programme (<http://www.cadses-warema.net/>). Water Resources Management in Protected Areas. Methodological Procedures. 2007. MEDSOS. <http://www.medsos.gr/medsos/2008-08-12-07-11-15/2008-08-27-11-57-28/warema.html>
- Wenger E. Communities of practice and social learning systems. *Organization* 2000, 7, 225–246.
- White I. 2008. The absorbent city: urban form and flood risk management. Proc. ICE Urban Design and Planning. Vol. 161, December 2008, Issue DP4, pp 151–161.

## Annex I – Additional material from case study areas

Annex I includes additional material from the respective case study reports. The particular case study partners are responsible for the content of the single sections.

### SPAIN, Marbella (CETaqua)

**Additional Material from the first official stakeholder workshop on 12th of January 2016**

#### *Agenda of the first stakeholder Workshop*

10:00h	Welcome and session presentation
10:10h	“General presentation of the PEARL Project” D. Arlex Sánchez
10:30h	“The PEARL Project and the Marbella case study” D. Xavier Aldea
10:45h	“Advanced urban drainage management and the urban drainage master plan in Marbella” D. Ángel Villanueva
11:00h	“Early warning systems in flood events and impacts on the receiving water body” D. Ángel Villanueva
11:15h	Questions and discussion
11:30h	Coffee break
12:00h	<b>Workshop:</b> “Specific flood requirements in Marbella”  Dialogue with local stakeholders:  <ol style="list-style-type: none"><li>1. “Exposure and impact on the assets and population in a climate change context”</li><li>2. “Post-flood event: returning to normality”</li><li>3. “Preparedness and early warning systems in urban flooding”</li><li>4. “Decision-making process and procedures in case of flooding”</li></ol>
14:00h	Conclusions and next steps
14:20h	Closing
14:30h	Lunch

*Pictures from meeting with stakeholders on 12st of January 2016*



a) Welcome from authorities from the Marbella city council



b) Presentations explaining the PEARL project and flooding issues in Marbella



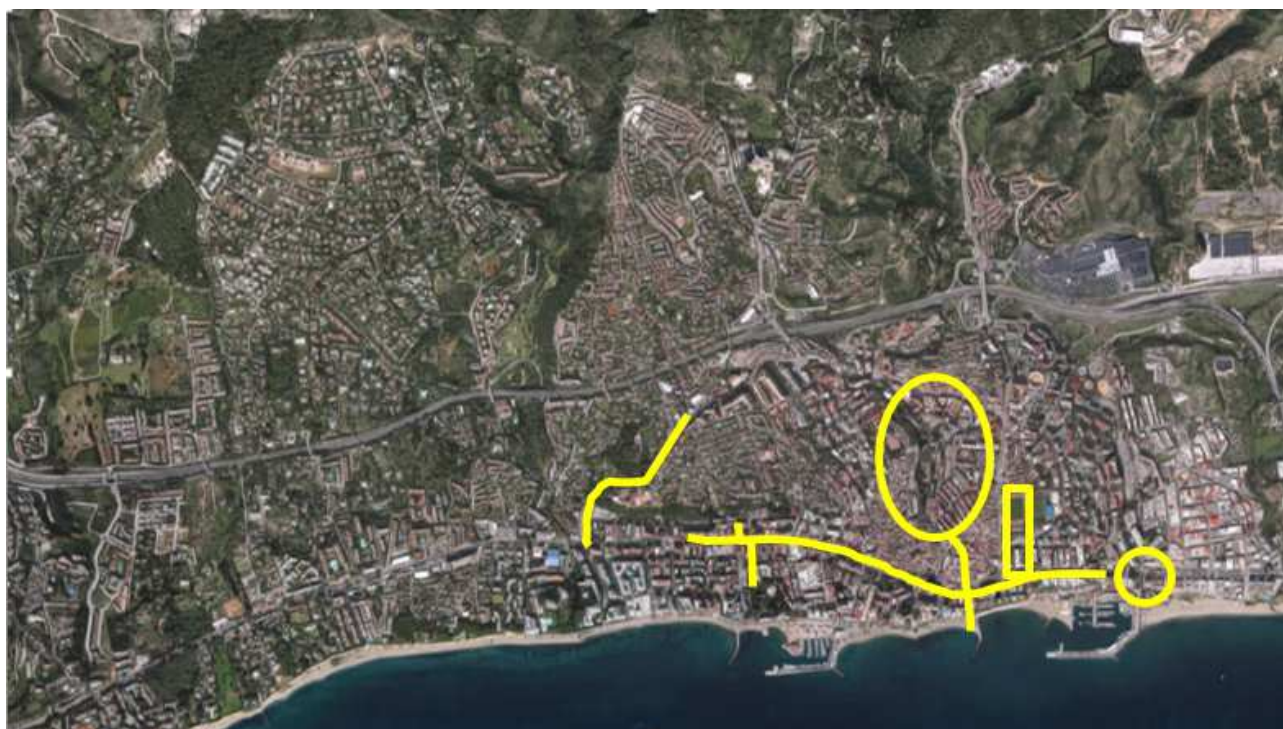


c) General overview of the assistants during the presentations



d) Pictures from the discussion in the workshop groups

## Graphical representation of the outcome



e) Critical points highlighted by the stakeholders

## Questionnaire used during the workshop

Topic
<b>First part: (50' discussion + 30' common conclusions).</b>
Regular critical points in flood events
<i>Is there any particular street impacted?</i>
<i>Is there any gutter or well that causes regular problems?</i>
Damages produced and their scale
<i>Are vehicles regularly damaged? Are they dragged by water?</i>
<i>For how long does the anomalous situation last? Do business need to close? For how long?</i>
<i>Inside the houses, what kind of damages do regularly happen? Are basements regularly flooded?</i>
<i>Are damage repairs made by the owner or by the insurance companies?</i>
<i>Do damages in a Costa del Sol city affect the whole region or are they restricted to local impacts?</i>
Repairment and insurance coverage
<i>Do particulars and/or business owners have insurance policies for the contents and/or continent?</i>
<i>Does the insurance company cover all the damages? Is the owner asuming a percentage?</i>



<i>Do businesses calculate the losses for each particular event? Do problems with suppliers happen in the days after the event?</i>
<i>Is the bureaucracy with insurance companies easy and fast? Is the compensation payed quickly enough?</i>
Evacuation measures and existing anti-flood structures
<i>Have businesses and houses any private anti-flood system (like floodgates, woodbarriers...)? If yes, are they home-made or is there any known company which produces them?</i>
<i>Is there a knowledge of the available public measures at a municipal level? Examples: drainage master plan, retention tanks, advanced network management, infiltration techniques...</i>
<i>Is there a municipal evacuation plan? Is it known by citizens? Are additional measures notified (i.e. via mobile phone)? Are flood prone areas signaled (i.e. tunnels, bridges...)?</i>
Climate change effects on the intensity and frequency of flood events.
<i>Have you noticed a change in frequency or intensity of flood events in the last decades? Is it related with climate change?</i>
Urban development and flood events management Planificación urbana y gestión de inundaciones
<i>Are flood prone areas respected in urban development? Do citizens know the master plan and anti-flood measures?</i>
<i>Are real state prices affected when in flood prone areas?</i>
<i>Further comments</i>

<b>Second part: (30' discussion + 10' common conclusions).</b>
Existing Early Warning Systems (EWS)
<i>Is there any EWS? Is there any threshold to activate alerts? (i.e. % of rain probability, rain accumulation in 24h...)</i>
<i>How is the information spread to citizens? And to other involved entities? By using which technologies? (mobile...)</i>
<i>Who is/would be the end-user of the flood alerts? Who is the interlocutor with citizens? Firefighters? Civil protection?</i>
<i>Is there any application experience? How are/will be warnings managed? Did false warnings happen?</i>
<i>What kind of information should be included in the warnings in order to help decision makers?</i>
<i>Are warnings related to other emergency warnings? Would it be interesting/possible to do it? (i.e. to use a common app to alert for floods, fires, heat waves, wind, terrorism...)</i>
<i>Further comments</i>



**SAN Pedro**  
EL PERIODICO DE TU PUEBLO  
INFORMACIÓN  
SAN PEDRO ALCÁNTARA - PUERTO BANOS - NUEVA ANDALUCÍA

SI QUIERES ANUNCIARTE LLAMA AL  
**627 680 657**

**24 HORAS CERRAJERO LOCKSMITH**  
**617 72 72 72**  
Gasolinera 8P Las Medranas

INICIO LOCAL DEPORTES TURISMO CULTURA GALERÍA DE FOTOS INFORMACIÓN CONTACTO



**Local**

## El Ayuntamiento de Marbella, Cetaqua e Hidralia estudian planes antinundación

12 enero, 2016 Redacción obras

Esta mañana se han presentado en el Palacio de Ferias y Congresos de Marbella las Jornadas Cetaqua-Hidralia, pertenecientes al proyecto europeo Pearl, en colaboración con UNESCO-IHE referente a inundaciones en áreas urbanas, donde se estudiará el caso práctico de la localidad de Marbella. A la jornada han asistido Blanca Fernández, Delegada de Obras e Infraestructuras del Ayuntamiento de Marbella, Xavier Aldea, responsable de proyectos de investigación en Cetaqua Centro Tecnológico del Agua y el gerente de Hidralia en Marbella, Carlos Corral.

Estas jornadas, que se desarrollarán los días 12, 13, 14 y 15 de enero en el Palacio de Congresos, tienen como fin reducir el impacto de las inundaciones urbanas en diferentes ciudades de Europa, a través de la generación de modelos que permitan calcular y medir las consecuencias de inundaciones futuras para el desarrollo de estrategias antinundación.

El proyecto está dirigido a todos los grupos responsables en la gestión de inundaciones y fenómenos extremos de Marbella, con el objetivo de formar grupos de trabajo en los que todos los implicados puedan

SÁBADO, 30 DE ENERO

**ALHAURÍN GOLF**  
TEXAS SCRAMBLE (PAREJAS)  
PRECIO: 40€  
GREEN FEE - BUGGY - COMIDA  
PREMIOS Y SORTEO  
Tel. 951 979 337 - 861 792 433  
sanpedrogolf@gmail.com

**SAN PEDRO GOLF**

+34 - 952 78 00 06

**Fernando Moreno**  
www.fernandomoreno.es  
Azulejos - Baños - Cocinas  
Muebles - Decoración  
Materiales de construcción - Ferretería

Previsión Meteorológica

El tiempo. Marbella		
JUE 28	VIE 29	SÁB 30
12-24	00-12	12-24
11 / 15	12 / 15	12 / 15
0%	90%	100%

© AEMET



**MERYVA**  
PISCINAS, RIEGO Y JARDINERÍA

<http://sanpedroinformacion.com/el-ayuntamiento-de-marbella-cetaqua-e-hidralia-estudian-planes-antinundacion/>



**GUERREROCAR**  
CONCESIONARIOS Y SERVICIOS OFICIALES



Oxígeno hiperbárico=Calidad de vida

- ¿Heridas o úlceras de difícil cicatrización?
- ¿Accidente neurológico?
- ¿Lesión muscular o fractura?
- ¿Secuelas de radioterapia o quimioterapia?

# marbella24horas.es

La información al instante de Marbella y San Pedro

Establecer como página de inicio

Añadir a favoritos

PORTADA

LOCAL

TURISMO

CULTURA

PROVINCIA

ANDALUCÍA

DEPORTES

GALERÍA DE FOTOS

Agenda

Sorteos

Cines

Teléfonos de interés

Servicios Religiosos

Asociaciones

Farmacias

Plan Municipal de la Bicicleta

## ¿CONOCES A ALGUIEN QUE HAYA SUFRIDO UN ACCIDENTE DE TRÁFICO?

ASISTENCIA MÉDICA PRIVADA **GRATUITA** PARA EL PACIENTE más información

LOCAL | CONGRESO

Tweet

Compartir 11

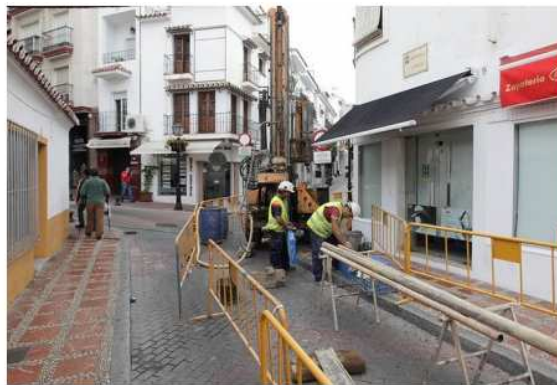
G+1 0

## Hidralia anuncia actuaciones en el alcantarillado de Huerta Chica

J. C. A. | 12/01/2016

Hidralia, la empresa concesionaria del saneamiento en Marbella, ha anunciado este martes que "en breve" acometerá actuaciones en la calle Huerta Chica de Marbella. Así lo ha asegurado su gerente, en la presentación de unas jornadas, hasta el viernes en el Palacio de Congresos, donde se estudiará cómo reducir el impacto de las inundaciones urbanas en diferentes ciudades de Europa.

Carlos Corral, gerente de Hidralia, ha dicho que su empresa "lleva varios meses identificado los puntos en los que se deben priorizar las actuaciones tanto de mantenimiento como de



La calle Huerta Chica de Marbella.

PARTICIPA EN EL SORTEO DE UNA FANTÁSTICA CESTA DE REGALO. PINCHA AQUÍ PARA CONOCER LOS DETALLES



MARBELLA  
★★★★★  
Destino Emblemático



Lago Natural



MARFIL COMMUNITIES  
ADMINISTRACIÓN DE FINCAS  
info@marfil-communities.es - 952471016

<http://www.marbella24horas.es/local/hidralia-anuncia-actuaciones-en-el-alcantarillado-de-huerta-chica-13548>





RECOMENDAR



COMENTAR



PUBLICIDAD

MARBELLA | LOCAL

## Expertos en la materia estudian la posición de la ciudad ante el riesgo de inundaciones



NACHO REYES  
12/01/2016 18:40

Las Jornadas Cetaqua-**Hidralia**, enmarcadas en el proyecto europeo Pearl, en colaboración con UNESCO-IHE, referentes a inundaciones en áreas urbanas, estudian el caso práctico de Marbella.

A la primera de las citas han asistido Blanca Fernández Tena, Delegada de Obras e Infraestructuras del Ayuntamiento de Marbella, Xavier Aldas Beruvel, responsable de proyectos de investigación en



Martes, 12/01/2016



## LAS + DESTACADAS DE MARBELLA

**LEIDAS**

COMENTADAS

+  
VOTADAS

**1** El equipo de gobierno de Marbella dona a Cruz Roja los regalos institucionales recibidos en Navidad

**2** Pérez admite que ha habido periodo de ajuste en el Urbanismo, pero ya trabajan con el PGOU del 86

**3** Los comerciantes del Casco Antiguo creen que la Navidad ha sido "regular"

#### 4 CSP defiende la legalidad de la contratación de su número 26 como administrativo en el Puerto Deportivo

### 5 Marbella impulsará una revisión del acuerdo con el Patronato de Recaudación

## 6 Crecen las voces que piden una votación de los empleados laborales sobre condiciones en el Ayuntamiento

**7** El Consejo Consultivo avala el despido de uno de los directivos contratados por el PP en un QAL.

8 CSSP presentará alegaciones para que la Oficina de Reclamaciones no sea un órgano con afinidad política

[http://andaluciainformacion.es/m/?a=562776&friendly\\_url=marbella&t=expertos-en-la-materia-estudian-la-posicion-de-la-ciudad-ante-el-riesgo-de-inundaciones](http://andaluciainformacion.es/m/?a=562776&friendly_url=marbella&t=expertos-en-la-materia-estudian-la-posicion-de-la-ciudad-ante-el-riesgo-de-inundaciones)



## Noticias municipales

Gabinete de Prensa del Excmo. Ayuntamiento de Marbella



Martes, 12 Enero 2016 14:50



### Ayuntamiento de Marbella, Cetaqua e Hidralia estudian planes antinundación

OBRAS Y SERVICIOS OPERATIVOS



Esta mañana se han presentado en el Palacio de Ferias y Congresos de Marbella las Jornadas Cetaqua-Hidralia, pertenecientes al proyecto europeo Pearl, en colaboración con UNESCO-IHE referente a inundaciones en áreas urbanas, donde se estudiará el caso práctico de la localidad de Marbella. A la jornada han asistido Blanca Fernández, Delegada de Obras e Infraestructuras del Ayuntamiento de Marbella, Xavier Aldea, responsable de proyectos de investigación en Cetaqua Centro Tecnológico del Agua y el gerente de Hidralia en Marbella, Carlos Corral.

Estas jornadas, que se desarrollarán los días 12, 13, 14 y 15 de enero en el Palacio de Congresos, tienen como fin reducir el impacto de las inundaciones urbanas en diferentes ciudades de Europa, a través de la generación de modelos que permitan calcular y medir las consecuencias de inundaciones futuras para el desarrollo de estrategias antinundación.

#### Calendario de Noticias

ENERO 2016						
LUN	MAR	MIE	JUE	VIE	SAB	DOM
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

#### Gabinete de Prensa

Noticias municipales

Buscar noticias

Convocatorias de Prensa

Agenda informativa

Avisos importantes

#MarbellaEsUnica

<http://www.marbella.es/inicio/prensa/noticias/92-noticias/27120/ayuntamiento-de-marbella-cetaqua-e-hidralia-estudian-planes-antinundacion.html>

## Municipal decision in involvement in LAA Rethymno (14/04/2014)

ΠΡΑΚΤΙΚΟ 9	
Συνεδριάσεις του Δημοτικού Συμβουλίου Ρεθύμνης	
Θέμα: «Συμμετοχή του Δήμου Ρεθύμνης στην υλοποίηση του έργου με τον τίτλο PEARL (Preparing for Extreme And Rare events in coastal regions)»	
Η συνεδρίαση έγινε στις 04.04.2014 ημέρα Παρασκευή και ώρα 14:00, στην αίθουσα του Δημαρχείου, υπό την Προεδρία του Προέδρου του Δημοτικού Συμβουλίου κ. Σκορδίλη Γεωργίου, αφού επεδόθη η με αρ. 9/31.03.14 πρόσκληση προς όλα τα μέλη του Δ.Σ.	
ΠΑΡΟΝΤΕΣ ΔΗΜΟΤΙΚΟΙ ΣΥΜΒΟΥΛΟΙ	ΑΠΟΝΤΕΣ ΔΗΜΟΤΙΚΟΙ ΣΥΜΒΟΥΛΟΙ
1. ΑΛΕΞΑΝΤΡΙΝΟΣ ΜΙΝΩΣ	1. ΚΟΥΝΔΟΥΡΑΚΗΣ ΙΩΑΝΝΗΣ
2. ΑΠΟΣΤΟΛΑΚΗ ΑΝΑΣΤΑΣΙΑ	2. ΠΑΠΑΔΑΚΗΣ – ΠΙΤΑΣ ΣΤΥΛΙΑΝΟΣ
3. ΓΑΛΕΡΑΚΗ ΕΥΑΓΓΕΛΙΑ	3. ΠΑΤΕΡΑΚΗΣ ΕΜΜΑΝΟΥΗΛ
4. ΓΑΛΛΙΟΣ ΜΙΧΑΗΛΗΣ	4. ΣΑΡΙΔΑΚΗΣ ΚΩΝΣΤΑΝΤΙΝΟΣ
5. ΓΕΩΡΓΙΑΝΗΣ ΓΕΩΡΓΙΟΣ	5. ΣΤΑΡΕΝΙΟΥ – ΜΠΡΙΛΛΑΚΗ ΖΩΗ
6. ΗΛΙΑΚΗΣ ΚΩΝΣΤΑΝΤΙΝΟΣ	6. ΜΑΡΙΝΑΚΗ ΠΑΡΑΣΚΕΥΗ
7. ΚΟΝΤΑΣΑΚΗΣ ΝΙΚΟΛΑΟΣ	7. ΔΡΥΤΙΑΝΝΑΚΗΣ ΓΕΩΡΓΙΟΣ
8. ΛΑΥΝΙΔΑΚΗΣ ΔΗΜΗΤΡΙΟΣ	8. ΒΛΑΣΤΟΣ ΓΕΩΡΓΙΟΣ
9. ΛΕΛΕΔΑΚΗΣ ΔΗΜΗΤΡΙΟΣ	
10. ΛΙΤΙΝΑΣ ΕΜΜΑΝΟΥΗΛ	
11. ΜΑΒΙΟΥΔΑΚΗΣ ΞΕΝΟΦΩΝ	
12. ΜΑΛΑΣ ΑΓΓΕΛΟΣ	
13. ΜΠΡΙΛΛΑΚΗ ΜΑΜΑΛΑΚΗ ΘΕΟΠΙΣΤΗ	
14. ΠΑΠΑΔΟΥΡΑΚΗΣ ΑΝΑΣΤΑΣΙΟΣ	
15. ΣΥΡΙΑΝΟΥΛΟΣ ΑΝΑΣΤΑΣΙΟΣ	
16. ΤΣΙΜΠΙΣΚΑΚΗΣ ΜΑΤΘΑΙΟΣ	
17. ΤΣΙΟΜΠΙΚΑΣ ΓΡΗΓΟΡΙΟΣ	
18. ΧΑΡΝΙΑΚΑΚΗΣ ΣΤΥΛΙΑΝΟΣ	
19. ΝΙΝΟΣ ΝΙΚΟΛΑΟΣ	
20. ΣΠΙΛΑΝΟΥΔΑΚΗΣ ΣΤΥΛΙΑΝΟΣ	
21. ΧΑΜΟΓΕΩΡΓΑΚΗΣ ΘΕΜΙΣΤΟΚΛΗΣ	
22. ΜΑΘΙΟΥΔΑΚΗΣ ΚΩΝΣΤΑΝΤΙΝΟΣ	
23. ΑΝΔΡΟΥΛΑΚΗΣ ΜΙΧΑΗΛ	
24. ΜΑΝΟΥΣΤΙΑΝΗΣ ΜΑΝΟΥΣΟΣ	

Οι κ.κ. Γαλιός, Σπανουδάκης, Χαμουγεωργάκης, Μαθουδάκης Κ. και Ανδρουλάκης αποχώρησαν από τη συνεδρίαση μετά την ολοκλήρωση του 1ου θέματος της ημερήσιας διάταξης, το οποίο προτάθηκε και συζητήθηκε πρώτο, πριν τη συζήτηση των θεμάτων που τέθηκαν εκτός ημερήσιας διάταξης.

