Shelter

Sustainable Historic Environments hoListic reconstruction through Technological Enhancement & community-based Resilience

D.6.4. Historic area resilience co-production playbook

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Disclaimer:

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Glossary

Acronym	Full name
CNH	Cultural and Natural Heritage
CHM	Cultural Heritage Management
DRM	Disaster Risk Management
HA	Historic Area
NBS	Nature-Based Solutions
OL	Open Labs
OLC	Open Lab Coordinator
UR	User Requirements

1 Executive summary

This document describes the co-production of resilience and disaster risk management (DRM) by local communities in collaboration with public authorities and the private sector to develop tailored local responses, both in terms of available resources, expertise, and enhance solid partnerships between different stakeholders that can be mobilized during all phases of the disaster risk management cycle.

To achieve this, the following report consists of two core components, **a co-production playbook** which outlines the specific strategies used to collect the information from the OL. As well as, a set of **co-creation blueprints** specific to each of the SHELTER Open Labs (OL) designed to assist them in overcoming the constraints and barriers identified previously[1].

The co-production playbook led to the co-creation workshops for the five OL facilitating the collection of the relevant information for the development of the strategic blueprints due to the available expertise of the participating stakeholder. The components of the co-production playbook were developed in cooperation with the OL. The process of development and the components of the methodology are described in detail within section 3.

The specific components of the co-production playbook are as follows:

1. A short questionnaire consisting of five questions attempting to explore the current level of community involvement within the DRM and the status quo for each OL;
2. Five specific scenarios tailored to the situation within each OL including the perceived hazards and historical area (HA) typologies as well as the defined topics in combination with the phases of DRM;
3. The associated recording and documentation sheets that were to facilitate the discussions and develop useful content during co-creation workshop;
4. A stakeholder information sheet designed on excel to help OL to identify the core stakeholders and the participating organizations;
5. The co-creation workshop organization for each OL including a timetable, the defined questions with a series of suggestions and a drafted text as table template for the stakeholder.

The process allowed the development of tailored co-creation blueprints for each of the five OL, which were used in the development of the co-creation workshops which took place over in September and October 2020 in the five OLs.

Due to the implication of COVID 19 epidemic, the format of the co-creation workshops had to be significantly changed. From an initial face-to-face workshop discussion to a digital format utilizing lessons learned from other aspects of the SHELTER project. The

[1] SHELTER deliverable: "D6.1 Glocal user requirements". Avalaible in: https://shelter-project.com/download-document/?scientific-publications-and-deliverables/0002-D6.1-Glocal-user-requirements.pdf

aims for the specific co-creation workshops were already defined in the proposal stage which facilitated the design and development of the co-creation workshops. Given both the research team and the OL specific outcomes to focus the co-creation blueprints around. These predefined aims are as follows:

- Identification of **technological** solutions for the church in Ravenna
- Identification of **vernacular co-adaption** solutions for the fortress in Seferihisar
- Identification of **ICT** solutions for Dordrecht
- Identification of **nature-based** solutions (NBS)for the Natural Park in Galicia
- Identification of **multi-level governance** solutions for the Sava River Basin

In total, 35 strategic blueprints were identified and described during the co-creation workshops with the stakeholders.

Interacting, relevant information referred to the participating stakeholder were raised and the stakeholder structure is part of each strategic blueprint and visualized and analyzed in the document due to the referring organization assignment (public body, governmental organization, business organization, academic organization).

2 Introduction

2.1 Aims and objectives

The overall aim of the task was to define a resilience co-production playbook and develop co-creation strategies blueprints for each OL designed to assist them in overcoming the constraints and barriers identified previously in the project[2] and enhance the resilience of the Historic Areas. This was developed in collaboration with local stakeholders to develop locally-rooted responses, both in terms of materials, expertise and representations and establish solid partnerships that will be mobilized during all DRM phases.

For the development of the co-production playbook and the strategic blueprints, a methodology was identified meeting the specific requirements of each OL ensuring that the outcomes within the co-creation blueprints were consistent with their specific situation. Therefore, a defined aim, a structured questionnaire and a stakeholder structure were developed to facilitate the workshops. In consequence, a particular approach to co-creation adopting the basic concept and applying it to cultural and natural heritage (CNH) and DRM was developed and the particular path from co-creation to co-production was settled.

The task designed different co-creation strategies blueprints that cover diverse hazards, HA typologies, DRM phases and types of solutions. These strategies have been designed to overcome the constraints and barriers (as laid out previously[3]) that could condition the co-creation.

The identified objectives for this task were:

- **Develop co-production playbook:** The co-production playbook is the basis for the information gathering within the OLs. All relevant components which are necessary to involve the participating stakeholders in the discussion process to identify potential solutions for the OLs were developed using the method of co-creation.
- **Co-creation workshops for each OL:** For each OL a scenario was developed with their specific requirements. The scenario describes the situation as well as the innovative SHELTER approach to improving resilience.
- **Supporting documents:** For documentation of the workshop results two documentation templates were developed to support the facilitator of the co-creation workshops. Besides, the workshop organization were developed and described including a timetable, an invitation text for the stakeholder as table template or discussion paper as well as a prepared content to initiate the discussion during the co-creation workshops.

[2] *Ibid 1*
[3] *Ibid 1*

2.2 Relations to other activities in the project

Task 6.4 is part of the wider community approach defined within WP6 and also draws from different elements of the SHELTER project which have already been delivered. As a result, it is connected with the following tasks by using their findings and results as direct inputs, guidance or inspiration:

T6.1 'GLOCAL User Requirements': The co-creation workshops utilized the tested use case scenarios which were developed within T6.1 to capture the local user requirement within the bottom-up approach with some small adaptations for the co-creation workshops for each OL. Besides, the results of the GLOCAL user requirements (UR) developed as part of in combination with the defined topics of the co-creation workshops were used during the discussion.

T6.3 'Adaptive governance Mapping Schemes': The report draws from the preliminary Organigraphs developed within the context of T6.3 for the development of the stakeholder information sheet.

T6.5 'Local knowledge co-generation, awareness & capacity building Leader': The results from subtask T6.5.2 to facilitate peer learning between SHELTER stakeholders in Open Labs were used to develop the methodology for the co-production playbook as well as for the organization of the co-creation workshop.

The co-production playbook and more specifically the co-creation blueprints developed within Task 6.4 will be used in the following work packages:

WP3 'Tools and solutions for prevention, preparedness, response and recovery': The strategic blueprints form part of the baseline of information for WP3 for the characterization and development of cost-effective low carbon technological solutions for all phases of the DRM cycle. In particular, the outputs of this task will be used within T3.4 assisting in the identification of local solutions as well as for the cost-benefit calculation of these solutions. Also, the results of the Dordrecht strategic blueprints are directly linked with the T3.6.

WP4 'Collaborative planning for building low carbon systemic resilience': The strategic blueprints are useful to develop policy recommendations on the integration of CH into risk adaptive planning policies in T4.5 and to for the development of the low carbon systemic resilience operative knowledge framework in T4.6. Also, the strategic blueprints are a baseline for the development of the Strategy for early recovery roadmaps in T4.3.

WP5 'Data-Driven Platform': The strategic blueprints include relevant information for the development of the Historic Areas resilience dashboard in T5.3.

WP7 'Open Labs': The co-production playbook was developed in close cooperation with the coordination of OL's and peer learning as an essential part of T7.1. The developed strategic blueprints were tailored to meet their requirements in the specific OLs referring to T7.2 to T7.6. following the "D9.2 Open Labs Management Plan" [1].

2.3 Report structure

For ease of reading the document is structured as follows:

Chapter 2 outlines the core aim and associated objectives of the deliverable as well as the links with other the work packages and tasks of SHELTER project.

Chapter 3 reviews and defines the combination of methodological approaches that were defined and used in the development of the co-production playbook, the following co-creation workshops within each OL and finally, the development of the strategic blueprints. The concept of co-creation formed a central aspect of the methodological point of departure and consequently was used to retrieve the relevant expertise of the involved stakeholders. The chapter focuses, therefore, on the basic principles for co-creation as well as, the important steps for co-creation and relevant workshop preparation information.

Chapter 4 defines the process for the development of the co-production playbook as well as, the specific components of the co-production playbook is described in detail. The components of the playbook are as follows; the questionnaire about DRM and communities, the use case scenarios for each OLs, the documentation templates and finally a stakeholder information sheet (and associated workshop organization documents) for reference all of these documents have been placed within the appendices so that the approach can be replicated outside of the SHELTER Project.

Chapter 5 summarize the results of the questionnaire DRM and local communities as well as the results of the OLs specific co-creation workshops. In total 35 strategic blueprints were developed during the co-creation workshops in the five OLs.

Chapter 6 draws the conclusion of the research.

Chapter 7 the used references are listed.

Chapter 8 all developed components of the co-production playbook are available.

2.4 Contribution of partners

The following table details the contribution of each partner:

Partner	Contribution
CRCM	Responsible for the T6.4, for the deliverable, development of coproduction playbook model, development of scenarios and questionnaires, development of strategic blueprints.
ULIEGE	Coordinator of WP6 providing the link among all activities; Part of discussions for all parts of T6.4; document internal review.
TEC	Update of scenarios for Baixa Limia-Serra Do Xurés Natural Park in Galicia, part of specific blueprint development.

UNIBO	Update of scenarios for Area of Santa Croce in Ravenna; part of specific blueprint development.
UPV	Part of the scenario update process for Seferihisar district.
IHED	Part of discussions for all parts of T6.4. Also, the OL coordinator was responsible for the organisation of the workshops in cooperation with the OL case study coordinators following the suggested method and developed workshop organisation.
EKO	Update of scenarios for Seferihisar district; part of specific blueprint development.
DORD	Update of scenarios for Dordrecht; part of specific blueprint development.
UNESCO	Update of scenarios for Sava River Basin; part of specific blueprint development.
SAVA	Update of scenarios for Sava River Basin; part of specific blueprint development.
UMAS	Document internal review.

Table 1: Project partners and their contributions to this document

3 Methodology

In order to develop the co-production playbook and the strategic blueprints within this task, an inclusive methodology has been identified and adapted. This approach needed to be consistent with the overarching SHELTER knowledge framework and GLOCAL strategy which encourages, the collaboration between the technical partners within the SHELTER consortium, the OLs and associated stakeholders. To ensure this, a co-creation workshop for each OL was considered to be the best way to collect the necessary information required for the co-creation blueprints and facilitate an environment of collaboration.

To ensure consistency between the different co-creation workshops and support valid and reliable discussion it was agreed on the common objective and structured questionnaires and stakeholder structures were produced. Besides, a questionnaire was developed to collect DRM and community-specific information based on the expertise of the participating stakeholders.

Co-production, as a particular form of knowledge generation, is based on the interactive exchange between science and technology on the one side and society on the other. A variety of different stakeholders across disciplinary lens can come together, with their different approaches, perspectives, and experiences, in the knowledge-generating process. This coming together leads to the development of new knowledge and technologies, which can be considered greater than the sum of its parts. Co-production is one particular form of participatory development [2] [3]. Originally deriving from social science, more precisely the sociology of science, it today is applied in all branches of science [4].

Following this definition of co-production, the term co-creation describes the methodological participatory process leading to co-production. In marketing and product development, co-creation is a management approach that allows companies and customers to collaborate [5]. The basic idea is that customers and companies can create synergy effects through cooperation. The term was coined by C. K. Prahalad and Venkat Ramaswamy through their publication in the Harvard Business Review in 2000 [6] [7]. Co-creation consists of two main steps: 1. *contribution* and 2. s*election*. In the first step coined contribution ideas from the participants are submitted and in the second step, the selection of the most promising ideas are selected based on the reflections and review of the participants.

In academia, co-creation is associated with a special form of process management with increasing complexity and multiple perspectives, which aims at achieving a consensus in the early phases of the generation of ideas, the formation of opinions and the decision-making process. It is therefore particularly relevant to transdisciplinary issues, as well as in transformative science. Occasionally, co-creation is used to describe real-world laboratories and technology transfer [8] [9], which is a distinct use of the term and method. Meanwhile, the term and method of co-creation have been applied to projects beyond the academic field of social sciences, e.g. in the environment, climatology etc. as well in [10] [11].

An essential part of this process is the bringing together of the positions, experiences and knowledge of those involved so the term is closely related to the concept of co-production of knowledge by Sheila Jasanoff and collective intelligence [12]. This concept has been further developed by Albert V. Norström and others representing the current state of the art [13]. The below figure explains the concept of knowledge co-production for sustainable research as drafted by Albert V. Norström, Christopher Cvitanovic, Marie F. Löf et al. In their most recent paper in *Nature Sustainability* (2020) they documented and analysed the experiences and perspectives of 36 researchers as well as practitioners. They finally define knowledge co-production for sustainability research as: *"iterative and collaborative processes involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future."* [14]

The authors argue that knowledge co-production is more likely to be sustainable and successful if it follows the four principles [14]:

- *Context-based: This means understanding how a challenge emerged, how it is affected by its particular social, economic, and ecological contexts and the different beliefs and needs of those affected by it.*
- *Pluralistic: The process should explicitly recognize a range of perspectives, knowledge, and expertise and consider gender, ethnicity and age in developing the project.*
- *Goal-oriented: This implies articulating clearly defined, shared, and meaningful goals that are related to the challenge at hand.*
- *Interactive: It is critical to allow for ongoing learning among actors, active engagement, and frequent interactions.*

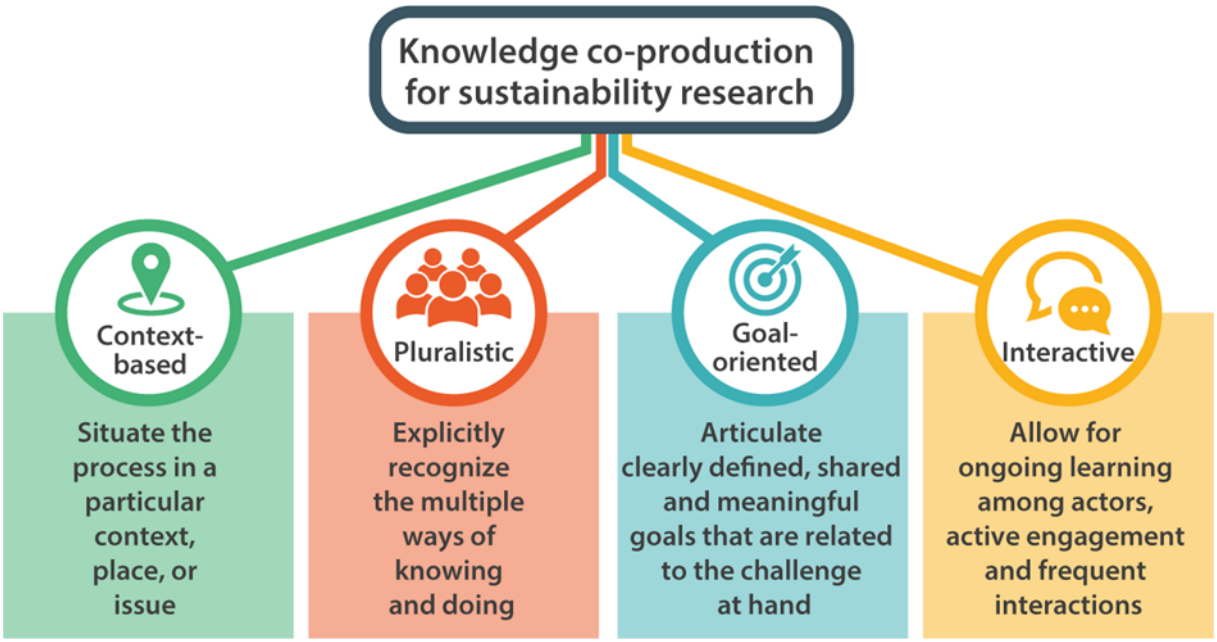

Figure 1. From co-creation to co-production. Source: [14]

Amongst the several practical recommendations on how to launch a co-creation process we hereby refer to the results of the EU-funded project CO-CREATE which has been financed through the Erasmus+ programme. It is an initiative of six partners servicing the creative industries sector in Europe. These partners are as follows: Creative Region (Austria), University of Art and Design (Austria), Academy of Fine Arts and Design (University of Ljubljana, Slovenia), Deusto University (Spain), Creative Industry Kosice (Slovakia) and the European Creative Business Network. The result of this project shall serve as a *vade-me-cum* for the SHELTER's OLs. Importantly, the adaption and use of the co-creation approached defined within the CO-CREATE provides a tested and reliable methodological approach to be used in the development of the co-production playbook and co-creation blueprints [15].

3.1 CO-CREATE and SHELTER – how we apply it

According to the basic position and main result of the project CO-CREATE [16], co-creation actively involves end-users and other relevant stakeholders in a development process. Co-creation can be used to unite different stakeholder groups affected by a specific challenge. As such, a fundamental aspect of co-creation is equal cooperation. A key concept is that stakeholders are experts in their own experiences. Therefore, providing an environment where these experts can exchange knowledge and experience and these relevant actors can learn from each other. It is particularly suitable for bringing together end-users and creative professionals to develop new approaches, services, and products as well as embracive systems. It is important to emphasize that co-creation goes much further than the ordinary inclusion of users as pure data sources. With co-creation, users actively shape the result future. In other words, co-creation is based on the concept that research and design do not take place on behalf of the user, but in collaboration with the user. This is evidenced by the multiple examples, on which the results of the project CO-CREATE are based on [17]. Reviewing these examples of best practice experience and drawing from the overall results of the CO-CREATE project the generalized outline of co-creation was then applied for the OL co-creation workshops concerning the different requirements and aims of each OL [15].

The following sub-chapter implements, therefore, the relevant results and experiences outlined within the project CO-CREATE into the SHELTER project to better understand and mitigate against the advantages and challenges, which were identified in the CO-CREATE project. Nevertheless, the terminology used as well as the descriptions of the single paragraphs have been adapted according to the needs and requirements of SHELTER. Consequently, the following considerations were presented to the OL coordinators during two task meetings as a preparation for the conduct of the particular co-creation workshops.

3.2 Advantages and challenges of co-creation

The five advantages and the challenges of co-creation according to the results of the project CO-CREATE are the followings [16]:

- Relevance: through the most comprehensive inclusion of all stakeholders
- Connections: through forming links and networks between all stakeholders more easily
- Motivation: through the higher engagement of everyone who participates, due to distributed responsibilities
- Efficiency: through better fitting user needs and faster evaluation
- Results: through a strong focus towards realization and implementation
- Challenges: a large number of stakeholders with different personal characteristics and complex relationships

A clear description of the advantages and challenges of co-creation as it was presented to the OLs is available in Annex 8.1.

3.3 Eight basic principles and criteria for successful co-creation

Below the briefly encapsulates eight basic principles and criteria to aid in the design and implementation of a successful co-creation strategy as defined within the context of CO-CREATE. As the advantages above, these principles were presented to the OL coordinator and the OL case study coordinators during two task meetings as a preparation for the conduct of the particular co-creation workshops [16].

- Facilitator skills: Co-creation needs a well-trained and skilled facilitator, who can set up and guide the process facing a diversity of stakeholders.
- Healthy, productive and fair environment: regarding the physical environment, clear structures, and transparency and fairness amongst the participants
- Diversity and inclusivity: regarding the stakeholders involved
- Clearly defined needs & shared concerns: due to a balanced relationship, non-professionals and professionals meet on an equal footing
- Common vision & values: by joint control over this open and constructive process which can also include the result
- Individual roles for individual goals: involving stakeholders in the right process step to guarantee a positive result
- Dealing with conflicts and interests: by developing a process that prevents partial interests from diverging and conflicts from arising
- Reflection and evaluation: by the entire co-creation process to be reflected on and assessed

The description of the eight basic principles for successful co-creation as it was presented to the OLs is available in Annex 8.2.

3.4 The four most important steps in co-creation

Following the recommendations of the final results of the project CO-CREATE, these four most important steps of co-creation were introduced to and exercised with the OL coordinator and the OL case study coordinators during two task meetings as a preparation for the conduct of the particular co-creation workshops [16].

- Involve: by learning from one another and define challenges.
- Understand: by concentrating on the needs of the users to gain important insights for all stakeholders
- Finding ideas: by creating concepts and prototypes
- Validate present, test, evaluate: by finding the appropriate communication medium for feedback

The description of the four most important steps in co-creation as it was presented to the OLs is available in Annex 8.3.

4 Co-production Playbook

Based on the methodology of co-creation a co-production playbook was developed to consistently and systematically collect the relevant information to be used in the development of the strategic blueprints for each OL. This consequently means that experts and stakeholders as well as users from public administration or governmental organizations respectively, from academia, business, and civil society of the OL regions discussed a defined problem and contributed their specific experience in an interactive and participatory process [1]. For each OL the co-creation workshop was conducted with specifically defined questions to collect as much information as possible for developing the strategic blueprints. Besides, a questionnaire was prepared and distributed for the involved stakeholder to share their specific expertise due to the status quo of DRM and the involvement of communities in DRM.

Figure 2 below visualizes the specific developmental stages and overarching process used in the development of the co-production playbook. Every activity in the process includes an own component for the co-production playbook.

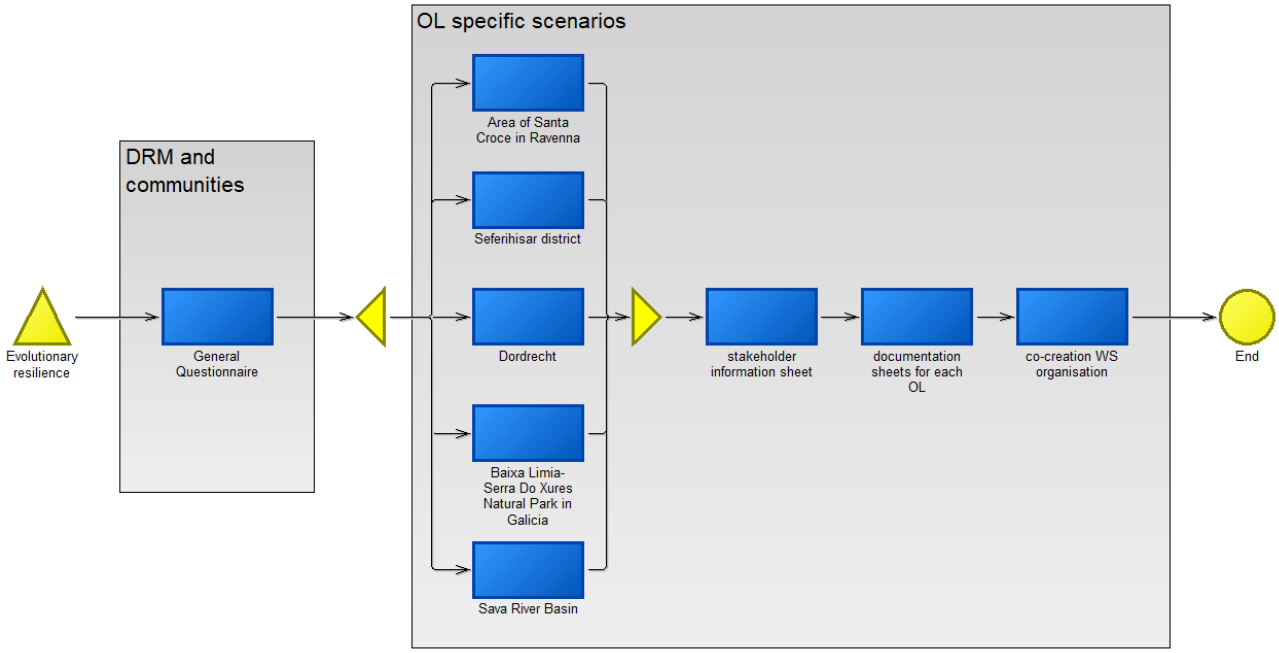

Figure 2. Development process and the specific components defined within the co-production playbook[4]

The developed components of the co-production playbook are described in the following subchapters in detail.

[4] The figure was developed with BPM Tool Adonis CE Version

4.1 General questionnaire

The questionnaire was drafted specifically to establish an overview of the current situation within each of the OLs with a particular focus on current measures that have been implemented for DRM and the involvement of communities within those DRM measures. The result of this questionnaire allows the development of specific strategic blueprints tailored to meet the current measures already being implemented by the OL.

The questionnaire was created in a way so that the stakeholders could provide direct responses relatively quickly either during the OLs workshop session without a discussion or it could be circulated before the workshop and filled in by the stakeholders individually in their own time.

The questionnaire consisted of the following five questions each design to explore a specific topic important to the development of the co-creation blueprints.

1)Are public awareness programs executed? [18]

Description: Planning for risk reduction should aim at developing a "safety culture" in which people are aware of the hazards they face, assume a responsibility to protect themselves as comprehensively as they can, and continuously support public and institutional efforts made to protect their community. To this end, education and awareness programs play an important role. They can be conducted in a number of ways, from short-term, high-profile campaigns using broadcasts, literature and posters, to more long-term, low-profile campaigns that are disseminated through general education. Education should attempt to familiarize and de-sensationalize hazards. Everyone who lives in a hazard-prone area should understand the potential of hazards as a manageable fact of life.

2)Is regular (at least yearly) emergency response training and drills at multiple levels ongoing? [18]

Description: Community involvement in mitigation planning processes can include public meetings and consultations, public inquiries and full discussion of decisions in the normal political forum. Further awareness can grow through regular practice drills, practice emergencies and anniversary remembrances. In hospitals, schools and large buildings, it is necessary to rehearse what the occupants should do in the event of fire, earthquake or other hazards. In schools, children may practice earthquake drills. This reinforces awareness and develops automatic behavioural responses. At police, fire brigades and other emergency response units drills for possible disaster events should be part of regular training activities; also, communication and collaboration practices between these units in cases of big events are a necessary task.

3)Does a community risk management or emergency committee exist that deals with prevention, mitigation, preparedness and response? [18]

Description: Risk management or emergency committees are the backbone of any disaster risk management activity. Emergency risk management requires the formation and management of a committee or consultative group.

4)Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management? [18]

Description: Combined training supports DRM. Processes and responsibilities are defined and tested. DRM communication plans are available and actual.

5)Is the private sector represented as member in the management/emergency committee)? [18]

Description: The integration of all available organizations and expertise helps to reduce vulnerability and in all phases of DRM.

To facilitate and standardise the answers to the questions an excel based template was developed and each stakeholder could answer with "yes" or "no". In case the answer is "yes" there is the possibility for a short remark and/or description to help elicit more detail. Also, for each question, there is the option to forward some specific comments for the HA connected with the question and besides some comments for improvements of the current situation based on the individual expertise.

In the following Figure 3, an excerpt of the questionnaire is visualized.

Question	Description	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	Planning for risk reduction should aim to develop a "safety culture" in which people are aware of the hazards they face, assume a responsibility to protect themselves as fully as they can, and continuously support public and institutional efforts made to protect their community. To this end public education and awareness programs play an important role. They can be raised in a number of ways, from short-term, highprofile campaigns using broadcasts, literature and posters, to more longterm, low-profile campaigns that are carried out through general education. Education should attempt to familiarize and de-sensationalize hazards. Everyone who lives in a hazard-prone area should understand the potential for hazards as a manageable fact of life.				
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	Community involvement in mitigation planning processes can include public meetings and consultations, public inquiries and full discussion of decisions in the normal political forum. Further awareness can develop through regular practice drills, practice emergencies and anniversary remembrances. In hospitals, schools and large buildings, it is necessary to rehearse what the occupants should do in the event of fire, earthquake or other hazard. In schools, children may practice earthquake drills. This reinforces awareness and develops automatic behavioral responses. At police, fire brigades and other emergency response units drills for possible disaster events should be part of regular training activities; also communication and collaboration practices between these units in cases of big events are necessary.				

Figure 3. Excel-based General Questionnaire template used to standardize the responses (Excerpt)

The questionnaire was forwarded to the OL case study coordinators via the OL coordinator, in line with the SHELTER project communication strategy. The results are summarized in chapter 5.2. The template of this questionnaire is available in Annex 8.1.

4.2 OL specific scenarios: topics and questions

For the co-creation workshops regarding the five OLs individual scenarios based on the use case scenarios developed within previous tasks[5] and in the proposal phase, were developed and adopted. During the proposal phase of the SHELTER project, specific topics for each OLs were identified so they were used to guide the development of the strategic blueprints. These scenarios were developed in close cooperation with the OL case study coordinators and the OL coordinator. Figure 4 below briefly encapsulated the topics for the five OLs which formed the basis for the co-creation workshops.

OL assignment	Topic
Area of Santa Croce in Ravenna	Water pumps powered by solar energy
	Preventive alarm system based on sensor network
	Consolidation techniques
Seferihisar district	Adobe techniques and mixtured architecuture to increase structural safety and reconstruction techniques for the fortress and the historic building stock
Dordrecht	IMMERSITE solution reinforced by gender perspective and citizen involvement
	Policy approach to protect cultural heritage in city centre against future flooding and increased risks by helping private owners of cultural heritages
Baixa Limia-Serra Do Xures Natural Park in Galicia	Nature based solutions (NBS) against wildfire risks
Sava River Basin	Governance tools against transboundary flooding events

Figure 4. The specific requirement of the OLs based on the initial SHELTER proposal

For each OL it was necessary to discuss and identify specific solutions during the co-creation workshops as follows:

- Identification of technological solutions for the church in Ravenna
- Identification of vernacular co-adaption solutions for the fortress in Seferihisar
- Identification of ICT solutions for Dordrecht
- Identification of nature-based solutions for the Natural Park in Galicia
- Identification of multi-level governance solutions for the Sava River Basin

The co-creation workshops were moderated by the OL case study coordinators and followed the developed workshop organisation (see chapter 4.5) to catch as much

[5] *Ibid 1*

information as possible in the available time. In the context of the identification of potential solutions, the stakeholders were asked to discuss and identify some additional questions:

- How can the solution improve the current situation?
- What should the design look like?
- How should the implementation operate?
- What should be taken into account for the maintenance of the solution?

Due to the available time (50 to 60 minutes) within each workshop and the situation that the workshops must be carried out in the form of a remote meeting as a result of COVID-19 for each topic some content preparations were done in advance in cooperation with the OL case study coordinators. For the co-creation workshops, a stakeholder structure was defined. The involved stakeholders are visualized in the following Figure 5.

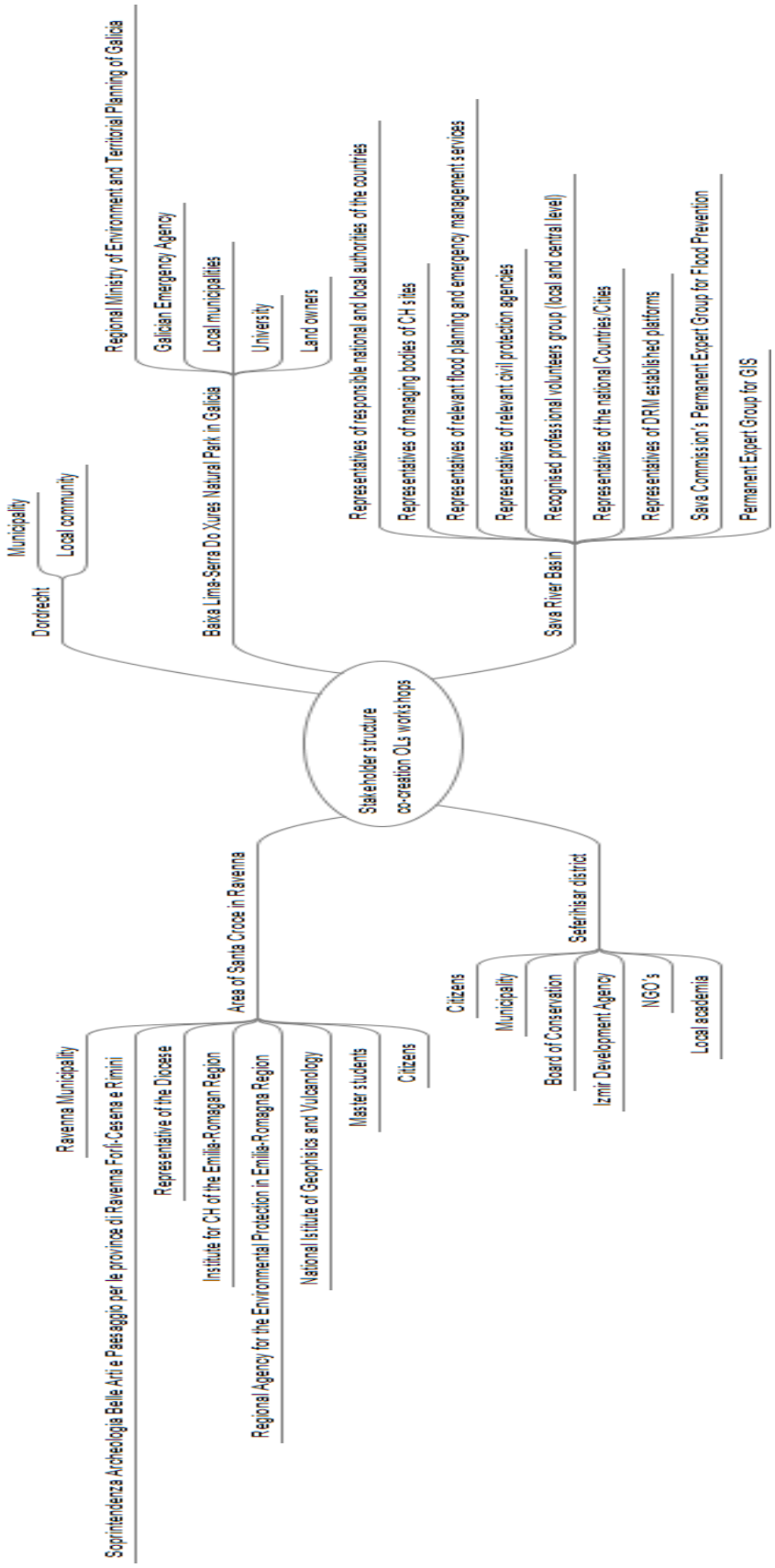

Figure 5. Visualised stakeholder structure to help guide the discussion and development of solutions with the co-creation workshops

Due to COVID-19 situation, not all stakeholders were able to join the co-creation workshops to bring in their specific expertise. Anyway, a big effort was made by OLs to invite as many representatives as possible to collect relevant experiences and the representation was balanced. OL case study coordinators were in contact with stakeholder which were not able to join meeting to catch their expertise.

Microsoft Powerpoint was the main, method of presenting information and stimulating discussions within the digital workshops. Below is the list of specific scenarios that were used to stimulate discussion and initiate the development of specific solutions within the confines of the original SHELTER proposal.

- **Current situation:** Status quo of the situation with a short description and some slides.
- **Innovation approach:** Description of the approach which was identified during the proposal phase for the development of the strategic blueprints.
- **Aim of OL workshop:** Short description and bullet points for the discussion during the co-creation workshop.
- **Stakeholder structure:** Bullet points of the participating stakeholders.

All the presentation of the scenarios for the OLs are available in the Annexes (Annex 8.5 for Area of Santa Croce in Ravenna, Annex 8.6. for Seferihisar, Annex 8.7 for Dordrecht, Annex 8.8 for the Baixa Lilia-Serra Do Xures Natural Park in Galicia, and Annex 8.9 for the Sava River Basin).

4.3 Stakeholder information sheet

The stakeholder information sheet was developed to gather specific information from the participating stakeholders in each OL. During the proposal stage of the SHELTER project, specific stakeholders were defined, which should be part of the co-creation workshops. With the collected information it was possible to do a comparison for each OL due to the involved stakeholder. The stakeholders were invited to forward specific information as follows:

- Organization: What organization or institution does the stakeholder belong to?
- Function: What is the role of the stakeholder in the organization?
- in function: How long have the stakeholders been performing their current function?
- Interest in the topic: How long have the stakeholder been interested in the topic under discussion?
- DRM involvement: Are the stakeholder involved in DRM?
- Community assignment: Assignment of the participating stakeholder to civil society, business, academia or public administration/governmental organization.

In the following Figure 6, the stakeholder information sheet is visualized.

Name	Organisation	Function	in Function since [a]	interested in Topic since [a]	experienced in topic since [a]	involved in DRM (yes/no)	member of civil society (yes/no)	business organisation (yes/no)	academian organisation (yes/no)	governmental organisation (yes/no)

Figure 6. ÇStakeholder information sheet

The analysis of the stakeholder structure is part of chapter 5.1.

The sheet was developed including a column for the names of the participating stakeholder. Due to the data minimization principle [19] the sheet was forwarded from

the OL case study coordinators without this column for further research. The assignment of names to the user content is only available as defined in the D9.2 Open Labs Management Plan [1]. The stakeholder information sheet is available in Annex 8.10.

4.4 Documentation sheet for the co-creation workshops

To support the facilitator of the co-creation workshop, two documentation possibilities were developed and forwarded to each OL. The co-creation workshops were carried out via remote meetings. The decision of which tool were used for the workshop was done by the Case Study coordinators in cooperation with the OL coordinator.

The two documentation templates are described in the following subchapters.

4.4.1 PowerPoint documentation template

To support the facilitator during the workshop PowerPoint slides were prepared to allow the transparent documentation of the discussion results arranged for each question. Especially the PowerPoint slides follow the defined co-creation workshop structure (see Chapter 4.5). Due to the topics of the co-creation workshop, it was necessary to form two stakeholder groups for the Dordrecht workshop and three stakeholder groups for the Ravenna workshop. Therefore also the timing, the specific discussion task and the group assignment (for Dordrecht and Ravenna) were available as slides for the defined discussion rounds.

All the presentations are available in the Annexes (Annex 8.11 for Area of Santa Croce in Ravenna, Annex 8.12 for Seferihisar, Annex 8.13 for Dordrecht, Annex 8.14 for the Baixa Lilia-Serra Do Xures Natural Park in Galicia, and Annex 8.15 for the Sava River Basin).

4.4.2 Excel-based documentation table

To allow the documentation comparably and concisely an Excel-based documentation table was developed and prepared for each specific OL following the defined topics and questions. Besides, several columns were prepared to allow for an easy assignment of each solution that was identified in the co-creation workshops. The assignment is possible for the DRM phases (prevention, preparedness, response and recovery) as well as a defined timeframe perspective for possible implementation (the short term means within one year, mid-term means 1-3 years and long term means more than 3 years).

All the excels are available in the Annexes (Annex 8.16. for Area of Santa Croce in Ravenna, Annex 8.17. for Seferihisar, Annex 8.18 for Dordrecht, Annex 8.19. for the Baixa Lilia-Serra Do Xures Natural Park in Galicia, and Annex 8.20.for the Sava River Basin).

4.5 Co-creation workshop organisation

For each OL co-creation workshop, one hour was reserved. To ensure a regulated and structured discussion guided by the facilitator an organization guide was developed. The guide includes the aim of the workshop, the timing as well as the questions to be discussed. In addition, the document includes an excerpt for an invitation mail for the stakeholders as well as table template which should be forwarded in advance of the workshop.

The defined questions were split up into three discussion rounds as follows:

- Round A: Identification of solutions and identification of the improvement
- Round B: Discussion about the design of the solutions
- Round C: Discussion about implementation and maintenance

The three rounds were initiated by an introduction step and finished with a summary of the co-creation workshop results. For the OLs in Galicia, Sava River as well as Seferihisar it was not necessary to split up the invited stakeholders for the discussion during the co-creation workshop because in for these OLs just one discussion topic was defined. However, in the case of Dordrecht, it was necessary to form for the first discussion round two teams and for Ravenna, it was necessary to form three teams due to the identified topics.

All the organisation documents are available in the Annexes (Annex 8.21. for Area of Santa Croce in Ravenna, Annex 8.22.for Seferihisar, Annex 8.23. for Dordrecht, Annex 8.24. for the Baixa Lilia-Serra Do Xures Natural Park in Galicia, and Annex 8.25. for the Sava River Basin).

5 Strategic Blueprints

The following section of the report is dedicated to outlining the OL specific strategic blueprints that were developed through the co-creation workshops. The strategic blueprints consist of the identified solutions which were discussed with the participating stakeholder. The identified solutions are described and specified with the defined four questions which are described in chapter 4.2.

The design of the strategic blueprints follows the discussed questions per topic and for each identified solution an own strategic blueprint sheet was created. Each sheet includes a suggestion for the implementation timeline as well as an assignment of the identified solution to the phases of DRM. This design was chosen for easy reading and further usage in SHELTER project as well as for follow-up meetings in the five OLs.

In addition, the results of the questionnaire for DRM and communities it was possible to receive an overview of the specific situations and the involvement of communities in the disaster risk management. With the feedback of the stakeholder information sheet, an analysis of the participating stakeholder structure was done. The structure of the strategic blueprints follows the discussed questions per topic and each identified solution is described in an own strategic blueprint sheet. The template for the OL specific blueprints is available as Annex 8.26.

5.1 Stakeholder structure analysis

With the results of the stakeholder information sheet, an analysis of the stakeholder structure was possible. As mentioned, due to COVID-19 situation, not all identified stakeholders were able to join the online meetings and contribute their specific expertise but the participation was balanced and OL case study coordinators were in contact with stakeholder which were not able to join meeting to catch their expertise.

5.1.1 Area of Santa Croce in Ravenna

In total, 36 participants joined the online workshop session in Ravenna. The stakeholder structure is visualized below in Figure 7. The 36 stakeholders who were able to participate represented a wide of disciplinary backgrounds and experiences. The participants were assigned to governmental organizations as well as public corporations. Some of the participants are involved in disaster risk management procedures. Local business and academic personnel were not involved in the discussion process so far following the defined stakeholder structure.

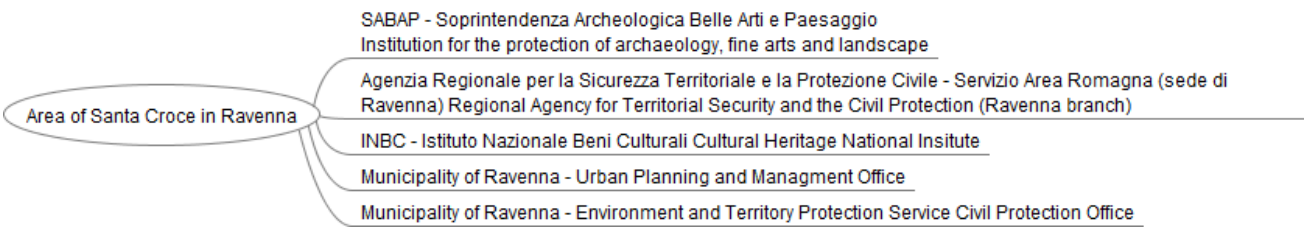

Figure 7. Stakeholder structure for Area of Santa Croce in Ravenna

5.1.2 Seferihisar district

In total 15 participants joined the virtual co-creation workshop for the Seferihisar district. The stakeholder structure is visualized in the following Figure 8. The 15 stakeholders who were able to participate represented a wide of disciplinary backgrounds and experiences. The participants were assigned to governmental as well as business organizations. Participants from civil society were also able to contribute their specific experience during the discussion. Some of the participants are also involved in disaster risk management procedures.

Figure 8. Stakeholder structure for Seferihisar district

5.1.3 Dordrecht

In total, 6 participants joined the online workshop session in Dordrecht. The stakeholder structure is visualized in the following Figure 14. The 6 stakeholders who were able to participate represented a wide of disciplinary backgrounds and experiences. The participants were assigned to governmental organizations and experts in CH as well as disaster risk management.

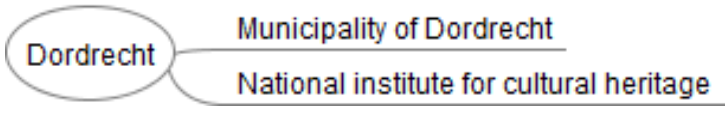

Figure 9. Stakeholder structure for Dordrecht

5.1.4 Baixa Limia-Serra Do Xures Natural Park in Galicia

In the following Figure 10 the stakeholder structure for the co-creation workshop in Baixa Limia-Serra Do Xures Natural Park in Galicia. The participants were assigned to local as

well as regional governmental organizations and civil society. Also, representatives of governmental organizations from Portugal joined the workshop session and brought in their expertise.

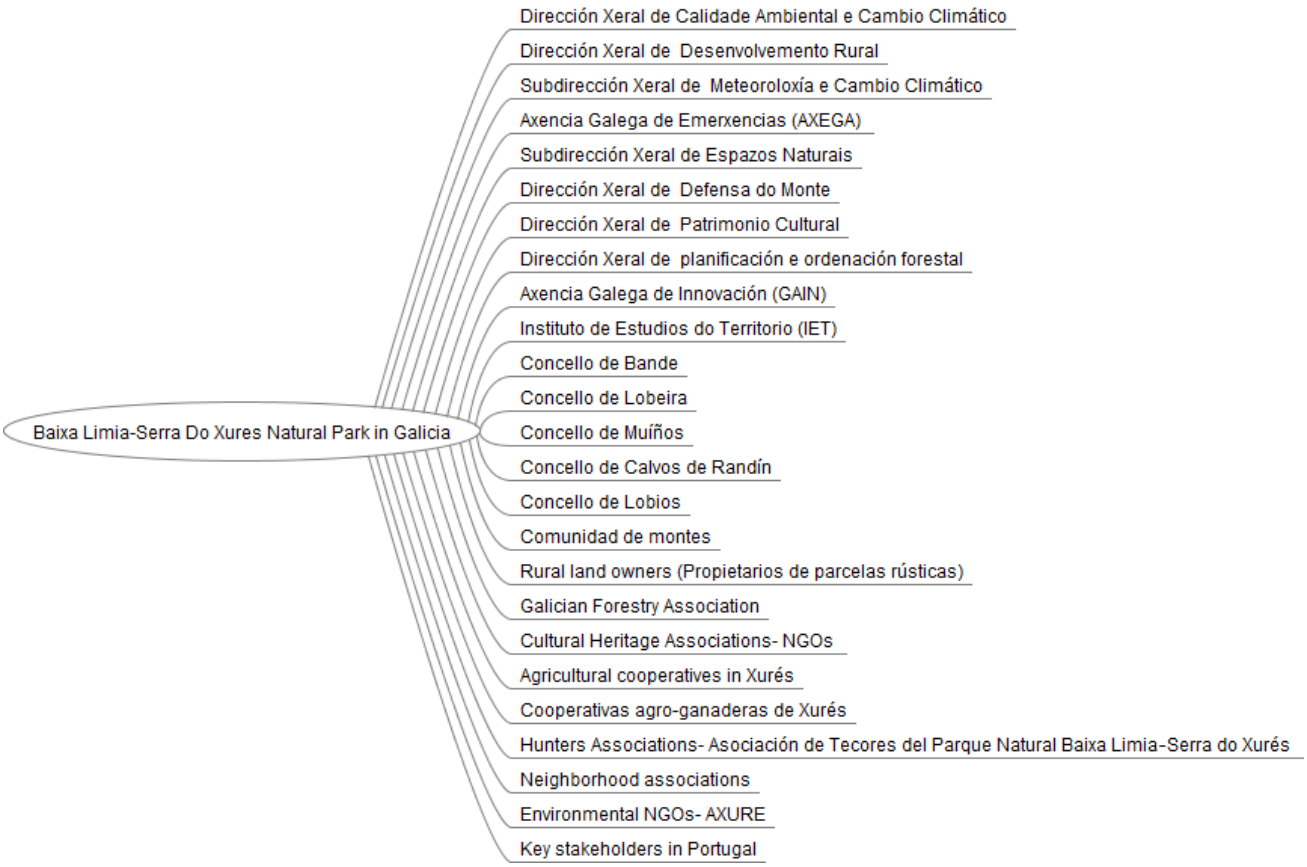

Figure 10. Stakeholder structure for Baixa Limia-Serra Do Xures Natural Park in Galicia

5.1.5 Sava River Basin

In total, 15 participants from five involved states participated the online co-creation workshop for the Sava River Basin. The participants were assigned to governmental organizations as well as civil society.

Figure 11. Stakeholder structure for Sava River Basin

5.2 Results of the questionnaire

In this subchapter, the results of the questionnaires are visualized, which were forwarded from the stakeholders to the OL case study coordinators. The answers were translated from the national language into English and summarized into the questionnaire template.

The results of the questionnaire show the situation for each OL due to the experience and evaluation of the involved stakeholders. Some results may be used for further evaluations in the sense of involvement of communities in disaster risk management in all phases. A balanced and developed DRM in the respective OL region would have resulted in a total YES to all 5 questions by the stakeholders. As the questionnaires show this is not the case. In any case, a respective need for action has to be evaluated with all care and specifically identified from OL to OL.

In the following Figure 12 to Figure 16 the answers for each OL are visualized.

Question	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	YES	Yes, we inform the population through press releases, publications in monthly magazines, distribution of information material.		
		Specific initiatives are implemented by the Municipality, which is responsible for informing the population, with the support of the Regional Agency for Territorial Security and Civil Protection (STPC Agency).		
		For what concernshe cognitive frameworks of the urban planning instruments include seismic microzonation and hydrogeological risk protection plans, which, together with all the plans, are published on the institutional website of the Municipality.	Those that exist (not on the local territory) are not easy to find for the common citizen.	
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	YES	Training courses for technical staff and volunteers are active, exercises are more difficult to implement		
		But not sytematically. There is a structured training programme for civil protection volunteers under the responsibility of the Regional Agency. Training sessions with the involvement of the population are sporadic due to organisational difficulties.		
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	NO	It exists at regional level. At municipal level sometimes yes, depending on the administration	The Municipality Urban Planning and Managment office does not receive training on joint risk management.	
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	YES	Through the sharing of civil protection plans and their subsequent approvals, in addition to detailed meetings, exercises	No, there are no joint routes except for specific risks (e.g. forest fires). There are, **at the request of the Municipalities**, training initiatives for internal staff implemented with the participation of Regional Agency officers. In a similar way, the Agency takes care of the training of its employees.	
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	NO	the private sector participates (with some territorial differences related to the different local sensitivities) in the world of civil protection through voluntary activities of the members of the order of engineers, geologists, surveyors, architects, etc....	Except in case of major risk factories in hazard area for approval of external emergency plans	

Figure 12. Questionnaire results for Area of Santa Croce in Ravenna

Question	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	yes	The Turkish National Disaster and Emergency Management Presidency AFAD coordinates nation wide programs.		
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	no		Drills specific to the cultural heritage area are not performed. Other drills in institutions etc are executed.	
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	yes	The Turkish National Disaster and Emergency Management Presidency AFAD coordinates institutions that take part in DRM.	The stakeholders mentioned that for these efforts to be more effective in the cultural heritage area, it is important to involve building owners more than public institutions as they have to be first responders.	
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	yes	The Turkish National Disaster and Emergency Management Presidency AFAD coordinates institutions that take part in DRM.	The cultural heritage area is mostlly commercial and hard to reach due to narrow streets. It would be beneficial to extend these trainings to building owners and managers.	
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	yes	There are private institutions involved in DRM and in communication with The Turkish National Disaster and Emergency Management Presidency AFAD. A major one is the rescue NGO AKUT which also runs awareness campaigns.	There is a branch of AKUT in the Seferihisar area.	

Figure 13. Questionnaire results for Seferihisar district

Question	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	YES	There is both longterm campaigns trough the normal education on the situation and risk of the western part of the Netherlands for flooding, of which Dordrecht is no expection. There are also more short term yearly campaigns organized by the municipality that focus on flood awareness and what people can do themselves to keep their own property safe. This is focussed mostly on the unembanked area's where people experience small scale flooding every couple of years. We also communicatie to the entire city on the general risks of flooding (which would be much more impactfull) if a dyke would breach. This is however not a steady, yearly program.		So far there has been very limited communication on the specific challenges to protect CH, of which much is located outside the embanked area of Dordrecht, and thus is vulnerable to small scale flooding every couple of years.
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	YES	There are regular training and drills of the governmental institutions in relation to flood risk, involving the waterboard, crisis management organisation and municipality. The waterboard also involves a large group of citizen volunteers that are organized in a seperate organisation. there are however no large scale drills with groups of citizens who had no prior training or organisation.	There have been some specific excercises in relation to CH and flood safety, but this is not organized in a regulare manner.	No special attention is payed during the yearly drill on Cultural Heritage
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	NO	For flood risk there is no seperate group of community risk management committee. Governmental organisation do coopearte via various methods and means on risk and emergency management		
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	YES	These organisation are part of the yearly training, and any special traning that could be organised in some years. Overal the network between various organisation is good in Dordrecht and we are able to cooperate when ambitions and goals allign without to much difficulty.		No special attention is payed during the yearly drill on Cultural Heritage
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	Partly	Private sector maintains some of the critical infrastructure in Dordrecht and the Netherlands. They are involved with the disaster management organisation during the mitigation and preparedness phase of disaster management. They would be involved during a crisis to see what the effects are. They are normally however not a regular member of any disaster management committee that is mostly filled by the government organisations. But there are connections and this has been a focus in recent years, to create more understanding and resiliency within the networks.		

Figure 14. Questionnaire results for Dordrecht

Question	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	Yes	In Galicia there is a campaign about fires every summer in social media, TV, radio, newspapers and billboard. (yearly frecuency, duration: at least 3 months)		
		The target of the campaign are not always the same, but mostly aim to empower people to be part of the solution by reporting negligent actions and fires. Last awareness programme was about taking care of the forest lands as part of the Galicia heritage (https://www.youtube.com/watch?v=6cK9vtZyf7I)		
		The Natural Park website, flyers, signposts, et,c usually include information regarding the risk of fires and how could they damage the natural heritage		
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	Yes	PLADIGA (Prevention and defense plan against forest fires in Galicia) includes training and drills, altough in general, they do not include civilian population		
		Work Centres (public and private buildings) already have fire prevention plans because of the National regulation Ley 31/1995, the 8th of November about Occupational Risk Prevention.		
		Communication, collaboration and training activities practices between different units are done.	Example: Project ARIEM + is a collaboration mechanism between those responsible for managing and mobilizing resources in the face of major emergencies in southern Galicia (Spain), Castilla-León (Spain) and northern Portugal.	
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	Yes	The structure and functions are detailed in the PLADIGA (Prevention and defense plan against forest fires in Galicia)		
		In case of Emergency (not just fires), it is possible to create a consultive group in which it will be involved: Civil protection, Emergengy management of the regional government and the councils affected. It functions and structure are detailed in the PLATERGA (Galician Territorial Emergency Plan)		
		The PLADIGA plan is updated yearly		
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	yes	PLADIGA (Prevention and defense plan against forest fires in Galicia) includes national, regional and local units, and their responsibilities are defined in the Plan.		
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	No	PLADIGA only includes public bodies		

Figure 15. Questionnaire results for Baixa Limia-Serra Do Xures Natural Park in Galicia

Question	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	Yes and No	Albania, Montenegro, Slovenia = Yes, sometimes		
		Bosnia and Herzegovina, Croatia, Serbia=No		
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	Yes and No	Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Slovenia= Yes	Authorities responsible for HA are not involved!	
		Albania=No		
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	Yes	Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Slovenia= Yes. Only during emergency		
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	Yes	Bosnia and Herzegovina=Every two years Slovenia=Every two years		
		Albania, Croatia, Montenegro, Serbia=Still pending for the feedback		
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	Yes and No	Albania=NGOs Croatia=Businesses, NGOs, Civil society Montenegro=NGOs, Civil society		
		Bosnia and Herzegovina, Serbia, Slovenia=No		

Figure 16. Questionnaire results for Sava River Basin

5.3 Strategic blueprints for the Area of Santa Croce in Ravenna

The co-creation workshop conduct with the stakeholder in the Area of Santa Croce in Ravenna results into 8 specific strategic blueprints. In the following subchapters, the strategic blueprints are defined in greater detail.