Ο κ. Μανουστιανής αποχώρησε κατά τη διάρκεια συζήτησης του 4ου θέματος της ημερήσιας διάταξης, αφού είχε ολοκληρωθεί η συζήτηση του 1ου θέματος της ημερήσιας διάταξης.

Οι κ.κ. Μαλάς και Νίνος αποχώρησαν μετά την ολοκλήρωση των θεμάτων 1, 4, 5 και 11 της ημερήσιας διάταξης, τα οποία προτάθηκαν και συζητήθηκαν πριν τη συζήτηση των θεμάτων που τέθηκαν εκτός ημερήσιας διάταξης.

Παρόντες Πρόεδροι – Εκπρόσωποι Τοπικών & Δημοτικών Κοινοτήτων: Χριστομήλης Θωμάς – Δ.Κ. Ρεθύμνης, Γαλιός Ιωσήφ – Τ.Κ. Αγίου Κωνσταντίνου, Βαρούνης Αντώνης – Τ.Κ. Δάμ. Καμπούρακις Νικόλαος – Τ.Κ. Επισκοπής, Γαλέρης Εμμανουήλ – Τ.Κ. Καλονικίου, Βασιλακάκης Ελευθέριος – Τ.Κ. Μαρούλι, Βουγιουκαλάκης Ιωάννης – Τ.Κ. Μοιρών, Παπαδάκης Μάριος – Τ.Κ. Ορούς, Κιαγιάς Δράκος – Τ.Κ. Πρίνου, Παυλάκης Χαράλαμπος – Τ.Κ. Σκόλιου και Σερλής Δημήτρης – Τ.Κ. Χαμαλευρίου.

Παρόντος του Δημάρχου Ρεθύμνης κ.Μαρινάκη Χ. Γεωργίου, της Δητριάς των Τεχνικών Υπηρεσιών & Πολιτοδομίας του Δήμου κας Κελένη Γεωργιάς και της Δημοτικής Υπαλλήλου κας Γαργερού Ελευθερίας, ειδικής Γραμματέως του Δημοτικού Συμβουλίου.

Ο κ.Πρόεδρος αφού διαπιστώθηκε ότι υπάρχει νόμιμη απαρτία και υπενθύμισε ότι(σύμφωνα με την 50α/91 απόφαση του Δ.Σ.), το πρακτικό θα προκύπτει συνοπτικά με τρόπο σαφή και ακριβή και παράλληλα θα προκύπτει οι μαγνητοταινίες των συζητήσεων που θα είναι προσιτές σε κάθε ενδιαφερόμενο, κήρυξε την έναρξη της συνεδρίασης, προς συζήτηση 3ου θέματος της ημερήσιας διάταξης.

ΣΚΕΠΤ: 210

Ο κ. Πρόεδρος ανακοίνωσε το θέμα «Συμμετοχή του Δήμου Ρεθύμνης στην υλοποίηση του έργου με τον τίτλο PEARL (Preparing for Extreme And Rare events in coastal regions)» και έθεσε υπόψη του Συμβουλίου την εισήγηση της Διεύθυνσης Τεχνικών Υπηρεσιών, η οποία έχει ως εξής:

“Στα πλαίσια του Ευρωπαϊκού προγράμματος European Union's Seventh Framework Programme for Research, Technological Development and Demonstration (EU-FP7) με θέμα ‘Coasts at Threat in Europe: tsunamis and climate-related risks’ (ENV/2013.6.4-3), εγκρίθηκε το έργο με το τίτλο PEARL(Preparing for Extreme And Rare events in coastal regions) (Προετοιμασία για ακραία και σπάνια συμβάντα σε παράκτιες περιοχές) και στο οποίο συμμετέχει από τη χώρα μας το Εθνικό Μετσόβειο Πολυτεχνείο.

Στα πλαίσια υλοποίησης του ως άνω έργου προσκλήθηκε ο Δήμος μας, από το Εθνικό Μετσόβειο Πολυτεχνείο να συμμετέχει και να συνεργαστεί ως η πόλη της Ελλάδας στην οποία θα γίνει η επιστημονική έρευνα τα αποτελέσματα της οποίας θα χρησιμοποιηθούν στο πρόγραμμα.

Πρόκειται για ένα πρόγραμμα στο οποίο εκτός από το Εθνικό Μετσόβειο Πολυτεχνείο συμμετέχουν ακόμη 24 επιστημονικοί φορείς από 13 χώρες. Η εφαρμογή και η εξειδίκευση των αποτελεσμάτων του ερευνητικού προγράμματος θα γίνει σε 7 περιοχές της Ευρώπης, εκ των οποίων η μία είναι το Ρέθυμνο, και σε 6 άλλες διεθνείς (συνολικά 13).

Η επιλογή του Ρεθύμνου έγινε καθώς έχει πληγεί κατά το παρελθόν από ακραία καιρικά φαινόμενα τα οποία μάλιστα έχουν προκαλέσει σημαντικές ζημιές στην περιοχή του λιμένα και στη γύρω παράκτια περιοχή. Τα αποτελέσματα του ερευνητικού έργου θα είναι χρήσιμα και αξιοποιήσιμα για την πρόβλεψη του κινδύνου στο μέλλον από τέτοιου είδους φαινόμενα καθώς και για την ανάπτυξη μέτρων προστασίας της παράκτιας ζώνης και ενημέρωσης του κοινού.

Στα πλαίσια των εργασιών του προγράμματος προβλέπεται συνάντηση μεταξύ των επιστημονικών φορέων 2 φορές το χρόνο. Έπειτα από το εναρκτήριο meeting που έλαβε χώρα στο Αμβούργο 22 – 24 Ιανουαρίου 2014, η αμέσως επόμενη συνάντηση ορίστηκε 2 – 4 Ιουλίου στο Ρέθυμνο.

Λαμβάνοντας όλα τα παραπάνω υπ’ όψιν καθώς και την επιστολή – πρόσκληση για συνεργασία στο εν λόγω πρόγραμμα καλείται το Δ.Σ. να αποφασίσει:

1. Να εγκρίνει η συμμετοχή του Δήμου Ρεθύμνης στην υλοποίηση του ερευνητικού προγράμματος με τον τίτλο PEARL (Preparing for Extreme And Rare events in coastal regions) σε συνεργασία με το Εθνικό Μετσόβειο Πολυτεχνείο.
2. Να ορίσουν προϊστάμενος του τμήματος Προγραμματισμού και Ανάπτυξης Βύβος Νικόλαος και ο Ειδικός Σύμβουλος του Δημάρχου, Μυριοκεφαλτάκης Βασίλειος ως υπεύθυνοι για την υλοποίηση του προγράμματος.

Στη συνέχεια ο κ. Κοντοζάκης έδωσε περαιτέρω διευκρινήσεις.

Το Συμβούλιο μετά τα παραπάνω και αφού είδε τις διατάξεις του άρθρου 65 του Ν.3852/2010 και την από 25-02-2014 επιστολή – πρόσκληση του Εθνικού Μετσόβειο Πολυτεχνείου – Σχολή Πολιτικών Μηχανικών – Τομέας Υδατικών Πόρων και Περιβάλλοντος, εξέδωσε ομόφωνα την 210/14 απόφαση του ως εξής:

Αριθμός Απόφασης 210

ΑΠΟΦΑΣΙΖΕΙ

1. Εγκρίνει την συμμετοχή του Δήμου Ρεθύμνης στην υλοποίηση του ερευνητικού προγράμματος με τον τίτλο PEARL (Preparing for Extreme And Rare events in coastal regions) σε συνεργασία με το Εθνικό Μετσόβειο Πολυτεχνείο.
2. Ορίζει τον προϊστάμενο του τμήματος Προγραμματισμού και Ανάπτυξης Βύβος Νικόλαο και τον Ειδικό Σύμβουλο του Δημάρχου, Μυριοκεφαλτάκη Βασίλειο, ως υπεύθυνους για την υλοποίηση του παραπάνω προγράμματος.

Ο ΠΡΟΕΔΡΟΣ

Η ΓΡΑΜΜΑΤΕΑΣ

ΤΑ ΜΕΛΗ

ΣΚΟΡΔΙΛΗΣ ΓΕΩΡΓΙΟΣ

ΓΑΡΓΕΡΟΥ ΕΛΕΥΘΕΡΙΑ

ΑΚΟΛΟΥΘΟΥΝ ΥΠΟΓΡΑΦΕΣ

## Additional material from the technical meeting with stakeholders on 1<sup>st</sup> of July



- a) Mr Archontakis (former mayor) describing the case study, the flood problems and the measures/strategies selected as flood defence





b) Representatives of the Municipal Water Supply and Sewerage Company



c) Representatives of the Municipal Port Authority



d) Volunteers of the Civil Protection Volunteer Team of Rethymno

Additional material from the 1<sup>st</sup> official LAA workshop on 1<sup>st</sup> and 2<sup>nd</sup> of October 2015

*Invitation of the 1<sup>st</sup> official LAA workshop in Rethymno (01 & 02/10/2015)*



*Photos from Workshop 01 & 02/10/2015*



a) Presentation of PEARL project (01/10/2015)

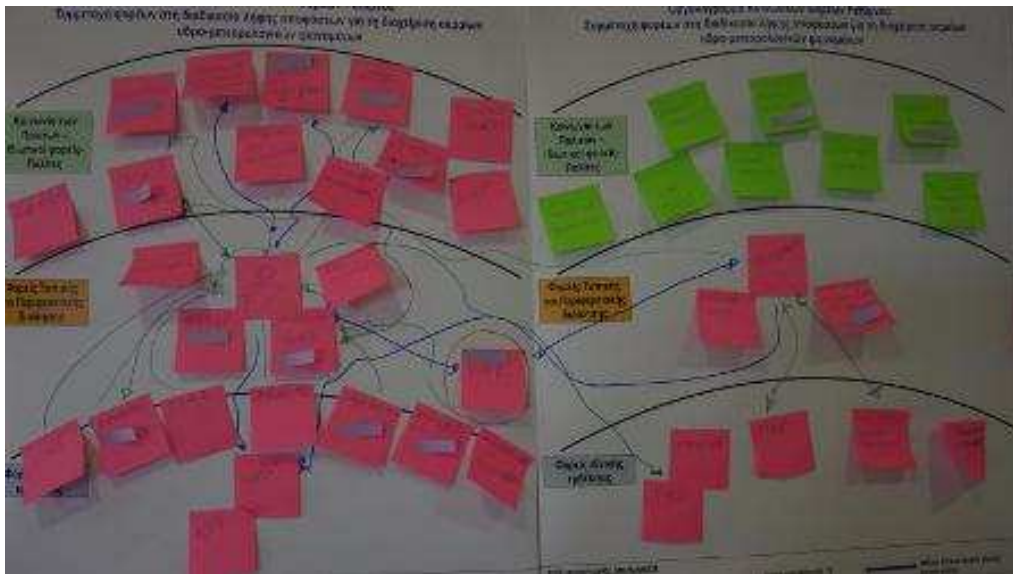


b) Mayor of Rethymno (01/10/2015)



c) Working group aimed to establish facts in terms of stakeholders' flood risk perception and problems identification (1/10/2015)





d) Sociogram Working groups (2/10/2015)



e) Working groups LAA development (02/10/2015)

## Dissemination material and reporting in the local press

### Dissemination material from meetings of 1st July 2014

Press releases were distributed to the local press in order to demonstrate the project and its objectives to the local society aiming to the engagement of local stakeholders. As a result a number of significant articles and references were produced by local Newspapers, online press and media (see pictures below). Extracts include conducted interviews taken from the Associate Professor Zoran Vojinovic, Coordinator of PEARL, and Ass. Professor Christos Makropoulos, Scientific Responsible on behalf of NTUA and WP5 leader. Conducted meetings with key stakeholders are also mentioned in the respective reports.

**ΕΤΟΣ ΙΔΡΥΣΗΣ 1965**  
**ΠΕΡΙΟΔΟΣ Β**  
**ΑΡ. ΦΥΛΛΟΥ 11.302**  
**ΤΙΜΗ 0,70 ΕΥΡΩ**

# ΡΕΘΕΜΝΙΟΤΙΚΑ ΝΕΑ

**ΣΤΗΝ ΥΠΗΡΕΣΙΑ ΤΟΥ ΡΕΘΕΜΝΟΥ ΚΑΙ ΤΗΣ ΔΗΜΟΚΡΑΤΙΑΣ**

**ΠΕΜΠΤΗ 3**  
**ΙΟΥΛΙΟΥ 2014**

Εκδοτική Ένωση Δημοκρατικής Κρήτης Α.Ε. - Εκδόσεις Δευτερεύουσας Ε.Ε. Καλλιμάχης - Γραφείο Μονάσας 7-9 74100 Ρέθυμνο - Τηλ. 28310 29292 - Fax αγγελιών-καταχωρίων 28310 55413 - Fax σύνταξης 28310 50040 - e-mail: info@rethemia.gr - www.rethemia.gr

**ΕΠΙΣΤΗΜΟΝΙΚΟ ΣΥΝΕΔΡΙΟ**  
**Έρευνα για τη διαχείριση ακραίων φυσικών φαινομένων στο Ρέθυμνο**

Σελίδα 6

**ΔΡΟΜΟΛΟΓΕΙ Η ΠΕΡΙΦΕΡΕΙΑ**  
**«Γέφυρα συνεργασίας» Κρήτης και Πολωνίας**

Σελίδα 7

**ΣΤΟ ΠΛΑΙΣΙΟ ΤΗΣ ΓΙΟΡΤΗΣ ΚΡΗΤΙΚΗΣ ΔΙΑΤΡΟΦΗΣ**  
**Εφτάζυμο... το ξεχασμένο Κρητικό ψωμί**

Σελίδα 13

## Έρευνα για τη διαχείριση ακραίων φυσικών φαινομένων στο Ρέθυμνο

ΕΠΙΣΤΗΜΟΝΙΚΟ ΣΥΝΕΔΡΙΟ

Η διαχείριση κινδύνων φυσικών καταστροφών που σχετίζονται με το νερό, όπως είναι οι πλημμύρες, και το τσουνάμι αποτελούν τα αντικείμενα ευρωπαϊκού προγράμματος όπως οι επιστήμονες καλούνται να μελετήσουν από ευρωπαϊκές παραδόσεις πόλεις, μια εκ των οποίων και το Ρέθυμνο, όπου πραγματοποιείται αυτές τις ημέρες οριστικό συνέδριο.

Η εξέταση των δεδομένων του παρελθόντος, δηλαδή ποιά ήταν οι φυσικές καταστροφές που σημειώθηκαν και πως αυτές αντιμετωπίστηκαν από πλημύρες Αυτοδιοίκησης και συνεργασίας των υπηρεσιών πολιτικής προστασίας, αποτελεί το πρώτο κομμάτι της έρευνας, για να ακολουθήσει στη συνέχεια η εξέταση του τρόπου αντιμετώπισης ενδεχόμενου κινδύνου.

Το πρόγραμμα ξεκίνησε τον Ιανουάριο του 2014 και θα ολοκληρωθεί το 2018. Σε δηλώσεις του στο «ΡΝ» ο κ. **Χρήστος Μακρόπουλος**, επικεφαλής καθηγητής στο Εθνικό Μετσόβειο Πολυτεχνείο, στη σχολή Πολιτικών Μηχανικών ανέφερε μεταξύ άλλων: «Η Ευρωπαϊκή Ένωση ενδιαφέρεται πάρα πολύ να δραστηριοποιηθεί στα θέματα αυτά και τις διαδικασίες που χρειάζονται για τη διαχείριση αυτών των κινδύνων τώρα και στο μέλλον. Άρα ένας βασικός στόχος του προγράμματος είναι να εδρώσει σε αυτή με τις τοπικές κοινωνίες να ανακαλύψουμε από μέσα προβλήματα που έχουν όχι μόνο τεχνικά, αλλά και συνεργασίας πολιτικής προστασίας κ.λπ. και μαζί με αυτούς να βοηθήσουμε να διαγερθούν καλύτερα τον κίνδυνο στην πόλη. Το Ρέθυμνο είναι μια πολύ ενδιαφέρουσα περίπτωση κοντά στη θάλασσα και ένα πολύ σημαντικό στοιχείο στην περιήγηση του Ρεθύμνου, είναι ότι η τοπική κοινωνία, ο δήμος και η ΔΕΥΔΗΡ καθώς και οι εθελοντές και η τοπική κοινωνία που ασχολείται με αυτό το θέμα, δείχνει ένα πολύ μεγάλο ενδιαφέρον».

Από την πλευρά του ο **John Βοϊνιχ** καθηγητής Συστημάτων Ισσορροπίας νερού, στο Πανεπιστήμιο στο Δελφ της Ολλανδίας και συντονιστής προγράμματος υποστήριξε: «Ο βασικός στόχος του προγράμματος είναι η καλύτερη προστασία των κοινωνιών να την αντιμετώπιση ακραίων φυσικών φαινομένων. Το Ρέθυμνο είναι μια από τις σημαντικές πόλεις που έχουν επέλθει για την αντιμετώπιση μεθόδολογίας και ο βασικός μας στόχος είναι ότι από τα εργαλεία της τοπικής κοινωνίας, κότε περίπτωση πόλης έχει διαφορετικές κλιματικές συνθήκες, διαφορετικές κοινωνικές συνθήκες, όπως και στην περίπτωση του Ρεθύμνου οι βασικοί κίνδυνοι, οι βασικές διαδικασίες που μας ενδιαφέρουν είναι πλημμύρες από τη θάλασσα, ακραίες πλημμύρες αλλά κυρίως συνδυασμός αυτών των 2».

**Το Ευρωπαϊκό πρόγραμμα «PEARL»**  
Το Ευρωπαϊκό Υδρολογίας και Αξιοποίησης Υδάτων πόρων της Σχολής Πολιτικών Μηχανικών του Εθνικού Μετσόβειου Πολυτεχνείου πραγματοποιεί τη 2η Συνέλευση Επιστημών του Ευρωπαϊκού Ερευνητικού Προγράμματος PEARL: (Preparing Extreme And Rare events in coastal regions), στο Ρέθυμνο Κρήτης και συγκεκριμένα στο Aegean Pearl Hotel (Μαριότσια Ρεθύμνου).

Το «PEARL» είναι ένα Ευρωπαϊκό Ερευνητικό έργο που υλοποιείται στο πλαίσιο του Προγράμματος Πλαίσιο χρηματοδοτούμενο από την Γενική Διοίκηση Έρευνας της Ευρωπαϊκής Επιτροπής και αφορά στην προετοιμασία των κοινωνιών για ακραία μελλοντικά υδρομετεωρολογικά φαινόμενα σε παράλιες περιοχές.

Η πόλη του Ρεθύμνου αποτελεί μια από τις 7 πόλεις, παλαιές, εφαρμογής του έργου στην Ευρώπη, λόγω των ιδιαίτερων γεωμετεωρολογικών, υδρολογικών και πολεοδομικών χαρακτηριστικών, καθώς και των ιστορικών γεγονότων πλημμύρας και της διαδικασίας αντιμετώπισής τους. Στόχος είναι να συλλεχθούν μαθήματα από το παρελθόν και να προκύψουν ιδέες για την προστασία από ακραία φαινόμενα στο μέλλον, σε συνεργασία με την τοπική κοινωνία.

Η ερευνητική ομάδα του ΕΜΠ με επικεφαλής τον επίκουρο καθηγητή Χρήστο Μακρόπουλο και ερευνητές από το Kings College London και το United Nations University πραγματοποιείται κείμενα που εστιάζουν στην επικοινωνία της Αυτοδιοίκησης και της ευρύτερης τοπικής κοινωνίας, με σκοπό αφενός την ενημέρωσή τους για τους στόχους και το αντικείμενο του έργου και αφετέρου την ενεργή συμμετοχή τους σε μελλοντικές δράσεις επιδείξεων και πιθανών εφαρμογών των τεχνολογικών εργαλείων που θα αναπτύσσονται στο PEARL.

Το ΕΜΠ έχει ήδη ξεκινήσει επικοινωνία με την Περιφέρεια Κρήτης, το δήμο Ρεθύμνου και την Οργάνωση Ανάπτυξης Κρήτης, ενώ κατά την έναρξη των εργασιών της συνάντησης του PEARL, ο αντιδήμαρχος Τζορζήν Γεωργίου κ. **Νίκος Κωνσταντίνος** απεύθυνε σύντομο ομιλία, όπου χαρακτήρισε τη διοργάνωση και εξέτασε τη θετική διάθεση του Δήμου να συνεργαστεί σε ένα κοινό έργο, το οποίο θα μπορούσε να βοηθήσει μελλοντικά στη βελτίωση αντίστασης της πόλης του Ρεθύμνου και την αποφυγή καταστροφικών φαινομένων. Στην επερχόμενη ομιλία περιεργάστηκε και ο αντιδήμαρχος Τζορζήν Γεωργίου.

Παράλληλα υλοποιήθηκαν συναντήσεις με το Λιμενικό Ταμείο Ρεθύμνου και την προστατευτική κυρία **Αθανασία Δασκαλάκη**, με τη ΔΕΠΤ Ρεθύμνου όπου παρουσιάσαν ο πρόεδρος κύριος **Μάλας Άγγελος**, μέλη του Δ.Σ. και εκπαιδευτικό προσωπικό της πόλης και με την Εθελοντική Ομάδα Πολιτικής Προστασίας Ρεθύμνου όπου παρουσιάσαν ο πρόεδρος κύριος **Στέφανος Δαμανάκης**, μέλη του Δ.Σ. και εθελοντές της ομάδας.