5.3.1 Strategic blueprint 1

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	1
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Water pumps powered by solar energy
DESCRIPTION	
IDENTIFIED SOLUTION	Installation of water pumps powered by solar energy in addition/replacing the ones already in the area.
How can the identified tool improve the current situation?	At the moment the pumps installed in the area are adjusted and set manually based on the moment necessity and powered through electricity. Replacing them with the new pumps would allow them more easily and in more efficient ways with a more sustainable source of electricity
How should the design of this tool look like?	Remote control water pumps to allow the mangers of the area to easily set the tools.
How should the implementation of the tool look like?	An international open call for European suppliers will be disseminated. The winner will install the tools in the area at his own expense and will take care of the management. The project does not foresee costs for installing solar pumps. It is subjected to the sponsorization of SMEs/LEs providing it
What should be taken into account for the maintenance of the tool?	Periodical check-up of the pumps
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness, and Response
TIME PERSPECTIVE	Can be implemented MID TERM (1-3 years)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape

	Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.2 Strategic blueprint 2

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	2
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Preventive alarm system based on sensor network
DESCRIPTION	
IDENTIFIED SOLUTION	Clinometers
How can the identified tool improve the current situation?	The sensor will help monitor the wall rotation movements, the helping to better assess movements of the structure.
How should the design of this tool look like?	Sensors will be installed on the Church walls. The sensor will work through electric current.
How should the implementation of the tool look like?	After the approval of the local Superintendency to install the sensors in the area, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Always necessary electricity. Necessary periodical check-up
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape

	Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.3 Strategic blueprint 3

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	3
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Preventive alarm system based on sensor network
DESCRIPTION	
IDENTIFIED SOLUTION	Heave and settlement monitoring system
How can the identified tool improve the current situation?	The sensor reacts to the heave and settlements and will therefore possible to assess the differential settlements of the Church structure.
How should the design of this tool look like?	Sensors will be installed on the Church walls. The sensor will work through electric current.
How should the implementation of the tool look like?	After the approval of the local Superintendency to install the sensors in the area, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Always necessary electricity. Necessary periodical check-up
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape

	Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.4 Strategic blueprint 4

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	4
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Preventive alarm system based on sensor network
DESCRIPTION	
IDENTIFIED SOLUTION	Accellerometers
How can the identified tool improve the current situation?	The area is traffic road prone, the sensors will collect data on road vibrations which affect the structure.
How should the design of this tool look like?	Sensors will be installed on the Church walls. The sensor will work through electric current.
How should the implementation of the tool look like?	After the approval of the local Superintendency to install the sensors in the area, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Always necessary electricity. Necessary periodical check-up
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)

ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.5 Strategic blueprint 5

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	5
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Preventive alarm system based on sensor network
DESCRIPTION	
IDENTIFIED SOLUTION	Piezometers
How can the identified tool improve the current situation?	At the moment groundwater data are collected for a wider area, no specific data related to the site. The sensor will collect the groundwater table specifically for the area.
How should the design of this tool look like?	Tools will need small excavations to be implemented, they will be placed in the archaeological area external to the Church
How should the implementation of the tool look like?	After the approval of the local Superintendency to install the sensors in the area, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Piezometers will need periodical check-up
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)

ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.6 Strategic blueprint 6

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	6
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Consolidation & monitoring techniques
DESCRIPTION	
IDENTIFIED SOLUTION	Datalogger
How can the identified tool improve the current situation?	Currently, no sensors are installed inside the Church, no data available. These sensors will be installed indoor to monitor RU and temperature and differential measures near and far from walls.
How should the design of this tool look like?	The sensor will work through electric current. Data will be transferred through Wi-Fi connection
How should the implementation of the tool look like?	The local Superintendency approved the installation of the sensors, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Necessary always Wi-Fi connection, data are automatically downloaded in a cloud
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)

ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.7 Strategic blueprint 7

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	7
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Consolidation & monitoring techniques
DESCRIPTION	
IDENTIFIED SOLUTION	Chromatographic column
How can the identified tool improve the current situation?	The sensor will monitor the presence of salts in masonries allowing ro to assess the phenomenon of climbing dampness and humidity.
How should the design of this tool look like?	The sensor will be placed inside the Church close to the walls.
How should the implementation of the tool look like?	The local Superintendency approved the installation of the sensors, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)
ADDITIONAL COMMENTS	

STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.3.8 Strategic blueprint 8

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	8
OL ASSIGNMENT	Area of Santa Croce in Ravenna
TOPIC	Consolidation & monitoring techniques
DESCRIPTION	
IDENTIFIED SOLUTION	Weather station
How can the identified tool improve the current situation?	At the moment all the meteorological data are collected for the whole area of Ravenna, therefore the data are not very specific to the site; the weather station will monitor meteorological and thermohygrometrical data and collect information specifically related to the site (temperature, wind strength and direction, relative humidity).
How should the design of this tool look like?	The station, if possible, will be installed above the Church roof. Data will be transferred through Wi-Fi connection
How should the implementation of the tool look like?	After the approval of the local Superintendency to install the sensors in the area, they will be purchased by the UNIBO group and installed by the university experience.
What should be taken into account for the maintenance of the tool?	Necessary always Wi-Fi connection, data are automatically downloaded in a cloud
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented SHORT TERM (within 1 year)
ADDITIONAL COMMENTS	

STAKEHOLDER STRUCTURE	
ORGANISATIONS	SABAP - Soprintendenza Archeologica Belle Arti e Paesaggio Institution for the protection of archaeology, fine arts and landscape Agenzia Regionale per la Sicurezza Territoriale e la Protezione Civile - Servizio Area Romagna (sede di Ravenna) Regional Agency for Territorial Security and the Civil Protection (Ravenna branch) INBC - Istituto Nazionale Beni Cultural Cultural Heritage National Institute Municipality of Ravenna - Urban Planning and Management Office Municipality of Ravenna - Environment and Territory Protection Service Civil Protection Office

5.4 Strategic blueprints for the Seferihisar district

The co-creation workshop results in 4 strategic blueprints. In the following subchapters, the strategic blueprints are available.

5.4.1 Strategic blueprint 9

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	9
OL ASSIGNMENT	Seferihisar district
TOPIC	Adobe techniques
DESCRIPTION	
IDENTIFIED SOLUTION	Reinforced adobe (ie. Alker, reinforced with gypsum)
How can the identified tool improve the current situation?	Make the self-bearing adobe more resilient and durable against exposure, weather, changing climate (more rain). For seismic hazards, the material is relatively safe and easy to fix.
How should the design of this tool look like?	It should be in the specifications to be applied in restoration works. For the design, restoration designers should be responsible!
How should the implementation of the tool look like?	The selected materials should be easy to apply and compatible with the existing adobe structure-maintain a similar surface and such. For the implementation, building owners and local construction companies should be responsible.
What should be taken into account for the maintenance of the tool?	Local construction companies should be trained

ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, recovery
TIME PERSPECTIVE	Can be implemented MID TERM (1-3 years) as well as LONG TERM (longer than 3 years)
ADDITIONAL COMMENTS	Building owners should be final users!
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Seferihisar Municipality Ekodenge TR Ekodenge UK İzmir Museums Administration İzmir 1st Cultural Assets Conservation Administration İzmir Survey and Monuments Administration KUMİD NGO (Friends of Cultural Heritage Association)

5.4.2 Strategic blueprint 10

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	10
OL ASSIGNMENT	Seferihisar district
TOPIC	Mixture architecture
DESCRIPTION	
IDENTIFIED SOLUTION	The timber-masonry-adobe mixed architecture in the area can be reinforced with materials other than timber- ie. steel frames
How can the identified tool improve the current situation?	This can make restoration works more structurally stable particularly against seismic activity
How should the design of this tool look like?	It should follow the traditional pattern of timber as much as possible and have a façade appearance similar to the vernacular system For the design restoration, designers should be responsible!
How should the implementation of the tool look like?	The implementation should be simple and possible to teach local companies as many of the assets are houses and house owners will not have the option to hire very specialized experts For the implementation, building owners and local construction companies should be responsible.
What should be taken into account for the maintenance of the tool?	Local construction companies should be trained
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention,

	recovery
TIME PERSPECTIVE	Can be implemented MID TERM (1-3 years) as well as LONG TERM (longer than 3 years)
ADDITIONAL COMMENTS	Building owners should be final users!
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Seferihisar Municipality Ekodenge TR Ekodenge UK İzmir Museums Administration İzmir 1st Cultural Assets Conservation Administration İzmir Survey and Monuments Administration KUMİD NGO (Friends of Cultural Heritage Association)

5.4.3 Strategic blueprint 11

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	11
OL ASSIGNMENT	Seferihisar district
TOPIC	Increase structural safety and reconstruction techniques for the fortress and the historic building stock
DESCRIPTION	
IDENTIFIED SOLUTION	More resilient mortar materials durable against saltwater, extreme weather
How can the identified tool improve the current situation?	The citadel is exposed to winds from the sea and deterioration due to storms, heat waves and extreme weather. A more durable mortar should strengthen it against these.
How should the design of this tool look like?	It should be in the specifications to be applied in restoration works For the design, restoration designers should be responsible!
How should the implementation of the tool look like?	It should be similar to regular mortar The municipality and the ministry of culture should be responsible for the implementation.
What should be taken into account for the maintenance of the tool?	Trials should be made
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, recovery
TIME PERSPECTIVE	Can be implemented LONG TERM (longer than 3 years)

ADDITIONAL COMMENTS	The general public (the citadel is a public asset) is the final user.
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Seferihisar Municipality Ekodenge TR Ekodenge UK İzmir Museums Administration İzmir 1st Cultural Assets Conservation Administration İzmir Survey and Monuments Administration KUMİD NGO (Friends of Cultural Heritage Association)

5.4.4 Strategic blueprint 12

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	12
OL ASSIGNMENT	Seferihisar district
TOPIC	Increase structural safety and reconstruction techniques for the fortress and the historic building stock
DESCRIPTION	
IDENTIFIED SOLUTION	Reinforcement by additional structures against seismic activity
How can the identified tool improve the current situation?	Make the citadel more resilient against earthquakes
How should the design of this tool look like?	It should not interfere with the appearance, touristic value and day to day use of the citadel area For the design, restoration designers should be responsible!
How should the implementation of the tool look like?	The implementation should be sound and easy to monitor, and safe. The municipality and the ministry of culture should be responsible for the implementation.
What should be taken into account for the maintenance of the tool?	There are many institutions, sometimes with overlapping authority, related to the protection of the citadel. One should be attained for the maintenance of this measure.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, recovery
TIME PERSPECTIVE	Can be implemented LONG TERM (longer than 3 years)
ADDITIONAL COMMENTS	The general public (the citadel is a public asset) is the final user.
STAKEHOLDER STRUCTURE	

ORGANISATIONS	Seferihisar Municipality Ekodenge TR Ekodenge UK İzmir Museums Administration İzmir 1st Cultural Assets Conservation Administration İzmir Survey and Monuments Administration KUMİD NGO (Friends of Cultural Heritage Association)

5.5 Strategic blueprints for Dordrecht

The co-creation workshop results in 6 strategic blueprints. In the following subchapters, the strategic blueprints are available.

5.5.1 Strategic blueprint 13

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	13
OL ASSIGNMENT	Dordrecht
TOPIC	IMMERSITE solution reinforced by gender perspective and citizen involvement
DESCRIPTION	
IDENTIFIED SOLUTION	IMMERSITE communication system
How can the identified tool improve the current situation?	It would be a communication system to showcase possible solutions on a local scale and raise the general awareness in relation to the risks present in Dordrecht, both in a general way and specifically for CH
How should the design of this tool look like?	Partly digital platform that is easy to use for the local citizens
How should the implementation of the tool look like?	During 1 year (part as OL meetings or WS) collect ideas and run a demo
What should be taken into account for the maintenance of the tool?	Enough capacity to organize meetings and work with the citizens so create citizen-owned solutions
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, Preparedness
TIME PERSPECTIVE	Can be implemented MID TERM (1-3 years)

ADDITIONAL COMMENTS	All participants must have access to the system; the system must be useable, and citizen-owned and maintained.
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.5.2 Strategic blueprint 14

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	14
OL ASSIGNMENT	Dordrecht
TOPIC	IMMERSITE solution reinforced by gender perspective and citizen involvement
DESCRIPTION	
IDENTIFIED SOLUTION	IMMERSITE city awareness system
How can the identified tool improve the current situation?	A city-wide visualisation of floods and possible future scenario's can be used to raise awareness.
How should the design of this tool look like?	Easy to use platform where people can look up their own environments.
How should the implementation of the tool look like?	Use the 600 years remembrance of the Sint Elisabeth flood to gather attention and show the tool.
What should be taken into account for the maintenance of the tool?	Available during the event or yearlong? Space is needed.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparedness, Response
TIME PERSPECTIVE	Can be implemented SHORT TERM (within one year)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	

ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.5.3 Strategic blueprint 15

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	15
OL ASSIGNMENT	Dordrecht
TOPIC	The policy approach to protect Cultural Heritage in the city centre against future flooding and increased risks, by helping private owners of CH.
DESCRIPTION	
IDENTIFIED SOLUTION	The social dimension of DRM for the cultural heritage (people protect their own homes)
How can the identified tool improve the current situation?	Many of the cultural heritage is privately owned, we need a good approach and specific information to reach out to these people, both short and long term.
How should the design of this tool look like?	Enough practical information that can be given to the people, and an approach to reach a large number of citizens.
How should the implementation of the tool look like?	Enough capacity from the government and local knowledge on solutions to assist the citizens through multiple years, and create awareness through communication.
What should be taken into account for the maintenance of the tool?	In combination with the answer above.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, Preparedness, Recovery
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.5.4 Strategic blueprint 16

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	16
OL ASSIGNMENT	Dordrecht
TOPIC	The policy approach to protect Cultural heritage in the city centre against future flooding and increased risks, by helping private owners of CH.
DESCRIPTION	
IDENTIFIED SOLUTION	Short term assistance with especially vulnerable areas in the city
How can the identified tool improve the current situation?	There are some places now that are extra at risk, but people are legally responsible. As the local government, we want to assist but can't take over responsibility. By showcasing possible solutions, we can help the citizens.
How should the design of this tool look like?	We want to help as a government the local owners to cooperatively tackle their shared challenges.
How should the implementation of the tool look like?	We can bring the knowledge (using input and IMMERSITE tool from Shelter) and support so that the citizens can take action.
What should be taken into account for the maintenance of the tool?	It will be a long term process, in order to get the support, understanding, and organization running that progress will be made to protect the privately owned CH. However, in likewise situations this has been done before so it is possible, the difference then was that the risk was already far clearer for the people involved.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years) as well as LONG TERM (longer than 3 years)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.5.5 Strategic blueprint 17

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	17
OL ASSIGNMENT	Dordrecht

TOPIC	The policy approach to protect Cultural heritage in the city centre against future flooding and increased risks, by helping private owners of CH.
DESCRIPTION	
IDENTIFIED SOLUTION	A better understanding of high-risk CH in Dordrecht
How can the identified tool improve the current situation?	Resilience assessment, not only chance of flood but also vulnerability, in order to target specific CH that are most at risk. We have the map available where the water levels and location of CH is visualized, now we have to analyze to get a priority list with most at risk CH monuments. These can be new focus areas.
How should the design of this tool look like?	Easy to use resilience assessment, with indicators that are practical, and based on available data.
How should the implementation of the tool look like?	
What should be taken into account for the maintenance of the tool?	Needs to be easy and quick to use, and would only be the first step as most important is the implementation of actual solutions, which in this case would involve a lot of citizen involvement.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, Preparedness, Recovery
TIME PERSPECTIVE	Can be implemented in SHORT TERM (within one year)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.5.6 Strategic blueprint 18

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	18
OL ASSIGNMENT	Dordrecht

TOPIC	The policy approach to protect Cultural heritage in the city centre against future flooding and increased risks, by helping private owners of CH.
DESCRIPTION	
IDENTIFIED SOLUTION	A long term plan to keep CH city centre high value, also with increased flood risk
How can the identified tool improve the current situation?	No long term plan yet available, given changes in sea level this is necessary.
How should the design of this tool look like?	
How should the implementation of the tool look like?	Long term commitment to help citizen upgrade and create more resilient CH homes and buildings.
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	ALL phases
TIME PERSPECTIVE	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Municipality of Dordrecht National Institute for cultural heritage

5.6 Strategic blueprints for Baixa Limia-Serra Do Xures Natural Park in Galicia

The co-creation workshop results in 7 strategic blueprints. In the following subchapters, the strategic blueprints are available. Especially for the Natural Park, two strategic blueprints (ID 19 and ID 20) were prioritised from the stakeholder for further research.

5.6.1 Strategic blueprint 19

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	19
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks

DESCRIPTION	
IDENTIFIED SOLUTION	Communities and Associations for fire risk prevention
How can the identified tool improve the current situation?	Create a more coordinated response to the firewires. Move the insight of the community putting in value the cultural and natural heritage in an integrated way.
How should the design of this tool look like?	Round tables, workshops and meetings involving all the stakeholders: Councils, forest communities, owners of rustic plots, heritage defence associations, associations of ranchers and farmers, hunters (xuretec), environmental NGOs (Axure), Portugal, neighbourhood associations, Emergencies, Xunta (rural development and natural park management departments). Responsible for the design are all the stakeholders with the leadership of Xunta: Councils, forest communities, owners of rustic plots, heritage defence associations, associations of ranchers and farmers, hunters (xuretec), environmental NGOs (Axure), Portugal, neighbourhood associations, Emergencies, Xunta (rural development and natural park management departments).
How should the implementation of the tool look like?	Definition of goals and a yearly plan with clear responsibilities for the Community. Specific performance KPIs should be defined. Organization of periodic meetings and workshop and also a review of the tasks developed pre and post. Final review of the implementation of the year Responsible for the implementation are all the stakeholders with the leadership of Xunta: Councils, forest communities, owners of rustic plots, heritage defence associations, associations of ranchers and farmers, hunters (xuretec), environmental NGOs (Axure), Portugal, neighbourhood associations, Emergencies, Xunta (rural development and natural park management departments).
What should be taken into account for the maintenance of the tool?	Stakeholders engagement is challenging and clear leadership of the organization and facilitation should be defined
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness, response
TIME PERSPECTIVE	Can be implemented SHORT TERM (within one year)
ADDITIONAL COMMENTS	Communities and Associations for fire risk prevention (following the example heritage defence associations): analyze land stewardship agreements with landowners (recovering traditional practices as intangible heritage, for example, moisture retention). See how to move the insight of the community from a short term approach (intensive exploitation or tourist promotion) to a more long-term one

	(putting in value the cultural and natural heritage in an integrated way). The final users are all the stakeholders: Councils, forest communities, owners of rustic plots, heritage defence associations, associations of ranchers and farmers, hunters (xuretec), environmental NGOs (Axure), Portugal, neighbourhood associations, Emergencies, Xunta (rural development and natural park management departments).
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.2 Strategic blueprint 20

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	20
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	Germplasm Bank
How can the identified tool improve the current situation?	Is a collection of living plant material; on that terms is an NbS. The general objective of this tool is to create a methodology to locate, collect and conserve plants considered of priority interest for the conservation of the natural heritage of the Open Lab.

How should the design of this tool look like?	For each specie, a file will be generated with the identification and collection methodology, as well as other environmental recommendations to be taken into account, so that the collection does not affect the natural environment of the park. In the context of SHELTER project and in order to study the feasibility and effectiveness of this tool, a specific pilot study of hydrological-forest restoration with birch will be carried out in an area of degraded troughs of the Open Lab. Responsible for the design should be Xunta of Galicia (Conselleria de Medio Ambiente, Territorio e Vivienda. Dirección Xeral de Patrimonio Natural)
How should the implementation of the tool look like?	Xunta (natural park management) will lead the development that will be subcontracted Responsible for the implementation should be Xunta of Galicia (Conselleria de Medio Ambiente, Territorio e Vivienda. Dirección Xeral de Patrimonio Natural)
What should be taken into account for the maintenance of the tool?	Financing resources are key and the maintenance should include a clear definition of the applicability of the plant material.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness, recovery
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	This tool implies no sensors to be used that requires an official Request Letter (already presented and approved) The Open Lab already has 4 Meteorological Stations (3 inside the natural park and another in the surroundings) that can provide meteorological information that also is useful to assess the fire propagation capacity The final user is Xunta of Galicia (Conselleria de Medio Ambiente, Territorio e Vivienda. Dirección Xeral de Patrimonio Natural)
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira

	Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.3 Strategic blueprint 21

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	21
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	Collaborative mapping of land uses (regional scale) and/or Collaborative mapping of roads (local scale and quick update)
How can the identified tool improve the current situation?	
How should the design of this tool look like?	
How should the implementation of the tool look like?	Responsible for the implementation should be Xunta-OT, Concellos and Extinction Services.
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	NTR

ADDITIONAL COMMENTS	Not prioritized
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.4 Strategic blueprint 22

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	22
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	An edaphological study that can be generic (Galicia) or specific for the study area
How can the identified tool improve the current situation?	The evolution of Galicia is towards the loss of soil because geology gives poor soil and with fires and climate change the loss of soil is a matter of great relevance and that is increasing.
How should the design of this tool look like?	

How should the implementation of the tool look like?	Responsible for the implementation should be University, Xunta
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness
TIME PERSPECTIVE	
ADDITIONAL COMMENTS	Not prioritized
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.5 Strategic blueprint 23

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	23
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia

TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	Coordination in Surveillance (at the local level and especially for periods in which there is no established surveillance)
How can the identified tool improve the current situation?	Lack of coordination allows identifying the opportunity of malice and also allows addressing the threat that the origin of the fires is multiple and dispersed.
How should the design of this tool look like?	
How should the implementation of the tool look like?	Responsible for the implementation should be Councils, mountain communities, owners of rustic plots, associations of ranchers and farmers, environmental NGOs (Axure), neighbourhood associations, Emergencies, Xunta (various Departments), Rural development
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness, response
TIME PERSPECTIVE	
ADDITIONAL COMMENTS	Not prioritized
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/)

	Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.6 Strategic blueprint 24

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	24
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	112 invested, risk self-management and citizen co-responsibility
How can the identified tool improve the current situation?	
How should the design of this tool look like?	
How should the implementation of the tool look like?	Responsible for the implementation should be Emergencies, Councils, forest communities, owners of rustic plots, associations of ranchers and farmers, environmental NGOs (Axure), neighbourhood associations, Xunta (various departments), and park management
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparedness, response
TIME PERSPECTIVE	
ADDITIONAL COMMENTS	Not prioritized
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA)

	Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.6.7 Strategic blueprint 25

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	25
OL ASSIGNMENT	Baixa Limia-Serra Do Xures Natural Park in Galicia
TOPIC	NBS solutions against wildfire risks
DESCRIPTION	
IDENTIFIED SOLUTION	Dashboard, data services on fire risk: customization of the data to be used by the agents.
How can the identified tool improve the current situation?	
How should the design of this tool look like?	
How should the implementation of the tool look like?	Responsible for implementation should be Concellos, Emergencies, Xunta-Meteogalicia and Xunta-OT, Rural Development and park management.
What should be taken into account for the	

maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention, preparedness, recovery
TIME PERSPECTIVE	
ADDITIONAL COMMENTS	Not prioritized
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Dirección Xeral de Calidade Ambiental e Cambio Climático Dirección Xeral de Desenvolvemento Rural Subdirección Xeral de Meteoroloxía e Cambio Climático Axencia Galega de Emerxencias (AXEGA) Subdirección Xeral de Espazos Naturais Dirección Xeral de Defensa do Monte Dirección Xeral de Patrimonio Cultural Dirección Xeral de planificación e ordenación forestall Axencia Galega de Innovación (GAIN) Instituto de Estudios do Territorio (IET) Concello de Bande Concello de Lobeira Concello de Muíños Concello de Calvos de Randín Concello de Lobios Comunidad de montes Rural land owners (Propietarios de parcelas rústicas) Galician Forestry Association (https://asociacionforestal.gal/quen-somos/) Cultural Heritage Associations- NGOs Agricultural cooperatives in Xurés Cooperativas agro-ganaderas de Xurés (http://agaca.coop/) Hunters Associations- Asociación de Tecores del Parque Natural Baixa Limia–Serra do Xurés Neighbourhood associations Environmental NGOs- AXURE Key stakeholders in Portugal

5.7 Strategic blueprints for Sava River Basin

The co-creation workshop results in 10 strategic blueprints. In the following subchapters the strategic blueprints are available.

5.7.1 Strategic blueprint 26

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	26
OL ASSIGNMENT	Sava River Basin

TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Development of the proposal of DRM governance structure involving the CHH authorities
How can the identified tool improve the current situation?	STRENGTHENING RESILIENCE (national level and international level)
How should the design of this tool look like?	A paper form document Responsible for the design should be SHELTER
How should the implementation of the tool look like?	Visual mapping of the different types of governance structures applicable at different stages of the DRM, with a detailed description of their advantages and limitations. Responsible for the implementation should be Country-level authorities (Civil protection and/or water/flood management agencies)
What should be taken into account for the maintenance of the tool?	Existing procedures, SOPs and multilateral agreements
ASSIGNMENTS/COMMENTS	
DRM PHASE	ALL phases
TIME PERSPECTIVE	Can be implemented in SHORT TERM (Within one year)
ADDITIONAL COMMENTS	Final users should be national authorities and international organizations
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission <u>Bosnia and Herzegovia:</u> Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" <u>Croatia:</u> Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode <u>Montenegro:</u> Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate <u>Serbia:</u> Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" <u>Slovenia:</u> Ministry of Culture, Cultural Heritage Directorate

	Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.2 Strategic blueprint 27

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	27
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Preparation of a spatial GIS layer for cultural heritage for the entire basin
How can the identified tool improve the current situation?	STRENGTHENING RESILIENCE (national and international level) It will improve the development of flood hazard and risk maps on CH for AMIs
How should the design of this tool look like?	Development of methodology and templates/database formats for collecting and storing data, information and knowledge that will be extracted from relevant institutions. Responsible for the design should be SHELTER
How should the implementation of the tool look like?	Collection of data on CH laying in flood-prone areas (AMIs), systematized and stored in existing Sava GIS. Implementation of collected data in the Sava GIS Geoportal and related web-based tools to be able to create and support web services-based data exchange. Responsible for the implementation should be ISRBC/other PPs
What should be taken into account for the maintenance of the tool?	All relevant data on UNESCO's sites, national monuments, cultural/historical monuments, religious facilities, vernacular architecture, cemetery, graveyards, etc.
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparation, preparedness
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	Final users should be national authorities and international organizations; expert users
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments

	Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.3 Strategic blueprint 28

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	28
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Development of methodologies how to assess flood risks on cultural heritage (including the type of necessary data) and methodology of how to assess cultural heritage damage
How can the identified tool improve the current situation?	STRENGTHENING RESILIENCE (national and international level) It will improve the development of flood hazard and risk maps on CH for AMIs
How should the design of this tool look like?	The process should describe a spatially explicit methodology to assess the flood risk regarding specific hazards and their synergistic impact. Responsible for the design should be SHELTER
How should the implementation of the tool look like?	This paper form document should include the procedure definition with the identification of required data sources and the methods for weighting and combining vulnerability/resilience factors and categorizing and performing sensitivity analysis. Responsible for the implementation should be ISRBC/other PPs
What should be taken into account for the maintenance of the tool?	Flood and damage data collection procedures

ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparation, preparedness
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	Final users should be national authorities and international organizations; expert users
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.4 Strategic blueprint 29

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	29
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	A guide for the application of the best solutions in the protection of CH against floods
How can the identified tool improve the current situation?	RAISING AWARENESS ABOUT FLOOD RISKS (all levels)
How should the design of this tool look like?	Workshop on existing experiences, knowledge and methodologies for the status assessment. Using the results of the workshop manual in Sava River countries' languages.