**Ελπίδα Αριστείδου**

■ Στο Ευρωπαϊκό πρόγραμμα συμμετέχουν 23 διακεκριμένοι φορείς από Ευρώπη, Αμερική και Ασία (ντιπύστα, ερευνητικά κέντρα και πανεπιστήμια) ενώ θα εξεταστούν 7 πόλεις παλαιές από την Ευρώπη, με σκοπό την ανάπτυξη ενός ολοκληρωτικού πλαισίου που θα λαμβάνει υπόψη όλους τους παράγοντες πρόκλησης πλημμύρας, και τις διαδικασίες αλληλεπίδρασης μεταξύ τους, ενώ συγχρόνως θα επιδιώκει την ενίσχυση της σχέσης ανάμεσα σε πολιτεία, φορείς, την τοπική κοινωνία στη διαδικασία λήψης αποφάσεων, σε ό,τι αφορά τη διαχείριση ενός κινδύνου ή φαινομένου πλημμύρας.

Η πόλη του Ρεθύμνου αποτελεί μια από τις 7 πόλεις, παλαιές, εφαρμογής του έργου στην Ευρώπη, λόγω των ιδιαίτερων γεωμετεωρολογικών, υδρολογικών και πολεοδομικών χαρακτηριστικών, καθώς και των ιστορικών γεγονότων πλημμύρας και της διαδικασίας αντιμετώπισής τους. Στόχος είναι να συλλεχθούν μαθήματα από το παρελθόν και να προκύψουν ιδέες για την προστασία από ακραία φαινόμενα στο μέλλον, σε συνεργασία με την τοπική κοινωνία.

Η ερευνητική ομάδα του ΕΜΠ με επικεφαλής τον επίκουρο καθηγητή Χρήστο Μακρόπουλο και ερευνητές από το Kings College London και το United Nations University πραγματοποιείται κείμενα που εστιάζουν στην επικοινωνία της Αυτοδιοίκησης και της ευρύτερης τοπικής κοινωνίας, με σκοπό αφενός την ενημέρωσή τους για τους στόχους και το αντικείμενο του έργου και αφετέρου την ενεργή συμμετοχή τους σε μελλοντικές δράσεις επιδείξεων και πιθανών εφαρμογών των τεχνολογικών εργαλείων που θα αναπτύσσονται στο PEARL.

Το ΕΜΠ έχει ήδη ξεκινήσει επικοινωνία με την Περιφέρεια Κρήτης, το δήμο Ρεθύμνου και την Οργάνωση Ανάπτυξης Κρήτης, ενώ κατά την έναρξη των εργασιών της συνάντησης του PEARL, ο αντιδήμαρχος Τζορζήν Γεωργίου κ. **Νίκος Κωνσταντίνος** απεύθυνε σύντομο ομιλία, όπου χαρακτήρισε τη διοργάνωση και εξέτασε τη θετική διάθεση του Δήμου να συνεργαστεί σε ένα κοινό έργο, το οποίο θα μπορούσε να βοηθήσει μελλοντικά στη βελτίωση αντίστασης της πόλης του Ρεθύμνου και την αποφυγή καταστροφικών φαινομένων. Στην επερχόμενη ομιλία περιεργάστηκε και ο αντιδήμαρχος Τζορζήν Γεωργίου.

Παράλληλα υλοποιήθηκαν συναντήσεις με το Λιμενικό Ταμείο Ρεθύμνου και την προστατευτική κυρία **Αθανασία Δασκαλάκη**, με τη ΔΕΠΤ Ρεθύμνου όπου παρουσιάσαν ο πρόεδρος κύριος **Μάλας Άγγελος**, μέλη του Δ.Σ. και εκπαιδευτικό προσωπικό της πόλης και με την Εθελοντική Ομάδα Πολιτικής Προστασίας Ρεθύμνου όπου παρουσιάσαν ο πρόεδρος κύριος **Στέφανος Δαμανάκης**, μέλη του Δ.Σ. και εθελοντές της ομάδας.

**Ελπίδα Αριστείδου**

■ Οι επιστήμονες θα εξετάσουν από ιστορικές παραδοσιακές περιοχές της Ευρώπης μεταξύ των οποίων και το Ρέθυμνο

- a) Excerpt from the local Newspaper "Rethemniotika Nea" on 3<sup>rd</sup> July 2014



**Στο «μικροσκόπιο» η διαχείριση ακραίων φαινομένων και στο Ρέθυμνο**

ΣΕΛΙΔΑ 3

**Διεθνής διάκριση για την Ιερά Μονή Αρκαδίου**

ΣΕΛΙΔΑ 13

**«Γέφυρα» συνεργασίας Κρήτης - Πολωνίας**

ΣΕΛΙΔΑ 11



ΠΕΜΠΤΗ 3 ΙΟΥΛΙΟΥ 2014

# ΚΡΗΤΙΚΗ

## ΕΠΙΘΕΩΡΗΣΗ

ΔΙΟΙΚΗΣΙΑ  
ΕΛΛΗΝΙΚΗΣ  
ΔΗΜΟΚΡΑΤΙΑΣ  
ΥΠΟΥΡΓΕΙΟ ΕΣΩΤΕΡΙΚΩΝ  
ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ  
Λειτουργία Επείγουσας Αντιποσεισμού  
Λαμία, Κωσταράκη 10Α, Ρέθυμνο 741 00  
Τηλ. 28310 22007, 28310 20073  
Fax 28310 28238 email info@epitheorisi.gr  
ΚΩΔΙΚΟΣ 1073

ΚΡΗΤΙΚΗ ΕΠΙΘΕΩΡΗΣΗ • Πέμπτη 3 Ιουλίου 2014

Η ΑΡΧΑΙΟΤΕΡΗ ΗΜΕΡΗΣΙΑ ΕΦΗΜΕΡΙΔΑ ΤΗΣ ΚΡΗΤΗΣ •

ΑΡΙΘΜΟΣ ΦΥΛΛΟΥ 18952 ΤΙΜΗ: 0,60 €

**ΚΡΗΤΙΚΗ ΕΠΙΘΕΩΡΗΣΗ • Πέμπτη 3 Ιουλίου 2014**

**ΣΥΝΑΝΤΗΣΗ ΕΠΙΣΤΗΜΟΝΩΝ ΜΕ ΚΑΤΕΥΘΥΝΣΗ ΛΕΙΟΠΟΙΗΣΙΜΕΣ ΛΥΣΕΙΣ ΓΙΑ ΤΙΣ ΦΥΣΙΚΕΣ ΚΑΤΑΣΤΡΟΦΕΣ**

## Στο «μικροσκόπιο» η διαχείριση ακραίων φαινομένων και στο Ρέθυμνο





Στο «μικροσκόπιο» των επισημών του κλάδου, που μελετά τις φυσικές καταστροφές από ακραία υδρομετεωρολογικά φαινόμενα, βρέθηκε το Ρέθυμνο στα πλαίσια προγράμματος που πραγματοποιήθηκε χθες από το Εργαστήριο Υδρολογίας & Αξιοποίησης Υδατικών Πόρων της Σχολής Πολιτικών Μηχανικών του Εθνικού Μετσώδου Πολυτεχνείου, στην αίθουσα συνεδριάσεων του Γενικού Συμβουλίου «AEGEAN PEARL» στο Ρέθυμνο. Το πρόγραμμα υλοποιείται στα πλαίσια της 2ης Συνάντησης Εταίρων του Ευρωπαϊκού Ερευνητικού Προγράμματος «PEARL: Preparing Extreme And Rare events in coastal regions».

**ΤΙ ΕΙΝΑΙ ΤΟ ΠΡΟΓΡΑΜΜΑ «PEARL»**

Πρόκειται για Ευρωπαϊκό Έρευνητικό Έργο που υλοποιείται στα πλαίσια του 7ου Προγράμματος Πλαισίου και περιλαμβάνει από την Γενική Διεύθυνση Έρευνας της Ευρωπαϊκής Επιτροπής.

Το «PEARL» αφορά στην προστασία των κοινωνιών για ακραία υδρομετεωρολογικά φαινόμενα σε παράκτιες περιοχές, ενώ 23 διακεκριμένοι φορείς από Ευρώπη, Αφρική και Ασία, που συμμετέχουν στο έργο, εστιάζουν επτά πεδία από την Ευρώπη. Τα έτη αυτά που αποσπάζουν τους επιστήμονες που εργάζονται στα πρόγραμμα είναι οι καταστροφικές συνέπειες από τις πλημμύρες που απειλούν τις παράκτιες αυτές περιοχές. Οπότε, εστιάζονται και οι παράγοντες που συμβάλλουν στην αύξηση του κινδύνου που απειλούν τις Ευρωπαϊκές πόλεις, όπως η ραγδαία αστικοποίηση

σε συνδυασμό με την κλιματική αλλαγή και την έλλειψη πολιτικών και διοικητικών μέσων. Προβλέπουν να αντιμετωπιστούν οι διαμετρικές παράγοντες και να επιτευχθεί η πρόληψη και διαχείριση των ακραίων φαινομένων πρέπει να λαμβάνει υπόψη πολλούς θεωρητικούς, πολιτικούς, οικονομικούς και κοινωνικούς παράγοντες σε τοπικό, εθνικό και ευρωπαϊκό επίπεδο.

Το «PEARL» συνδυάζει την επιστημονική έρευνα με την πρακτική εμπειρία των κοινωνιών ενόψει σε θέματα υδρολογίας, μετεωρολογίας και διαχείρισης των κινδύνων με σκοπό την ανάπτυξη διαμετρικών και κατασκευών λύσεων για τις παράκτιες κοινωνικές επιπτώσεις σε ακραία υδρομετεωρολογικά φαινόμενα.

Στόχος του έργου είναι η ανάπτυξη καινοτόμων τεχνολογιών και μεθόδων που θα επιτρέψουν τη βελτίωση των απαραίτητων διαδικασιών και εργαλείων για την έγκαιρη προειδοποίηση ενός κινδύνου πλημμύρας. Μία πανευρωπαϊκή βάση δεδομένων θα συγκεντρώσει όλες τις περιπτώσεις, καλά παρατηρημένα και προγράμματα επίθεσης από όλη την Ευρώπη με στόχο τη δημιουργία και εφαρμογή μελλοντικών αναπτυξιακών και πολιτισμικών σχεδίων που θα περιορίζουν τον κίνδυνο καταστροφών. Το «PEARL» θα συνδυάσει τον κίνδυνο με τις αιτίες εκτίμησης, τον πρόληψη, πρόληψη και έγκαιρη εκκλιση με την ανάπτυξη διαμετρικών και μη στρατηγικών και ενεργής συμπεριφοράς των κοινωνικών εταίρων.

Υπάρχουν αυτές οι στεγνές παραδείγματα από άλλες χώρες, από τη Βόρεια Ευρώπη και από Ασία, Ιαπωνία. Καταθέτουμε, μαθήματα τα οποία παίρνουμε για το πώς οργανώνεται καλύτερα οι τοπικές κοινωνίες για να αντιμετωπίσουν τέτοιες καταστάσεις, πώς είναι ο τρόπος με τον οποίο μπορούν να αντιμετωπίσουν τοπικές κοινωνίες διάφορα πολιτικά με την τοπική αυτοδιοίκηση. Τέτοιες μαθήματα μας έρχονται από άλλους και επίσης μαθαίνουμε και από τον τρόπο που γίνεται τα πρόγραμμα στο Ρέθυμνο. Συνδυάζουμε από με πολύ καινοτόμα εργαλεία πιστεύουμε ότι θα δείχνουν κάτι πολύ ενδιαφέρον.

**ΙΣΤΟΧΟΣ Η ΛΕΙΟΠΟΙΗΣΗ ΤΩΝ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΠΟΡΕΥΜΑΤΩΝ ΑΠΟ ΤΙΣ ΤΟΠΙΚΕΣ ΚΟΙΝΩΝΙΕΣ**

Από την πλευρά του ο καθηγητής συστημάτων κεραιών στο πανεπιστήμιο του ΙΗΕ στο Νέτλντ της Ολλανδίας και συγγραφέας του προγράμματος, **Ζέρον Βοργχόις** ανέφερε πως ο βασικός στόχος δεν είναι μόνο η έρευνα αλλά και η αξιοποίηση των πορισμάτων που θα προκύψουν από τις τοπικές κοινωνίες με τις οποίες όπως είπε υπάρχει συνεργασία και επικοινωνία προς αυτήν την κατεύθυνση. Συγκεκριμένα τόνισε: «Ο βασικός στόχος του προγράμματος είναι η καλύτερη προσαρμογή των τοπικών κοινωνιών για την αντιμετώπιση ακραίων καινοτόμων φαινομένων.

Το Ρέθυμνο είναι μια από τις σημαντικές πόλεις που έχουν επιλέξει για την ανάπτυξη μεθοδολογιών και βασικές μας στόχους είναι ότι από τα αποτελέσματα του προγράμματος δεν σταματάει στο να παρουσιάζονται από τον κλάδο του προγράμματος αλλά να υπάρχει μια σταθερή ροή πληροφοριών και εργαλείων από όλη τη διάρκεια. Βασικός στόχος είναι η χρησιμότητα και η βελτίωση αυτών των εργαλείων από τις τοπικές κοινωνίες, την τοπική αυτοδιοίκηση, την πολιτική προστασία να έχουν χρόνο να δουν τα αποτελέσματα και να τα σχολιάσουν και να τα τροποποιήσουμε μαζί ώστε να τους είναι χρήσιμα. Διαθέτουμε επίσης περιπτώσεις ώστε να έχουμε μια απλή κατανομή θέματα σε όλη την Ευρώπη. Θέλουμε καλά μαθήματα κατανομή. Έχουμε μαθήματα στα Βόρεια Ευρώπη, στην Αφρική και Γερμανία, στην

Γαλλία και μερικές φορές και η περίπτωση της Ελλάδας στα Μεσόγεια. Η κάθε περίπτωση έχει διαφορετικές κλιματικές, κοινωνικές συνθήκες, διαφορετικά θέματα και στην περίπτωση του Ρέθυμνου οι βασικοί κίνδυνοι και οι βασικές διαδικασίες που μας ενδιαφέρουν είναι πλημμύρες από τη θάλασσα, αυτές πλημμύρες αλλά και ο συνδυασμός αυτών των δύο».

Το πρόγραμμα θα συνεχιστεί για τέσσερα χρόνια ενώ η ερευνητική ομάδα του ΕΜΠ με επικεφαλής τον καθηγητή **Χρήστο Μακρόπουλο** και ερευνητές από το Kings College London και το United Nations University, πραγματοποιούν κάποιες πρώτες συναντήσεις με εκπροσώπους της αυτοδιοίκησης και της ερευνητικής τοπικής κοινωνίας. Σκοπός είναι αφενός η ενημέρωσή τους για τους στόχους και το αντικείμενο του έργου και αφετέρου την ενεργή συμμετοχή τους σε μελλοντικές δράσεις επίθεσης και πολιτικές εφαρμογές των τεχνολογικών εργαλείων που θα αναπτύξει το PEARL.

Το ΕΜΠ έχει ήδη ξεκινήσει επικοινωνία με την Περιφέρεια Κρήτης, το Διόμο Ρέθυμνου και τον Οργανισμό Ανάπτυξης Κρήτης, ενώ κατά την έναρξη των εργασιών της συνάντησης του PEARL ο Αντιδήμαρχος Τεχνικών Έργων κος **Νίκος Κοντολάδης** απεύθυνε σύντομη ομιλία χαιρετίζοντας τη διοργάνωση και ευχαριστώντας τη θετική διάθεση του Δήμου να συνεργαστεί σε ένα καινοτόμο πρόγραμμα το οποίο θα μπορούσε να βοηθήσει μελλοντικά στη βιώσιμη ανάπτυξη της πόλης του Ρεθύμνου και την αποφυγή καταστροφικών φαινομένων. Στην ευκαιρία ομιλία παραβρέθηκε και ο Αντιδήμαρχος Παιδείας κ. **Γεωργιάδης**. Παράλληλα υλοποιήθηκαν συναντήσεις με το Λιμενικό Ταμείο Ρεθύμνου και την Προϊσταμένη κ. **Αθανασία Δαλακίση**, με το ΔΕΥΑ Ρεθύμνου όπου παρουσιάστηκε ο Πρόεδρος κ. **Στέφανος Δαρανιάκης**, μέλη του ΔΣ και εθελοντές της ομάδας.

Τέλος συνάντηση πραγματοποιήθηκε με τον πρώην Δήμαρχο Ρεθύμνου **Δημήτρη Αρναουτάκη**, ο οποίος μέσω της πολυετούς εμπειρίας του επέδειξε ιδιαίτερο ενδιαφέρον για το PEARL και τη μεταφορά της μακροπρόθεσμης εμπειρίας γνώσης του στους τομείς σχεδιασμού και υλοποίησης αντιπλημμυρικών και γενικά υδραυλικών έργων στο έργο.

ΚΩΣΤΑΝΤΙΝΑ ΚΛΑΦΙΝΟΥ

**ΕΚΚΕΝΩΣΕΙΣ ΒΟΘΡΩΝ ΑΠΟΦΡΑΞΕΙΣ ΜΑΥΡΑΚΗΣ**



ΤΗΛ. 28310 25720 ΚΙΝ. 0972 102410

**ΤΣΟΥΠΑΚΗΣ ΕΠΙΠΛΑ - ΣΤΡΩΜΑΤΑ**



**ΒΙΟΛΙ ΧΑΡΑΚΙ**  
ΤΗΛ. 28310-50370

b) Excerpt from the local Newspaper "Kritiki Epitheorisi", 3<sup>rd</sup> July 2014

c) Extracts/videos from the news broadcast of local channels are available through the below links:

- Nea tv – local channel:  
<http://www.neatv.gr/el/25990/antimetopo-me-plimmires-mporei-na-erthei-to-rethimno.php>
- Creta tv – local channel:  
<http://www.youtube.com/watch?v=aasy8mujBBA>

d) References made to online newspapers or blocks are available through the links below:

- Goodnet – online newspaper:  
<http://www.goodnet.gr/rethumno-trechonta/page/4/articles/sto-mikroskopio-i-diacheirisi-akraion-fainomenon-kai-sto-rethumno.html>
- Cretapost - online newspaper:  
<http://www.cretapost.gr/sto-mikroskopio-i-diachirisi-akreon-fenomenon/>
- Rethemiotika Nea – local newspaper, online and printed:  
<http://www.rethnea.gr/article.aspx?id=15927>
- Meteo-news – online news:  
<http://www.meteo-news.gr/2014/07/antimetopo-me-plimmyres-mporei-na-erthei-to-rethymno.html>

## Dissemination material from 1<sup>st</sup> workshop on 1<sup>st</sup> & 2<sup>nd</sup> of October 2015

Press releases were distributed to the local press in order to demonstrate the workshop and its objectives to the local society.



a) Excerpt from the local Newspaper “Rethemiotika Nea” on September 29<sup>th</sup>, 2015





b) Excerpt from the local Newspaper “Kritiki Epitheorisi” on September 29<sup>th</sup>, 2015

c) Extracts/videos from the news broadcast of local channels and article from online newspapers prior the workshop are available through these links:

- Nea tv – local channel : <http://goo.gl/wsrLM4>
- Goodnet – online articles: <http://goo.gl/JjhWY5>
- Nea tv – local channel (video): <http://goo.gl/wUje5e>
- Rethemiotika Nea – local newspaper, online and printed: <http://www.rethnea.gr/article.aspx?id=29138>
- Rethemiotika Nea – local newspaper, online and printed: <http://www.rethnea.gr/article.aspx?id=29259>

## Annex II – PEARL guiding documents

Annex II contains basic information and material regarding the set-up of PEARL Learning and Action Alliances and the practical implementation of stakeholder workshops.

**Milestone 14 - Setting up the PEARL Learning and Action Alliances LAAs (Blätgen, Gourgoura, Lykou, 2014)**

**PEARL Stakeholder Workshops - A practical framework for partners (Blätgen and Gourgoura, 2014)**



## Setting up the PEARL Learning and Action Alliances LAAs

**Authors of the document: Tobias Blätgen (UNU), Patricia Gourgoura (NTUA),  
Archontia Lykou (NTUA)**

*Dissemination level CO = Confidential, only for members of the consortium (including the  
Commission  
Services).*

© 2014 PEARL

This project has received funding from the European Union's Seventh Framework Programme for Research, Technological Development and Demonstration under Grant Agreement N° 603663 for the research project PEARL (Preparing for Extreme And Rare events in coastal regions). All rights reserved. No part of this book may be reproduced, stored in a database or retrieval system, or published, in any form or in any way, electronically, mechanically, by print, photoprint, microfilm or any other means without prior written permission from the publisher.

The deliverable reflects only the author's views and the European Union is not liable for any use that may be made of the information contained



# 1 Summary

The document at hand provides an overview of the first cornerstones of PEARL Work Package 5. Task one – concentrating on “who is involved” – will achieve four main steps. As Figure 1 displays are these steps (1) the analysis of stakeholders, (2) the assembling of Learning and Action Alliances (LAAs), (3) the initiation of targeted interaction and (4) the set up and realization of tangible goals in the case study areas.

PEARL LAAs will bring together all stakeholders who are concerned with risks in the respective case study areas. This is a highly integrative and interdisciplinary task and thus this study aims at providing a comprehensive overview for all partners. PEARL aims to an effective stakeholders' engagement in the process of development of risk management roadmaps for 7 Case study areas from EU: Denmark – Greve; UK - Liverpool; Germany - The Elbe Estuary (Hamburg); France - Les Bouchouleurs; Italy – Genoa; Spain - Marbella; Greece - Rethymno (Crete), taking into account the complexity of local decision processes, risk perceptions and the knowledge flows in order to identify the leverage points and appropriate scales/contexts, in which the project's support will produce an explicit impact.

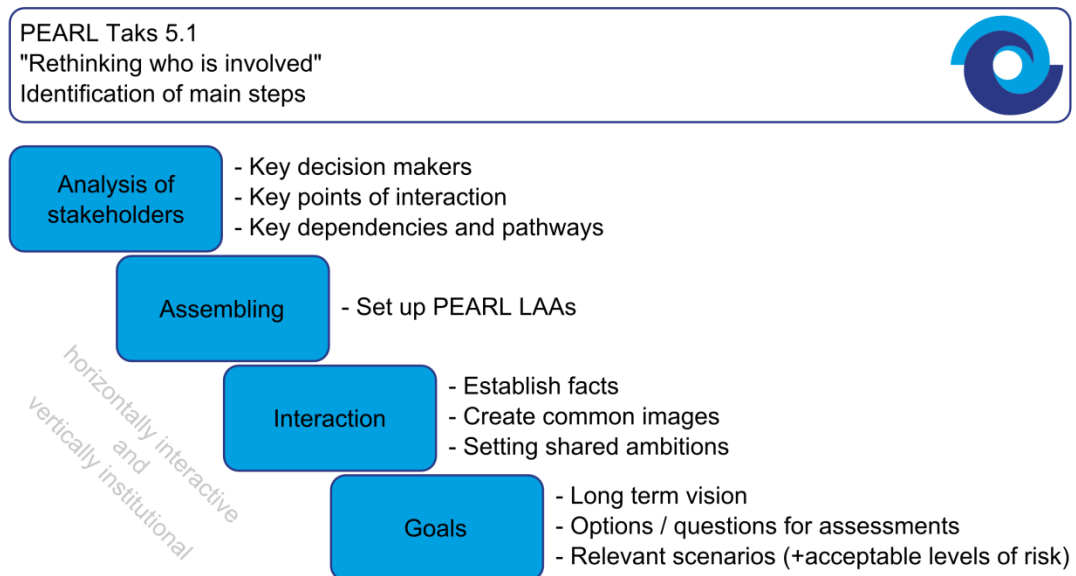


Figure 1: Rethinking who is involved - framing of Task 5.1. (Own draft 2014)

This document covers the theoretical background, the methodological approach and some helpful examples to take the first two of the above mentioned steps. Hence an *Introduction* gives an overview of what LAAs are and which benefit they will have for both the project and the development in the case study area, the *Theoretical and Methodological Approach* chapter gives an overview of the background for stakeholder analysis and LAAs and the *Implementation in PEARL* provides a first example from the Crete case study area in Greece.



Taking this as a practical guideline for setting up the LAAs (as Milestone 14 of PEARL) all partners working on this should keep in mind that Work Package 5 has a strong “horizontally interactive” and (vertically institutional) impetus and aims at integrating all concerned stakeholders.

The attached example of a stakeholder analysis can be used as a role model and extended adapting it to fit the needs and aims of each case study area.

Please keep this document and all attachments confidential.

## 2 Content

<b>1</b>	<b>SUMMARY</b>	<b>2</b>
<b>2</b>	<b>CONTENT</b>	<b>4</b>
<b>3</b>	<b>INTRODUCTION</b>	<b>5</b>
3.1	The overall approach: LAAs for resilience building in coastal areas	5
3.2	Overview of LAAs	6
3.2.1	Introduction and Definition	6
3.2.2	Setup and functioning of LAAs	7
3.2.3	Chances and Challenges	8
<b>4</b>	<b>THEORETICAL AND METHODOLOGICAL APPROACH</b>	<b>10</b>
4.1	Stakeholder Analysis in theory and praxis	10
4.2	LAAs in theory and praxis	14
4.3	PEARL LAAs Methodological framework	15
4.4	Organising PEARL LAAs	19
<b>5</b>	<b>IMPLEMENTATION IN PEARL – A PRACTICAL GUIDELINE</b>	<b>22</b>
5.1	Stakeholder Analysis in the case study areas	22
5.1.1	UK –Liverpool (ICL).	24
5.1.2	GERMANY- The Elbe Estuary, Hamburg (TUHH)	24
5.1.3	FRANCE- Les Boucholeurs (UNSA)	29
5.1.4	ITALY –Genoa (GISIG)	30
5.1.5	SPAIN- Marbella (CETaqua)	36
5.1.6	GREEECE-Rethymno, Crete (NTUA)	38
5.2	Formalizing the LAAs in the case study areas	45
5.2.1	UK –Liverpool (ICL)	47
5.2.2	GERMANY- The Elbe Estuary, Hamburg (TUHH)	47
5.2.3	FRANCE- Les Boucholeurs (UNSA)	47
5.2.4	ITALY –Genoa (GISIG)	47
5.2.5	SPAIN- Marbella(CETaqua)	47
5.2.6	GREEECE-Rethymno, Crete (NTUA)	47
<b>6</b>	<b>REFERENCES</b>	<b>48</b>

### 3 Introduction

#### 3.1 The overall approach: LAAs for resilience building in coastal areas

Coastal floods are among the most dangerous and harmful natural hazards affecting urban areas adjacent to shorelines. Rapid urbanization combined with climate change and poor governance means a significant increase in the risk of local surface flooding coinciding with high water levels in rivers and high tide or storm surges from the sea, posing a greater risk of devastation to coastal communities. The threats posed need to be addressed not just in terms of flood prediction and control, but taking into account governance and socio-economic issues.

Ashley et al. (2009) (referring to CEA, 2007, Commission of the European Communities, 2007 and 2009) state that urban floods are increasing across Europe (IPCC 2014). Furthermore the last years there is an obvious shift in flooding management from a technocratic approach to a more social one. A change which is usually mentioned as a shift from flood defence to flood risk management (Newman et al., 2011).

More and more scientists and experts highlight that collaborative planning needs to integrate flood risk management and urban planning. *"[...] The integration of flood risk management and urban planning is in an early phase of its transition from 'fighting against water' to 'living with water' (Rijke et al, 2008; Newman et al, 2011) and needs innovative demonstration projects and the creation of networks to influence policy processes and change to regime (van Herk et al., 2011a)"* (van Herk et al, 2011b).

To achieve this there is a need for changing the practices in culture of engineers, professionals, key stakeholders and decision makers, while active learning through establishment of Learning and Action Alliances (LAAs) seems to be the most appropriate way to help different stakeholders (individuals or organizations) with different perspectives on risk to break their traditional approach and be part of an interactive social learning procedure (Ashley et al., 2011), which will support their performance and adaptation on future risks at local or national level.

## 3.2 Overview of LAAs

Learning and Action Alliances (LAAs) are a main corner stone of PEARL as a bridge between science, politics and key stakeholders to gain insights into local decision making processes, to communicate the constraints, needs and goals of single stakeholder and to reach finally a surrounding that guarantees decisions that are built on a broad discussion on flood management and relative risks in coastal zones.

Therefore this chapter will give a short overview of how other projects included LAAs as an interactive tool and decision making basis in the sequence of the research. After a short introduction (1) and some insights in the theoretical background (2) of the concept the chapter will concentrate on the setup and functioning of LAAs (3) as well as on chances and challenges (4) that are described in the literature.

### *3.2.1 Introduction and Definition*

Decision makers all over the world have to deal with more and more complex challenges which are often referred to as *wicked problems* in the literature. Ashley et al. (2009) state (referring to Lach et al., 2005) that “Wicked problems such as those related to urban water, always occur in a social context; the wickedness of the problem also reflects the diversity of those involved in the issue”. But most decision making processes still exclude people or organisations who are legally not or just indirectly involved in both the process and the decision itself. Taking this into account and open the discussion and decision making process to all entities that are concerned (social context) is the target of setting up LAAs.

*“[...] The organization of a LAA should enable the development, exchange and application of knowledge”* (Van Herk et al. 2011b). With this statement the authors summarize the envisioned result of the work a group of stakeholders coming together under the umbrella of a LAA carries out. Batchelor and Butterworth (2008) define a *Learning Alliance* (LA) as **“a group of individuals or organisations with a shared interest in innovation and the scaling-up of innovation in a topic of mutual interest”**. Newman et al (2011) add *Action* as a second core topic to stress that an alliance like this is not just aiming at social learning but also at enabling the group and its members to take targeted action (Van Herk et al., 2011b). The group itself consists of *stakeholders* who can be considered as *“[...] anyone with an interest in a particular decision. This interest can stem from the*

*potential to influence the decision, and/or from the potential to be influenced by the decision. Stakeholders can act as individuals or as representatives of a larger group.” (Gardner et al., 2009<sup>1</sup>).*

### **3.2.2 Setup and functioning of LAAs**

LAAs are built on the three *types of knowledge* as summarized by Van Buuren (2006)<sup>2</sup> (adopted to the LAA approach by Van Herk et al., 2011b) and on *social learning* as a knowledge building process<sup>3</sup> (Van Herk et al., 2011b based on Tuinstra, 2008). Following these LAAs are constructed to cover two stream lines. The first builds on the above mentioned knowledge building and aims at (I) generating and exchanging factual knowledge (*fact*), (II) identify images (*image*) and (III) bringing stakeholders together voluntarily and in a way that they can freely discuss interests and views (*ambitions*). The second is more results-oriented and aims as (I) analysing and addressing problems, (II) developing and proposing solutions and (III) influence politics by seeking political commitment or bringing participants together (all based on Van Herk et al., 2011b)<sup>4</sup>.

Against this background LAAs are set-up in a four-stage model. Referring to Ashley and Blanksby (2009), Ashley et al. (2012), and Dudley et al. (2013) present a practical guidance for the design and running of a LAA (see Figure 1)<sup>5</sup>.

---

<sup>1</sup> There are several definitions for the term „stakeholder“ in use. In this case the authors will keep the mentioned one to not narrow the following discussion in the project.

<sup>2</sup> (I) explicit, factual and impersonal, (II) socially constructed, normatively loaded reality definitions and images, (III) experience-based competencies and skills

<sup>3</sup> (I) single loop learning, (II) double-loop learning, (III) deuterio-learning

<sup>4</sup> A closer description will be provided in chapter 4.

<sup>5</sup> Similar approaches were taken for various project:

Baltica <http://www.baltica.org/>

MARE <http://www.mare-project.eu/>

SAWA <http://www.sawa-project.eu/>

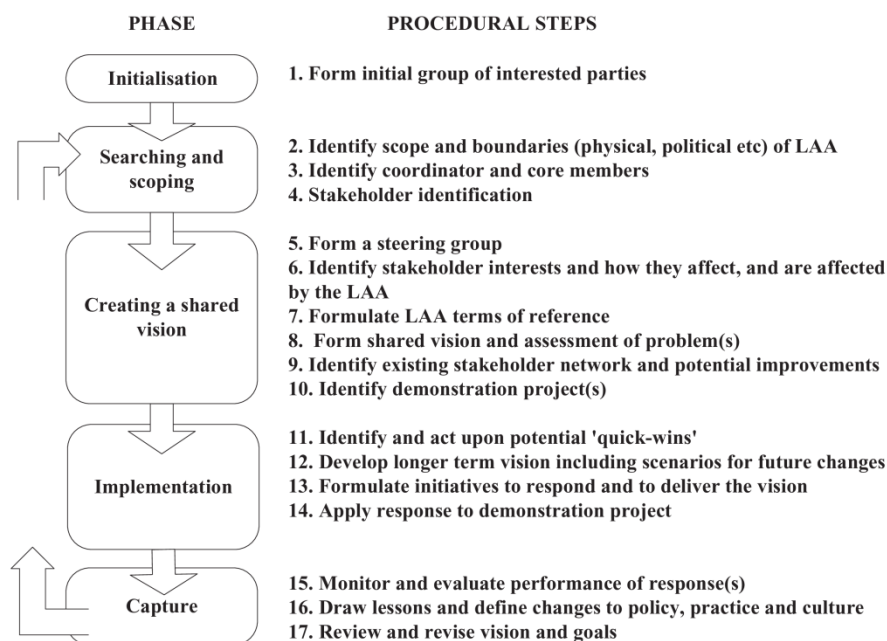


Figure 2: Establishing and running Learning and Action Alliances. (Ahley et al., 2012)

The authors describe an initial phase in which a “group of interested parties” is formed. After this first step a loop is entered which leads from “searching and scoping” and “creating a shared vision” via “implementation” to “capturing”. The last step then feeds back into the “scaling and scoping” process. Here the “stakeholder identification” (or analysis) is key because it sets the frame for all further activities in the LAA and makes sure that no potential individual or group is left aside in the forming process. All further activities follow the approach that has been presented in the theory section. The concrete steps and actions for LAAs have to be designed against the background of the respective project or problem.

### 3.2.3 Chances and Challenges

*“The process of social learning (Lave and Wenger 1991; Scholz and Stieftel 2005) enhances resilience by providing access to knowledge (Ostrom 2010; Pahl-Wostl 2009) and platforms for coordination, negotiation and knowledge sharing (Thomalla and Larsen 2010) [...]”* (Djalante et al., 2013). Considering LAAs as a chance to initialize an exchange process among stakeholders and to enhance social learning in relation to a specific topic they open the chance to build new capacities in planning, management and decision-making.

But setting-up such an alliance one has to keep in mind the possible constraints stakeholders may have, problems that can occur and legal issues that might hinder the whole process. Finding facts that can be commonly acknowledged is e.g. a problem that can come up bringing together people



and institutions from different professions and with different goals. Furthermore the *ambitions* or envisioned *solutions* can differ very much from stakeholder to stakeholder – here a strong core group is needed that sets the main topics of the group and advocates for these during the discussion processes. An additional problem can be to find common scales and scopes the alliance should concentrate on. The here listed problems are just some of those that can hinder the process of setting up a LAA, or running it, single groups have to analyse the most important problems that could occur before starting the LAA to make ensure the success of the exercise. But even then a constant monitoring is needed to make sure that the alliance really works goal oriented.

Specific chances and challenges for the PEARL project are described in chapter 4.

## 4 Theoretical and Methodological Approach

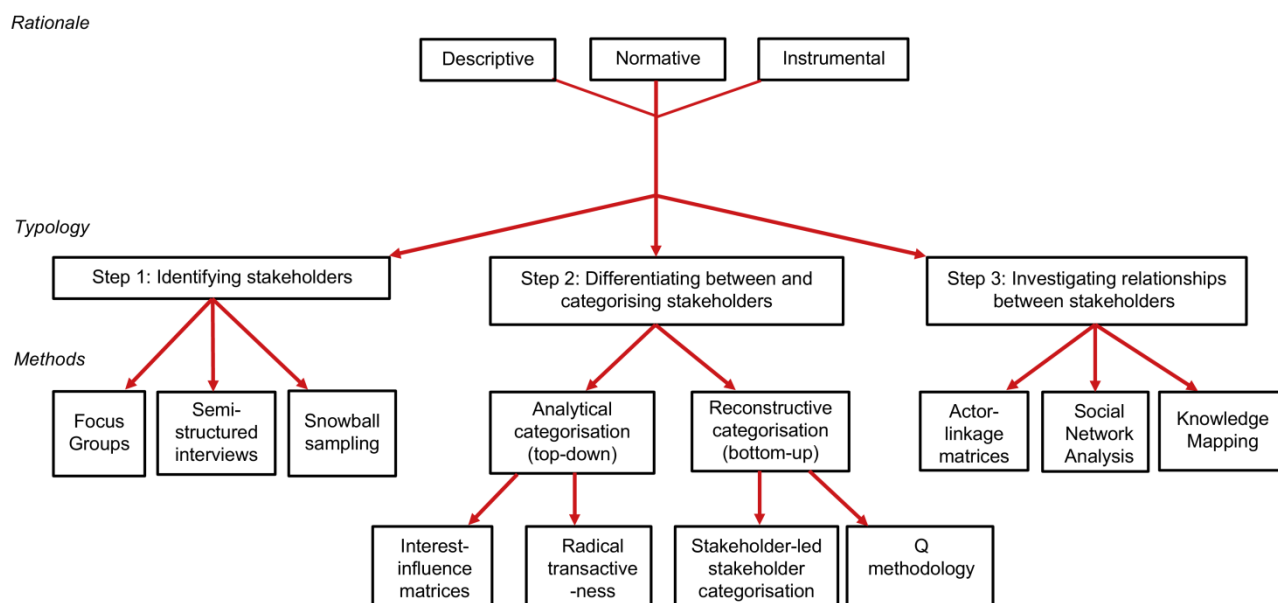
Chapter 4 will give an overview of both stakeholder analysis and LAAs in theory in praxis and provide some guidance on the methodological framework of the PEARL LAAs as well as on the overall organisation of the LAAs on the ground. This overview will also serve as the basis for the first practical exemplary approaches from the Greece case study in Crete.

### 4.1 Stakeholder Analysis in theory and praxis

As mentioned in chapter 3 stakeholders can be considered as *"[...] anyone with an interest in a particular decision. This interest can stem from the potential to influence the decision, and/or from the potential to be influenced by the decision. Stakeholders can act as individuals or as representatives of a larger group."* (Gardner et al., 2009). Thus a stakeholder analysis is a process whose result it is to identify all individuals and organizations that share this interest or in other words Reed et al. (2009) define a stakeholder analysis as *"[...] a process that: i) defines aspects of a social and natural phenomenon affected by a decision or action; ii) identifies individuals, groups and organisations who are affected by or can affect those parts of the phenomenon (this may include non-human and non-living entities and future generations); and iii) prioritises these individuals and groups for involvement in the decision-making process."*. Beside the aspect of the non-living environment this definition can be adopted for PEARL<sup>6</sup>.

---

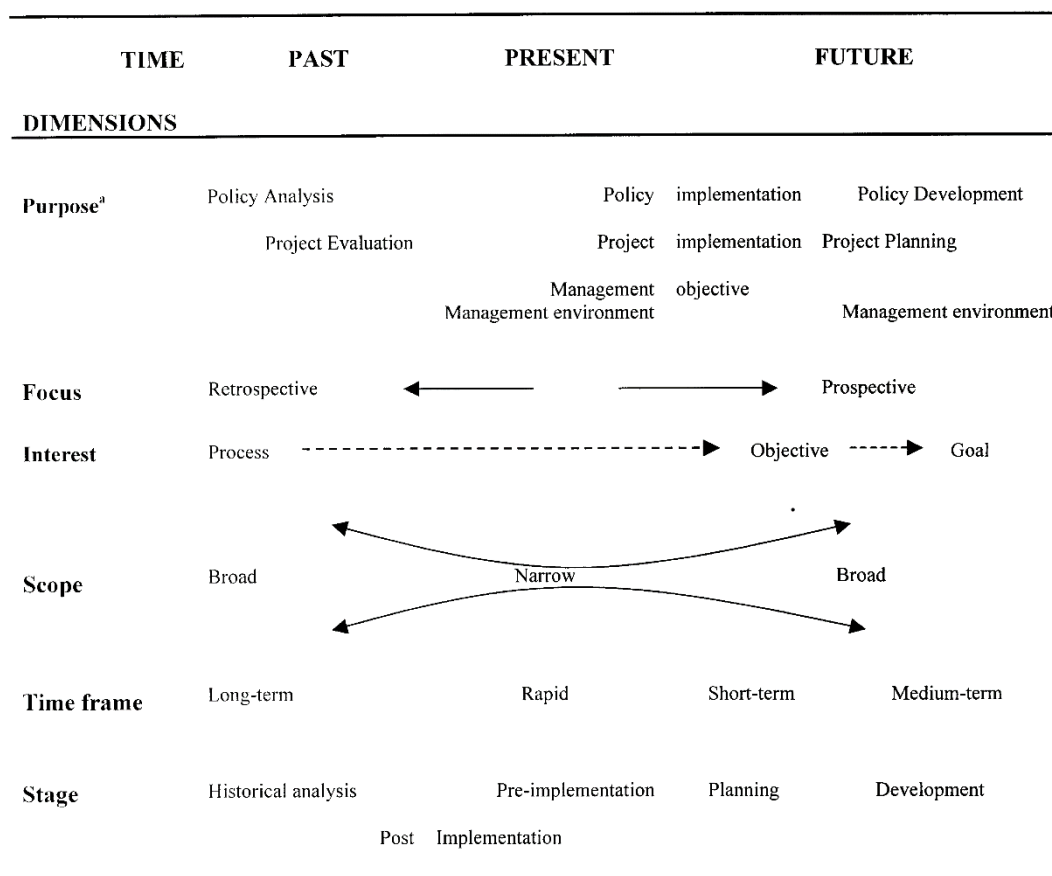
<sup>6</sup> PEARL will focus on action-oriented, political processes and will leave these aspects aside.



**Figure 3: Schematic representation of rationale, typology and methods for stakeholder analysis. (Reed et al., 2009)**

Figure 2 displays three main elements of a stakeholder analysis process (Reed et al., 2009). (1) Rationale: It has to be differentiated if the aims are of descriptive, normative, or instrumental nature. In the context of LAAs mostly normative approaches will be applied that may cover instrumental aspects depending on the decision-making results coming out of the LAA. (2) The typology points out which aspects of the stakeholder setting are to be analyzed. Here the stakeholder themselves can be identified, the groups of stakeholder can be classified and the relationship between the stakeholders can be investigated. (3) The methods section proposes some approaches that can be applied to carry out the duties that are identified in the typology section. Several of these methods need to be deepened by the application of other methods.

As shown in Figure 3 the researcher has to decide upon several issues that influence the stakeholder analysis in connection with the focus of the research (past, present and future). This includes: The purpose, focus, interest, scope, time frame and stage of the exercise. Varvasovszky and Brugha (2000) propose some aspects to determine such a focus.



**Figure 3: Time focus of a stakeholder analysis (past, present or future) by key dimensions to be considered in conducting the analysis. (Varavsovszky and Brugha 2000)**

For PEARL the stakeholder analysis will concentrate mainly<sup>7</sup> on the present situation with a strong implication for the future<sup>8</sup>.

In the next steps the researcher has to define the context of the study on the one hand side and the level which it will target on the other hand side (Varavsovszky and Brugha, 2000). This decision is depending on the aim of the study and the extent of the study area (scoping and scaling). Hereby the researcher has to keep open for influences / ideas group members or other sources may bring in over time. Thus the scope or scale of the LAA can change over time (eg by new aspects brought in by group members) and consequently the analysis itself has to adapt to the new situation.

Having clarified the scale and scope of the stakeholder analysis an initial step is to list all known / legally involved / responsible stakeholders in connection with the respective topic / problem. Hereby

<sup>7</sup> Here the strong inter-connection between WPs 1 and 5 come into play. Focusing in this case on the set-up of LAAs WP1 is highly interested in insights in decision making processes before, during and after events. Drawing back on the LAAs WP5 set up, WP1 will carry out its research taking a past, present and future perspective.