	Responsible for the design should be SHELTER
How should the implementation of the tool look like?	See design. Responsible for the implementation should be ISRBC/other PPs
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparation, preparedness, response
TIME PERSPECTIVE	Can be implemented in SHORT TERM (within one year)
ADDITIONAL COMMENTS	Final users should be national, regional, local authorities; expert and non-expert private users
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.5 Strategic blueprint 30

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	30
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events

DESCRIPTION	
IDENTIFIED SOLUTION	Database of floods and cultural heritage and an internet application (IMMERSITE) for information exchange between stakeholders involved in emergency flood defence, as well as for informing the public
How can the identified tool improve the current situation?	RAISING AWARENESS ABOUT FLOOD RISKS (all levels)
How should the design of this tool look like?	Sava Geoportal - flood events, damage to cultural heritage, - flood hazard maps, maps of cultural heritage sites, structures and artefacts, - reports on data sources, - statistic reports Responsible for the design should be ISRBC
How should the implementation of the tool look like?	Data collection from national water cadaster, cultural heritage register, register of damage assessment. Responsible for the implementation should be ISRBC
What should be taken into account for the maintenance of the tool?	flood and damage data collection procedures
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparation
TIME PERSPECTIVE	Can be implemented in SHORT TERM (within one year)
ADDITIONAL COMMENTS	Final users should be national, regional, local authorities; expert and non-expert private users
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission <u>Bosnia and Herzegovia:</u> Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" <u>Croatia:</u> Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode <u>Montenegro:</u> Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate <u>Serbia:</u> Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine"

	Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.6 Strategic blueprint 31

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	31
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Risk decision support tools including early warning system on the administration level including wide public
How can the identified tool improve the current situation?	AVOIDANCE OF NEW FLOOD RISKS and RAISING AWARENESS ABOUT FLOOD RISKS (regional and local level)
How should the design of this tool look like?	Sava Geoportal; web-based maps of cultural heritage endangerment hotspots; manual of best CH protection practices; handbook for vulnerability assessment procedures Responsible for the design should be ISRBC
How should the implementation of the tool look like?	Flood risk assessment for detailed mapping Collection of data on good and bad CH protection practices Synthesis of methodologies for CH vulnerability assessment Responsible for the implementation should be ISRBC
What should be taken into account for the maintenance of the tool?	balanced and reasonable data-method-result relationship
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparation
TIME PERSPECTIVE	Can be implemented in SHORT TERM (within one year)
ADDITIONAL COMMENTS	Final users should be regional and local authorities
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency

	Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.7 Strategic blueprint 32

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	32
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Rescue and recovery procedures handbook
How can the identified tool improve the current situation?	REDUCTION OF EXISTING FLOOD RISKS (DURING AND AFTER FLOODS) (local level)
How should the design of this tool look like?	web-based application IMMERSITE, early warning systems for CH, protocol document for cultural heritage hotspots (wrapping, walls, containers, etc.) Responsible for design should be SHELTER
How should the implementation of the tool look like?	Based on national hydrology alarm service describe possible consequences and implement in fire safety plans and protocols Responsible for the implementation should be disaster management authority, municipality
What should be taken into account for the maintenance of the tool?	Possible regular update of protocols
ASSIGNMENTS/COMMENTS	

DRM PHASE	Preparedness, response, recovery
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	Final users should be local authorities (municipality, fire department)
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.8 Strategic blueprint 33

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	33
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Plan for cultural heritage risk reduction
How can the identified tool improve the current situation?	STRENGTHENING RESILIENCE (national level)
How should the design of this tool look like?	Strategic document Responsible for design should be SHELTER
How should the implementation of the tool look like?	Flood risk management plans, Disaster risk management plans

	Responsible for the implementation should be water management authority, disaster management authority
What should be taken into account for the maintenance of the tool?	Integration and implementation through national plans
ASSIGNMENTS/COMMENTS	
DRM PHASE	Prevention
TIME PERSPECTIVE	Can be implemented in LONG TERM (more than 3 years)
ADDITIONAL COMMENTS	Final users should be national authorities
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.9 Strategic blueprint 34

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	34
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	
IDENTIFIED SOLUTION	Cooperation protocol
How can the identified tool improve the current situation?	IMPLEMENTING SOLIDARITY PRINCIPLE (national and international level)

How should the design of this tool look like?	Protocol document Responsible for the design should be ISRBC
How should the implementation of the tool look like?	Bilateral agreements on aid during and after a flood event Responsible for the implementation should be ISRBC
What should be taken into account for the maintenance of the tool?	Existing bilateral agreements
ASSIGNMENTS/COMMENTS	
DRM PHASE	Response, recovery
TIME PERSPECTIVE	Can be implemented in LONG TERM (more than 3 years)
ADDITIONAL COMMENTS	Final users should be national authorities
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

5.7.10 Strategic blueprint 35

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	35
OL ASSIGNMENT	Sava River Basin
TOPIC	Governance tools against transboundary flooding events
DESCRIPTION	

IDENTIFIED SOLUTION	Border-crossing procedures for import and export of protection and rescue equipment and delivery of humanitarian aid
How can the identified tool improve the current situation?	IMPLEMENTING SOLIDARITY PRINCIPLE It will facilitate and speed up the process for the provision of mutual and international aid
How should the design of this tool look like?	A paper form document (e.g. official protocol) implemented within a web-based application. Responsible for the design should be ISRBC
How should the implementation of the tool look like?	Responsible for the implementation should be Country-level authorities (Civil protection and/or water/flood management agencies)
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	Preparedness, response
TIME PERSPECTIVE	Can be implemented in MID TERM (1-3 years)
ADDITIONAL COMMENTS	Due to the nature of the solution, a negotiation process and corresponding ratification at the country level may be required. Final users should be Country-level authorities and humanitarian aid organizations (e.g. EU Civil Protection Mechanism)
STAKEHOLDER STRUCTURE	
ORGANISATIONS	Sava Commission Bosnia and Herzegovia: Commission to Preserve National Monuments Sava River Watershed Agency Public Institution "Vode Srpske" Croatia: Ministry of Culture, Directorate for the Protection of Cultural Heritage Hrvatske vode Montenegro: Ministry of Culture Ministry of Agriculture and Rural Development, Water Management Directorate Serbia: Institute for the Protection of Cultural Monuments of Serbia Public Water Management Company "Vode Vojvodine" Slovenia: Ministry of Culture, Cultural Heritage Directorate Ministry of the Environment and Spatial Planning, Slovenian Water Agency

6 Conclusions

Drawing from the results of the previous tasks, this task has defined and identified through co-creation the co-production of resilience and DRM by local communities. In collaboration with public authorities and the private sector, locally-rooted blueprints have been developed, adapted to existing context, materials, expertise and representations that will support the establishment of solid partnerships to be mobilized during all DRM phases. The integration of local stakeholders, users and user groups constitutes a crucial element for retrieving, delivering and maintaining authentic locally-rooted responses. By the means of the co-production playbooks, these locally-rooted responses were made operative by applying the method of co-creation to the OL workshops.

The co-production playbook was developed in cooperation with the OL coordinators as well as with the case study coordinators of the SHELTER project. The coproduction playbook consists of a questionnaire with five questions, five specific scenarios for each OL, the referring documentation sheets as well as the co-creation workshop organization.

The status quo was identified and visualized through the questionnaire about DRM and community involvement for further evaluation within the following research of the SHELTER project as well as for follow-up meetings in the OL working groups. The coproduction playbook components are described in chapter 4 and all developed components are available in the annexes. The scenarios consider the specific situation for each OL including hazards and HA typologies as well as the defined topics in combination with the phases of DRM.

During virtual co-creation workshops, it was possible to identify in total 35 strategic blueprints based on the discussion of the involved stakeholders. For the OL of Baixa Limia-Serra Do Xures Natural Park in Galicia, a prioritization of the developed strategic blueprints was done so far for the SHELTER project (strategic blueprints ID 19 and ID 20) as an additional result of the workshop session. Due to COVID-19 situation, the workshops were organized online and not all stakeholders or users were able to join and contribute to their specific expertise, so additional contact was necessary.

The strategic blueprints, which were generated based on the results of the co-creation OL workshops, are intended to be of general use also beyond SHELTER. This model shows that it is important to embrace all aspects in a participatory approach in a structured manner.

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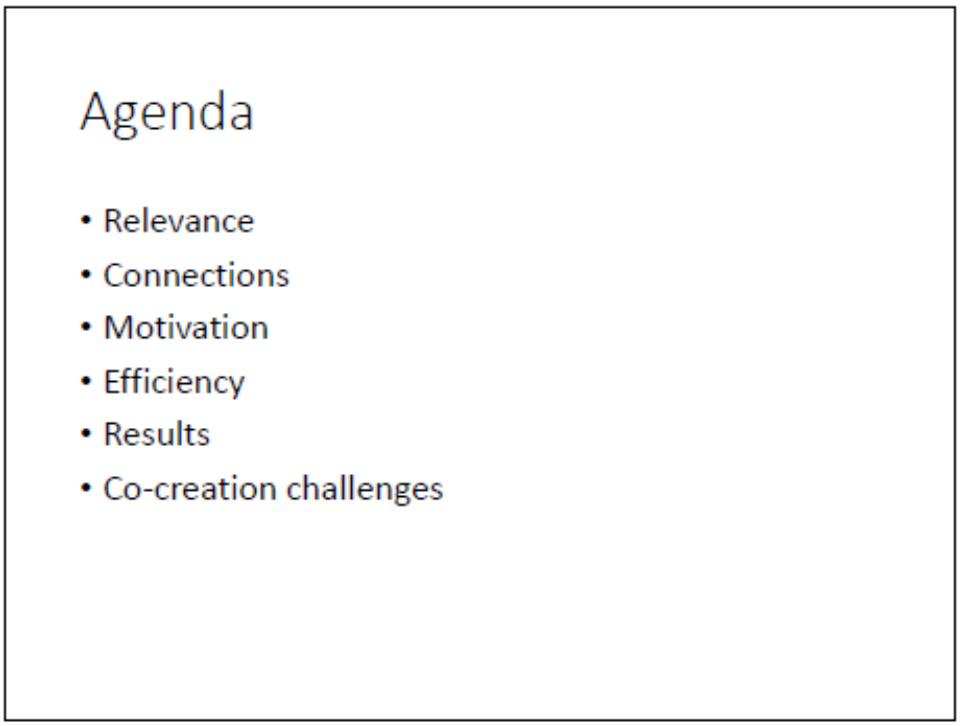
8 Appendices

8.1 Methodology - Advantages and challenges of co-creation



Relevance

- Co-creation enables every stakeholder involved to actively shape the change by themselves.
- This means that in the future solutions, products, services etc. will no longer be developed exclusively by specific groups, but that everyone can actively contribute – users, customers, employees, and designers included.
- Therefore, their needs and experiences get a greater relevance.
- Co-creation offers better opportunities to discuss and consider with the stakeholders involved, new and enriching perspectives, all those involved have a higher value and a new form of discussion, and a way to unleash creative problem-solving skills.

Connections

- Co-creation helps create connections between different groups, organizations, and disciplines.
- Co-creation enables everyone involved to more easily create connections and networks, better collaboration by breaking up crusted structures, cooperation on equal terms with all those involved, and a high level of commitment across the board to create value for the user.

Motivation

- A co-creation process increases the motivation of all those involved.
- The underlying approach creates an environment, in which higher participation for different stakeholder groups is possible.

Efficiency

- Co-Creation helps to develop targeted solutions for the needs of the users.
- Co-Creation improves the chances of success because one learns more about the needs of the users, the credibility of the result, and the development process, because concepts can be assessed more quickly.

Results

- Co-creation pays greatest attention to realization and implementation.
- Co-creation leads to an immediate evaluation of ideas and concepts, more specific and differentated products, services and systems and the development of new business ideas and models.

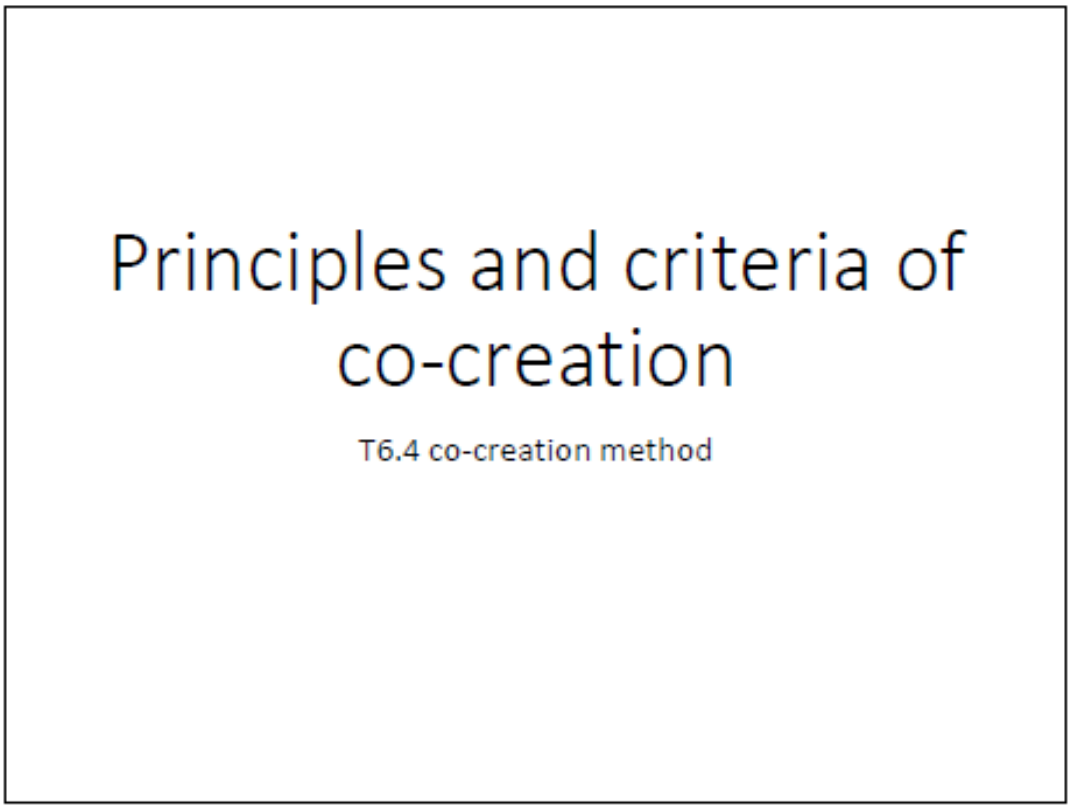
Co-creation Challenges

- The use of co-creation can be challenging for creative professionals, because:
- typically many stakeholders are involved,
- a wide variety of personalities could participate and complex relationships result,
- you need specific skills in order to be collaborative to lead the development process,
- there could be resistance to change or it is questioned whether users can actually contribute to the process.

Literature

- Adrian Sneeuw, Aiur Retegi, Barbara Predan, Barbora Spisakova, Enrique Tomas, Georg Tremetzberger, Gisa Schosswohl, Joan Knudsen, Martin Kaltenbrunner, Nora Busturia. Co-design. Best practice report. (http://www.cocreate.training/wp-content/uploads/2017/07/co-design_best-practice-report.pdf)
- Aiur Retegi, Brigitte Sauvage, Barbara Predan, Enrique Tomás, Gisa Schosswohl, Martin Kaltenbrunner and Denisa Draganovská. The co-create handbook. For creative professionals (http://www.cocreate.training/wp-content/uploads/2019/03/co-design_handbook_FINAL.pdf)
- Aiur Retegi, Brigitte Sauvage, Barbara Predan, Enrique Tomás, Gisa Schosswohl, Martin Kaltenbrunner and Denisa Draganovská. The co-create curriculum. For creative professionals. (http://www.cocreate.training/wp-content/uploads/2019/06/co-design_curriculum_FINAL.pdf)
- Denisa Draganovská, Martin Kaltenbrunner, Barbara Predan, Aiur Retegi, Brigitte Sauvage, Gisa Schosswohl und Enrique Tomás. Kollektive Kreativität. So erlernt man Co-Creation (http://www.cocreate.training/wp-content/uploads/2019/03/co-design_essentials_GER.pdf).

8.2 Methodology - Principles and criteria of co-creation



„Co-creation works because even the greatest creative rarely knows the complete answer.“ John Williams

Facilitator

- Effective co-creation requires a centralised individual who helps to facilitate discussions and guide the process.
- Within CO-CREATE this individual is defined as a facilitator.
- This individual must be experienced in dealing within large groups of stakeholders being able to stimulate meaningful discussions but also mitigating and resoling conflict if it arises.
- The facilitator must be knowledgeable on the subject area, well organised and have access to training and tools to help them facilitate these meaningful discussions.
- Overall, the facilitator takes a leadership role in the co-creation process being perceived as unbiased, trustworthy and ensuring a environment where ideas can be shared and discussed freely, promoting and encouraging meaningful discussions.

Healthy, productive and fair environment

- Effective co-creation requires a healthy environment. This refers to the physical environment, where the CC event takes place, as well to the setting of the CC event
- Clear structures are important in terms of content, space, time frame and even rules of participation, as well as the flexibility to adapt processes whenever necessary
- In the areas of co-creation participants run the risk of being exploited (cf. GO vs. NGO representatives) – topics such as transparent management and financial distribution should be openly addressed within the group

Diversity and inclusivity in team

- Effective co-creation requires diversity and inclusivity regarding the individuals involved.
- Co-Creation is freely accessible to every stakeholder and must take explicit efforts to not exclude anyone form the process who wishes to participate.
- The co-creation process should involve all relevant and necessary people.
- It is about showing what you want to achieve with the project; do not concentrate (only) on the obvious. It's about people in a broader sense, not just about users or customers.
- Participants should be seen as "active actors" rather than "beneficiaries".

Clearly defined needs & shared concerns

- Effective co-creation requires clearly defined needs & shared concerns.
- Co-creation is a strategic decision, has strategic effects and can be viewed from different angles.
- It is successful when the needs of the target group, backgrounds, goals and tasks are clearly defined.
- Everyone is an expert in themselves: Due to a balanced relationship, non-professionals and professionals meet on an equal footing.
- You have to learn to communicate needs and dissatisfaction. This is how you understand the motivations of the individual and can empathize with the person.

Common vision & values

- Effective co-creation requires common vision & values
- Co-creation aims at creating a common vision and values together with the stakeholders.
- There is joint control over this open and constructive process which can also include the result.
- Co-creation is based on this common model, whether on the way or when reaching the goals.

Individual roles for individual goals

- Effective co-creation requires individual roles for individual goals
- Facilitators have to master the art of involving stakeholders in the right process step in order to guarantee a positive result.
- Co-creation is a process with an indefinite nature the end.
- By involving stakeholders throughout the process and beyond and getting feedback on the decisions made by the organizer, they experience recognition and build trust.

Dealing with conflicts and interests

- Effective co-creation requires an active and pro-active dealing with conflicts and interests.
- It is imperative to develop a process that prevents interests from diverging and conflicts arise, or that makes it possible to react quickly to conflicts should these arise.
- From the beginning, it's not about finding the right idea, but rather about uncovering needs and a multitude of ideas. In addition, it is about open and appreciative feedback.
- Conflicts can also be used as a method for more open communication in order to find out what is really important to oneself and others.

Reflection and evaluation

- Effective co-creation requires reflection and evaluation.
- Getting feedback on the decisions made in the end is not enough.
- Rather, the entire co-creation process must be reflected on and assessed.
- This allows important data to be obtained for the next process steps or projects.
- A long-term evaluation including the results and new developments is important.
- Projects have an indefinite ending, so it's important to watch their development.

Literature

- Adrian Sneeuw, Aiur Retegi, Barbara Predan, Barbora Spisakova, Enrique Tomas, Georg Tremetzberger, Gisa Schosswohl, Joan Knudsen, Martin Kaltenbrunner, Nora Busturia. Co-design. Best practice report. (http://www.cocreate.training/wp-content/uploads/2017/07/co-design_best-practice-report.pdf)
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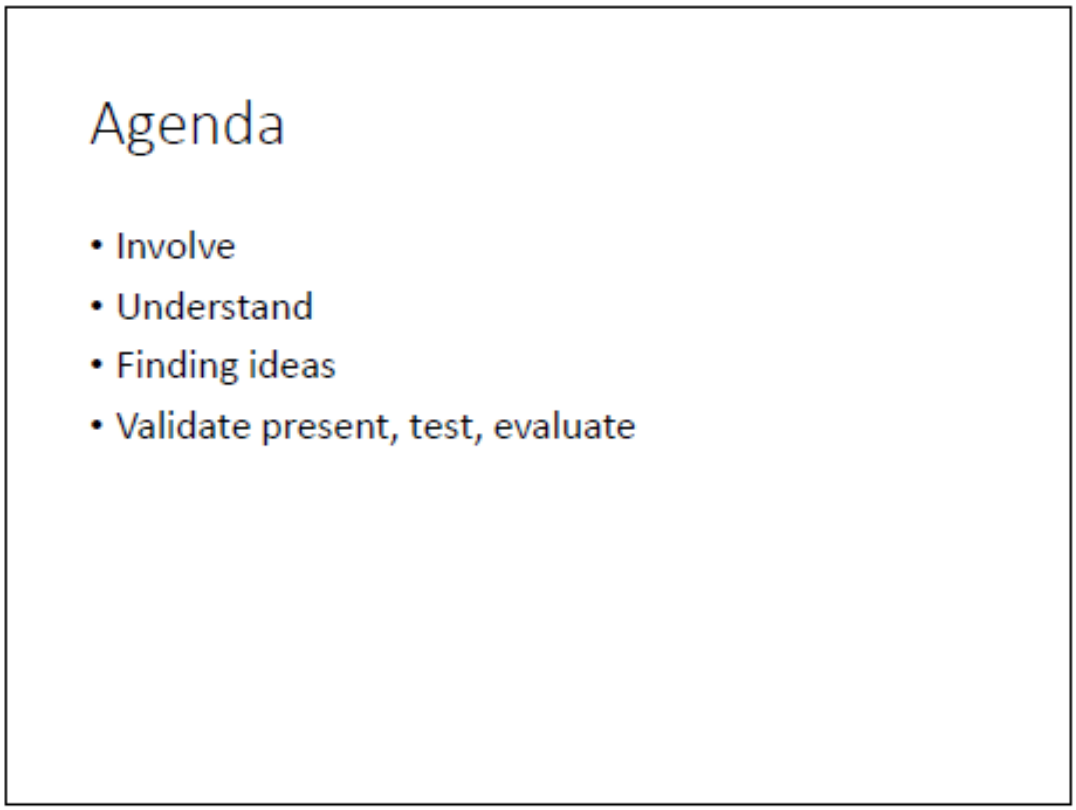
- Denisa Draganovská, Martin Kaltenbrunner, Barbara Predan, Aiur Retegi, Brigitte Sauvage, Gisa Schosswohl und Enrique Tomás. Kollektive Kreativität. So erlernt man Co-Creation (http://www.cocreate.training/wp-content/uploads/2019/03/co-design_essentials_GER.pdf).

8.3 Methodology - Four most important steps of co-creation



- Co-Creation is a process that can be structured in various ways aiming at the interaction of its participants.
- In any way, such a process of co-creation in divided into 4 steps.

Involve

- Learn from one another and define challenges.
- Become an expert on the challenge at hand.
- To do this, as much information as possible about the status quo, involved stakeholders and their relationships to one another must be collected.
- After this phase, the participants in your co-creation process will have a better understanding of the challenges and a higher degree of sensitivity for possible difficulties.

Understand

- Concentrate on the needs of the users in order to gain important insights for all stakeholders.
- Discuss and incorporate the other personal points of view to clearly define needs and goals.
- These form the starting point for the development of solutions.
- At the beginning, break the ice between the participants so that they can communicate more easily with one another and get involved.
- Then organize activities that help the participants understand what a good solution "for everyone" could look like.

Finding ideas

- Use co-creation to create concepts and prototypes.
- In short, this is about using active Involvement of all participants to collect ideas and arrange them according to groups and priority.
- If necessary, a consensus should be found to define criteria and to exclude those groups of ideas that do not meet the needs.
- From the remaining ideas, the participants choose the most suitable and best ones.
- Create storyboards and quick prototypes for the best ideas.

Validate present, test, evaluate

- Test the prototypes in a small group of Stakeholder other, then from everyone involved to get as many opinions as possible. Does your solution reflect the real needs of the stakeholders?
- Make it easy for participants to provide feedback. Questionnaires could influence opinions. But often open feedback rounds are not honest enough.
- Find the appropriate communication medium for feedback - Validate your ideas based on the feedback you received and rate the co-creation cycle.
- If necessary, repeat this process. After implementation, follow the results of the generated product, system or service and evaluate the entire process.

Literature

- Adrian Sneeuw, Aiur Retegi, Barbara Predan, Barbora Spisakova, Enrique Tomas, Georg Tremetzberger, Gisa Schosswohl, Joan Knudsen, Martin Kaltenbrunner, Nora Busturia. Co-design. Best practice report. (http://www.cocreate.training/wp-content/uploads/2017/07/co-design_best-practice-report.pdf)
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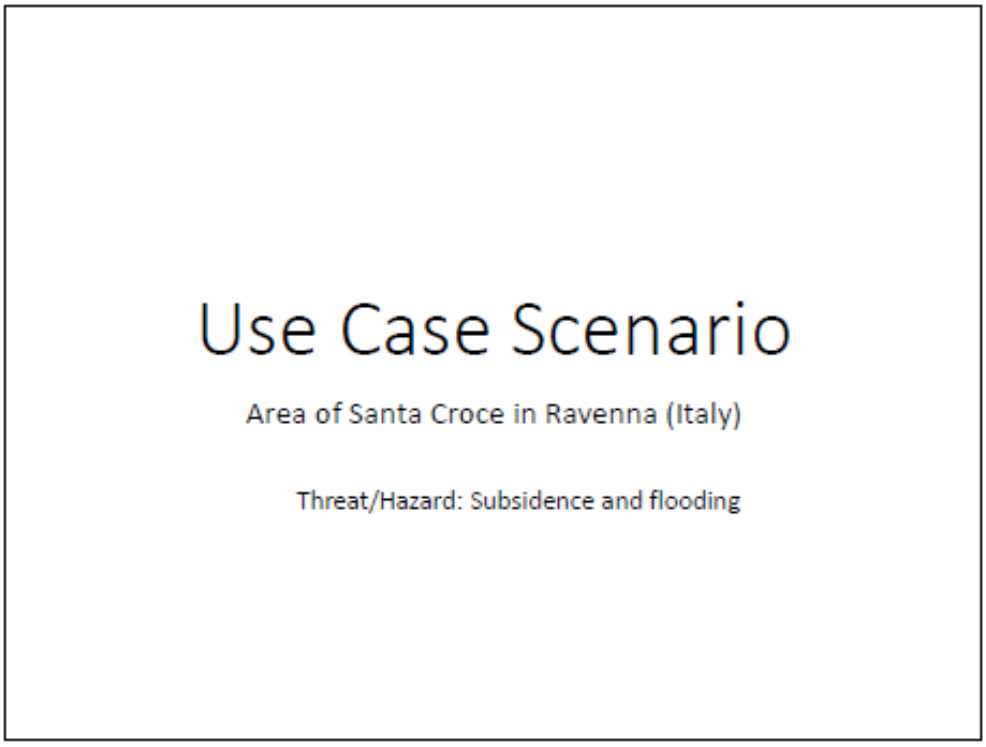
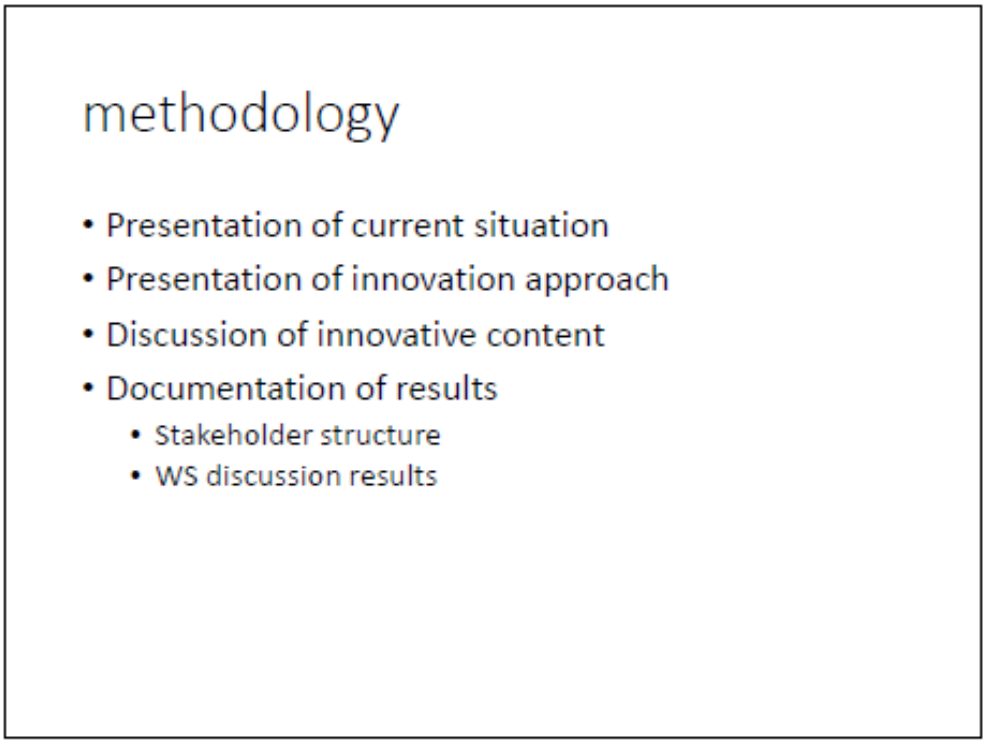
- Denisa Draganovská, Martin Kaltenbrunner, Barbara Predan, Aiur Retegi, Brigitte Sauvage, Gisa Schosswohl und Enrique Tomás. Kollektive Kreativität. So erlernt man Co-Creation (http://www.cocreate.training/wp-content/uploads/2019/03/co-design_essentials_GER.pdf).