<sup>8</sup> Turn to "instrumental" stakeholder engagement, mentioned above.

“a mixed team of insiders and outsiders provides the opportunity for outsiders to draw on the contextual insights of insiders and for insiders to gain insights into how their assumption may be biasing the analysis.” (Varavsovszky and Brugha, 2000). To get a profound overview of the stakeholders involved *snowball techniques* (Bernard 2000:179) are appropriate methods that can moreover be used to initiate first analysis<sup>9</sup>. As following steps Varavsovszky and Brugha (2000) propose a mapping of stakeholder characteristics (interest in issue, influence/power, position, impact of issue on actor), a prediction of the change in stakeholder position (e.g. by a forcefield matrix) and a categorization of the identified stakeholders according to their organizational position. All three methods can help to understand the group of stakeholders and to organize the envisioned LAA. The tangible method being used in each study is highly dependent on the scale and scope of the study, the foreknowledge of the researcher team and the situation on the ground. As shown in Figure 2 there are several more methods that can be applied. A short compilation of possible methods for PEARL can be found in chapter 4.3.

---

<sup>9</sup> Depending on the sampling size the researcher can e.g. draw on the results of the snowball analysis to analyze the interconnections between different stakeholders.

## 4.2 LAAs in theory and praxis

The traditional approach in terms of knowledge production has been linear, or so called “mode one” type of knowledge production (Lundy et al., 2005 referring to Gibbons et al, 1994 analysis). Under this analysis, knowledge is produced by researchers or experts and transferred to those who need it in order to innovate or change, by ignoring several aspects like social and institutional learning, capacity development, dynamics of multiple sources of knowledge (Lundy et al., 2005 referring to Hall et al, 2004a). Lundy et al., based on experience from the Rural Agroenterprise Development Project of the International Center for Tropical Agriculture (CIAT), argue on the reasons that the above mentioned linear approach in knowledge development fails to deal with complex issues, and although this process has proved successful in several cases it seems unsuitable to give solutions to events, risks or problems that occur in a rapidly changing complex environment. The number one reason of failure seems to be that knowledge is generated by experts or researchers without the involvement of stakeholders who need it or will use it. Verhagen, Butterworth and Morris (2008) also point out the switch from linear knowledge production to incorporation of stakeholders’ and local actors’ knowledge to research development.

Under this analysis, the Learning Alliances approach comes to act as a “mode two” type of knowledge production based on *“[...]the interaction of multiple actors with multi-layered sources of knowledge to cope with the complexity of fostering continuous technological, social and institutional innovations to respond to rapidly changing contexts and demands”* (Lundy et al., 2005 referring to Gibbons et al,1994).

Verhagen, Butterworth and Morris (2008), further argue on the necessity of this different approach in order to improve the impact of research and development, urge innovation and achieve an impact at scale. A greater emphasis on the rapidly changing socio-economic, political and environmental contexts is given and the importance of diversity of key actors and organizations in effecting an innovatory environment and facilitating the scaling-up is recognized. *“[...] Scaling up in this context is understood to refer to long-term sustainability (scaling up in time) and 100% coverage (scaling up in space)”* (Verhagen, Butterworth and Morris, 2008).

The emerging concept of LAAs is utilized under several research and development projects the last years (SWITCH, MARE, SAWA – see also above) and seems that *“[...] LAAs are becoming a very popular vehicle in delivering innovation as they provide new forms of partnerships and they*



*recognize that the challenges faced today require a change in thinking and working*" (Dudley et al., 2013). Analysis of procedures, methodology and results from the several cases ( Germany, Netherlands, UK, Norway and Sweden, SAWA and MARE projects' cases), where LAAs were established in order to deal with flood risk or Integrated Water Management, proved that actually there is no single and ideal model or form of such an initiative (Ashley et al., 2011). Each LAA itself constitutes a dynamic organization and its evolution depends on the participants' perspectives, the local conditions, the aims and objectives that the LAA will set, the available funds and finally the rewards that participants will gain. Most individuals who participate in LAAs commit their time and skills on voluntary basis without having any direct benefits for themselves. Consequently their commitment should be clearly rewarded in terms of knowledge and innovation (Dudley et al., 2013).

After all *"The main output of any Learning and Action Alliance is knowledge [...]"* (van Herk et al., 2011b, referring to Wenger, 2000) and how this knowledge can be successfully applied in complex decision making procedures such as integrated planning (van Herk et al., referring to Lindblom and Cohen, 1979). Finally how this knowledge needs to be incorporated in land use and urban development decisions, as a basis for developing flood resilient cities (van Herk et al., referring to White, 2008).

#### **4.3 PEARL LAAs Methodological framework**

Main objective of PEARL LAAs is to establish a participatory process among all involved decision makers related to flood management integration in urban planning. The decision making process in urban planning is multi objective and complex and therefore needs *"[...] decision makers who are capable to accommodate uncertain futures"* (van Herk et al., 2011b). At the same time there is not such a case of a single stakeholder that has the absolute control over an urban or spatial development plan (van Herk et al., 2011b referring to Sellers, 2002). Interactive decision making with increased and wide stakeholders involvement is required in order to achieve consensual decisions (Ashley et al., 2009; van Herk et al., 2011b). Dudley et al. (2013) state as crucial elements in order to understand LAAs the *"[...] Power and who has it"*. The case study of City of Dordrecht in MARE project evidenced this. The LAA in this case operated outside the standard decision making structure and allowed innovation and knowledge delivery into the formal procedures resulting in innovatory designs for the area (van Herk et al., 2011a)

Taking the project's spatial and problem context into account the definition of PEARL LAAs can be kept rather open:

**“A PEARL Learning and Action Alliance is a convention of individuals and/or organisations who are involved in or effected by decision making processes and their outcome in the context of coastal risk and/or disaster management, risk related spatial planning or any other political and economic decisions that could alter the group members situation or capacities before, during or after and extreme event.”**

PEARL's LAAs establishment will be based on the methodology suggested by van Herk et al., 2011b. According to this approach, the organizing of LAAs is built around *three groups of interactive activities* that contribute to collaborative planning via *three threads* and *three streams*, as already mentioned in chapter 3.2.2 of this document. Here we cite the analysis of the interaction among these threads and streams in generation and application of knowledge and innovation.

**a. Threads.**

Van Herk et al., 2011b (based on the study of Van Buuren 2006 on the role of knowledge in decision making for urban planning) analyses *three important interrelated threads* when coming to organize an LAA.

- i. ***To establish facts.*** This thread generates knowledge that: is coherent and not contradictory, has a proven quality and serves to reduce uncertainty and has been established without unacceptable influence from the wishes and opinions of the parties involved;
- ii. ***To create images.*** This thread supports *frame reflection* in which parties identify their view of reality and discuss it, look for images or meanings that they share, and create renewed and more creative images as a result of the interaction;
- iii. ***To set ambitions.*** This thread supports the negotiations on aspirations of the parties towards implementation.

### **b. Streams.**

It is already mentioned that effective functioning of an LAA requires the understanding of complex decision making processes related to urban development and planning. Van Herk et al. (2011b) propose Kingdon's stream model (1984), who defines decision making as the interconnection of three concurrent streams of problems, policies/solutions and politics or participants. Following this approach an LAA is to be organized in order to:

- i. Analyse and address problems;*
- ii. Develop and propose solutions; and*
- iii. Influence politics by seeking political commitment or bringing participants together*

### **c. Activities.**

A PEARL LAA is to be established in order to generate and apply knowledge and contribute to integration of flood management in urban planning via the above threads and streams. According to van Herk et al., 2011 a LAA can be effectively organised around three groups of activities that will contribute to threads and streams.

- i. System analysis*
- ii. Collaborative design*
- iii. Governance*

The methodological framework of van Herk et al. (2011b) is summarised in the diagram below (Figure 4), which presents the inter-linkages among threads, streams and activities.

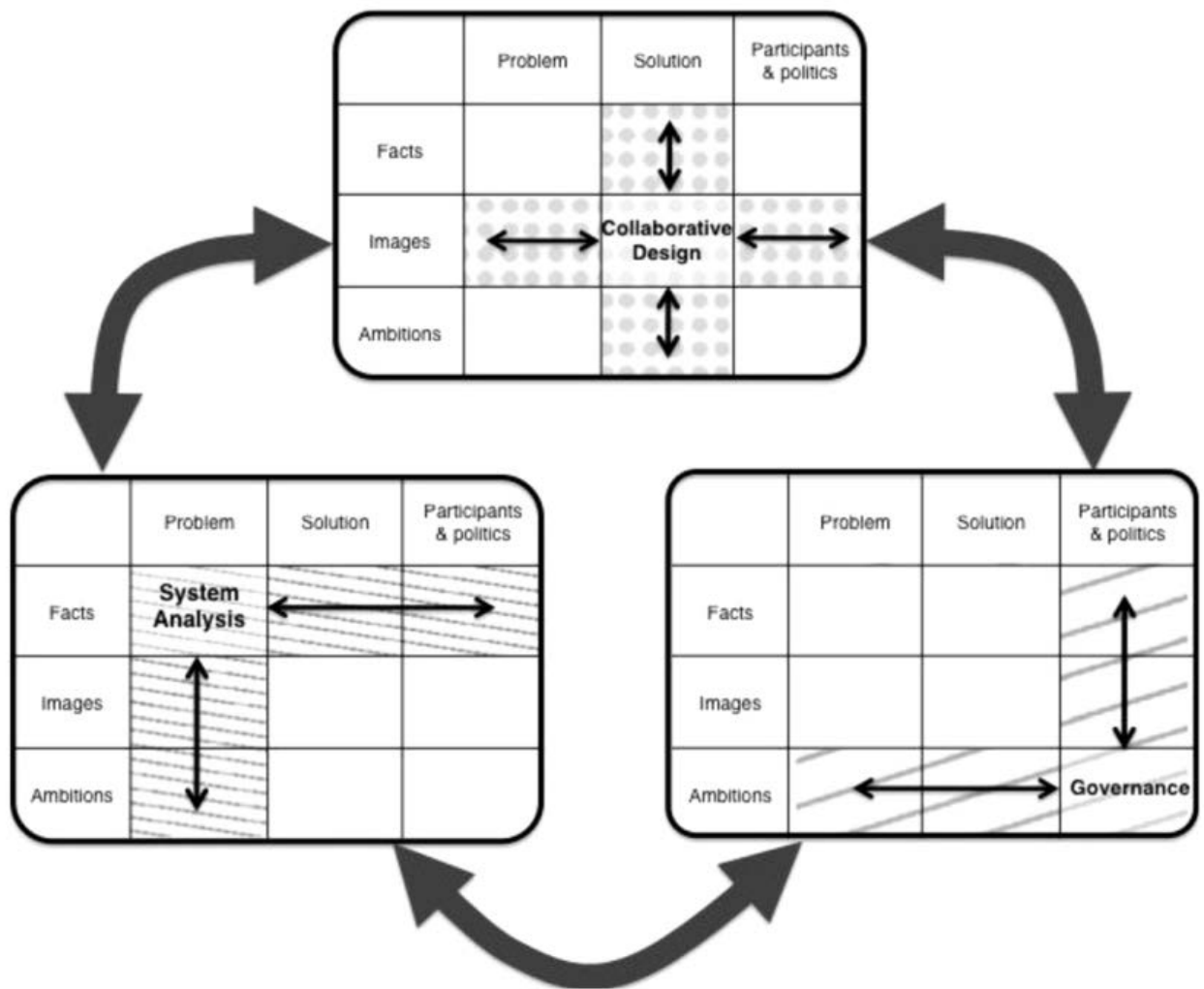


Figure 4: Interactive LAA activities contributing to collaborative planning via 3 threads (facts, images, ambitions) and 3 streams (problem, solution, participants and politics). (VAN HERK et al., 2011b:547)

#### 4.4 Organising PEARL LAAs

Following the analysis of MARE and SAWA projects' outcomes (see also footnote 5) Dudley et al. (2013) identify that although all LAAs are unique and different from each other they all have a three stages life cycle: *a. establishment, b. functioning and c. sustainability.*

In each of these stages the formal decision making processes play a crucial role and defines how effective will an LAA will be in terms of innovation and change.

##### *a. Establishment*

This initial stage refers to the LAAs setting up. In PEARL an initial group needs to be formed by the case study partners in order to push the LAAs start up. This group will need to proceed to a thorough stakeholder's analysis in order to identify the key decision makers and organisations that are involved in flood management and urban planning in the examined case study areas. The individuals or / and organizations that are capable and interested at the same time in participating in an alliance must be identified and approached. Once the participants will be defined each LAA will start setting its own establishment procedure by designating the challenges and interests, the structural function and legitimacy of the alliance, levels of participants' time and skills commitment, goals in terms of innovation and influence of the standard decision making procedures, and timetable of activities. At this stage a clear common vision in terms of understanding the problem and acting towards the emergence of potential solutions and innovation, is essential to be created (Ashley et al., 2011), so the participants will be able to commit themselves in a specific goal. In terms of available sources and budgets related to PEARL project the alliances will be formed through:

- **Workshops** that will be held in the selected case study areas;
- **Targeted interviews** with key decision makers and organizations affecting or affected by decisions;
- **questionnaires**; and
- **Project's web based learning and planning platform. This platform** will be developed in a way that stakeholders will be able to interact, investigate/visualise their impacts under different scenarios for each case area. What if questions and visualization of effects will support stakeholders so they will be able to experiment in a safe environment.

## ***b. Functioning***

Once the LAAs are established clear roles need to be defined within the alliance. Limited time of participants is usually a problem since their avocation and commitment is on voluntary basis. To this point allocation of roles and tasks help to support an effective function of the alliance. Experience from MARE and SAWA has shown that each LAA need to include leaders, facilitators and champions (Dudley et al., 2013). Leaders are the ones who will inspire and motivate participants to learn and act in order to deliver the alliance's visions. Facilitators ensure that tasks and activities of the alliance is in a well function mode (meetings and activities are implemented on time). Finally champions are all the members of the LAA and they try to deliver the alliance's vision and innovation message to the wider world (Dudley et al., 2013 referring to van Herk et al., 2011b).

In addition to the clear roles' allocation there are some key principles or primary characteristics as named that ensure the successful functioning of a LAA: delivering on the visions on terms of legitimacy, mutual respect and trust (Dudley et al., 2013). Since participants have different backgrounds and represent different organizations, they need to share their knowledge and experience in a free way, out of entrenched positions and negotiation mood (van Herk et al., 2011b referring to Pahl –Wostl et al., 2007). Personal and organizational barriers and conflicts (usually derived by the standardised decision making procedure) need to be overcome in order the participants will be enabled to really listen to the others, present their personal opinion and be open to produce new knowledge and finally innovation (Dudley et al., 2013 referring to SAWA Wandse alliance).

## ***c. Sustainability***

The sustainability stage substantially refers to the continuation of the LAA function after the end of the project's life. So far the established LAAs were initiatives taken under the framework of a specific project (MARE, SAWA, etc.). These LAAs functioned in a more or less successful way during the project's life-cycle but when this was over the alliance's sustainability was not ensured at all. *"Maintaining interest is a major requirement of continuing LAA activity [...]"* (Dudley et al., 2013). Although active learning is a very good motivation and reward at the same time for all professionals and decision makers the



experience from past projects has proved that maintaining participants' interest is best achieved through a project focus (Dudley et al., 2013), so the alliance's members are committed to specific aims and objectives. The availability of funding is also crucial since it will define the future action of any alliance. To this end the LAA itself at some point and while has ensured the successful functioning should try to find potential sources of funding in order to ensure sustainability (other research or development projects, private or governmental funds, donations,etc.)

## 5 Implementation in PEARL – a practical guideline

Chapter 5 gives an overview of possible ways of implementing the above described methods in PEARL. Thus part one will give practical suggestions for the stakeholder analysis and part two for the LAAs. In both cases the Crete case study is described as far the state of research allows.

In any case scale and scope of the whole exercise have to be defined. Thus the initial group (in PEARL this will be the set of case study partner) has to sort out on which spatial level (1) the problem is situated or previous disasters took place and (2) on which level stakeholders are concerned<sup>10</sup>. Furthermore it is necessary to examine the time frame that is of importance. If a previous disaster is to analyse this has to include e.g. the spatial planning process that facilitated the risky situation as well as shorter periods like the effort of the aid groups (fire-fighters, police,...) during and after the disaster. This information serves as the basis for the range of stakeholders that are potential members of the LAA.

Both the scaling and scoping process and the stakeholder analysis will also feed into the research carried out in PEARL Work Package 1. The goal of this WP is to set up the general research framework for PEARL (RRCA – Risk and Root Cause Assessment), review and revise it, and identify the disaster root causes and actual vulnerabilities (ex ante and / or ex post) in selected case studies. Here not only the mentioned initial studies will be of a great value but the later research will also draw on the LAAs to (1) get insights in the situation on the ground and (2) examine the possibilities for adaptation measures in the case study areas (both politically and technically).

### 5.1 Stakeholder Analysis in the case study areas

Building on the information provided by the document at hand the stakeholders that are important for each case study areas can be identified. The following suggestions are meant as an open list and do not take all eventualities of the case studies into consideration.

#### Practical suggestions for case study partners

- ALL potential stakeholders should be listed: The set of legally involved stakeholders (decision makers, consultants, agencies,...) is pretty much obvious, but private persons, institutions and entities which are concerned with decision making processes are often less evident (in case of harbours this could be e.g. port authorities, marina owners, other enterprises,...).
- To get an extensive overview of the stakeholders the snowball technique is appropriate: All identified (by the core group) stakeholders are approached with the request to list the stakeholders that are involved from their standpoint. Hereby other important point can be inquired as well (such as: willingness to participate, key persons within enterprises or organisations, questions/goals/constraints the stakeholders might have, mapping the key

---

<sup>10</sup> In this course the team has to keep open for new ideas and influences if e.g. a stakeholder proposes to broaden the field of colleagues who should be involved this should be taken into consideration.

points of interactions between the stakeholders approaches to get insights in the inter-stakeholder activities/situation,...). This first contact can already build the basis for the future collaboration.

- After the set of stakeholders who could be part of the LAA the core team can evaluate the influence, the interest of the stakeholder, the position to the project and the impact the project could have on the stakeholder. This process can help to better address the respective persons and to understand their needs, goals and constraints.

The following collection gives an overview of work that has been carried out in the case study areas in terms of stakeholder analysis so far. As it is one of the targets of Work Package 5 in PEARL to set up LAAs in every case study areas this collection can serve as a role model for areas that are in a earlier phase of the setting-up.

#### *5.1.1 UK –Liverpool (ICL). The UK study area issue is still open*

#### *5.1.2 GERMANY- The Elbe Estuary, Hamburg (TUHH)*

The Elbe Estuary is a complex physical but also a socio technical system, which crosses administrative borders at the state and local level and involve a range of stakeholders. The key stakeholders in the Elbe Estuary can be grouped into the following categories:

- Administration
- Politics
- Associations and NGOs
- Private stakeholders and their (informal) representatives (e.g. public action groups)
- Research
- Public and media

Also The Elbe estuary system contains a number of tributaries that are dependent on the dynamics in the Elbe River and as such have to be considered for the overall planning.

The main stakeholders of the Elbe estuary broken down in the three main levels (federal, state, local) and following the main categories as given above can be summarised as:

#### **a. The Agency for Roads, Bridges and Waterways (Landesbetrieb Straße, Brücken und Gewässer -LSBG)**

Category: Administration

Level: State/City level (Note: Hamburg is one of the 16 federal states of Germany)

LSBG is an agency that is directly assigned to the Ministry of Development and Environment (BSU) of the City of Hamburg and is responsible for the planning, construction and maintenance of technical infrastructure in the City of Hamburg. In particular the fields of responsibility are related to planning, design, construction, maintenance and operation of the following technical infrastructure elements:

- Coastal and inland flood protection
- Urban watercourses (excluding the federal waterways)
- Hydraulic structures (e.g. bridges, weirs, pumping stations)

The flood management of the River Elbe in Hamburg belongs to the coastal projection as it is located in the estuarine section of the river Elbe.

**b. Ministry of Interior Affairs- Hamburg**

Category: Administration

Level: State- The City of Hamburg

The Ministry of Interior Affairs- Hamburg is responsible for public security. It also implies the activities related to the disaster management including the flood and storm surge disaster on the river Elbe.

**c. Hamburg Port Authority (HPA)**

Category: Administration

Level: State- The City of Hamburg

The HPA is responsible for the harbour management of the City of Hamburg including all associated administrative affairs. It implies the strategic development and operation of the port facilities as well as the operation and maintenance of the port infrastructure. It is the authority to be contacted for all questions regarding the shipping traffic on the river Elbe, real estate in the harbour area and the water and inland facilities within the Port of Hamburg.

Together with the BSU and LSBG, the HPA is responsible for the public flood and storm surge protection in the port of Hamburg. It develops the prevention strategies as well as the early warning systems that is coordinated with the Hamburg storm surge warning service and port unit

Flood protection infrastructure in the Hamburg port encompasses the technical elements such as pumping stations, dikes and walls but also operation of ice breakers in order to keep the water level under the critical level.

**d. Agency for Coastal Protection, National Resources and Sea Protection, Schleswig Holstein (LKN-SH)**

Category: Administration

Level: State- Schleswig Holstein

The LKN-SH is the executive body of the Ministry for Agriculture, Environment and Rural Areas of the federal state Schleswig Holstein (MLUR).

**Setting up the PEARL LAAs - (MS14)**

The LKN-SH is responsible for monitoring, planning and approval of the coastal infrastructure, unless the responsibility is directly assigned to the Ministry. Further, LKN-SH is in charge of the construction and maintenance of the flood protection infrastructure (e.g. dikes) and the associated structures at the state or regional level. It can also take over the assessment and feasibility and economic viability of the planned coastal protection related projects.

**e. Federal Maritime and Hydrographic Agency (BSH)**

Category: Administration

Level: Federal

The BSH is a higher federal authority that supports maritime shipping and the maritime industry, promotes sustainable use of the oceans, ensures the continuity of measurements, provide competent information about the status of the North and Baltic Seas. One of the main tasks of the BSH is the provision of warning services (water level forecasts and tide predictions, storm surge warning service, ice service). It provides latest updated water level forecasts, storm surge warnings, tidal predictions as well as the information about sea states, which is an input data for the modelling of the Elbe estuary.

**f. Federal Waterways Engineering and Research Institute (BAW)**

Category: Administration and Research

Level: Federal

The Federal Waterways Engineering and Research Institute (BAW) is a higher federal authority within the area of responsibility of the Federal Ministry of Transport and Digital Infrastructure (BMVI). The BAW develops projects related to structural, geotechnical and hydraulic engineering. The Hydraulic Engineering Departments carry out project-related studies for Germany's inland and coastal waterways. The results consist of impact forecasts and basic decision-making documents for planning both maintenance and upgrading work (e.g. river engineering concepts, hydraulically optimized waterways structures, fairway dimensions) and also for efficient operation of the natural and manmade waterways.

**g. Waterways and Shipping Office-Hamburg (WSA)**

Category: Administration and Research

Level: City/State level- Hamburg



The WSA- Hamburg is one of 39 Offices in Germany and is responsible for the section of the river Elbe from the Port of Hamburg to St. Margarethe close to Brunsbüttel (the whole section is located in the estuarine part of the River Elbe and as such, in the PEARL study area). The WSA- Hamburg is inter alia responsible for the maintenance of the federal waterway Elbe and its tributaries.

**h. German Association for the Protection of Nature (NABU)**

Category: NGO and associations

Level: Federal/Local

The NABU exercises a non-party political engagement with the focus on the improvement of the nature and the habitats, including the water ecosystems. It is involved in the affairs of the local administration that are related to the nature protection

**i. Friends of the Earth- Germany (BUND)**

Category: NGO and associations

Level: International/Federal/Local

The BUND is an NGO with the main focus on the nature protection and promotion of the ecologically friendly solutions and services (e.g. renewable energy). It also emphasises the importance of the protection of ecologically valuable areas and landscapes as well as the environmentally friendly agriculture and forestry including the ones in the Elbe catchment.

**j. World Wide Fund for Nature (WWF)**

Category: NGO and associations

Level: International/Federal/Local

The WWF is one of the largest international nature protection organisations. It is focusing the problems related to the nature conservation and environmentally friendly solutions for services and solutions.

**k. Dike Associations**

Category: NGO and associations

Level: Local

The Dike Associations are water associations with a special task of river or coastal protection. They are responsible for the maintenance and renewal of the dikes in their area. An example is the Artlenburger Deichverband, which is responsible for the Elbe section in the estuarine area.

**Setting up the PEARL LAAs - (MS14)**

**l. Public action groups and initiatives:**

Category: Private stakeholders and their informal representatives

Level: Local

Along the Elbe estuary and its tributaries, there is a number of the public actions groups and initiatives, whose main missions range from the rather general ones such as the protection of the river Elbe ("Hamburg für die Elbe") to the very locally specific e.g., protecting the interests of the fruit farmers in the agricultural part of the Elbe catchment.

**m. Political fractions represented at the local authorities**

Category: Private stakeholders

Level: Local

The main and executive political bodies in the cities and municipalities in the Elbe estuary (e.g. Hamburg) and its tributaries (e.g. Buxtehude) are responsible for the final adoption of the decisions and actions in respect to the flood and coastal protection at the local level. In Hamburg, the Senate is the highest political body (currently SPD, since March 2011).

**n. Private stakeholders**

Category: Private stakeholders

Level: Local

Private stakeholders or dwellers are either the people that live along the river Elbe or its tributaries or may be affected by the planned interactions (e.g. polders). They will be selectively approached during PEARL and if applicable, considered for the LAAs- Elbe.

### 5.1.3 FRANCE- Les Boucholeurs (UNSA)

#### a. National level

Ministry of Ecology, Sustainable Development and Energy (*Ministère De L'écologie, Du Développement Durable Et De L'énergie*) - This Ministry is responsible for State Environmental Policy with a focus on Preservation of Biodiversity, Climate Kyoto Protocol Application, Environmental Control of industries, etc. The following sectors are covered within the ministry: (i) energy, air and climate, (ii) water and biodiversity, (iii) risk prevention, (iv) sustainable development, (v) transport, (vi) sustainable city planning and sustainable construction, (vii) marine life and (viii) ecological transition.

#### b. Basin level

Water agency - Public institution of the State with administrative nature under the supervision of the Minister for the Environment. In the basin or group of basins, the water agency implements the master development and water management scheme (SDAGEs) and development plans and water management (SAGE), promoting a balanced and efficient management of water resources and aquatic environments, the drinking water supply, flood control and sustainable development activities economic. It leads, in addition, a land policy for the Protection of Wetlands approved by the Watershed Committee. Its resources come mainly from charging fees on withdrawals and water pollution. The water agency provides financial support for measures of common interest that contribute to the balanced management of water resources and aquatic environments, such abatement, quantitative resource management or restoration and enhancement of aquatic environments.

#### c. Regional level

The region where is case study located is Poitou-Charete.

#### d. Departmental level (Charete-Maritime)

The préfet Charete-Maritime as a part of a department Poitou-Charete is responsible for establishment of document PPRI. This plan is directly controlling the urbanization of flood prone areas and with that it's preventing huge flood damages. The plan is an instrument for the central government to control urbanization of flood prone areas. The measures taken by central government are focused more on traditional and preventive flood risk management.

#### e. Inter-municipal level (La Rochelle)

As an inter-municipal unit within the Charete-Maritime the is in charge of Programme d'Actions de Prévention des Inondations (PAPI) or flood action plan, established in order to present result of concerted and joint discussions with all stakeholders regrading flood risk. This plan is under PPRI plan.

#### **f. Local level Municipal level (La Châtelailon-Plage)**

The mayors of the surrounding cities came together to create a public structure with subject to the protection of persons and property against the risk of coastal flooding: the SILYCAF (Syndicat du Littoral Yves-Chatellaillon Aix-Fouras) This union has a major project for the protection and defence against the risk of coastal flooding, including a specific component to common Yves and Châtelailon-Plage. The objective of SILYCAF is to organize and protect property and people against the risk of flooding and flood the entire coastline of the Bay of Yves.

The mission of SILYCAF can be divided into following directions:

- Provide technical, administrative and financial monitoring of projects
- Establishment of a protection and defence against flooding (PAPI)
- Creation of protective structures (contracting authority)
- Provide oversight and maintenance of protection works
- Keep the device operational crisis management
- Develop preventive actions.

#### *5.1.4 ITALY –Genoa (GISIG)*

#### **g. National Level**

##### **Ministry of Environment:**

The Ministry of Environment has functions relating to the environment, ecosystem, protection of marine resources, pollution, as well as the Environmental Impact Assessment, the Strategic Environmental Assessment and the Integrated Environmental Authorization.

It has expertise in the field of protection of soil from desertification and in protection of the hydrogeological asset.

Coordinates and oversees the functions of the Environmental Code, namely the Decree n. 152, April 3, 2006, laying down Environmental Regulations, which has overtaken the former legislation.

##### **ISPRA (Institute for Environmental Protection and Research):**

The Institute for Environmental Protection and Research, ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale), has been established by Decree no. 112 of 25 June 2008, converted into Law no. 133 (with amendments) on 21 August 2008.

ISPRA performs, with the inherent financial resources, equipment and personnel, the duties of:

- ex-APAT, Italian Environment Protection and Technical Services Agency (article 38 of Legislative Decree no. 300, July 30, 1999, and subsequently amended);
- ex-INFIS, National Institute for Wildlife (Law no. 157 of February 11, 1992, and subsequently amended);

#### **Setting up the PEARL LAAs - (MS14)**

- ex-ICRAM, Central Institute for Scientific and Technological Research applied to the Sea (Decree no. 496, article 1-bis, December 4, 1993, converted into Law no. 61, Article 1, January 21, 1994, with amendments).

The Institute acts under the vigilance and policy guidance of the Italian Ministry for the Environment and the Protection of Land and Sea (Ministero dell'Ambiente e della Tutela del Territorio e del Mare).

### **Italian Civil Protection Agency:**

The Civil Protection Department has been grounded in the offices of the Presidency of the Council of Ministers since 1982.

It has a guiding role, in agreement with regional and local governments, of projects and activities for the prevention, forecast and monitoring of risks and intervention procedures that are common to the whole system.

The Department coordinates the response to natural disasters, catastrophes or other events that intensity and extent, should be faced with extraordinary powers and means.

Moreover, also in agreement with the regional governments and local authorities, working in the drafting of legislation on the prevention of risks and regulatory measures needed to cope with disasters and minimize damage to people and property.

It promotes drills, national and international training projects and activities that contribute to spreading the culture of civil protection.

#### **a. Local Level**

**IREN Group (Genoa water utility):** IREN, a multiutility company listed on the Italian Stock Exchange, operates in the sectors of electricity (production, distribution and sale), thermal energy for district heating (production and sale), gas (distribution and sale), the management of integrated water services, environmental services (collection and disposal of waste) and services for the local authorities.

IREN Acqua Gas is the company dedicated to the management of public services of gas distribution and management of water services.

**Liguria Region:** It is responsible of policies for soil protection, herein including compliance with the provisions of European Directives and of Italian laws. Moreover it is the executor of most of the reporting activity, at Italian and at EU level.

In case of events it is responsible for deliberating and funding urgent interventions in collaboration with the other administration levels, also because in most cases if events happen in small Municipalities, these do not have appropriate structures (machinery, knowledge) and funds to do it autonomously.

### **Setting up the PEARL LAAs - (MS14)**

**Genoa Province:** It is responsible for the release and monitoring of basin plans, and for the control of their implementation and related sanctioning actions. It is responsible for monitoring and control of the ordinary road network. Moreover it is responsible for authorization of any work implying realizations in concrete and a preliminary structural calculus.

In case of events it is responsible for the implementations of interventions and for their validation and approval.

**Genoa Municipality:** It is responsible for the liaison with citizens and whatever concerns safety and health. The responsibility refers both to ordinary situation (authorization of works on buildings and existing structures, control of any activity having impact) and to extraordinary situations. That is, in case of events it is responsible for the decision about safety of buildings and structures, and consequently about their use by citizens (e.g. fitness for habitation), and about health of citizens (e.g. use of damaged aqueducts).

**Civil Protection Agency Regione Liguria:** The Civil Protection of Regione Liguria performs the activities and pursues the objectives of the regional and national legislation.

The main activities are:

- Management of "Centro funzionale meteo idrologico di Protezione Civile della Regione Liguria (Cfmi-pc)" (Functional Centre Weather Hydrological of Civil Protection of Regione Liguria) and management of "weather alert" in forecasting and prevention.
- Mapping of areas subject to criticality.
- Raising public awareness on the problems of flood risks.
- Regional system of emergency communications.
- Educational activities in the school environment.
- Management of Volunteers
- Technical and administrative management of EU projects.
- Technical and administrative management of the interventions to overcome the damage caused by natural disasters or catastrophes.

**Centro Funzionale Meteo-Idrologico di Protezione Civile della Regione Liguria (CFMI-PC):** CFMI-PC is the ARPAL (REGIONAL AGENCY FOR ENVIRONMENTAL PROTECTION - LIGURIA) structure which deals with meteorology (monitoring and forecasting of weather and marine) hydrology (assessment of the hydrological effects of rainfall on streams) and climatology (validation, storage and statistical processing of meteohydrological data observed) in Liguria.

Summary of activities:



- collects, gathers, processes, stores and validates the meteohydrological data observed in the region, through the direct management of the monitoring network of the Liguria Region (OMIRL), the direct management of the primary station receiving from geostationary satellite and the acquisition of data from outside (GTS data, radar, lightning strikes, etc.).
- manages the daily weather and hydrological modelling chain, on which they are based the forecasts and the meteohydrological valuations;
- processes the weather and marine forecasts on the Region and the hydrological assessments of the effects of heavy rainfall on the ground;
- providing operational and technical-scientific support in the context of forecasting and meteohydrological risk management to Civil Protection of Regione Liguria.

**River Basin Authority (Regione Liguria):** The reorganization of the Basin Authority, operated by the Regional Law n.58/2009, provides greater partnership of the local authorities in the assessments and decisions, in order to ensure a more effective and shared action, as well as greater efficiency in terms of time and management of the activities.

It is, in fact, identified the Basin Technical Committee as a unique technical body of scientific and technical advice of the Basin Authority, composed of representatives of the Region and of the Provinces, as well as by the ministerial representatives and experts in various fields.

The work of the River Basin Authority is ensured by the regional and provincial structures, identified for this purpose by the Regional Council.

#### **b. Private Stakeholders / Citizens:**

**Association "Amici di Pontecarrega":** The association was founded by the spontaneous initiative of Genoese citizens after the floods that hit Genoa in November 4<sup>th</sup>, 2011. The members act for the protection of an area with great hydrogeological risks and they struggle to avert the demolition of the historic Ponte Carrega.

**Civil Protection Volunteer Teams:** Civil Protection Volunteering Teams can be used in forecasting, prevention and rescue. In case of emergency the volunteer organizations are involved at the request of the authorities and are coordinated by them.

**UNIGE (University of Genoa, Dipartimento di Ingegneria Civile, Chimica e Ambientale - DICCA):** The Department of Civil, Chemistry and Environmental Engineering (DICCA) was born in 2012 from the union of the Department of Construction, Environment and Territory Engineering (DICAT) and the Department of Chemical and Process Engineering "GB Bonino "(DICheP).

The Department is part of the Polytechnic School of the University of Genoa, in clearly defined cultural areas (the Civil Engineering and the Chemical Engineering) and united in order to improve the

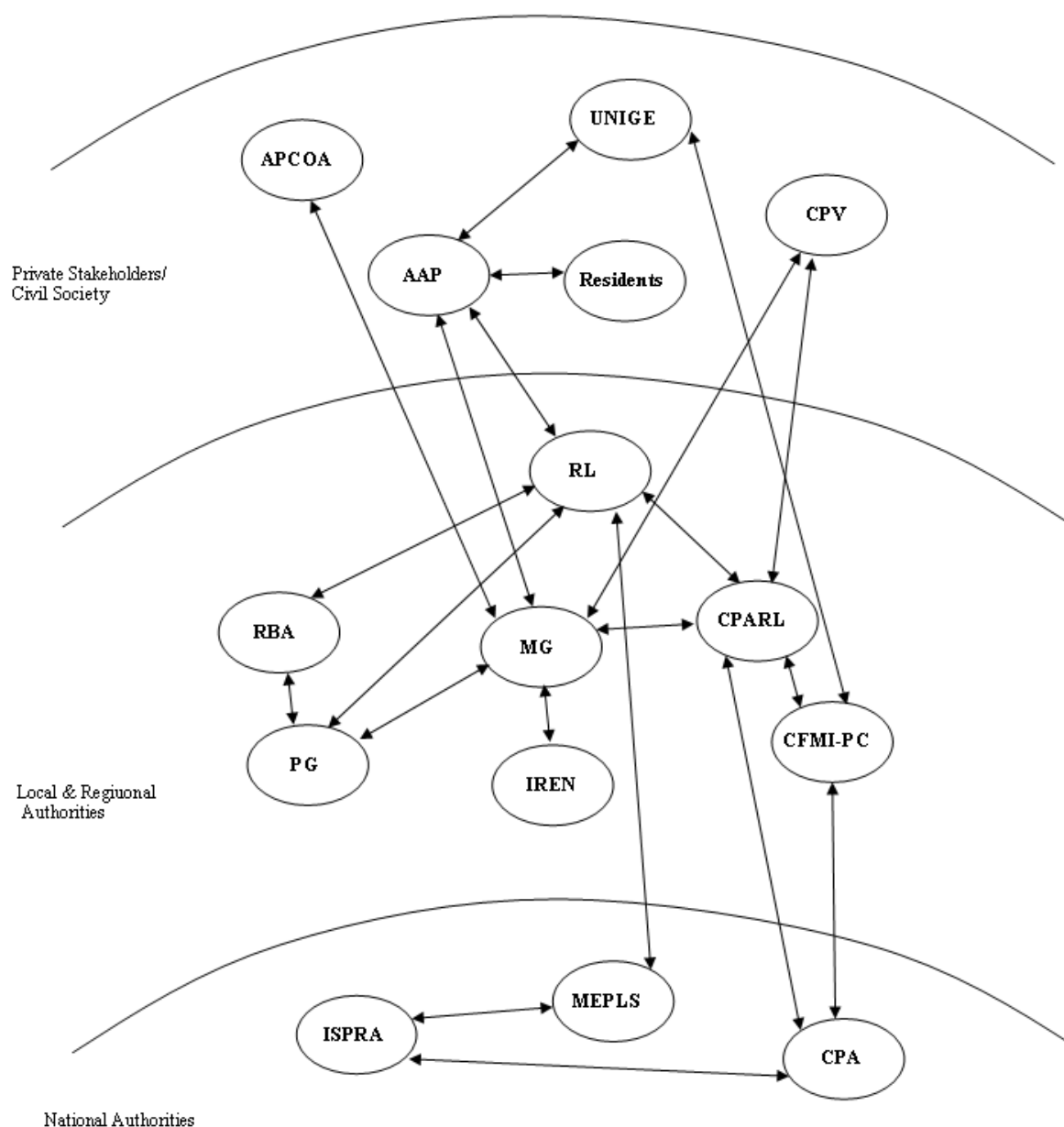
interventions on the Environment and Territory, in view of the definition of a single point of reference, educational and scientific.

**APCOA:** is the leading operator of parking services both in Italy and in Europe.

APCOA carries not only the management but also all the activities related to this: the economic and financial feasibility studies through project financing, project consulting, management and administration.

In addition to the "Off Street" management (in multi-storey car parks, underground or on the surface) APCOA PARKING Italy has a lot of experience with the "On street" management.

## GENOVA STAKEHOLDERS ORGANI-SOCIOGRAM



connection 

### *National:*

**MEPLS:** Ministry of Environment and Protection of Land and Sea  
**ISPRA:** (Institute for Environmental Protection and Research):  
**CPA:** Italian Civil Protection agency

### *Local:*

**IREN:** IREN Group (Genoa water utility)  
**RL:** Regione Liguria  
**PG:** Genoa Province  
**MG:** Genoa Municipality  
**CPARL:** Civil Protection Agency Regione Liguria

**CFMI-PC:** Centro Funzionale Meteo-Ideologico di Protezione Civile della Regione Liguria

**RBA:** River Basin Authority (Regione Liguria)

### *Private stakeholders/NGOs/ Civil Society:*

**UNIGE:** (University of Genoa, Dipartimento di Ingegneria Civile, Chimica e Ambientale - DICCA)  
**CPV:** Civil Protection Volunteer Teams  
**RESIDENTS:** Private Stakeholders / Citizens  
**APCOA:** APCOA PARKING group (underground and surface parking)  
**AAP:** Association "Amici di Portecarrega"

#### 5.1.5 SPAIN- Marbella (CETaqua)

##### **Ministry of Environment:**

The Ministry of Environment - MAGRAMA (Ministerio de Agricultura, Alimentación, y Medio Ambiente), has functions, amongst others, on agriculture and food, the environment, ecosystems, water, protection of marine resources, etc.

The General Water Directorate – DGA (Dirección General del Agua), is part of this Ministry and is in charge of building the water infrastructures at basin level and in coastal areas, assuring the implementation of the WFD and the Floods Directive, and hence is promoting the implementation of flood risk management plans, by helping the River Basin authorities with information and tools to do so.

##### **a. Local Level**

##### **Anadalucía Water Agency:**

The Andalucía Water Agency – AMAYA (Agencia de Medio Ambiente y Agua de Andalucía) is the institution that manages environment and water in the region of Andalucía. It depends of the regional government of Andalucía (Junta de Andalucía), and manages the watershed of the Atlantic rivers as well as the coastal areas (the river basins of some big rivers in Andalucía (Guadiana, Guadalquivir...) are independent and directly depend of the MAGRAMA).

AMAYA deals with the protection, conservation and improvement of environment and water. It plays an important role during the situations of emergency. However, they are not involved in the decision making within urban areas and hence, their relevance in relation to the case study area is not so high.

##### **Municipality of Marbella:**

The Municipality of Marbella (Ayuntamiento de Marbella) is the main authority at local level. Their involvement is widespread, so all the PEARL issues are related to one or another area of the Municipality.

Within their structure, the Department of Environment (Área de Medio Ambiente) is the one dealing with some of the PEARL issues, specially focusing on the beaches and the receiving waters. On the other hand, all the issues related to the network and the operations depend of the Department of Civil Works (Área de Obras y Servicios Operativos).

Although some other entities also belonging to the Municipality of Marbella are important (such as civil protection, or the port authority), they are explained separately following.

##### **Fire Department of Marbella:**

The Fire Department of Marbella has an important role regarding flood emergency and recovery. The department depends of the Marbella Municipality. In addition to all the regular tasks that they do,

#### **Setting up the PEARL LAAs - (MS14)**

they act when a flood occurs, as well as help to come back to the normal state of the city after the extreme event.

### **Civil Protection Department of Marbella:**

The Civil Department depends of the Municipality of Marbella. It is an organization mainly formed by volunteers that help disinterestedly when emergencies occur. Although there is a Civil Protection department that belongs to the Regional Government (Junta de Andalucía), the level of the issues that will be dealt in the Marbella case study mainly correspond to the local Civil Protection Department. The two of them work independently, being the Marbella one always reporting to the Municipality and not to the Junta.

### **HIDRALIA:**

Hidralia is the company managing the water distribution network and the sewage network in Marbella. The company (previously called Aquagest Andalucía) belongs to the Agbar group, which is the same one to which CETaqua belongs. The water distribution contract started in 1992 and will last for 50 years. The management of the sewer network was granted on 2012, and will last 25 years. The first thing that is being done within this contract, was the development of a Drainage Master Plan (DMP) (that will be done by Aqualogy, CETaqua's third party in the PEARL consortium) and the acquisition of new equipment to clean and maintain the network. The DMP is still in its initial stages, building the GIS of the network. The instrumentation and modelling of the network will be done in parallel with PEARL, benefiting from the synergies that this can bring.