8.4 General Questionnaire template

Question	Description	YES/NO	If "Yes" please short description	additional comments for the HA if necessary	additional comments for improvements based on your expertise
Are public awareness programms executed? (Yearly frequency of execution of programs: once, sometimes, regular)	Planning for risk reduction should aim to develop a "safety culture" in which people are aware of the hazards they face, assume a responsibility to protect themselves as fully as they can, and continuously support public and institutional efforts made to protect their community. To this end public education and awareness programs play an important role. They can be raised in a number of ways, from short-term, highprofile campaigns using broadcasts, literature and posters, to more longterm, low-profile campaigns that are carried out through general education. Education should attempt to familiarize and de-sensationalize hazards. Everyone who lives in a hazard-prone area should understand the potential for hazards as a manageable fact of life.				
Is regular (at lest yearly) emergency response training and drills at multiple levels ongoing?	Community involvement in mitigation planning processes can include public meetings and consultations, public inquiries and full discussion of decisions in the normal political forum. Further awareness can develop through regular practice drills, practice emergencies and anniversary remembrances. In hospitals, schools and large buildings, it is necessary to rehearse what the occupants should do in the event of fire, earthquake or other hazard. In schools, children may practice earthquake drills. This reinforces awareness and develops automatic behavioral responses. At police, fire brigades and other emergency response units drills for possible disaster events should be part of regular training activities; also communication and collaboration practices between these units in cases of big events are necessary.				
Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response? (Meeting frequency: only during emergency, once in a year, at least quarterly)	Risk management or emergency committees are the backbone of any disaster risk management activity. Emergency risk management requires the formation and management of a committee or consultative group.				
Do local institutions (administration, police, fire brigade, hospitals, building sector, etc) receive training on joint risk management? (Frequency of training: once per year, every two years, other)	Combined training supports DRM. Processes and responsibilities are defined and tested. Communication plans are acutal.				
Is the private sector represented as member in the Management/emergency committee? (businesses, civil society, NGOs, etc.)	The integration of all available organisations and expertises helps to reduce vulnerability and in all phases of DRM.				

8.5 Area of Santa Croce in Ravenna: co-creation WS scenario

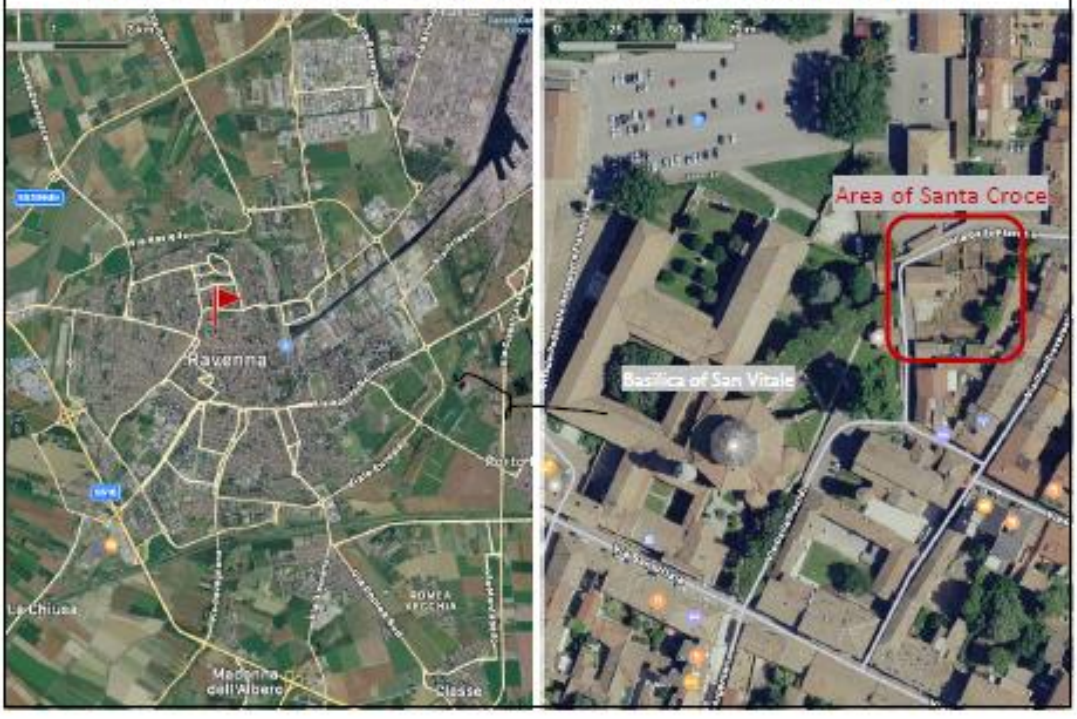


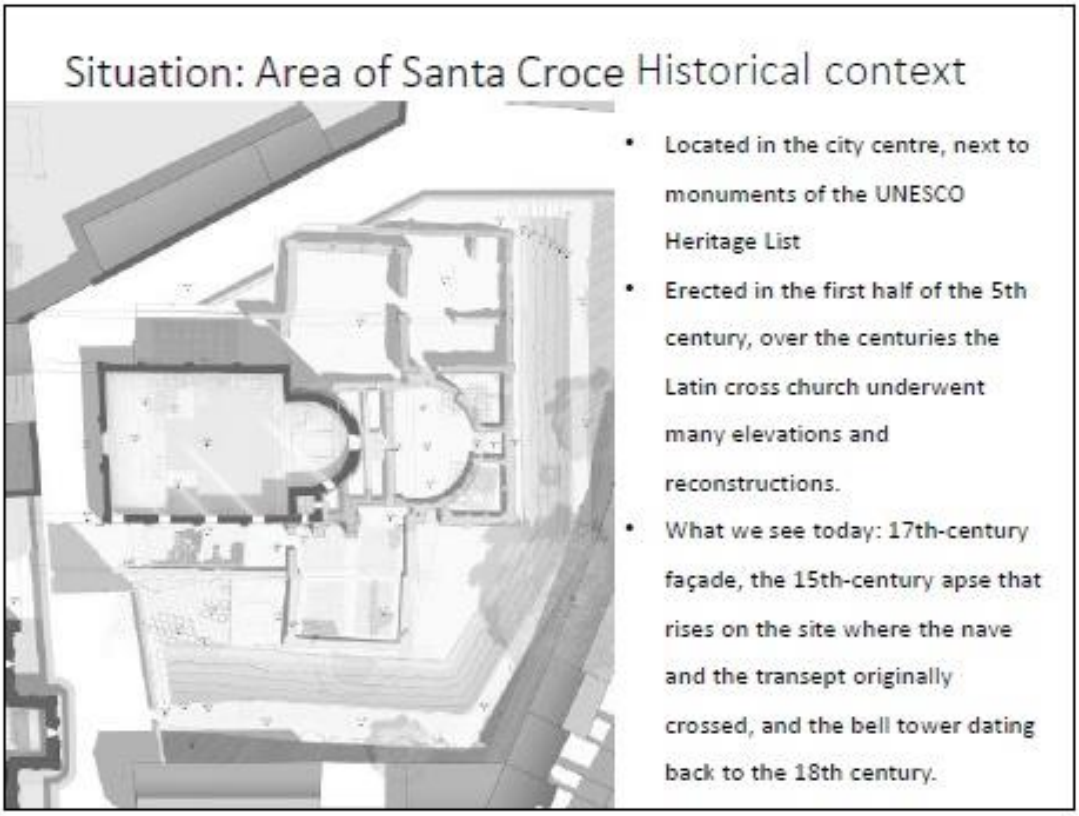


Situation

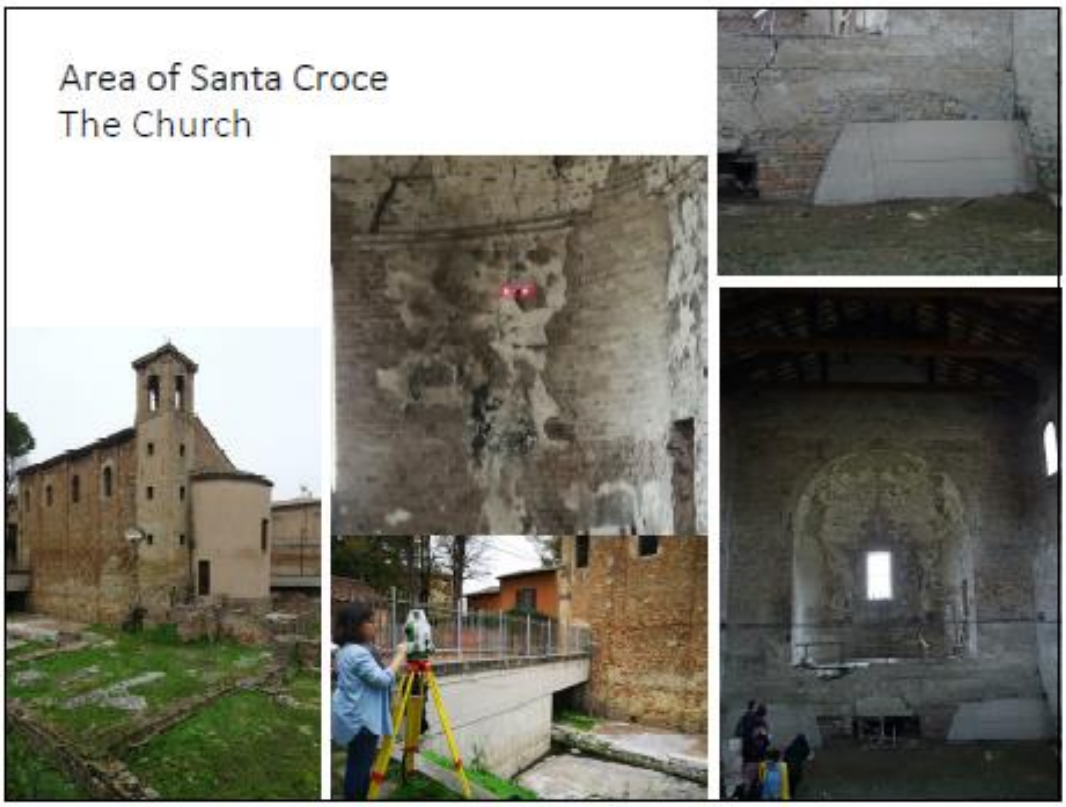
The Church of Santa Croce (5th century) and the surrounding archaeological site are situated in the city centre of Ravenna, inscribed as UNESCO cultural property in 1996. The archaeological site, characterised by the presence of floor mosaics is exposed to outdoor climatic threats and the whole area suffers from the subsidence phenomena (level 1 to 1.5 m. below the original one), characteristic of the entire subsoil of the city. This, together with the basin conformation, favours a constant presence of water and damp, currently avoided by an obsolete and ineffective pumping system. Increase in floods frequency and the continuous exposure to environmental factors, such as the increase in precipitation patterns and marine ingression, can weaken the material, increasing the risk of loss in case of extreme weather events. It is also in an earthquake prone area.

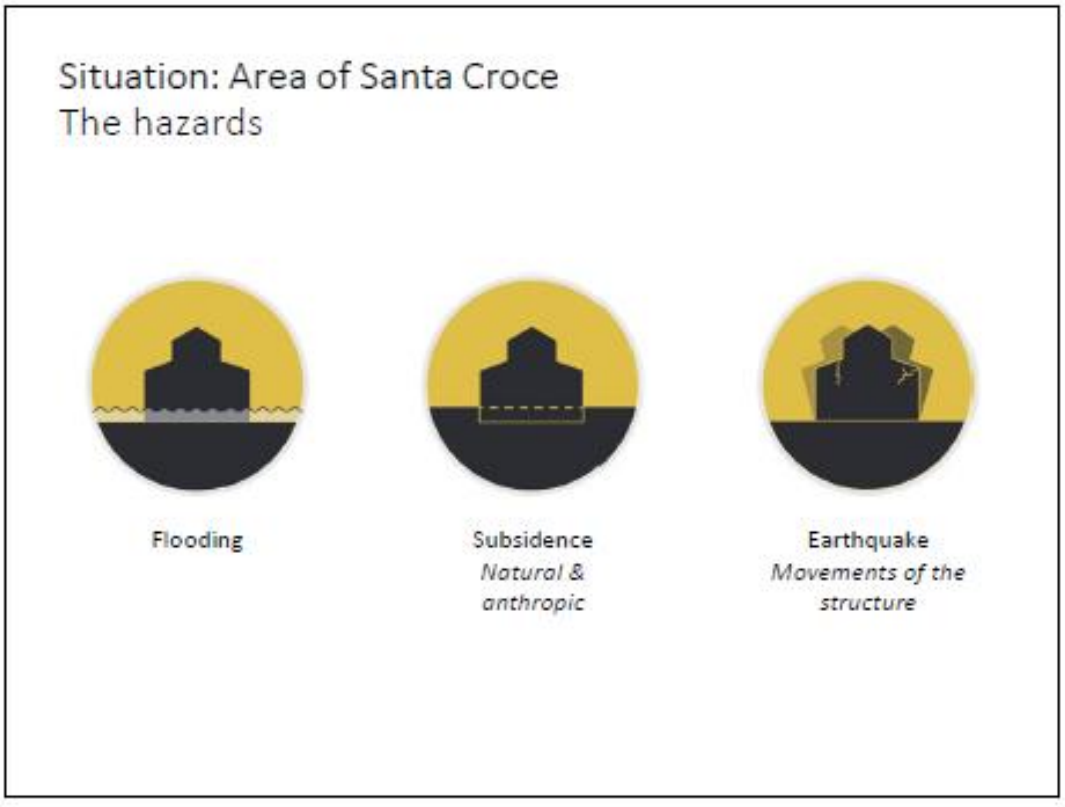
Situation: Area of Santa Croce territorial context



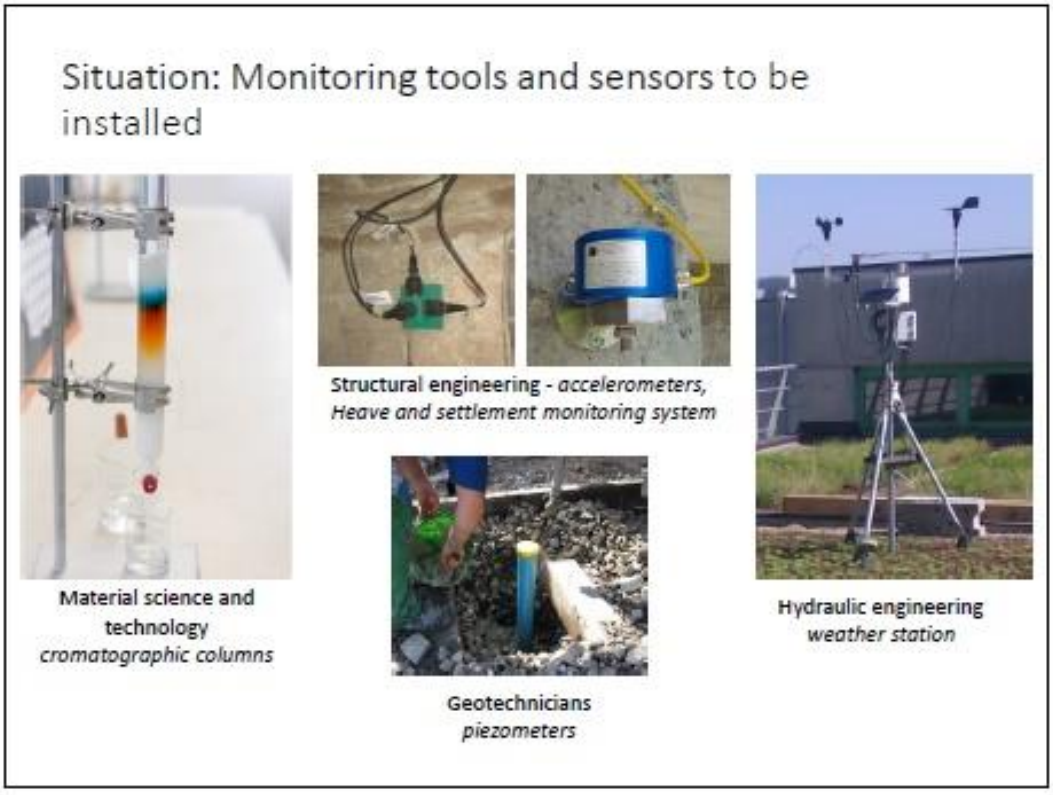

Situation: Area of Santa Croce Historical context
Located in the city centre, next to monuments of the UNESCO Heritage List
Erected in the first half of the 5th century, over the centuries the Latin cross church underwent many elevations and reconstructions.
What we see today: 17th-century façade, the 15th-century apse that rises on the site where the nave and the transept originally crossed, and the bell tower dating back to the 18th century.


Situation: Area of Santa Croce
The archaeological area


Area of Santa Croce
The Church


Situation: Area of Santa Croce
The hazards
Flooding
Subsidence
Natural &
anthropic
Earthquake
Movements of the
structure


Situation: The flooding event of August 2019


Situation: Monitoring tools and sensors to be installed
Material science and technology
cromatographic columns
Structural engineering - accelerometers,
Heave and settlement monitoring system
Geotechnicians
piezometers
Hydraulic engineering
weather station

Innovation approach

An urban Open Lab to test innovative system of **water pumps powered by solar energy** and complemented by a **preventive alarm system** based on a network of sensors, which will mitigate flooding and subsidence events. Furthermore, **consolidation techniques** will be tested in relation to seismic activity in the area. It will provide different engagement activities such as: i) Master Class for students regarding diagnostic and restoration activities; ii) guided involvement of citizens of diagnostic and restoration campaigns to develop the Open Lab as an archaeological plus scientific touristic attraction. An international open call for suppliers will be launched as opportunity for showcase their technological solutions.

Aim of workshop - proposal

Co-creation of specifications for the solution through the involvement of citizens and master students. International open call for suppliers.

Aim of workshop

The Aim of the co-creation workshop is to identify technological solutions for the current situation especially for:

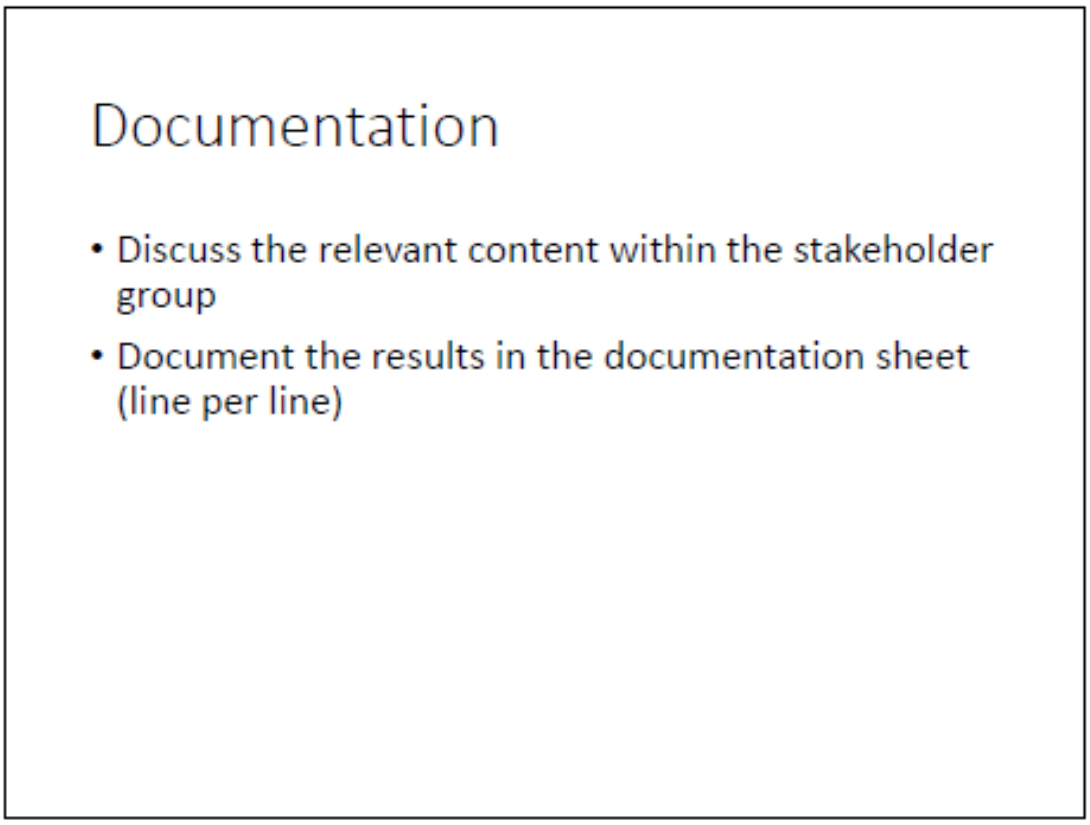
- Water pumps powered by solar energy
- Preventive alarm system (sensor network)
- Consolidation techniques

Discuss the following topics following the identified technological solutions of the three aims of the workshop:

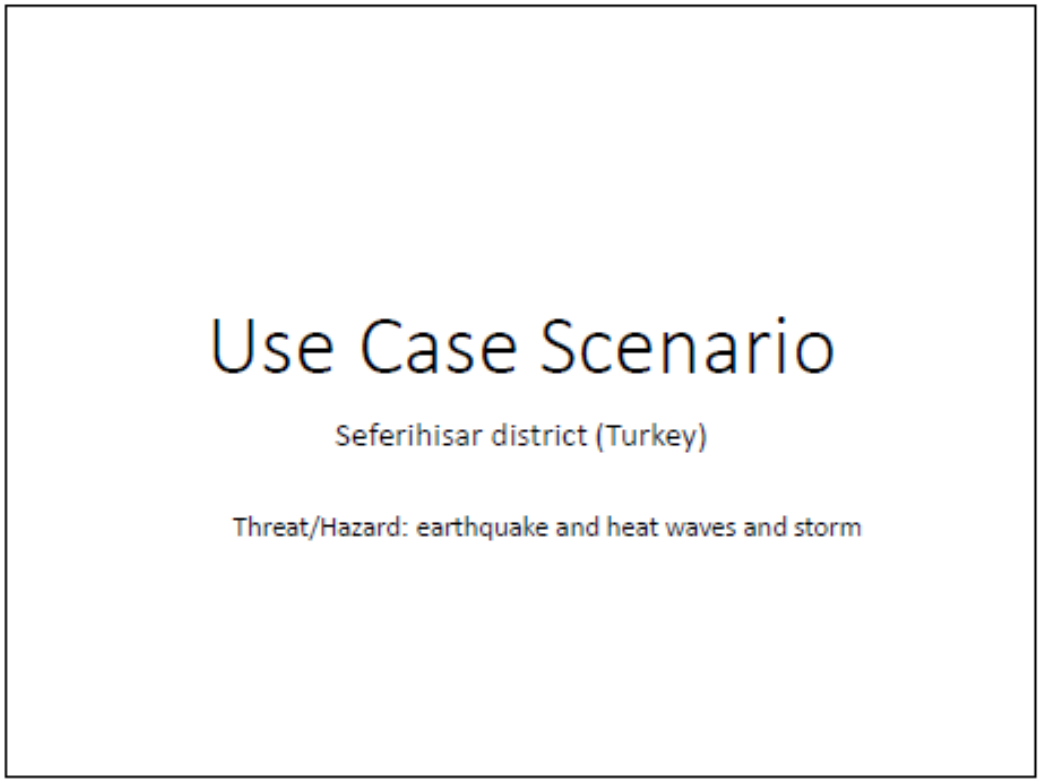
- How can the solution improve the current situation?
- How should the design look like?
- How should the implementation look like?
- What should be taken into account for the maintenance of the solution?

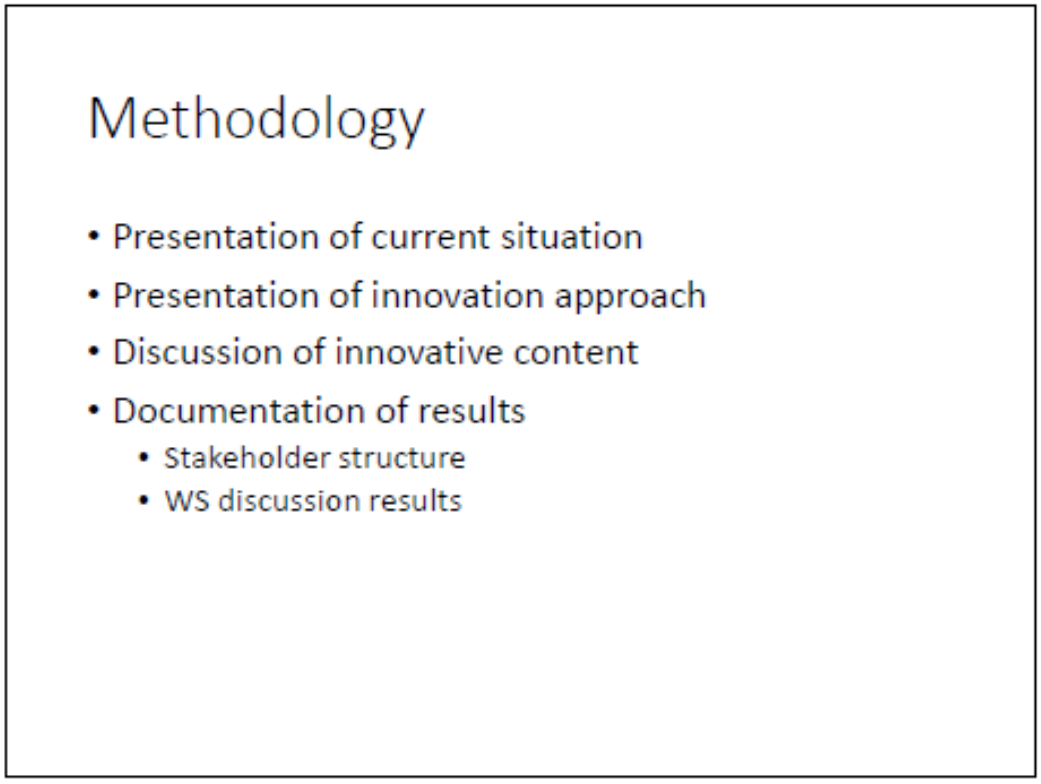
Stakeholder structure

- Ravenna Municipality
- Soprintendenza Archeologia Belle Arti e Paesaggio per le province di Ravenna Forlì-Cesena e Rimini
- the Diocese
- the Institute for CH of the Emilia-Romagan Region
- Regional Agency for the Environmental Protection in Emilia-Romagna Region
- National Istitute of Geophisics and Vulcanology
- Master students
- citizens


Documentation
• Discuss the relevant content within the stakeholder group
• Document the results in the documentation sheet (line per line)

8.6 Seferihisar district: co-creation WS scenario





Situation

Located in Izmir province, the municipality is characterised by rural areas and a coastal town. The district is in Seismic Zone 1, being the fault line directly beneath it and the whole peninsula subject to extreme heat waves and storms, which affect the traditional means of agriculture and fishery. Since the year 2003, earthquakes of 5.6 and 5.9 magnitude have happened on the fault line directly under Seferihisar, causing severe damage and in the summer of 2017, an earthquake of 6.3 magnitude affected the İzmir province and extreme precipitation has been subject to an emergency plan in 2013. The port town of Sığacık is characterised by fortress walls which are in deteriorating condition, vulnerable to earthquakes along with the protected historical building stock. Furthermore, the community is also vulnerable to both earthquakes and extreme climate events that affect their livelihoods.

Innovation approach

Local businesses and practitioners of construction and restoration sectors will be involved, altogether with the academia, in a co-creation process searching for **innovative adobe techniques and mixtures architecture for adaptation of vernacular earthen constructions to earthquakes and heat waves**. Structural (extension meters, strain gauges, accelerometers), geotechnical (piezometers, geophones) and climatic (temperature, humidity, rainfall) monitoring will assess the impact on the structures of earthquakes events. SHELTER will especially target a roadmap for increasing structural safety and reconstruction techniques for the fortress and the historic building stock, increasing community measures for disaster preparedness.

Aim of workshop - proposal

Co-creation of solutions based on traditional skills through the involvement of local research, academia and local business.

Aim of workshop

The aim of the co-creation workshop is to identify vernacular coadaptation solutions for the current situation especially for adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock.

Discuss the following topics following the identified solutions of the two aims of the workshop:

- How can the solution improve the current situation?
- How should the design look like?
- How should the implementation look like?
- What should be taken into account for the maintenance of the solution?

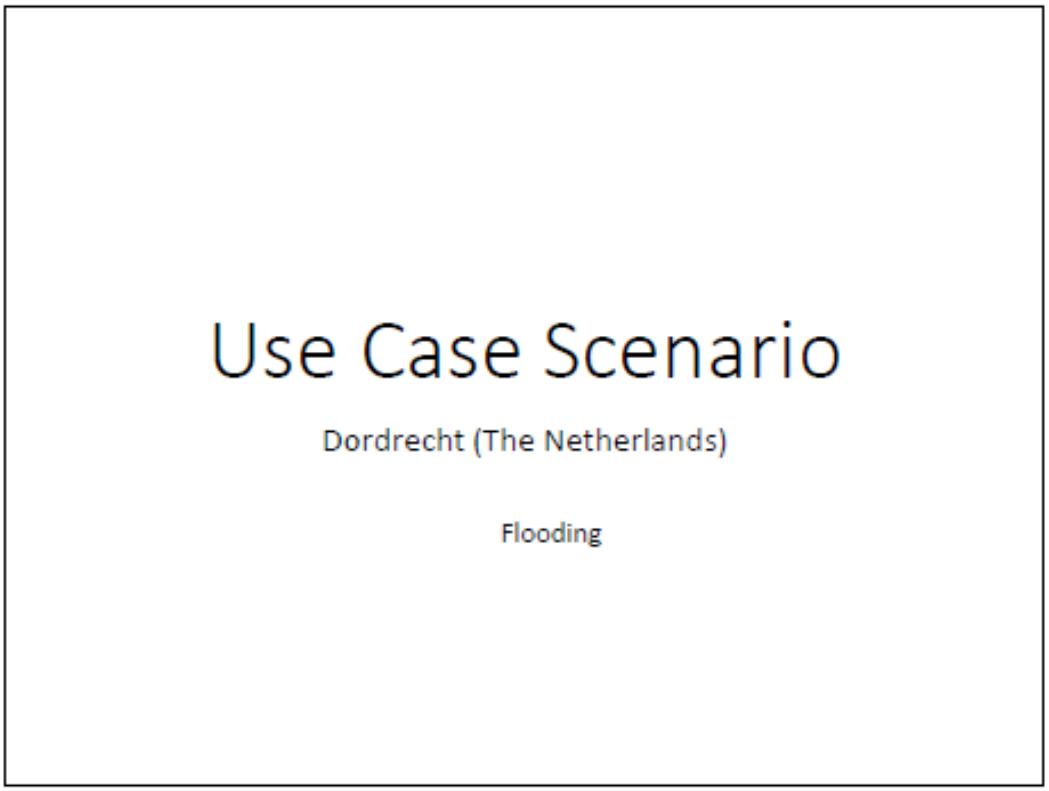
Stakeholder structure

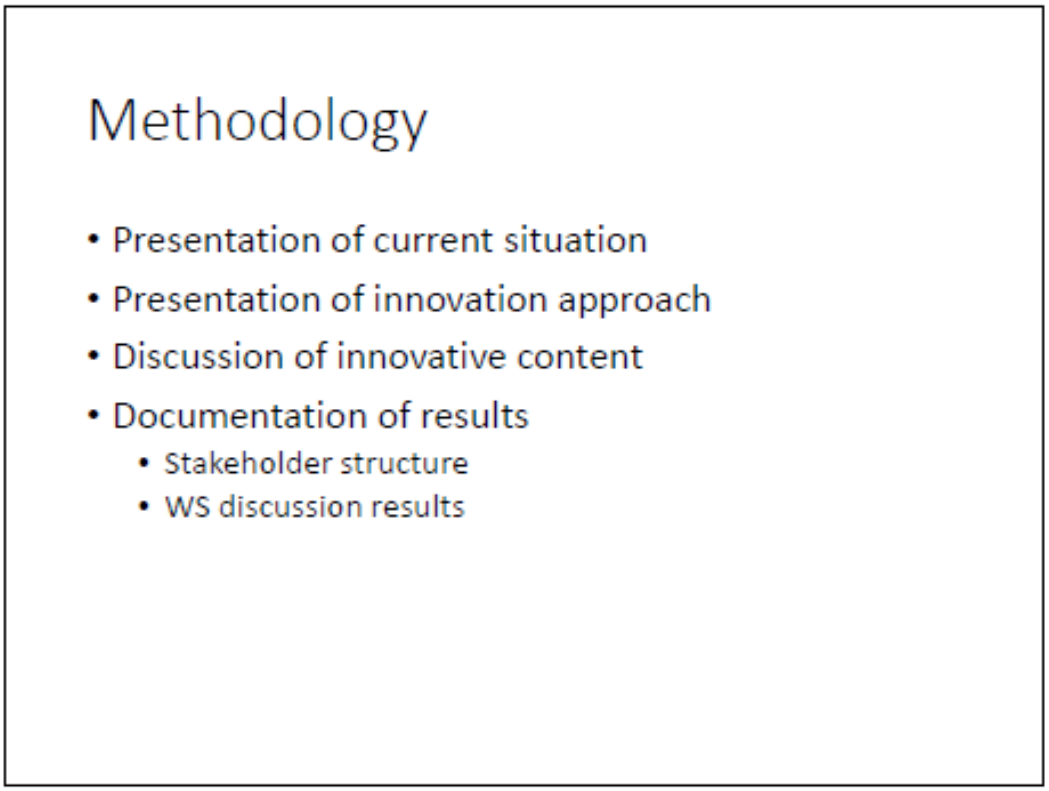
- Citizens
- Municipality
- Board of Conservation
- Izmir Development Agency
- NGO´s
- Local academia

Documentation

- Discuss the relevant content within the stakeholder group
- Document the results in the documentation sheet (line per line)

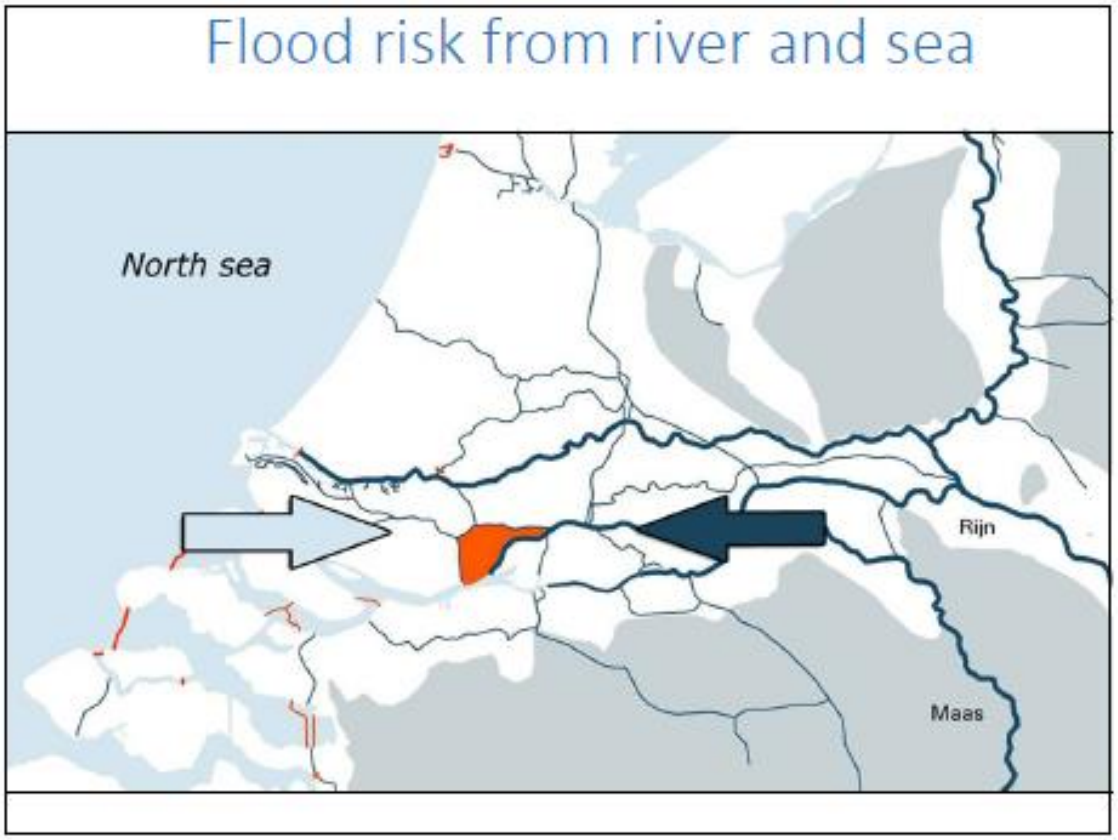
8.7 Dordrecht: co-creation WS scenario

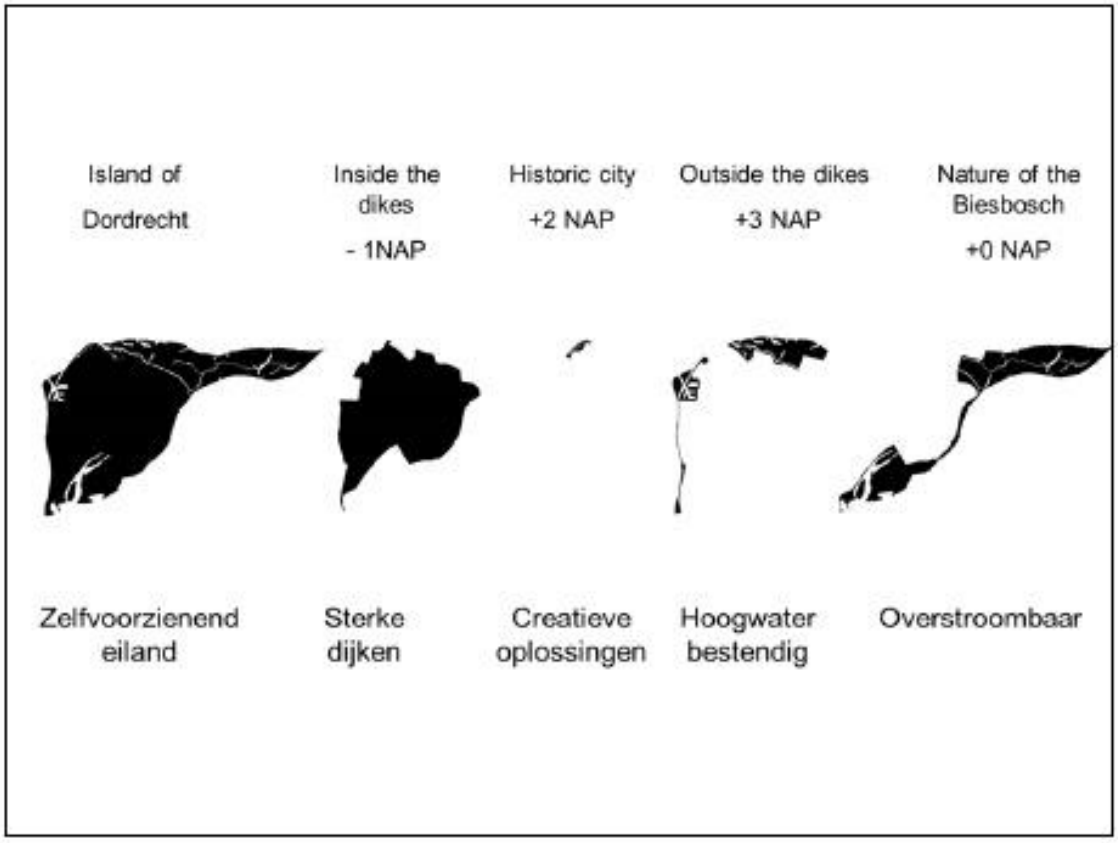




Situation:

Located in the Rhine-Meuse delta, the Island of Dordrecht is characterised by the long stretches outside the dikes, which includes the historic port area, which is part of the historic city centre and includes almost 800 listed buildings. Water levels are influenced by both the sea and the rivers and, due to climate change, they will be higher in the future. Consequently, the HA will be periodically flooded as it is located on the lowest-lying area, as well as the rest of the areas located outside the dikes. As flood risks are increasing, and major adaptation of the buildings is potentially costly or socially unacceptable, Dordrecht considers the future realisation of a new flood defence to protect the old harbour area. Despite having a deeper participation culture than the other SHELTER case studies, there are still challenges related to the impact of the institutional strategy on DRM, as well as finding proper arrangements for distributing responsibilities, decision-making procedures and financing mechanisms by the involved stakeholders.: SHELTER will build upon existing practices in the city and will facilitate the design and implementation of measures to support the flood risk management and participation of citizens and key stakeholders.


Flood risk from river and sea
North sea
Rijn
Maas


Island of Dordrecht
Inside the dikes
- 1NAP
Historic city
+2 NAP
Outside the dikes
+3 NAP
Nature of the Biesbosch
+0 NAP
Zelfvoorzienend eiland
Sterke dijken
Creatieve oplossingen
Hoogwater bestendig
Overstroombaar


onument
pand
Oude Maas
Oude Maas
Marsdiep
Wolwevershaven
Kuipershaven
Buiten Walevest
Binnen Walevest
Boomstraat
Stek
Kalkhaven
Boogjes
Bagijnhof
kunnen geen rechten worden ontleend
Schaal 1:6000
0 100 200 300m

Challenge for the SHELTER project

RISKS

- Almost all monuments are privately owned.
- Old city centre is at risk.
- Knowledge and information is available, but network, action plans and knowledge sharing is lacking.

CHALLENGE FOR INNOVATION

How to work with varied owners to protect the monuments and overal city centre.

Innovation approach

The municipality will involve the community in DRM, aligning SHELTER activities with their already existing Living Lab on climate adaptation. With this purpose, the Open Lab will co-create the **specifications of SHELTER IMMERSITE®** adapt to Dordrecht case and reinforce the **gender perspective and the involvement of citizens** (especially vulnerable groups as immigrants, people with disability, children and elderly), complementing the *Ruimtelijke Adaptatie* (Spatial Adaptation Stimulation Program) already in place. IMMERSITE® tool, designed to reinforce citizens' involvement and education in urban planning tasks, including 3D technologies and virtual visits, facilitating the dialogue with Dordrecht's community regarding city planning and the adaptation of its CH. Some climatic monitoring in the neighbourhood of CH monuments will supplement the already largely available data on flooding in the Dordrecht case study.

Aim of workshop

Co-creation and co-development of tailored citizen engagement tool (SHELTER) and identification of a policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.

Aim of workshop

The Aim of the co-creation workshop is to identify ICT solutions for the current situation especially for IMMERSITE solution reinfored by gender perspective and citizen involvement and to identify solutions for a policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.

• Discuss the following topics following the identified solutions of the two aims of the workshop:

- How can the solution improve the current situation?
- How should the design look like?
- How should the implementation look like?
- What should be taken into account for the maintenance of the solution?

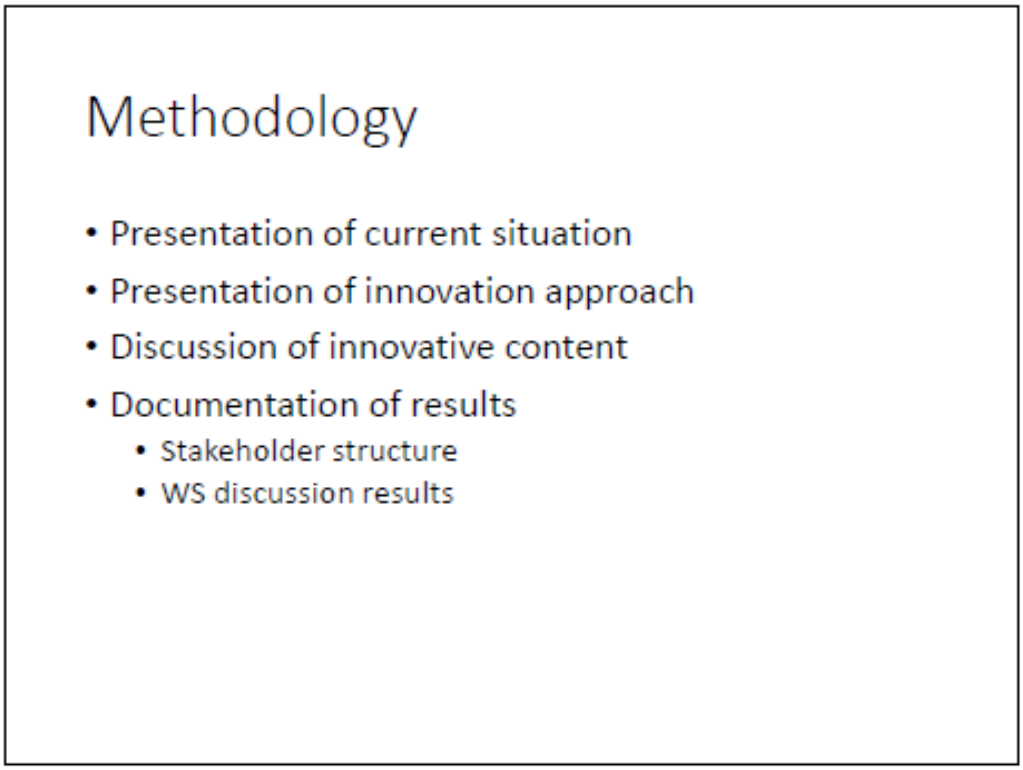
Stakeholder structure

- Municipality
- Local community

Documentation

- Discuss the relevant content within the stakeholder group
- Document the results in the documentation sheet (line per line)

8.8 Baixa Limia-Serra Do Xures Natural Park in Galicia: co-creation WS scenario



Situation:

The Natural Park has an area of about 30.000 ha and, together with the Peneda-Gerês National Park, it forms the nucleus of the Gerês-Xurés Transfrontier Biosphere Reserve of 267,958 ha. It is in a zone of transition between the Mediterranean and Atlantic climates, with an abrupt relief that causes great contrasts between the high and low parts. It includes an important set of natural habitats and species of significance for the conservation of the existing biodiversity and presents one of the largest concentrations of tumuli or mámoas. During the romanization, the construction of the Via Nova led to the erection of civil buildings such as the military camp Aquis Querquennis, the thermal installation of Aquis Originis, the Visigothic church of Santa Comba de Bande and the village of Cela in Lobios. This territory is subject to significant pressure due to the incidence of forest fires that take place. SHELTER will particularly focus on providing tools to increase resilience of both its natural and historic built environment by fostering local communities' participation. Specifically, two tools will be developed; one to hinder the progress of large fires (prevention) and another focused-on restoration after the fire (recovery).

Innovation approach

Galicia's administrations at different levels (regional and local) and as far as possible the academia, local research and local businesses will be involved in a co-creation process for designing **Nature-based solutions** (NBS) against wildfires' risk including all prevention, preparedness, response and recovery phases, involving land owners for testing and validation. **NBS will be co-created as an effective prevention and restoration tool in DRM**, here specifically oriented towards wildfire threats: humidity of thalwegs by hardwood species as limiters of fire, identification of species in soil restoration, community engagement in silviculture tasks, as some examples. Thermos-cameras and soil humidity sensors will provide early warning signals in case of fire, give indications on critical situations (periods of draught) and monitor post-event restorations.

Aim of workshop - proposal

Co-creation of NBS through the involvement of local research, academia and local business.

Aim of workshop

The aim of the co-creation workshop is to identify nature-based solutions for the current situation against wildfire risks.

Discuss the following topics following the identified solutions of the two aims of the workshop:

- How can the solution improve the current situation?
- How should the design look like?
- How should the implementation look like?
- What should be taken into account for the maintenance of the solution?

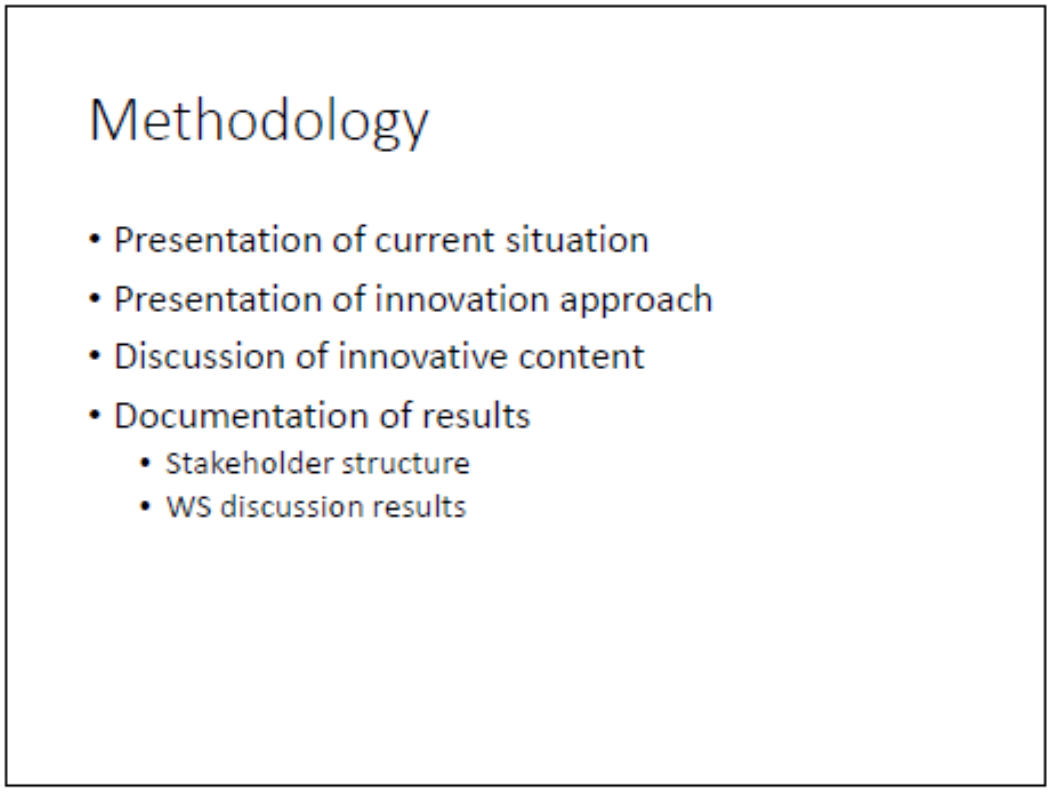
Stakeholder structure

- Regional Ministry of Environment and Territorial Planning of Galicia
- Galician Emergency Agency
- Local municipalities
- University
- Land owners

Documentation

- Discuss the relevant content within the stakeholder group
- Document the results in the documentation sheet (line per line)

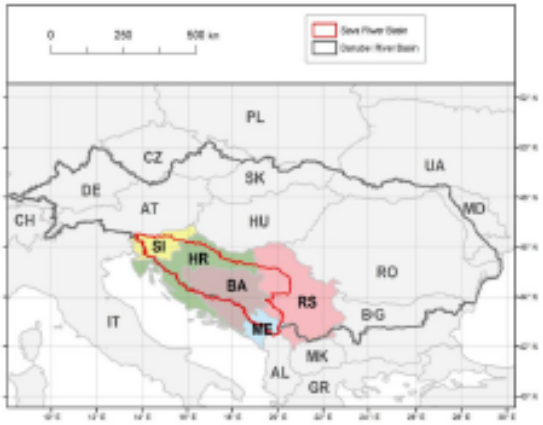
8.9 Sava River Basin: co-creation WS scenario



Situation

The Sava River Basin is a major catchment of the South-Eastern Europe covering the total area of approximately 97,700 km2. The Framework Agreement on the Sava River Basin (FASRB) is the basis for transboundary cooperation for sustainable development of the region and its implementation is coordinated by the International Sava River Basin Commission (ISRBC). The joint Flood Risk Management Plan (FRMP) is currently in the first cycle of planning and has the aim of decrease of harmful consequences of floods on cultural-historical and religious heritage, among all other flood receptors, including the following UNESCO designated sites: Mehmed Paša Sokolović Bridge in Višegrad (Bosnia and Herzegovina), Plitvice Lakes National Park (Croatia), Stećci Medieval Tombstones Graveyards in Žabljak-Plužine (Montenegro) and in Perućac-Rastište-Hrta (Serbia), as well as Prehistoric pile dwellings around the Alps in Ig (Slovenia).

Situation:

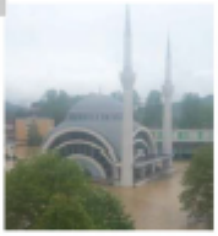


Country	Share of the basin (%)	Share of the territory (%)
Albania	0.2	0.6
Bosnia & Herzegovina	39.2	75.8
Croatia	26.0	45.2
Montenegro	7.1	49.6
Serbia	15.5	17.4
Slovenia	12.0	52.8

Situation:

Country	Affected	Evacuated	Casualties	Damage/losses (mil EUR)	Cause
Serbia	1.6 million	32 000	51	Damage: 860 Losses: 992 Total: 1852	Torrents, landslides, dike breach
Bosnia and Herzegovina	1 million	90 000	25	Damage: 1171 Losses: 703 Total: 2837	Torrents, landslides, dike breach
Croatia	38 000	15 000	3	Total: 300	Dike breach








Hazards = ***Floods***

- Since 2000 more than 10 floods with the basin wide impacts
- Figures on the May 2014 flood event:

Heritage = UNESCO's sites
national monuments
cultural/historical monuments
religious facilities
vernacular architecture
cemetery&graveyards
...

Appropriate **governance tools against transboundary flooding events** are crucial to gain a positive impact to enhance governance settings and capacity in DRM within the Shelter goal:
Cultural Heritage within Areas of mutual interest for flood protection

Innovation approach

All the key stakeholders will develop **governance tools** to test how cooperation among regions and institutions can bring effective solutions against **flooding events in trans-boundary river catchments** which do not fit the boundaries of individual states. SHELTER will help to collect data on CH within the flood hazard areas from the relevant national institutions within the Sava River basin to integrate CH in DRM policies and to develop a comprehensive regional methodology which also include post disaster needs assessment for CH. Most vulnerable sites to floods and climatic changes located in the Areas of the Mutual Interest for flood protection (AMIS), in accordance with the Protocol on flood protection to the Framework Agreement, will be duly analysed as a case study of the project.

Aim of workshop - proposal

Co-creation of collaborative governance schemes.

Aim of workshop

The Aim of the co-creation workshop is to identify multilevel governance solutions for the current situation especially against transboundary flooding events.

Discuss the following topics following the identified solutions of the two aims of the workshop:

- How can the solution improve the current situation?
- How should the design look like?
- How should the implementation look like?
- What should be taken into account for the maintenance of the solution?

Stakeholder structure

- representatives of responsible national and local authorities of the countries
- representatives of managing bodies of CH sites
- representatives of relevant flood planning and emergency management services
- representatives of relevant civil protection agencies
- Recognised professional volunteers group (local and central level)
- Representatives of the national Countries/Cities
- Representatives of DRM established platforms
- Sava Commission´s Permanent Expert Group for Flood Prevention
- Permanent Expert Group for GIS

Documentation

- Discuss the relevant content within the stakeholder group
- Document the results in the documentation sheet (line per line)

8.10 Stakeholder information sheet template

Stakeholder information
Please support us with your specific informations.