### **Mancomunidad de Municipios de la Costa del Sol Occidental:**

Although the whole city sewers are managed by Hidralia, the Waste Water Treatment plants and the interceptors are managed by another company – ACOSOL. ACOSOL is a public company that depends on the Mancomunidad de Municipios de la Costa del Sol Occidental, an association of the several coastal municipalities from the Costa del Sol area. Given that waste water treatment and the interception of the sewers belongs to them, collaboration with them is crucial to undertake a coordinated sewer management and minimise the water discharges to the sea.

### **Asociación de Comerciantes del Casco Antiguo:**

This is the association of the several retail shops that are located in the Marbella old town, where the PEARL case study will be focusing. The association fights for the benefit of these type local businesses and professionals, and hence they would be really interested in mitigating the effects of extreme events in the area, due to their negative effect in commercial transactions.

### **Asociación de Empresarios y Profesionales de Marbella:**

This is the association of the Marbella businesses and professionals, mainly related to commerce, industry, but more specifically, tourism. Their objectives are to improve the environment, the economic transactions and the relationships between the several, with the final goal of promoting tourism in the city, which is one of the main pillars of the local economy.

### **Setting up the PEARL LAAs - (MS14)**

### **Puerto Deportivo de Marbella:**

The sportive port of Marbella as it is today was created in 1980. However, the area was used for maritime transport since the XVIII century, changing the typology of its main use several times throughout history. Currently the port is indirectly managed by the Regional Government (Junta de Andalucía) and it can host 377 small ships (up to 20 m long). Although there are three more ports in Marbella (a commercial one, a fishing one and another sportive), this one is right at the bottom of the case study area.

### **Federación de Vecinos Barrios de Marbella:**

This is the federation of all the neighborhood associations from Marbella. Given that the case study area belongs to several different neighborhoods, the Federation is the best contact to address all of them at the same time, being able to collect the interests and concerns of the people living in the area.

#### *5.1.6 GREECE-Rethymno, Crete (NTUA)*

The following organisations and units are identified as the main key stakeholders for the Rethymno case study area. National and local authorities' functions are described in order to provide a clear view of all involving parties in decision making procedure related to urban development and flood management. Below organization's role is analysed. Finally a chart will try to figure the flow of communication and information among the organizations and/or their services. There are 4 distinct categories of stakeholders identified in Rethymno: National, Local, NGOs, Private Organizations/Citizens.

#### **c. National Level**

**Ministry of Environment, Energy & Climate Change** . The Ministry has been established in order to confront the continuous environmental problems and to adopt a new development model – the model of Green Development- that will secure a better quality of life for every citizen. The Ministry works to achieve the protection of the natural environment and resources, the improvement of quality of life, the mitigation and adjustment to the implications of climate change and the enhancement of mechanisms and institutions for environmental governance. Towards this mission the Ministry has developed a strategic plan based on 4 pillars amplified into strategic objectives: *i) Combating Climate Change by moving towards a competitive economy of low carbon consumption; ii) Natural resource protection and environmental enhancement; iii) Improve quality of life with respect to the environment; iv) Enhancement of environmental governance mechanisms and processes*. There are two key services of the Ministry of Environment whose involvement in PEARL project is considered crucial due to their actual role and mission.

- **Special Secretariat for Water** as one of main national authorities is in charge for the formulation and implementation of all public works (structural or non) related to Water Resources management and protection, as also for the coordination of all respective institutions/organizations/services on local and national level.

### **Setting up the PEARL LAAs - (MS14)**



Key responsibilities and activities of SSW are: *the incorporation in national legislation of Water and Floods Framework Directive; Flood Framework Directive; Wastewater reuse and management; monitoring and assessment of water quality and quantity; Marine Strategy Framework Directive; Bathing coasts and Blue Flag operation and finally all international and transnational Mediterranean water issues.* The Secretariat collaborates closely to the Regional Water Directorates in order to establish national and local projects in terms of sustainable water resources management.

- **General Secretariat for Regional Planning and Urban Development** also one of the main authorities in charge for national spatial and land use planning, coordination of all activities (industrial, rural, urban, touristic, commercial, residential, etc.) and services under a rational allocation, structure and development of natural resources. Key activity of GSRPUD is the formulation and implementation of development projects towards sustainability, social cohesion, environmental resources conservation, competitiveness and quality of life for all residents. Moreover GSRPUD is in charge for all urban and building regulations, requirements and relevant legislation of building on national level, taking into account the special conditions and conservation of architectural heritage on local level.

#### **d. Local Level**

- i. **The Regional Unit of Rethymno:** The Unit replaced the former Prefecture of Rethymno and is the one of the four Regional Units of Crete. Its Technical Department monitored and supervised the construction and the expansion of Port Facilities throughout the years, therefore their knowledge will enlighten PEARL team about the existing infrastructure and the reasons which led to the Port Planning. Problems that had to be solved were related to high N-NW winds and the harbour siltation phenomena which led to interruptions of sailing of ships. Another challenge for PEARL team will be to understand the actual role of the Civil Protection Department and how it is connected with the one supervised by the Municipality of Rethymno.
- ii. **Municipality of Rethymno:** The Municipality of Rethymno is the primary authority in a local level. Along with the Technical Department and the Department of the Urban Planning implements several development-oriented actions aiming at improving the quality of life and achieving, among others, economic growth.

Within the Municipality, key decision-makers and stakeholders will be identified and help PEARL team to become aware of the decision dependencies and pathways of influence in Rethymno. Initially, creating common images will be attempted while at a next step, long term visions will be shared. Their contribution towards the creation of possible future scenarios is of high importance especially in the complete socio-technical environment. Characteristic example of paramount importance is the new government bill concerning the setting of boundaries, management and protection of coasts and beaches. Its enforcement would change radically the urban planning and would pose real threat on coastal communities. Municipality's stand on the aforementioned bill will highly affect the creation of the future scenarios and will define their perspective towards flood risk.

- iii. **Municipal Port Authority Trust of Rethymno:** The Municipal Port Authority Trust of Rethymno continues its historic course which started in Rethymno in 1914. The aforementioned department actively contributes to the development of this region of Crete and carries the great responsibility of administering the only entrance gate to Rethymno's prefecture to date, as well as maintaining the facilities of all its ports and fishing resorts. The Municipal Port Authority Trust of Rethymno provides public utility services and contributes to the commercial, passenger, tourist and fishing traffic and generally to the smooth operation of the ports in its authority. Through our cooperation, PEARL team aims to understand the flood problems/damages occurring in the port facilities and in the wider coastal area the recent years and also to be enlightened about their preferences, ambitions and plans towards the development and the exploitation of the port facilities and the adjacent coastal zone.
- iv. **Municipal Water Supply and Sewerage Company SA:** The Municipal Water Supply and Sewerage Company SA of Rethymno has the responsibility of water and sewerage services of the Regional Unit of Rethymno as well as the storm water network and the flood prevention works. The aforementioned department was established in 1981 whereas it actually started its function in 1985. Their goal is that all residents are able to enjoy water in sufficient quality and quantity, to provide treatment and disposal facilities of sewerage throughout the Regional Unit and to contribute towards the general protection of the environment. Their presence throughout the design, the construction and the operation of the water related infrastructure will enable the comprehension and the assessment of its functionality regarding the flood risk reduction.
- v. **Development organization of Crete S.A.:** The Organization is a newly established enterprise which is supervised by the Hellenic Ministry of Development and Competitiveness and acts throughout the area of Crete. Within the domain of the aforementioned enterprise are, among others, the subscription, maintenance, operation, administration, management and exploitation of land reclamation and the development and exploitation of water resources and wastewater. Particularly for Rethymno case study, the Development organization of Crete SA is responsible for the supervision, maintenance and management of the Potamoi Dam which is constructed in the main watershed in Rethymno and interrupts the flow of Platania River (the only river in Rethymno with base flow). Through our collaboration, the PEARL team will understand the reservoir system operation planning and decision making which is of primary importance for flood simulations, will create a common image regarding flood risk based on the Dam Break Study that has been implemented and will consider and examine possible future scenarios regarding the consequence of a dam break. The results of PEARL project will contribute to the reservoir system operations optimization by taking into consideration the flood risk mitigation. Furthermore, the personnel and their high level of expertise e.g. geologist, civil engineers etc. will transfer personal knowledge concerning the Rethymno case study.
- vi. **Civil Protection Volunteer Team:** This unit is registered in the General Secretariat for Civil Protection (GSCP) which is the national integration agency of Voluntary Organizations

(VOs) and Expert Volunteers (EVs). The VOs and EVs are included in the human resources of civil protection to be in charge of supporting disaster prevention, response and recovery actions. Their contribution in PEARL project will enable PEARL team to understand the role of the Civil Protection Agency of Rethymno and the procedures followed during the occurrence of extreme urgent phenomena such as floods. Of extreme importance is the comprehension of the role of a volunteer team in small community like Rethymno and the possible confrontation between them and the local authorities, including services like fire brigade.

- e. **Environmental NGOs.** The role of NGOs is crucial to the participatory process since they derive from society and are close to local communities. NGOs represent a significant part of civil society, while they proceed to several interventions to public authorities (governmental and local level) towards conservation frameworks, environmental policies changes, legislation changes and incorporation of the EU framework directives on both local and national level. Their involvement will be valuable as they will bring to the LAA a kind of knowledge (citizens' perspectives) which is usually ignored by authorities and experts.
  - i. **WWF Hellas Crete office:** WWF is one of most dominant Environmental NGOs in Greece and EU with an experience and activity of more than 20 years each, on local, national, European and international level, towards environmental protection. WWF is specialized in climate change and environmental conservation and the regional unit of Crete implements projects and conservation actions on local level. The NGO represent a significant part of civil society, while proceeds to several interventions to public authorities towards environmental policies changes and incorporation of EU framework directives.
  - ii. **MEDITERRANEAN SOS Network:** MEDSOS is also one of the most dominant Environmental NGOs in Greece with an experience and activity of more than 20 years each, on local, national, and European level, towards environmental awareness. MEDSOS is specialized in Water Resources Management and Integrated coastal zone management, has significant presence at local and national level and involves thousands of citizens in voluntary activities on annual basis.
  - iii. **Environmental Association of Rethymno:** The Association is a local environmental NGO member of the ECOCRETE network (network of all Cretan environmental NGOs), active since 1999 towards environmental protection and sustainability. The association although local has a very active presence in several issues and very good connections to other NGOs. It is specialised in water resources management issues, climate change & energy, waste management and recycling.
- f. **Private Stakeholders/Citizens**
  - i. **Sailing Club of Rethymno:** The Club was founded in 1992 and it has been active ever since. Besides the organisation of sailing schools for children and adults, the Sailing Club of Rethymno participates in local, national and international regattas,

organises seminars and lectures and also participates in local sports and environmental activities. Sailing is one of the most common sport activities in a coastal city which is highly affected by problems/damages occurring in the coastal zone and the port facilities. Their participation will contribute to the impact assessment especially concerning the sea conditions (waves, wind, coastal erosion, harbour siltation, etc.)

- ii. **Association of hoteliers:** Tourism has a key role in the economy of the Municipality of Rethymno as high percentage of the economically active population is employed in activities directly related to it (hotels and restaurants). Along the northern coastal area of Rethymno, restaurants, shops, hotels and hotel units contribute to the economic exploitation of the area and offer jobs to Rethymno's community. Hence, problems related to high wind exposure, storm surges, and coastal erosion highly affect the economic activity of Rethymno. Aiming for the development of novel models for assessing the economic impact, PEARL team will learn through their perspective and will take possible impacts of flood risk related problems into consideration for the creation of possible economic scenarios.
- iii. Apart from the organizations who are involved or affected by the decision making procedures related to urban planning and flood management, there have been identified insulated citizens/personalities who although not represent a specific institution or unit have a valuable experience and knowledge from the study area of Rethymno. Since they live and work in Rethymno they can provide in the LAA the perspective of citizens who are usually affected on the first hand by a natural disaster in terms of human lives' loses, properties' damages or financial activities pausing, while they are aware of historical events, data and procedures related to the general planning of city of Rethymno. Such personalities are:
  - **Former Mayor of Rethymno :** His term lasted 27 years and he also served as a president of the Municipal Water Supply and Sewerage Company of Rethymno for the periods 1979-1982, 1995-1998, 1999-2002 and 2002-2006. During his term, important infrastructure projects were carried out related to water supply and sewerage networks, as well as flood prevention works. His participation in the aforementioned works and his past flood experiences as a resident of the Old Town of Rethymno, where the past flood events mostly took place, will contribute to a greater understanding of flood risk in Rethymno case study.
  - **Meteorologist, Air Force Officer:** Citizen whose contribution will mostly be related to past flood events, data acquisition and knowledge sharing on extreme events.
  - **Civil Engineer specialized in Hydraulic works:** Freelance civil engineers and SMEs in a small city like Rethymno have been asked to study and construct hydraulic and flood related works and infrastructures without having any previous studies/knowledge or experience to be based on, but rather simplifying assumptions of the literature. Even in a case of constructing a small house near a stream or a torrent, a study that will define the local surface flooding area is obligatory. Our collaboration with civil engineers will enable PEARL team to identify the shortcomings in the design and the

construction mainly for flood related works and guide local stakeholders to deal with the problem holistically rather than individually.

- **Journalist in a Cretan Newspaper:** Her position will enable the dissemination of PEARL project work and results and her experience will provide input for possible ways on how to engage the local stakeholders. In addition, information related to past flood events and damages will be available through the newspaper records.
- **Owner of a restaurant in the Old Town of Rethymno:** A restaurant placed in the Old Town of Rethymno and especially in the Old Venetian Harbour will serve as a representative example of how highly affected is a sector of Rethymno's economy. Moreover, comprehension of possible problems/damages on Port facilities and particularly on areas where fishing boats and yachts docked will be achieved.





## 5.2 Formalizing the LAAs in the case study areas

At this chapter all respective partners should analyse the LAA establishment procedure in their case study area according to: *PEARL aims and objectives; previous stakeholders' analysis; established facts in their CS area; political environment in the CS area; special conditions in terms of coastal-spatial-socioeconomic issues demands that may occur through the political environments in the case study areas (e.g. changes in legislation, spatial plans, incorporation or not of EU framework directives, etc).* The future function of the alliances should enable innovation and contribution to collaborative planning via 3 threads (facts, images, and ambitions), 3 streams (problem, solution, participants/politics) and 3 activities (system analysis, collaborative design, governance) as described in chapter 4.3 of this document.

### **Practical suggestions for case study partners**

Since PEARL LAAs formulation will be based on previous projects methodologies and outcomes, some key principles are cited below, as identified by past research initiatives and highlighted in Verhagen, Butterworth and Morris 2008.

- Learning Alliances should be formed around real, potentially wicked problems, and an initial group of stakeholders committed to change. Learning Alliance members will share a common desire to address an underlying problem, in PEARL case to support the building of flood resilient coastal cities. They will also share or develop common approaches – visions, strategies and tools – on how this can be achieved. Not all stakeholders will (actively) participate from the very beginning but might decide to join later. Each alliance will group together a range of stakeholders who capture diversity and bring together complementary skills and experiences.
- The more representative the alliance is, the better it will capture the institutional complexities that constitute the realities of the system. Representation needs to be ensured horizontally – that is stakeholders working for instance the city level – and vertically – that is stakeholders working at community, city, and national level for example. Good stakeholder analysis is critical to ensure this degree of representation.
- Emphasis is switched from researchers devising new technologies – doing different things – to improving how the multiple stakeholders in the innovation system work – doing things differently – and will lead to interventions having greater impact.
- Innovations that are generated locally, taking all the relevant stakeholders into account, are more

### **Setting up the PEARL LAAs - (MS14)**

likely to lead to appropriate, integrated and sustainable solutions, to promote flexible and adaptive working practices, and to foster and strengthen the development capacity of local organizations and communities.

- New understanding of knowledge and learning should be promoted, and the emergence of learning organizations. Whereas information can be generated and disseminated, knowledge is seen as a complex, transformative process, arising less from any accumulated stock of information, and more from intra- and inter-organizational processes in which experimentation – action research – and communication feature strongly.
- To attract stakeholders it could be beneficial to formulate a set of tangible questions/aims that are of high importance to all addressed partners. This could for instance be:
  - Develop input for new land use planning processes from a risk perspective
  - Collect risks as perceived by the stakeholders and hand it over to regional/national authorities
  - Support the local economy in preparing for disaster situation / reduce risk

The following collection gives an overview of work that will be carried out in the case study areas for setting up the LAAs so far. As it is one of the targets of Work Package 5 in PEARL to set up LAAs in every case study areas this collection can serve as a role model for areas that are in a earlier phase of the setting-up.

*5.2.1 UK –Liverpool (ICL)*

*5.2.2 GERMANY- The Elbe Estuary, Hamburg (TUHH)*

*5.2.3 FRANCE- Les Boucholeurs (UNSA)*

*5.2.4 ITALY –Genoa (GISIG)*

*5.2.5 SPAIN- Marbella(CETaqua)*

*5.2.6 GREEECE-Rethymno, Crete (NTUA)*

## 6 References

- Ashley R.M. and Blanksby J.R. 2009. Learning and action alliances in relation to urban water and flood risk management. Discussion document.
- Ashley, R.M., Blanksby, J., Newman, R., Gersonius, B., Poole, A., Lindley, G., Smith, S., Ogden, S., 2009. Learning and Action Alliances to build capacity for flood resilience. Under review. Journal of Flood Risk Management.
- Ashley R.M., Blanksby J., Newman R., Gersonius B., Poole A., Lindley G., Smith S. & Ogden S. 2011. Learning and Action Alliances to build capacity for flood resilience. J Flood Risk Manage.
- Ashley, R. M., J. Blanksby, R. Newman, B. Gersonius, A. Poole, G. Lindley, S. Smith, S. Ogden, and R. Nowell. 2012. Learning and Action Alliances to build capacity for flood resilience. Journal of Flood Risk Management 5 (1): 14–22.
- Batchelor C. and Butterworth J. Learning Alliance Briefing Note 9: Visioning (draft). 2008. Available at [http://www.switchurbanwater.eu/la\\_guidance.php](http://www.switchurbanwater.eu/la_guidance.php) (accessed 5 November 2008).
- Bernard, H. Russell. 2000. Social research methods. Qualitative and quantitative approaches. Thousand Oaks: SAGE.
- CEA. Reducing the social and economic impact of climate change and natural catastrophes insurance solutions and public-private partnerships. 2007. Available at <http://www.cea.assur.org/> (accessed 15 February 2008).
- Commission of the European Communities. 2007. Floods directive. 2007/06/EC.
- Commission of the European Communities. Adapting to climate change: towards a European framework for action. White Paper. COM (2009) 147 Final. April 2009. Djalante, Riyanti, Cameron Holley, Frank Thomalla, and Michelle Carnegie. 2013. Pathways for adaptive and integrated disaster resilience. Natural Hazards 69 (3): 2105–2135.
- Dudley, Elizabeth, Richard Ashley, Natasa Manojlovic, Sebastiaan van Herk, and John Blanksby. 2013. Learning and Action Alliances for innovation and active learning in a European context.
- Gardner, John, Anne-Maree Dowd, Claire Mason, and Peta Ashworth. 2009. A framework for stakeholder engagement on climate adaptation. CSIRO Climate Adaptation Flagship Working Paper 3.

- Gibbons, Michael, C.Limoges, H. Nowotny, S.Schwartzman, P. Scott, and M. Troww.1994. The new production of Knowledge. London,U.K.: Sage
- Hall, A. J. B. Yoganand, J.H.Crouch, and N.G.Clark. 2004. "The Evolving Culture of Science in the Consultative Group on International Agricultural Research: Concepts for Building a New Architecture of Innovation in Agri-biotechnology." In Innovations in Innovation: Reflections on Partnership, Institutions and Learning, edited by A.J.Hall, B. Yoganand, R.V.Sulaiman, Rajeswari Raina, S.,C.S. Prasad, Guru C.Naik and N.G. Clark, 135-62. Andhra Pradesh, India: CPHP, ICRISAT and NCAP
- IPCC [Intergovernmental Panel on Climate Change] (ed.). 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Summary for Policy Makers.
- Lach D., Rayner S. & Ingram H. Taming the waters: strategies to domesticate the wicked problems of water resource management. Int J Water 2005, 3, (1), 1–17.
- Lave, J., and E. Wenger. 1991. Situated learning: legitimate peripheral participation. Cambridge University Press, Cambridge, UK.
- Lundy, Mark, Maria Verónica Gottret, and Jacqueline Ashby. 2005. Learning Alliances: An Approach for Building Multi-Stakeholder Innovation Systems. ILAC Brief 8.
- Newman, R., Ashley, R.M., Molyneux-Hodgson, S., Cashman, A., 2011. Managing water as a socio-technical system: the shift from 'experts' to 'alliances'. In: Proc. Institution of Civil Engineers Engineering Sustainability Issue ES1.164, pp. 95– 102.
- Ostrom E (2010) Beyond markets and states: polycentric governance of complex economic systems. Am Econ Rev 100(3):641–672
- Pahl-Wostl C., Craps M., Dewulf A., Mostert E., Tabara D. &Taillieu T. Social learning and water resources management.Ecol Soc 2007, 12, (2), 5. Available at <http://www.ecologyandsociety.org/vol12/iss2/art5/> (accessed 14 September 2011)
- Pahl-Wostl C (2009) A conceptual framework for analysing adaptive capacity and multi-level learning processes in resource governance regimes. Glob Environ Chang 19(3):354–365
- Reed, Mark S., Anil Graves, Norman Dandy, Helena Posthumus, Klaus Hubacek, Joe Morris, Christina Prell, Claire H. Quinn, and Lindsay C. Stringer. 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management. Journal of Environmental Management 90 (5): 1933–1949.
- Rijke J.S., De Graaf R.E., Van de Ven F.H.M., Brown R.R. &Biron D.J. 2008. Comparative case studies towards main-streaming water sensitive urban design in Australia and

- the Netherlands. Proceedings of the 11th International Conference on Urban Drainage (ICUD), Edinburgh, Scotland, 31 August–5 September 2008.
- Scholz JT, Stiftel B (eds) (2005) Adaptive governance and water conflict: new institutions for collaborative planning. RFF Press, Washington
- Sellers J.M. Governing from below, urban regions and the global economy. Cambridge: Cambridge University Press, 2002.
- Thomalla F, Larsen RK (2010) Resilience in the context of tsunami early warning systems and community disaster preparedness in the Indian Ocean region. *Environ Hazards* 9(4):249–265
- Tuinstra W. Learning and evaluation in Integrated Sustainability Assessment. *Int J Innov Sustainable Dev* 2008, 3, (1/2), 128–152.
- Van Buuren A. Competente besluitvorming: het management van meervoudige kennis in ruimtelijke ontwikkelingsprocessen. Den Haag: Centraal Boekhuis, ISBN 9059314794, 2006.
- van Herk, Sebastiaan, C. Zevenbergen, J. Rijke, and R. Ashley. 2011a. Collaborative research to support transition towards integrating flood risk management in urban development. *Journal of Flood Risk Management* 4 (4): 306–317.
- van Herk, Sebastiaan, Chris Zevenbergen, Richard Ashley, and Jeroen Rijke. 2011b. Learning and Action Alliances for the integration of flood risk management into urban planning: a new framework from empirical evidence from The Netherlands. *Environmental Science & Policy* 14 (5): 543–554.
- Varvasovszky, Zsuzsa, and Ruairi Brugha. 2000. How to do (or not to do)...A stakeholder analysis. *Health Policy and Planning* 15 (3): 338–345.
- Verhagen J., Butterworth J. & Morris M. Learning alliances for integrated and sustainable innovations in urban water management. Proc. 33rd WEDC International conference, Accra, Ghana. 2008.
- Wenger E. Communities of practice and social learning systems. *Organization* 2000, 7, 225–246.
- White I. 2008. The absorbent city: urban form and flood risk management. Proc. ICE Urban Design and Planning. Vol. 161, December 2008, Issue DP4, pp 151–161.