Name	Organisation	Function	in Function since [a]	interested in Topic since [a]	expierienced in Topic since [a]	involved in DRM (yes/no)	member of civil society (yes/no)	business organisation (yes/no)	academian organisation (yes/no)	governmental organisation (yes/no)

8.11 Power point documentation slides for the Area of Santa Croce in Ravenna

WS Rounds / Summarize

RAVENNA

Round A (Group 1)– 20 mins

Identify technological solutions for water pumps powered by solar energy

How can the identified tools improve the current situation?

Round A (Group 2)– 20 mins

Identify technological solutions for preventive alarm system (sensor network)

How can the identified tools improve the current situation?

Round A (Group 3)– 20 mins

Identify specific consolidation techniques

How can the identified tools improve the current situation?

Round B – 10 mins

How should the design of the identified tools look like?

Round C – 15 mins

How should the implementation in the organization of the identified tools look like?

What should be taken into account for the maintenance of the tools?

Identify technological solutions for water pumps powered by solar energy

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

Identify technological solutions for preventive alarm system (sensor network)

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

Identify specific consolidation techniques

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

How can the identified tools improve the current situation?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the design of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

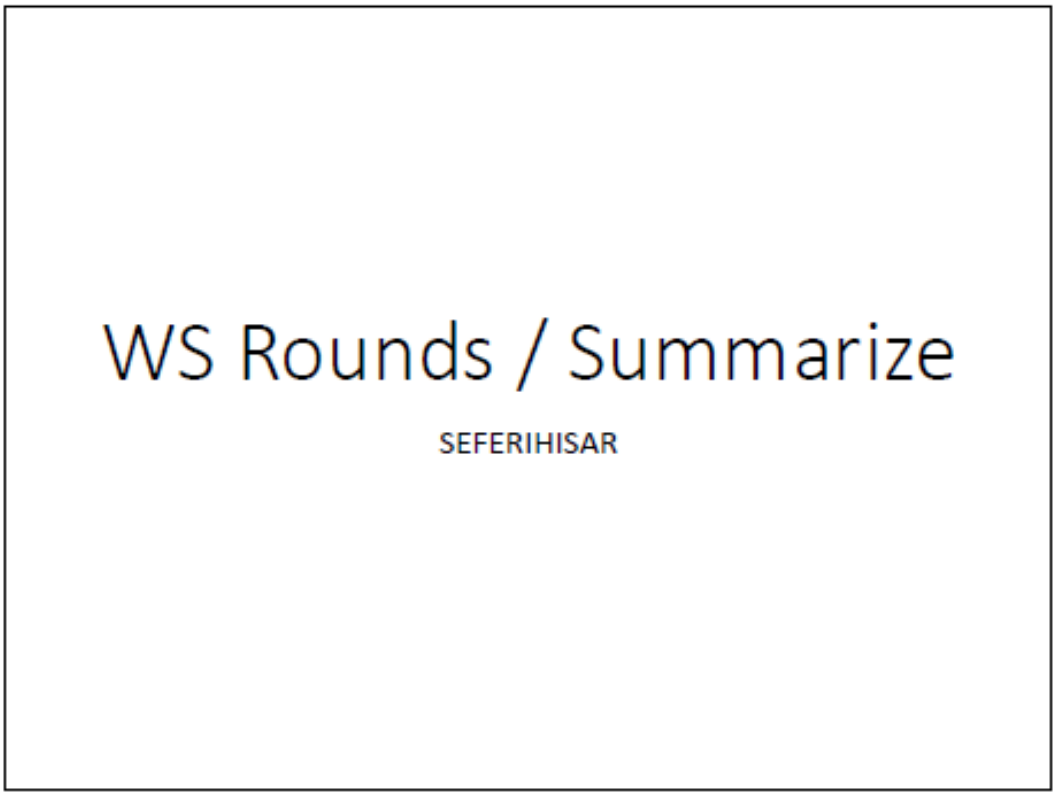
How should the implementation in the organization of the identified tools look like?

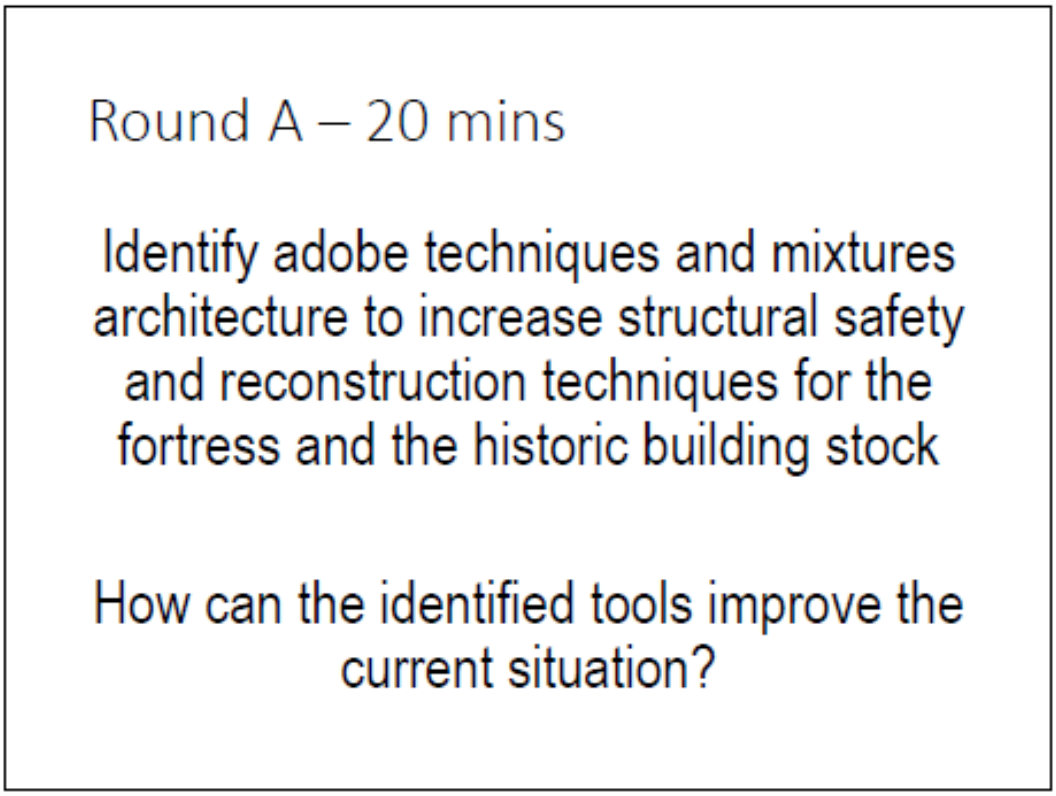
- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

What should be taken into account for the maintenance of the tools?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

8.12 Power point documentation slides for the Seferihisar district





Round B – 10 mins

How should the design of the identified tools look like?

Round C – 15 mins

How should the implementation in the organization of the identified tools look like?

What should be taken into account for the maintenance of the tools?

Identify adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

How can the identified tools improve the current situation?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the design of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

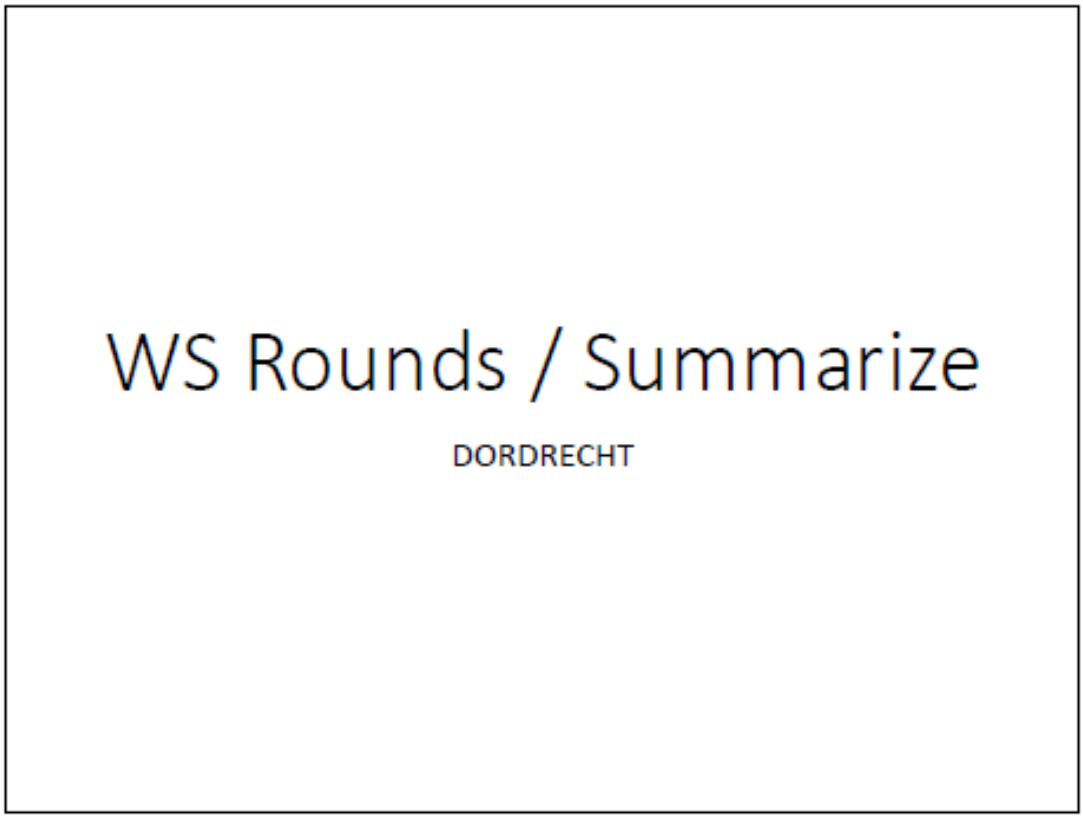
How should the implementation in the organization of the identified tools look like?

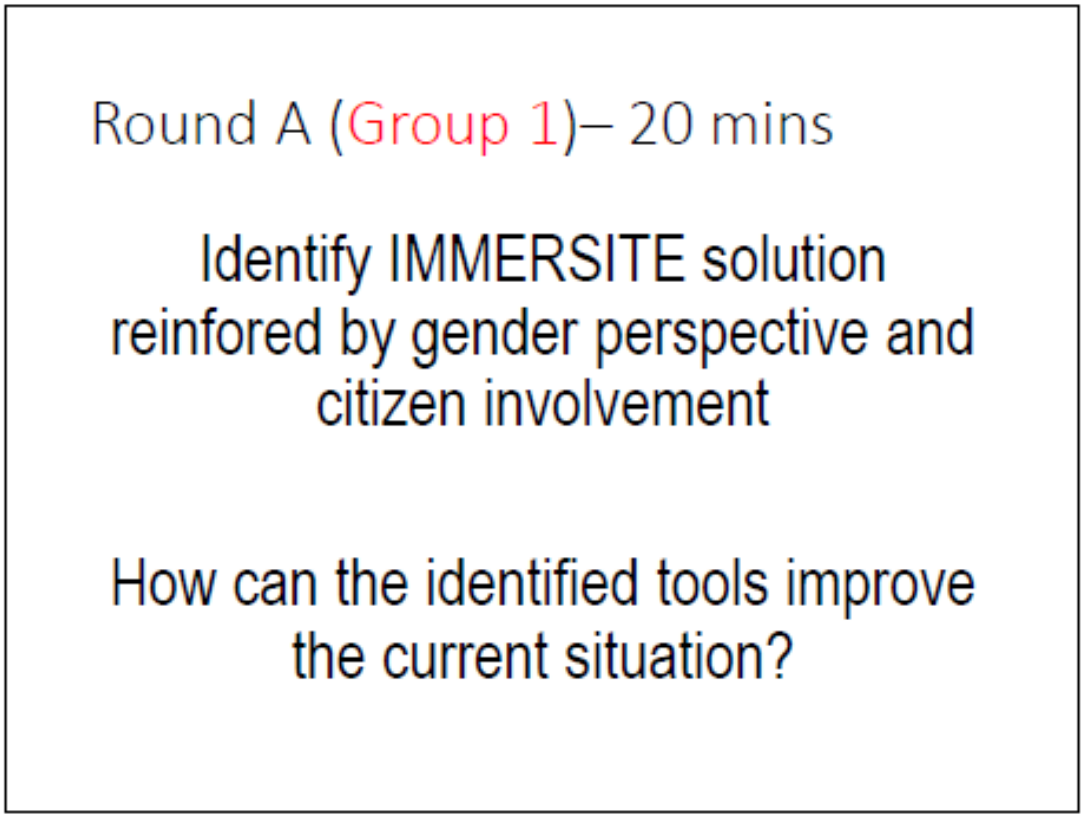
- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

What should be taken into account for the maintenance of the tools?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

8.13 Power point documentation slides for Dordrecht





Round A (Group 2)– 20 mins

Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.

How can the identified tools improve the current situation?

Round B – 10 mins

How should the design of the identified tools look like?

Round C – 15 mins

How should the implementation in the organization of the identified tools look like?

What should be taken into account for the maintenance of the tools?

Identify IMMERSITE solution reinfored by gender perspective and citizen involvement

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

How can the identified tools improve the current situation?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the design of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

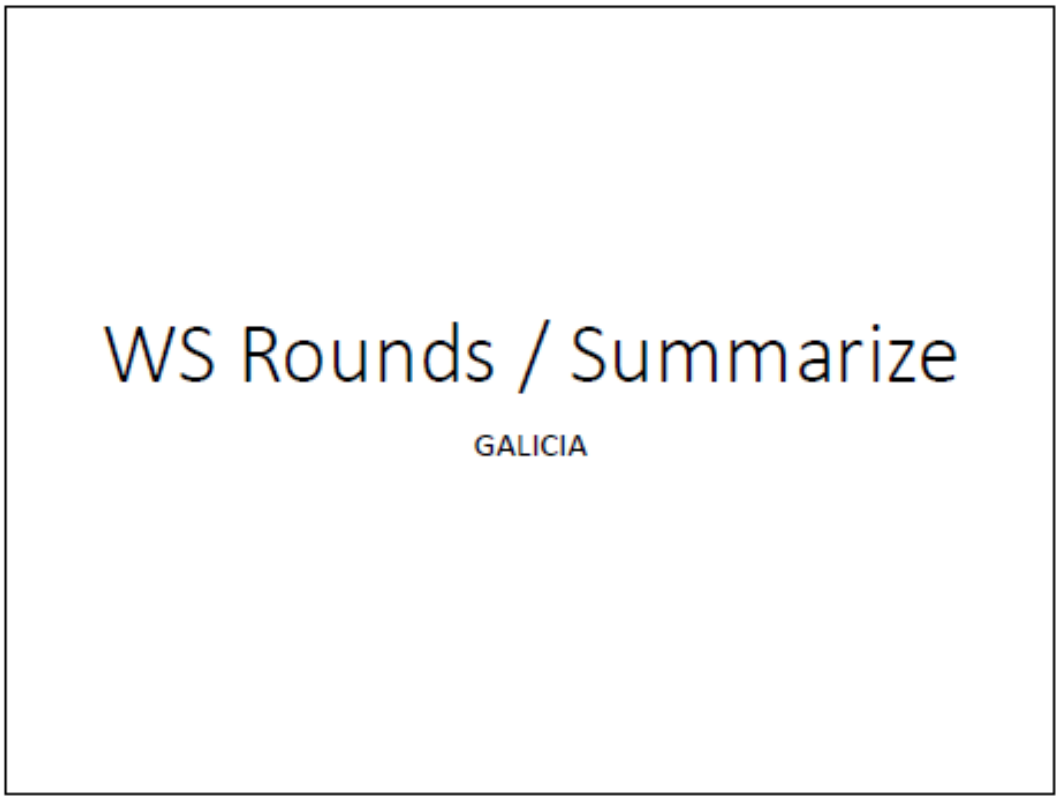
How should the implementation in the organization of the identified tools look like?

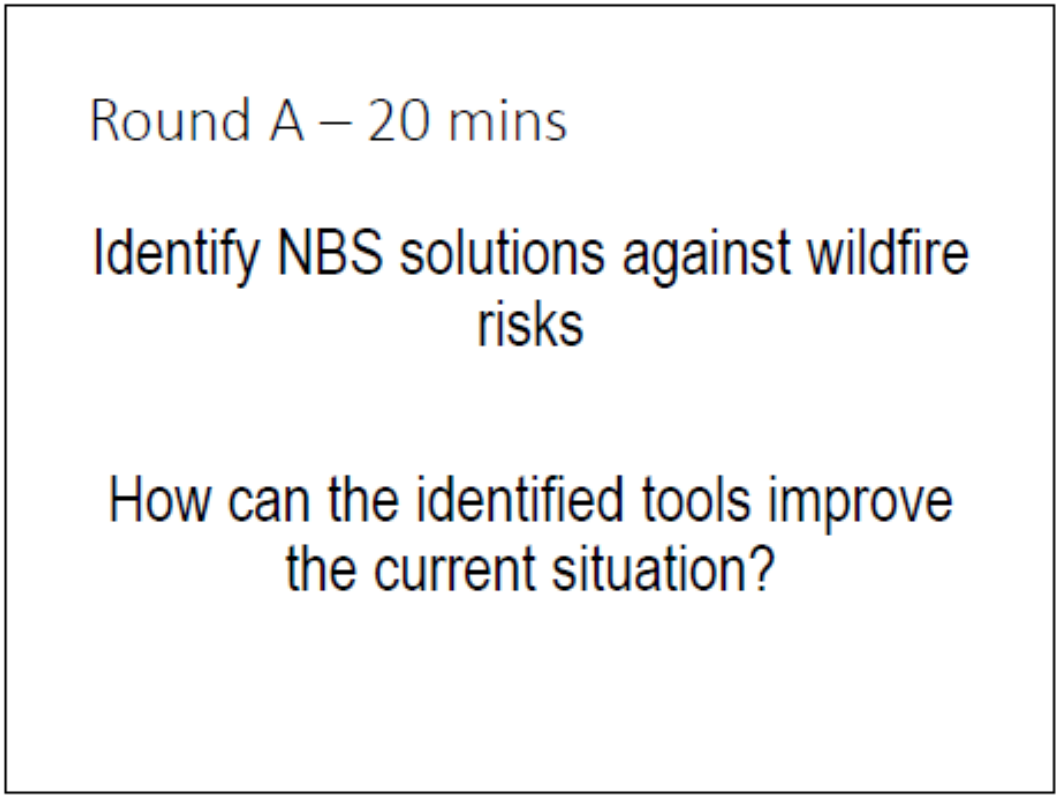
- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

What should be taken into account for the maintenance of the tools?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

8.14 Power point documentation slides for the Baixa Limia-Serra Do Xures Natural Park in Galicia





Round B – 10 mins

How should the design of the identified tools look like?

Round C – 15 mins

How should the implementation in the organization of the identified tools look like?

What should be taken into account for the maintenance of the tools?

Identify NBS solutions against wildfire risks

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

How can the identified tools improve the current situation?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the design of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

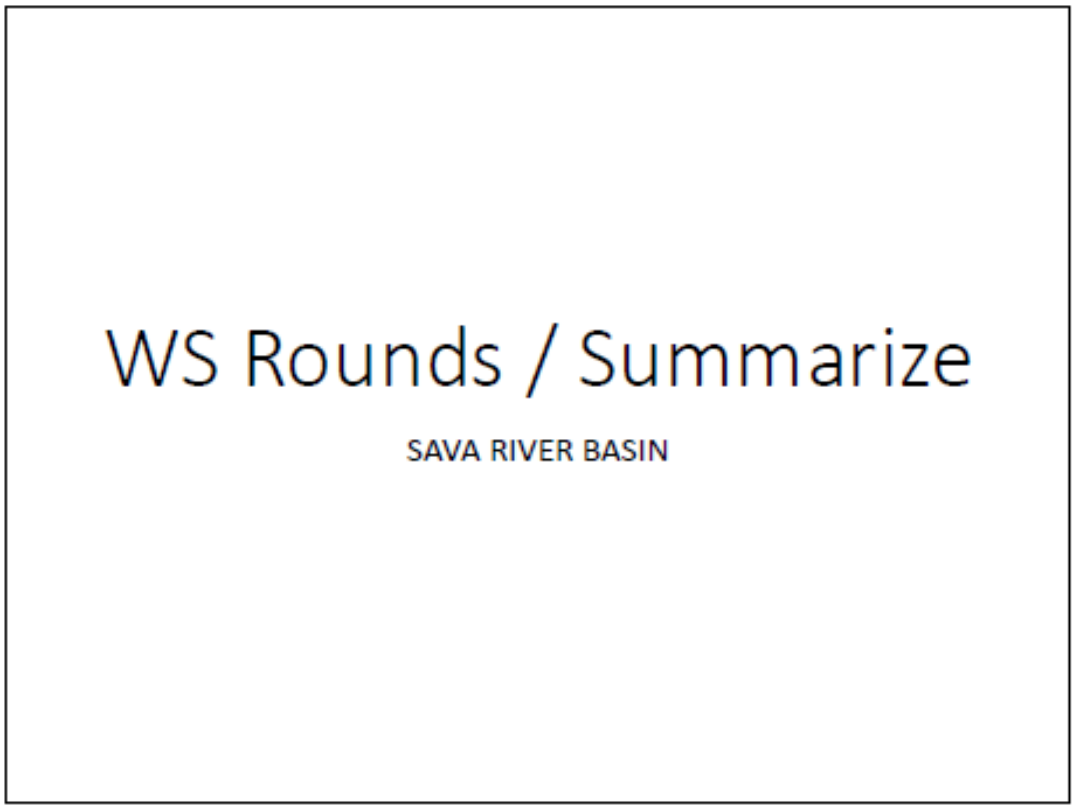
How should the implementation in the organization of the identified tools look like?

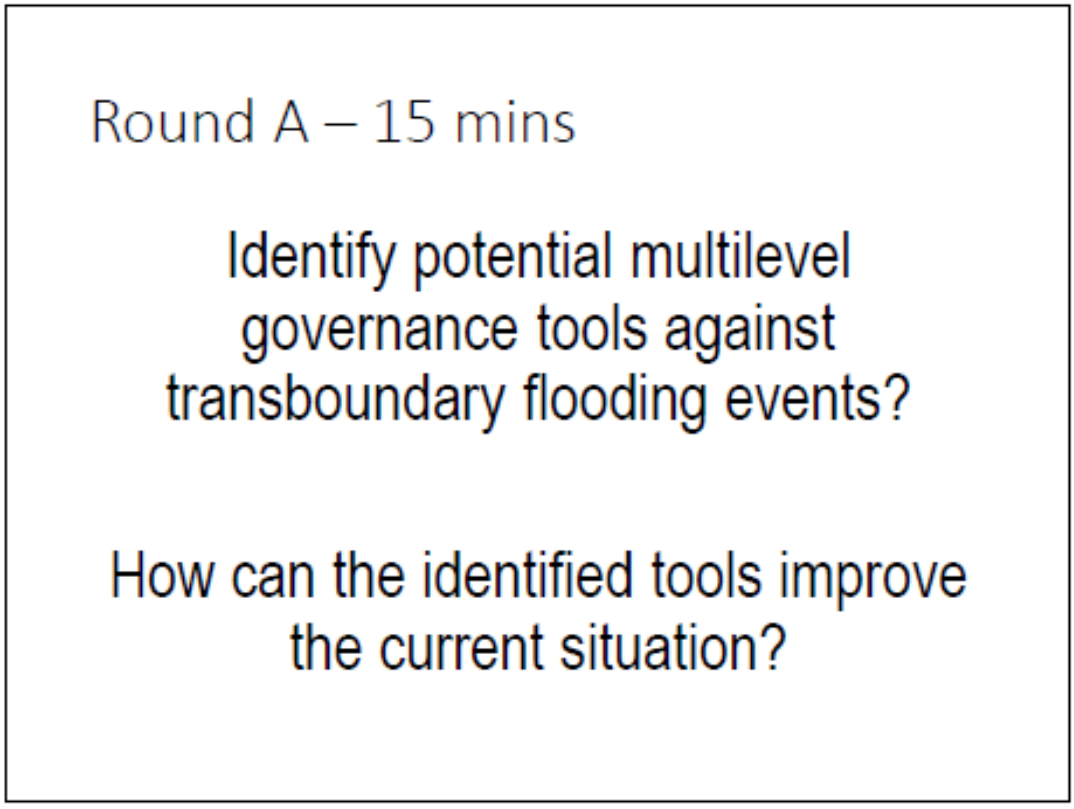
- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

What should be taken into account for the maintenance of the tools?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

8.15 Power point documentation slides for the Sava River Basin





Round B – 10 mins

How should the design of the identified tools look like?

Round C – 15 mins

How should the implementation in the organization of the identified tools look like?

What should be taken into account for the maintenance of the tools?

Identify potential multilevel governance tools against transboundary flooding events?

- 1:
- 2:
- 3:
- 4:
- 5:
- 6:

How can the identified tools improve the current situation?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the design of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

How should the implementation in the organization of the identified tools look like?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

What should be taken into account for the maintenance of the tools?

- 1a:
- 1b:
- 1c:
- 2a:
- 2b:
- 2c:
- 3a:
- 3b:
- 3c:
- ...

8.16 Excel documentation table for the Area of Santa Croce in Ravenna

topic	discussion topic					DRM assignment (y - yes)				time perspective (x - assignment)			comments
	Solution which is identified during discussion WS:	How can the solution improve the current situation:	How should the design looks like:	How should the implementation looks like (keep in mind there are maybe several layers/levels to taken into account):	What should be taken into account for the maintenance of this solution:	prevention	preparedness	response	recovery	Can be reached/implemented in SHORT TERM (one year)	Can be implemented in MID TERM (1-3 years)	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)	Narrative information
water pumps powered by solar energy													
preventive alarm system based on sensor network													
consolidation techniques													

8.17 Excel documentation table for the Seferihisar district

topic	discussion topic					DRM assignment (1 - yes)				time perspective (1 - assignment)			additional remarks
	Solution which is identified during discussion WS:	How can the solution improve the current situation:	How should the design looks like:	How should the implementation looks like (keep in mind there are maybe several layers/levels to taken into account):	What should be taken into account for the maintenance of this solution:	prevention	preparedness	response	recovery	Can be reached/implemented in SHORT TERM (one year)	Can be implemented in MID TERM (1-3 years)	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)	Maybe you have identified problems or MUST haves due to this solution or have just concerns due to your expertise
adobe techniques and mixtured architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock													

8.18 Excel documentation table for Dordrecht

topic	discussion topic					DRM assignment (1 - yes)				time perspective (1-assignment)			additional remarks
	Solution which is identified during discussion WS:	How can the solution improve the current situation:	How should the design looks like:	How should the implementation looks like (keep in mind there are maybe several layers/levels to taken into account):	What should be taken into account for the maintenance of this solution:	prevention	preparedness	response	recovery	Can be reached/implemented in SHORT TERM (one year)	Can be implemented in MID TERM (1-3 years)	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)	Maybe you have identified problems or MUST haves due to this solution or have just concerns due to your expertise
IMMERSITE solution reinfored by gender perspective and citizen involvement													
Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.													

8.19 Excel documentation table for the Baixa Limia-Serra Do Xures Natural Park in Galicia

topic	discussion topic					DRM assignment (1- yes)				time perspective (1-assignment)			additional remarks	comments
	Solution which is identified during discussion WS:	How can the solution improve the current situation:	How should the design looks like:	How should the implementation looks like (keep in mind there are maybe several layers/levels to taken into account):	What should be taken into account for the maintenance of this solution:	prevention	preparedness	response	recovery	Can be reached/implemented in SHORT TERM (one year)	Can be implemented in MID TERM (1-3 years)	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)	Maybe you have identified problems or MUST haves due to this solution or have just concerns due to your expertise	Narrative information
NBS solutions against wildfire risks														

8.20 Excel documentation table for the Sava River Basin

topic	discussion topic					DRM assignment (1 - yes)				time perspective (1-assingment)			additional remarks
	Solution which is identified during discussion WS:	How can the solution improve the current situation:	How should the design looks like:	How should the implementation looks like (keep in mind there are maybe several layers/levels to taken into account):	What should be taken into account for the maintenance of this solution:	prevention	preparedness	response	recovery	Can be reached/implemented in SHORT TERM (one year)	Can be implemented in MID TERM (1-3 years)	Can be implemented under the focus of a LONG TERM perspective (more than 3 years)	Maybe you have identified problems or MUST haves due to this solution or have just concerns due to your expertise
Governance tools against transboundary flooding events													

8.21 Organisation document for the Area of Santa Croce in Ravenna

Co-creation WS – RAVENNA
for
T6.4 Evolutionary resilience: resilience co-production playbook and co-creation strategies blueprints

For the development of the strategic blueprints 2 steps of stakeholder involvement is necessary. The first step is a general questionnaire and deals with community building and DRM. The structure and the questions of this first step are the same for all open labs and can be done by each stakeholder alone. The second step refers to the specific situation for each open lab in the sense of the SHELTER project. Therefore 5 questions are developed which should be answered for the identified open lab topic during a face to face or a virtual workshop.

First step – general questionnaire:

To receive an overview about the situation of communities in DRM five questions were prepared for the invited stakeholder:

- Are puplic awareness programs executed?
- Is regular (at least yearly) emergency response training and drills at multiple levels ongoing?
- Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response?
- Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management?
- Is the private sector represented as member in the management/emergency committee)

Second step – open lab specific topic and questions:

For the second step a virtual workshop with all relevant stakeholders is necessary.

The information about the stakeholder (organization, function, etc.) can be gathered in advance to the workshop.

The topics of the workshop are to identify

- **Water pumps powered by solar energy**
- **Preventive alarm system (sensor network)**
- **Consolidation techniques**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 821282

Suggestion: Due to the fact that there is just an hour available for the three topics (objectives) it would be fruitfull to built 3 groups. Each group should discuss one topic.

The aim of SHELTER for the Ravenna was defined during the proposal stage as follows:

An urban Open Lab to test innovative system of **water pumps powered by solar energy** and complemented by a **preventive alarm system** based on a network of sensors, which will mitigate flooding and subsidence events. Furthermore, **consolidation techniques** will be tested in relation to seismic activity in the area. It will provide different engagement activities such as: i) Master Class for students regarding diagnostic and restoration activities; ii) guided involvement of citizens of diagnostic and restoration campaigns to develop the Open Lab as an archaeological plus scientific touristic attraction. An international open call for suppliers will be launched as opportunity for showcase their technological solutions.

Therefore, the stakeholder should discuss the following five questions (first question consists of three specific questions):

- Identify technological solutions for water pumps powered by solar energy
- Identify technological solutions for preventive alarm system (sensor network)
- Identify specific consolidation techniques
    - *E.g. TBD*

- How can the identified tool improve the current situation?
    - *E.g. higher stabilization*
    - *E.g. higher durability*

- How should the design of this tool look like?
    - *What does the user need? (Dashboard, realtime information, etc.)*
    - *Which output is necessary? (map, report, alert, etc.)*
    - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
    - *repository: stand alone, cluster, cloud, hybrid solution*
    - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
    - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop (split into 3 groups)	10 mins
Round A: • Group 1: Identify technological solutions for water pumps powered by solar energy • Group 2: Identify technological solutions for preventive alarm system (sensor network)	20 mins

• Group 3: Identify specific consolidation techniques • Each Group: How can the identified tool improve the current situation?	
Round B (each Group): • How should the design of the identified tools look like?	10 mins
Round C (each Group): • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

For the introduction a powerpoint presentation is available. This presentation includes the situation of the open lab as well as the overall aim of the SHELTER project for the open lab.

The aim of each discussion round is also available in powerpoint.

For the documentation of the workshop results a documentation sheet in excel is prepared to collect the input of the stakeholder. In addition are also powerpoint slides prepared for the documentation (as well as visualization) of each question.

For the documentation of the specific stakeholder information (organization, function, etc.) a excel sheet is prepared. If possible, gather this information in advance or after the workshop.

Suggestion:

A handout or table document for each stakeholder should be prepared and/or forwarded with the content:

To develop the strategic blueprints based on the situation for Ravenna your individual expertise is necessary. Therefore, we prepared a one-hour workshop with specific questions to discuss.

Please find the relevant information about the workshop below.

Please fill in the excel-sheet with your individual content and send it back till TBD. We need your information for the further analysis. Keep in mind that your name and contact details are not forwarded to the other project partner.

The topic of the workshop is to identify

- **Water pumps powered by solar energy**
- **Preventive alarm system (sensor network)**
- **Consolidation techniques**

The aim of SHELTER for Ravenna was defined during the proposal stage as follows:

An urban Open Lab to test innovative system of **water pumps powered by solar energy** and complemented by a **preventive alarm system** based on a network of sensors, which will mitigate flooding and subsidence events. Furthermore, **consolidation techniques** will be tested in relation to seismic activity in the area. It will provide different engagement activities such as: i) Master Class for students regarding diagnostic and restoration activities; ii) guided involvement of citizens of diagnostic and restoration campaigns to develop the Open Lab as an archaeological plus scientific touristic attraction. An international open call for suppliers will be launched as opportunity for showcase their technological solutions.

Therefore, the stakeholder should discuss the following five questions:

- Identify technological solutions for water pumps powered by solar energy
- Identify technological solutions for preventive alarm system (sensor network)
- Identify specific consolidation techniques
    - *E.g. TBD*

- How can the identified tool improve the current situation?
    - *E.g. higher stabilization*
    - *E.g. higher durability*

- How should the design of this tool look like?
    - *What does the user need? (Dashboard, realtime information, etc.)*
    - *Which output is necessary? (map, report, alert, etc.)*
    - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
    - *repository: stand alone, cluster, cloud, hybrid solution*
    - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
    - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	10 mins
Round A:	20 mins

• Group 1: Identify technological solutions for water pumps powered by solar energy • Group 2: Identify technological solutions for preventive alarm system (sensor network) • Group 3: Identify specific consolidation techniques • Each Group: How can the identified tool improve the current situation?	
Round B (each Group): • How should the design of the identified tools look like?	10 mins
Round C (each Group): • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

8.22 Organisation document for the Seferihisar district

Co-creation WS – SEFERIHISAR
for
T6.4 Evolutionary resilience: resilience co-production playbook and co-creation strategies blueprints

For the development of the strategic blueprints 2 steps of stakeholder involvement is necessary. The first step is a general questionnaire and deals with community building and DRM. The structure and the questions of this first step are the same for all open labs and can be done by each stakeholder alone. The second step refers to the specific situation for each open lab in the sense of the SHELTER project. Therefore 5 questions are developed which should be answered for the identified open lab topic during a face to face or a virtual workshop.

First step – general questionnaire:

To receive an overview about the situation of communities in DRM five questions were prepared for the invited stakeholder:

- Are puplic awareness programs executed?
- Is regular (at least yearly) emergency response training and drills at multiple levels ongoing?
- Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response?
- Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management?
- Is the private sector represented as member in the management/emergency committee)

Second step – open lab specific topic and questions:

For the second step a virtual workshop with all relevant stakeholders is necessary.

The information about the stakeholder (organization, function, etc.) can be gathered in advance to the workshop.

The topics of the workshop are to identify

adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock

The aim of SHELTER for the Seferihisar was defined during the proposal stage as follows:

Local businesses and practitioners of construction and restoration sectors will be involved, altogether with the academia, in a co-creation process searching for **innovative adobe techniques and mixtures architecture for adaptation of vernacular earthen constructions to earthquakes and heat waves**. Structural (extension meters, strain gauges, accelerometers), geotechnical (piezometers, geophones) and climatic (temperature, humidity, rainfall) monitoring will assess the impact on the structures of earthquakes events. SHELTER will especially target a roadmap for increasing structural safety and reconstruction techniques for the fortress and the historic building stock, increasing community measures for disaster preparedness.

Therefore, the stakeholder should discuss the following five questions:

- Identify adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock?
  - *E.g. TBD*

- How can the identified tool improve the current situation?
  - *E.g. higher stabilization*
  - *E.g. higher durability*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *repository: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
  - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	10 mins
Round A: • Identify adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock? • How can the identified tool improve the current situation?	20 mins
Round B: • How should the design of the identified tools look like?	10 mins
Round C:	15 mins

• How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	
Summary	5 mins

For the introduction a powerpoint presentation is available. This presentation includes the situation of the open lab as well as the overall aim of the SHELTER project for the open lab.

The aim of each discussion round is also available in powerpoint.

For the documentation of the workshop results a documentation sheet in excel is prepared to collect the input of the stakeholder. In addition are also powerpoint slides prepared for the documentation (as well as visualization) of each question.

For the documentation of the specific stakeholder information (organization, function, etc.) a excel sheet is prepared. If possible, gather this information in advance or after the workshop.

Suggestion:

A handout or table document for each stakeholder should be prepared and/or forwarded with the content:

To develop the strategic blueprints based on the situation for Seferihisar your individual expertise is necessary. Therefore, we prepared a one-hour workshop with specific questions to discuss.

Please find the relevant information about the workshop below.

Please fill in the excel-sheet with your individual content and send it back till TBD. We need your information for the further analysis. Keep in mind that your name and contact details are not forwarded to the other project partner.

The topic of the workshop is to identify

adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock

The aim of SHELTER for Seferihisar was defined during the proposal stage as follows:

Local businesses and practitioners of construction and restoration sectors will be involved, altogether with the academia, in a co-creation process searching for **innovative adobe techniques and mixtures architecture for adaptation of vernacular earthen constructions to earthquakes and heat waves**. Structural (extension meters, strain gauges, accelerometers), geotechnical (piezometers, geophones) and climatic (temperature, humidity, rainfall) monitoring will assess the impact on the structures of earthquakes events. SHELTER will especially target a roadmap for increasing structural safety and reconstruction techniques for the fortress and the historic building stock, increasing community measures for disaster preparedness.

Therefore, the stakeholder should discuss the following five questions:

- Identify adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock?
  - *E.g. TBD*

- How can the identified tool improve the current situation?
  - *E.g. higher stabilization*
  - *E.g. higher durability*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *repository: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?

E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	10 mins
Round A: • Identify adobe techniques and mixtures architecture to increase structural safety and reconstruction techniques for the fortress and the historic building stock? • How can the identified tool improve the current situation?	20 mins
Round B: • How should the design of the identified tools look like?	10 mins

Round C: • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

8.23 Organisation document for Dordrecht

Co-creation WS – DORDRECHT
for
T6.4 Evolutionary resilience: resilience co-production playbook and co-creation strategies blueprints

For the development of the strategic blueprints 2 steps of stakeholder involvement is necessary. The first step is a general questionnaire and deals with community building and DRM. The structure and the questions of this first step are the same for all open labs and can be done by each stakeholder alone. The second step refers to the specific situation for each open lab in the sense of the SHELTER project. Therefore 5 questions are developed which should be answered for the identified open lab topic during a face to face or a virtual workshop.

First step – general questionnaire:

To receive an overview about the situation of communities in DRM five questions were prepared for the invited stakeholder:

- Are puplic awareness programs executed?
- Is regular (at least yearly) emergency response training and drills at multiple levels ongoing?
- Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response?
- Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management?
- Is the private sector represented as member in the management/emergency committee)

Second step – open lab specific topic and questions:

For the second step a virtual workshop with all relevant stakeholders is necessary.

The information about the stakeholder (organization, function, etc.) can be gathered in advance to the workshop.

The topics of the workshop are to identify

- **IMMERSITE solution reinfored by gender perspective and citizen involvement**
- **Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.**

Suggestion: Due to the fact that there is just an hour available for the three topics (objectives) it would be fruitfull to built 2 groups. Each group should discuss one topic.

The aim of SHELTER for the Dordrecht was defined during the proposal stage as follows:

The municipality will involve the community in DRM, aligning SHELTER activities with their already existing Living Lab on climate adaptation. With this purpose, the Open Lab will co-create the **specifications of SHELTER IMMERSITE®** adapt to Dordrecht case and reinforce the **gender perspective and the involvement of citizens** (especially vulnerable groups as immigrants, people with disability, children and elderly), complementing the *Ruimtelijke Adaptatie* (Spatial Adaptation Stimulation Program) already in place. IMMERSITE® tool, designed to reinforce citizens' involvement and education in urban planning tasks, including 3D technologies and virtual visits, facilitating the dialogue with Dordrecht's community regarding city planning and the adaptation of its CH. Some climatic monitoring in the neighbourhood of CH monuments will supplement the already largely available data on flooding in the Dordrecht case study.

Therefore, the stakeholder should discuss the following five questions (first question consists of two specific questions):

- Identify IMMERSITE solution reinfored by gender perspective and citizen involvement
- Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.
    - *E.g. immersite communication system*
    - *E.g. social dimmension of DRM for the cultural heritage (people protect their own homes)*

- How can the identified tool improve the current situation?
    - *E.g. higher stabilization*
    - *E.g. higher durability*
    - *E.g. many of the cultural heritage is privatly owned, we need a good approach and specific information to reach out to these people, both short and long term*

- How should the design of this tool look like?
    - *What does the user need? (Dashboard, realtime information, etc.)*
    - *Which output is necessary? (map, report, alert, etc.)*
    - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
    - *repository: stand alone, cluster, cloud, hybrid solution*
    - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
    - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop (split into 3 groups)	10 mins
Round A: • Group 1: Identify IMMERSITE solution reinfored by gender perspective and citizen involvement • Group 2: Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH. • Each Group: How can the identified tool improve the current situation?	20 mins
Round B (each Group): • How should the design of the identified tools look like?	10 mins
Round C (each Group): • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

For the introduction a powerpoint presentation is available. This presentation includes the situation of the open lab as well as the overall aim of the SHELTER project for the open lab.

The aim of each discussion round is also available in powerpoint.

For the documentation of the workshop results a documentation sheet in excel is prepared to collect the input of the stakeholder. In addition are also powerpoint slides prepared for the documentation (as well as visualization) of each question.

For the documentation of the specific stakeholder information (organization, function, etc.) a excel sheet is prepared. If possible, gather this information in advance or after the workshop.

Suggestion:

A handout or table document for each stakeholder should be prepared and/or forwarded with the content:

To develop the strategic blueprints based on the situation for Dordrecht your individual expertise is necessary. Therefore, we prepared a one-hour workshop with specific questions to discuss.

Please find the relevant information about the workshop below.

Please fill in the excel-sheet with your individual content and send it back till TBD. We need your information for the further analysis. Keep in mind that your name and contact details are not forwarded to the other project partner.

The topics of the workshop are to identify

- **IMMERSITE solution reinfored by gender perspective and citizen involvement**
- **Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.**

The aim of SHELTER for the Dordrecht was defined during the proposal stage as follows:

The municipality will involve the community in DRM, aligning SHELTER activities with their already existing Living Lab on climate adaptation. With this purpose, the Open Lab will co-create the **specifications of SHELTER IMMERSITE®** adapt to Dordrecht case and reinforce the **gender perspective and the involvement of citizens** (especially vulnerable groups as immigrants, people with disability, children and elderly), complementing the *Ruimtelijke Adaptatie* (Spatial Adaptation Stimulation Program) already in place. IMMERSITE® tool, designed to reinforce citizens' involvement and education in urban planning tasks, including 3D technologies and virtual visits, facilitating the dialogue with Dordrecht's community regarding city planning and the adaptation of its CH. Some climatic monitoring in the neighbourhood of CH monuments will supplement the already largely available data on flooding in the Dordrecht case study.

Therefore, the stakeholder should discuss the following five questions (first question consists of two specific questions):

- Identify IMMERSITE solution reinfored by gender perspective and citizen involvement
  - *E.g. immersite communication system*
- Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH.
  - *E.g. social dimmension of DRM for the cultural heritage (people protect their own homes)*

- How can the identified tool improve the current situation?
  - *E.g. higher stabilization*
  - *E.g. higher durability*

- *E.g. many of the cultural heritage is privatly owned, we need a good approach and specific information to reach out to these people, both short and long term*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *repository: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
  - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop (split into 3 groups)	10 mins
Round A: • Group 1: Identify IMMERSITE solution reinfored by gender perspective and citizen involvement • Group 2: Identify Policy approach to protect Cultural heritage in city centre against future flooding and increased risks, by helping private owners of CH. • Each Group: How can the identified tool improve the current situation?	20 mins
Round B (each Group): • How should the design of the identified tools look like?	10 mins
Round C (each Group): • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

8.24 Organisation document for the Baixa Limia-Serra Do Xures Natural Park in Galicia

Co-creation WS – GALICIA
for
T6.4 Evolutionary resilience: resilience co-production playbook and co-creation strategies blueprints

For the development of the strategic blueprints 2 steps of stakeholder involvement is necessary. The first step is a general questionnaire and deals with community building and DRM. The structure and the questions of this first step are the same for all open labs and can be done by each stakeholder alone. The second step refers to the specific situation for each open lab in the sense of the SHELTER project. Therefore 5 questions are developed which should be answered for the identified open lab topic during a face to face or a virtual workshop.

First step – general questionnaire:

To receive an overview about the situation of communities in DRM five questions were prepared for the invited stakeholder:

- Are puplic awareness programs executed?
- Is regular (at least yearly) emergency response training and drills at multiple levels ongoing?
- Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response?
- Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management?
- Is the private sector represented as member in the management/emergency committee)

Second step – open lab specific topic and questions:

For the second step a virtual workshop with all relevant stakeholders is necessary.

The information about the stakeholder (organization, function, etc.) can be gathered in advance to the workshop.

The topics of the workshop are to identify

NBS solutions against wildfire risks

The aim of SHELTER for the Galicia was defined during the proposal stage as follows:

Galicia’s administrations at different levels (regional and local) and as far as possible the academia, local research and local businesses will be involved in a co-creation process

for designing **Nature-based solutions** (NBS) against wildfires' risk including all prevention, preparedness, response and recovery phases, involving land owners for testing and validation. **NBS will be co-created as an effective prevention and restoration tool in DRM**, here specifically oriented towards wildfire threats: humidity of thalwegs by hardwood species as limiters of fire, identification of species in soil restoration, community engagement in silviculture tasks, as some examples. Thermos-cameras and soil humidity sensors will provide early warning signals in case of fire, give indications on critical situations (periods of draught) and monitor post-event restorations.

Therefore, the stakeholder should discuss the following five questions:

- Identify NBS solutions against wildfire risks
  - *E.g. Communities and Associations for fire risk prevention*
  - *E.g. Germplasm Bank*

- How can the identified tool improve the current situation?
  - *E.g. Create a more coordinated response to the firewires.*
  - *E.g. Move the insight of the community putting in value the cultural and natural heritage in an integrated way.*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *repository: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
  - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	10 mins
Round A: • Identify NBS solutions against wildfire risks • How can the identified tool improve the current situation?	20 mins
Round B: • How should the design of the identified tools look like?	10 mins
Round C: • How should the implementation in the organization of the identified tools look like?	15 mins

• What should be taken into account for the maintenance of the tools?	
Summary	5 mins

For the introduction a powerpoint presentation is available. This presentation includes the situation of the open lab as well as the overall aim of the SHELTER project for the open lab.

The aim of each discussion round is also available in powerpoint.

For the documentation of the workshop results a documentation sheet in excel is prepared to collect the input of the stakeholder. In addition are also powerpoint slides prepared for the documentation (as well as visualization) of each question.

For the documentation of the specific stakeholder information (organization, function, etc.) a excel sheet is prepared. If possible, gather this information in advance or after the workshop.

Suggestion:

A handout or table document for each stakeholder should be prepared and/or forwarded with the content:

To develop the strategic blueprints based on the situation for Galicia your individual expertise is necessary. Therefore, we prepared a one-hour workshop with specific questions to discuss.

Please find the relevant information about the workshop below.

Please fill in the excel-sheet with your individual content and send it back till TBD. We need your information for the further analysis. Keep in mind that your name and contact details are not forwarded to the other project partner.

The topics of the workshop are to identify

NBS solutions against wildfire risks

The aim of SHELTER for the Galicia was defined during the proposal stage as follows:

Galicia's administrations at different levels (regional and local) and as far as possible the academia, local research and local businesses will be involved in a co-creation process for designing **Nature-based solutions** (NBS) against wildfires' risk including all prevention, preparedness, response and recovery phases, involving land owners for testing and validation. **NBS will be co-created as an effective prevention and restoration tool in DRM**, here specifically oriented towards wildfire threats: humidity of thalwegs by hardwood species as limiters of fire, identification of species in soil restoration, community engagement in silviculture tasks, as some examples. Thermos-cameras and soil humidity sensors will provide early warning signals in case of fire, give indications on critical situations (periods of draught) and monitor post-event restorations.

Therefore, the stakeholder should discuss the following five questions:

- Identify NBS solutions against wildfire risks
  - *E.g. Communities and Associations for fire risk prevention*
  - *E.g. Germplasm Bank*

- How can the identified tool improve the current situation?
  - *E.g. Create a more coordinated response to the firewires.*
  - *E.g. Move the insight of the community putting in value the cultural and natural heritage in an integrated way.*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *repository: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
  - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc.*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	10 mins
Round A: • Identify NBS solutions against wildfire risks • How can the identified tool improve the current situation?	20 mins
Round B: • How should the design of the identified tools look like?	10 mins
Round C:	15 mins

• How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	
Summary	5 mins

8.25 Organisation document for the Sava River Basin

Co-creation WS – SAVA RIVER BASIN
for
T6.4 Evolutionary resilience: resilience co-production playbook and co-creation strategies blueprints

For the development of the strategic blueprints 2 steps of stakeholder involvement is necessary. The first step is a general questionnaire and deals with community building and DRM. The structure and the questions of this first step are the same for all open labs and can be done by each stakeholder alone. The second step refers to the specific situation for each open lab in the sense of the SHELTER project. Therefore 5 questions are developed which should be answered for the identified open lab topic during a face to face or a virtual workshop.

First step – general questionnaire:

To receive an overview about the situation of communities in DRM five questions were prepared for the invited stakeholder:

- Are puplic awareness programs executed?
- Is regular (at least yearly) emergency response training and drills at multiple levels ongoing?
- Does a community risk management or emergency committee exist, that deals with prevention, mitigation, preparedness and response?
- Do local institutions (administration, police, fire brigade, hospitals, building sector, etc.) receive training on joint risk management?
- Is the private sector represented as member in the management/emergency committee)

Second step – open lab specific topic and questions:

For the second step a virtual workshop with all relevant stakeholders is necessary.

The information about the stakeholder (organization, function, etc.) can be gathered in advance to the workshop.

The topic of the workshop is to identify

multilevel governance tools against transboundary flooding events

The aim of SHELTER for the Sava River Basin was defined during the proposal stage as follows:

All the key stakeholders will develop **governance tools** to test how cooperation among regions and institutions can bring effective solutions **against flooding events in trans-**

boundary river catchments which do not fit the boundaries of individual states. SHELTER will help to collect data on CH within the flood hazard areas from the relevant national institutions within the Sava River basin to integrate CH in DRM policies and to develop a comprehensive regional methodology which also include post disaster needs assessment for CH. Most vulnerable sites to floods and climatic changes located in the Areas of the Mutual Interest for flood protection (AMIS), in accordance with the Protocol on flood protection to the Framework Agreement, will be duly analysed as a case study of the project.

Therefore, the stakeholder should discuss the following five questions:

- Identify potential multilevel governance tools against transboundary flooding events?
    - *E.g. Development of the proposal of DRM governance structure involving the CHH authorities*
    - *E.g. Border-crossing procedures for import and export of protection and rescue equipment and delivery of humanitarian aid necessary for the CHH sites protection*
    - *E.g. Immersite communication and awareness system relevant for the CHH sites*
    - *E.g. Implement early warning system on the administration level including wide public*

- How can the identified tool improve the current situation?
    - *E.g. It will facilitate and speed up the process for the provision of mutual and international aid.*

- How should the design of this tool look like?
    - *What does the user need? (Dashboard, realtime information, etc.)*
    - *Which output is necessary? (map, report, alert, etc.)*
    - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
    - *technical aspect: stand alone, cluster, cloud, hybrid solution*
    - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
    - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	5 mins
Round A: • Identify potential multilevel governance tools against transboundary flooding events?	15 mins

• How can the identified tool improve the current situation?	
Round B: • How should the design of the identified tools look like?	10 mins
Round C: • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

For the introduction a powerpoint presentation is available. This presentation includes the situation of the open lab as well as the overall aim of the SHELTER project for the open lab.

The aim of each discussion round is also available in powerpoint.

For the documentation of the workshop results a documentation sheet in excel is prepared to collect the input of the stakeholder. In addition are also powerpoint slides prepared for the documentation (as well as visualization) of each question.

For the documentation of the specific stakeholder information (organization, function, etc.) a excel sheet is prepared. If possible, gather this information in advance or after the workshop.

Suggestion:

A handout or table document for each stakeholder should be prepared and/or forwarded with the content:

To develop the strategic blueprints based on the situation for the Sava River Basin your individual expertise is necessary. Therefore, we prepared a one-hour workshop with specific questions to discuss.

Please find the relevant information about the workshop below.

Please fill in the excel-sheet with your individual content and send it back till TBD. We need your information for the further analysis. Keep in mind that your name and contact details are not forwarded to the other project partner.

The topic of the workshop is to identify

multilevel governance tools against transboundary flooding events

The aim of SHELTER for the Sava River Basin was defined during the proposal stage as follows:

All the key stakeholders will develop **governance tools** to test how cooperation among regions and institutions can bring effective solutions **against flooding events in trans-boundary river catchments** which do not fit the boundaries of individual states. SHELTER will help to collect data on CH within the flood hazard areas from the relevant national institutions within the Sava River basin to integrate CH in DRM policies and to develop a comprehensive regional methodology which also include post disaster needs assessment for CH. Most vulnerable sites to floods and climatic changes located in the Areas of the Mutual Interest for flood protection (AMIS), in accordance with the Protocol on flood protection to the Framework Agreement, will be duly analysed as a case study of the project.

Therefore, the stakeholder should discuss the following five questions with the focus on **Cultural Heritages**:

- Identify potential multilevel governance tools against transboundary flooding events?
  - *E.g. Development of the proposal of DRM governance structure involving the CHH authorities*
  - *E.g. Border-crossing procedures for import and export of protection and rescue equipment and delivery of humanitarian aid necessary for the CHH sites protection*
  - *E.g. Immersite communication and awareness system relevant for the CHH sites*
  - *E.g. Implement early warning system on the administration level including wide public*

- How can the identified tool improve the current situation?
  - *E.g. It will facilitate and speed up the process for the provision of mutual and international aid.*

- How should the design of this tool look like?
  - *What does the user need? (Dashboard, realtime information, etc.)*
  - *Which output is necessary? (map, report, alert, etc.)*
  - *How to interrogate with the tool?*

- How should the implementation of the tool look like?
  - *technical aspect: stand alone, cluster, cloud, hybrid solution*
  - *Which organisations (levels) should be involved?*

- What should be taken into account for the maintenance of the tool?
  - *E.g. budget for implementation, training period, budget for updates, service and maintenance contract, etc*

The workshop will last one hour and follow the agenda:

Topic	time
Introduction and aim of the workshop	5 mins
Round A: • Identify potential multilevel governance tools against transboundary flooding events? • How can the identified tool improve the current situation?	15 mins
Round B: • How should the design of the identified tools look like?	10 mins
Round C: • How should the implementation in the organization of the identified tools look like? • What should be taken into account for the maintenance of the tools?	15 mins
Summary	5 mins

8.26 Template for OL specific strategic blueprint

STRATEGIC BLUEPRINT – SHELTER PROJECT	
ID	
OL ASSIGNMENT	
TOPIC	
DESCRIPTION	
IDENTIFIED SOLUTION	
How can the identified tool improve the current situation?	
How should the design of this tool look like?	
How should the implementation of the tool look like?	
What should be taken into account for the maintenance of the tool?	
ASSIGNMENTS/COMMENTS	
DRM PHASE	
TIME PERSPECTIVE	
ADDITIONAL COMMENTS	
STAKEHOLDER STRUCTURE	
ORGANISATIONS	