## **PEARL Stakeholder Workshops**

### **A practical framework for partners**

**Authors of the document:** Tobias Blätgen (UNU), Patricia Gourgoura (NTUA)

*Dissemination level CO = Confidential, only for members of the consortium (including the Commission Services).*

© 2014 PEARL

This project has received funding from the European Union's Seventh Framework Programme for Research, Technological Development and Demonstration under Grant Agreement N° 603663 for the research project PEARL (Preparing for Extreme And Rare events in coastal regions). All rights reserved. No part of this book may be reproduced, stored in a database or retrieval system, or published, in any form or in any way, electronically, mechanically, by print, photoprint, microfilm or any other means without prior written permission from the publisher.

The deliverable reflects only the author's views and the European Union is not liable for any use that may be made of the information contained

Contents

1. General setting and approach..... 3

2. Topics to be covered..... 5

3. Collection of possible participants ..... 6

4. Methodology / Suggested techniques ..... 6

5. Envisioned results/output of the first workshop ..... 9

References ..... 10

## 1. General setting and approach

As outlined in earlier documents are “Learning and Action Alliances (LAAs) [...] a main corner stone of PEARL as a bridge among science, politics and key stakeholders to gain insights into local decision making processes, to communicate the constraints, needs and goals of single stakeholder and to reach finally a surrounding that guarantees decisions that are built on a broad discussion on flood management and relative risks in coastal zones [...]”. Hence it is crucial for the success of this project part to not only identify the possible involved stakeholders but to actually bring responsible and affected people together, exchange knowledge and build a platform that supports an effective stakeholder engagement and knowledge management (see also Figure 1) throughout future planning processes. Here PEARL will focus on the first two steps (assessment and planning) but will take recent planning processes into account - e.g. in the context of WP1 as part of the RRCA (Risk and Root Cause Assessment).

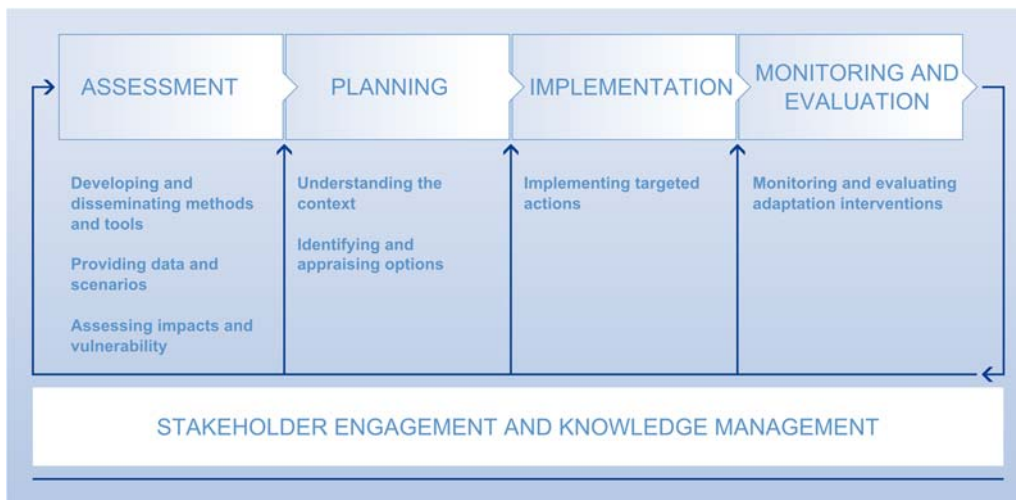


Figure 1: Planning adaptation - Description of the planning process. UNFCCC 2011.

As the main pillar for the stakeholder involvement in PEARL four workshops (per case study area) are going to be conducted that aim at spotting the people and institutions that are affected by the hazards, that are responsible for early warning, evacuation, disaster management, etc. and that are in charge of (future) planning processes. These local events will enhance the interaction not only among stakeholders (groups) but also between PEARL and stakeholders.

In this course the 1<sup>st</sup> round of workshops will actually support the initial stage of the establishment of LAAs while the future rounds will enhance the functioning, action and learning/exchange phases.

Figure 2 displays the four main steps PEARL is going to “rethink [-ing] who is involved”. After the initial steps of a comprehensive stakeholder analysis encompassing the key determinants of a potential cooperation between the stakeholders and the PEARL consortium and the assembling of the LAAs the interaction will serve three overarching goals that are also described by van Herk et al. (2011):

- i. **To establish facts.** This thread generates knowledge that: is coherent and not contradictory, has a proven quality and serves to reduce uncertainty and has been established without unacceptable influence from the wishes and opinions of the parties involved;
- ii. **To create images.** This thread supports *frame reflection* in which parties identify their view of reality and discuss it, look for images or meanings that they share, and create renewed and more creative images as a result of the interaction;

iii. *To set ambitions.* This thread supports the negotiations on aspirations of the parties towards implementation.

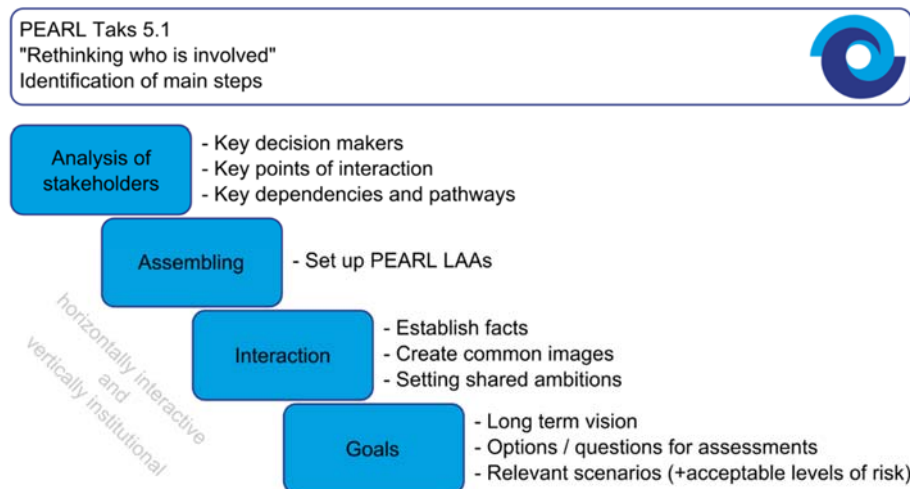


Figure 2: PEARL task 5.1 - Rethinking who is involved. Own draft 2014.

To build the basis for the last two stages Figure 1 introduces the final goals in Figure 2 have to be created and accepted by all participating stakeholders (groups) to ensure and "horizontally interactive" and "vertically institutional" planning process based on stakeholder engagement.

PEARL has a strong focus on interaction and exchange among the partners and thus the workshops will also inform other working streams of the project. Having the assessment of root causes of recent disasters as its focal point WP1 will use the opportunity of the outlined workshops to interact with the respective stakeholders in selected case study areas. The gathered information will feed into the local assessments and the generalized information will feed back into the generic PEARL RRCA (Risk and Root Cause Assessment). In these case study areas it can be beneficial for all sides that the case study partners and the representatives of WP1 work closely together or that the WP1 colleagues even take over the organization of the first workshop. The responsible WP1 colleagues will contact the case study partner as soon as possible. Furthermore the results of WP1 and WP5 and the progress of the LAAs will again feed into the ontology and the development of the agent-based-modeling in WP3. Hereby both the project and the stakeholder can benefit from the LAAs and the workshops – they will corner stone of the work in the case study areas for the project and can serve as the basis for a more integrative and better informed planning process on the ground.

This document provides a generic outline of how the described stakeholder workshops can be designed. It includes the overall topics that should be covered, the key persons that would be involved, the methods that can be used during the workshops and (from project side) the envisioned results. Nevertheless each case study area is unique in terms of local conditions, challenges and problems and thus the hosting institution/partner has to adjust to these circumstances and has to e.g. take conflicts among stakeholders into account before setting up the first round of workshops.

## 2. Topics to be covered

In relation to the strongly integrative approach of the workshops in connection with the LAAs a wide range of topics has to be covered – especially during the first round of meetings. Here the basis for future engagement and covered topics will be set.

To get a comprehensive overview of the institutional situation in the case study areas the hosting partners have to analyze existing problems and conflicts (as good as possible) beforehand (ideally this is already part of the stakeholder analysis) and take the results into account while setting up the workshop.

As presented in Figure 2 the identification of **facts, images and ambitions** is essential for the interaction of the stakeholders. Hence it is important to gather a comprehensive list of facts the stakeholders can agree upon and to identify contrary positions. The following list is not completed and can be expanded.

- **Hazard** (Exposure of assets and population)
  - Change in events over time (magnitude, frequency)
- **Impact**
  - Damage
- **Early warning**
  - How are information gathered
  - How are information delivered to (a) people (b) companies (c) port authorities
- **Preparedness**
  - Evacuation
  - Built-up structures (dams, dykes, ...)
- **Disaster Management**
- **Aftermath**
  - Rebuilding / Reconstruction
  - Insurance coverage
- **Decision making process**
  - Who decides what? (local authorities, national authorities, independent services)
  - Description of Standard operational procedures (flow of information and action among different organizations in case of an extreme event: Civil Protection, Municipality, Port Authorities, etc.)
- **Urban planning**
  - Is flood management integrated in urban planning? At what level?

### 3. Collection of possible participants

- **From project side** : Each partner Responsible for CS area
- **From stakeholder side**: Stakeholders as identified through relevant analysis in MS14 for every CS area. More groups may be involved in the future through the “snowball technique”. In general workshops must be open to individuals/organizations who are involved or/and affected by decisions taken related to hazards in coastal areas. More over these representatives or individuals should be interested in participating in the local LAA. These could be :
  - City officials
  - City planners
  - Disaster Management
  - Firefighters
  - Police
  - Tourism (e.g. hotel owner, tourist office,...)
  - Regional/Island officials (planning, civil protection,...)
  - Harbor authority/Marina representatives
  - Insurance representatives
  - *Who is responsible for the beaches!?*
  - *Who is responsible for the linear CIs like fresh and waste water treatment, streets, etc.?!?*

### 4. Methodology / Suggested techniques

A stakeholders' workshop can be structured in many ways; from open discussions to interactive social games, role playing and other techniques. The selection depends on the desired outcomes and the participants. The initial aim is the **establishment** of **LAAs** in CS areas, the **engagement** and commitment of **stakeholders** in LAAs and the **creation of a common vision** (WAREMA INTERREG IIIB. Methodological Procedures.2007)<sup>1</sup>. In order to reach these goals there is the need of setting up a frank atmosphere where representatives from different organizations will be able to overcome their personal, structural and institutional barriers in order to interact, gain knowledge, share experience and finally create a common vision under a feeling of mutual trust. Workshops need to be attractive and not boring to the participants, especially during the initial establishment stage. Since participants will be engaged on a voluntary basis, they do not have clear tangible profits from this procedure. All benefits are in terms of knowledge and innovation (Dudley et al., 2013). Consequently they need to have the feeling *“it worth's to spend my time here”*.

The following techniques are just suggestions considered as suitable in **PEARL** case and can be combined during a 2-day workshop (each one can deliver different results). Blended workshops with a mix of interactive activities usually are more interesting for participants than plain speeches or presentations (PRO-IDEAL Plus. Concept and methodology of Interactive Workshops.2010. INMARK, EMF). Of course in every CS area local conditions (political, social, economic, stakeholders' current relations) may alter the way that the workshops will be structured. Each CS project partner should decide what the most appropriate method for each study area is.

---

- <sup>1</sup> <http://www.medsos.gr/medsos/2008-08-12-07-11-15/2008-08-27-11-57-28/warema.html>



i. **Round table:** Round table is a technique where representatives from different stakeholders' groups discuss on an equal basis over a specific subject and try to find a common solution. The method is indicative for small medium groups and enhance dialogue, legitimacy and equality among conflicting parties as they are all "*sitting on the same table*". Round tables have no standard format or structure. Key prerequisites are the objectivity of facilitators, accurate minutes recording, equal number of representatives from each stakeholder group.

Key for success and effectiveness of a round table in order to deliver results is that all interested parties (involved in a problem in this case an extreme event) are equally represented in the workshop.

ii. **Six Thinking Hats:** is a quite powerful technique. It can be used for the analysis of a local issue or a complex decision making procedure where multiple perspectives must be taken into account. Through this method the participants are forced to move outside their personal way of thinking and get a more holistic approach on a situation.

The six hats symbolize the six perspectives which are used during this participatory method, where participants work in form of groups. These perspectives are:

- *white hat (data available)*
- *red hat (emotions)*
- *black hat (negative sides)*
- *yellow hat (positive sides)*
- *green hat (creativity)*
- *blue hat (process control).*

The method is effective in enhancing ambitions, skills in execution, public sensitivity, creativity and good contingency planning. It has the benefit of blocking the confrontations that happen when people with different thinking styles discuss the same problem. Ideal to use for reviewing a local issue (e.g. a flood event) or supporting a complex decision making procedure (e.g. urban planning, risk mitigation, etc.) which will incorporate all different aspects: conflicting parties, lack of communication or cooperation among different authorities, etc. (SURE URBACT II Programme, Newsletter I.2012)<sup>2</sup>

iii. **Role Playing:** Role playing a technique inspired by theatre is designed in a way to promote active learning, and support participants to understand the complexity of an issue, identify barriers and find alternatives through altering their roles. Individuals are encouraged to overcome their personal or institutional constraints and find solutions by changing roles. Role playing is very effective in initial stages of an attempt (e.g. Establishing stage of the LAA) as it is a funny way to enlighten the multiple aspects (social, political, economic, technical) of a complex issue (e.g. mitigate the risk of an extreme event, prevent a flood, manage a flood event, etc.). (Teaching Guide for Graduate Instructors. University of Berkeley California)<sup>3</sup>.

iv. **Debate:** Debate is a process with clear structure which support the common solution on a complex issue where different conflicting parties are involved or/and affected.

This technique is ideal for small medium groups (10-30) and is suggested in:

---

- <sup>2</sup> [http://urbact.eu/fileadmin/Projects/SURE/documents\\_media/1\\_newsletter\\_PP.pdf](http://urbact.eu/fileadmin/Projects/SURE/documents_media/1_newsletter_PP.pdf)

- <sup>3</sup> <http://gsi.berkeley.edu/teachingguide/sections/active.html#class>

- Cases with open and long-lasting conflicts among different stakeholders (e.g. an environmental problem where many different groups are involved and affected: Authorities, Industry, NGOs, Citizens, etc.)
- planning procedures
- supporting conflicting parties under the condition that they really want to find a common solution. (Teaching Guide for Graduate Instructors. University of Berkeley California)<sup>4</sup>

v. **Future Search Workshop:** In Future Workshop participants are encouraged to find unconventional and imaginative solutions for real issues (e.g. a flood). The Workshop needs to be hosted in a specially designed atmosphere in order to promote creativity. This technique is ideal for small medium groups (10-30) and suitable for:

- common vision creation e.g. a future development scenario
- Production of new, innovative solutions in present problems or issues

Future Workshops encourage participants to take action. Therefore is a technique suggested as a part of a holistic strategy, which will enhance both production of knowledge/innovation and the practical implementation of it (SURE URBACT II Programme, Newsletter I.2012)<sup>5</sup>.

Other common techniques are also **focus groups**, **world or knowledge café**, **citizens' panels** and many more. Depending on the complexity of the local conditions, flow of information and decision making process in each CS area partners will have to choose the most appropriate way to run the workshops. No matter which technique will be considered as the best in each case it is crucial to have a structured scene in order to maximize effects. Parallel technical meetings and interviews with key stakeholders/organizations will also support the participatory process and will provide useful feedback and information. Pre-defined subjects or/and scenarios, depending on the method's requirements, are considered crucial and obligatory in order to achieve expected outcomes and an effective procedure. Details and step-by-step guidance on the several techniques can be found in some suggested links cited in the references section. Moreover partners should consider the involvement of experienced social scientists as facilitators for the whole process (Dudley et al., 2013). The role of the facilitator is of high importance in a participatory workshop since he/she guides the participants, sets the objectives, keep the time, define the procedure and secures that the whole process will have a positive outcome for both sides (organizers and participants).

---

- <sup>4</sup> <http://gsi.berkeley.edu/teachingguide/sections/active.html#class>

- <sup>5</sup> [http://urbact.eu/fileadmin/Projects/SURE/documents\\_media/1\\_newsletter\\_PP.pdf](http://urbact.eu/fileadmin/Projects/SURE/documents_media/1_newsletter_PP.pdf)

## 5. Envisioned results/output of the first workshop

The envisioned results/output of the first workshop in each case study area is mainly related to the initiation of the interaction process mentioned in Figure 2. Not only for the reporting within the project but also to have a solid basis to build on for the next workshops a short project report is required. Among the general setting of the workshop (used techniques, participants, etc.) and summarizing minutes of the discussions it would be beneficial when the report could encompass the following (overarching) topics.

### For the WP5/LAA process

- Bringing together relevant stakeholders and stir the exchange on the topic
- Finding facts the representatives can agree on
- Finding visions the stakeholders have for the case study area
- Pointing out major problems/concerns
- Setting the aims for the next meetings
- Work out the necessary basis to sustain the exchange beyond the end of the project

### For other PEARL processes

- WP1 (in selected case study areas)
  - o Gathering expert knowledge of root causes of risk / disasters in terms of political (spatial planning) processes, disaster risk management, adaptation planning
  - o Gathering knowledge of recent disasters and their impacts on the three spheres WP1 is differentiating (physical, socio-economic and governmental processes)
  - o Finding ways the Risk and Root Cause Assessment (RRCA) can inform the future decision making processes in the case study area (to prepare a as effective as possible design of the recommendations coming from WP1).
- WP3 (Hosting partners will be approached individually if special input is needed)
  - o General overview of political decision making processes and influence of single stakeholders

## References

### Referenced papers and reports

- Dudley, Elizabeth, Richard Ashley, Natasa Manojlovic, Sebastiaan van Herk, and John Blanksby. 2013. Learning and Action Alliances for innovation and active learning in a European context.
- UNFCCC [United Nations Framework Convention on Climate Change]. 2011. ASSESSING CLIMATE CHANGE IMPACTS AND VULNERABILITY. MAKING INFORMED ADAPTATION DECISIONS. HIGHLIGHTS OF THE CONTRIBUTION OF THE NAIROBI WORK PROGRAMME. Bonn.
- van Herk, Sebastiaan, Chris Zevenbergen, Richard Ashley, and Jeroen Rijke. 2011. Learning and Action Alliances for the integration of flood risk management into urban planning: a new framework from empirical evidence from The Netherlands. Environmental Science & Policy 14 (5): 543–554.

### Referenced documents from websites & other projects

- Collaborative Environmental Regeneration of Port –cities “ELEFSINA 2020”. LIFE Environment. Deliberative Community Visioning Process Manual.2009. MEDSOS, retrieved from: <http://www.scribd.com/doc/30569007/Medsos-Life-Dvc-Manual-en-GRE-100309>
- Phil Bartle. Role Playing and Simulation Games –A training technique. Community Empowerment Collective. 1987. <http://cec.vcn.bc.ca/cmp/modules/tm-rply.htm>
- PRO-IDEAL Plus. FP7 Programme. Concept and methodology of Interactive Workshops. 2010. INMARK, EMF, retrieved from: [http://www.ubique.org/Pro-ideal\\_Plus/Results/D3.2\\_Concept\\_and\\_methodology\\_of\\_interactive\\_workshops.pdf](http://www.ubique.org/Pro-ideal_Plus/Results/D3.2_Concept_and_methodology_of_interactive_workshops.pdf)
- SURE URBACT II Programme. Participative Planning Methods. 2012. Newsletter I, retrieved from: [http://urbact.eu/fileadmin/Projects/SURE/documents\\_media/1\\_newsletter\\_PP.pdf](http://urbact.eu/fileadmin/Projects/SURE/documents_media/1_newsletter_PP.pdf)
- Teaching Guide for Graduate Instructors. University of Berkeley California: <http://gsi.berkeley.edu/teachingguide/sections/active.html#class>
- WAREMA INTERREG IIIB CADSES Programme (<http://www.cadses-warema.net/>). Water Resources Management in Protected Areas. Methodological Procedures.2007. MEDSOS. <http://www.medsos.gr/medsos/2008-08-12-07-11-15/2008-08-27-11-57-28/warema.html>