

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

Extract of D4.2 – Strategy for early recovery roadmap Dordrecht Roadmap

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D4.2. Strategy for early recovery roadmap



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Glossary

Acronym	Full name
BBB	Build Back Better
CA	Consortium Agreement
CCA	Climate Change Adaptation
СН	Cultural Heritage
CNH CNHM	Cultural and Natural Heritage Cultural and Natural Heritage Management
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DoA	Description of Action
HA	Historic Area
LDRM	Local Disaster Recovery Manager
EC	European Commission
EOP	Emergency Operations Plan
NH	Natural Heritage
OL	Open Lab
PDRP	Pre-Disaster Recovery Plan/Planning
PDRR	Pre-Disaster Recovery Roadmap
PRT	Planning Resilience Team
SP	Spatial Planning
WHL	UNESCO World Heritage List
WP	Work Package

1 Applying the SHELTER Pre-Disaster Recovery Roadmap methodology to the five Open Labs

The SHELTER Pre-Disaster Recovery Roadmap (PDRR) methodology is tested and applied to each OLs. Five tailored early recovery Roadmaps have been drafted, taking into account: i) the activities the case studies have already performed prior to or regardless of SHELTER project. The inputs that OLs provided to other Tasks (e.g., the policy instruments already in place mapped in Task 4.2) during the project implementation were used; ii) the outputs and outcomes generated so far from the project.

The main purpose of this activity has been to understand which steps of the Roadmap have been already completed and what else should be done by OLs to build their own early recovery Roadmap. To achieve that, the following process has been applied:

- UNIBO drafted the five tailored Roadmaps based on the information gathered from the outputs and outcomes generated so far from the project and the inputs that OLs provided to other Tasks. Miro¹ has been used as a collaborative tool to show the Roadmap and to collect feedback from OLs.
- bilateral remote meetings have been scheduled in early May 2022 with each OL, involving OL coordinators and OL technical partners. During these meetings, the colleagues involved were asked to provide their feedback and comments on the PDRR, to check the activities foreseen by the Roadmap, the checklist and the five phases in detail. Each OL coordinator and OL technical partner were also asked to double-check if they agreed on the inputs coming from SHELTER Tasks and to inform about other possible inputs not considered yet, to better understand which activities have been completed by the OL and which are still to be implemented;
- UNIBO finalized the changes and comments provided by OLs.

1.1 Dordrecht Open Lab

The Dordrecht OL is an urban OL, located in the Rhine-Meuse delta in the Netherlands. 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.

¹ Miro | Online Whiteboard for Visual Collaboration, available at: https://miro.com/



1.1.1 PHASE 1 – GETTING STARTED: Form a Collaborative Planning Resilience Team



Activity 1.1 - Define the scope of planning activities and their integration with other applicable planning processes (Figure 39)

In order to better delineate the general scope of the PDRP activities, existing recovery, mitigation and adaptation plans and strategies have to be considered.

The planning tools, already collected in Task 4.2 *Definition of protocols, plans and guidelines for CCA/DRM and integration within planning policies,* that can be relevant in this step are the followings (Table 8).

LEVEL	SP TOOL
	National Policy Strategy for Infrastructure and SP
	National Strategy on SP and the Environment
National level	National Security Strategy
National level	National Climate Adaptation Strategy
	Integrated National Energy and Climate Plan 2021-2030
	National Delta Program
Regional level	Regional Crisis Plan Safety region South-Holland South
	Environmental vision South-Holland
Drovincial loval	Preferred strategy Rijnmond-Drechsteden
Provincial level	Weather resilient Zuid-Holland - prepared for extreme weather and subsidence
	Provincial Implementation Agenda for Climate Adaptation 2021-2023
Local level	Environmental vision Dordrecht

Table 1. Relevant SP tools for Dordrecht OL for Activity 1.1

From the analysis of the SP framework, it can be defined that the scope of the PDR planning for Dorodrecht OL is to develop and upgrade the flood risk management.

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Figure 2. Key-activity 1.1 for Dordrecht OL

Activity 1.2 - Create a collaborative Planning Resilience Team (Figure 40)

According to the PDRR, the PRT should be formed by individuals with various skills and representatives of the whole community.

The Municipality of Dordrecht, and especially the offices of its clusters City and Spatial Quality, can be considered as the starting point to form the team which leads the recovery planning process. According to the Organigraph, developed in Task 6.3, there are other political and technical entities that offer their contribution to the process such as:

- Safety Region South-Holland South
- Water Agencies
- Private Companies
- Maintenance Groups

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Activity 1.3 – Develop and implement the partner engagement strategy (Figure 41)

To evaluate continually additional stakeholders and new partners to be included as needed throughout the planning process, it is possible to consider the collaborations defined in the following planning tools (Table 9).

LEVEL	SP TOOL
Pagianal laval	Regional Crisis Plan Safety region South-Holland South
Regional level	Convenant Climate adaptive building
Drovingial loval	Environmental vision South-Holland
	Preferred strategy Rijnmond-Drechsteden

Table 2. Relevant SP tools for Dordrecht OL for Activity 1.3



The development and implementation of these planning tools foresaw collaborative processes among municipalities in South-Holland South, water agencies and other safety regions. Furthermore, construction companies, financiers and developers can be involved in this planning process. Local communities, civil society organizations and citizens do not participate in co-creation of planning tools, but public participation is an important part for their dissemination and implementation.



Figure 4. Key-activity 1.3 for Dordrecht OL

Activity 1.4 – Educate the Planning Resilience Team (Figure 42)



Figure 5. Key-activity 1.4 for Dordrecht OL

Regarding the first phase, it is possible to say that Dordrecht OL has a well-defined team, in terms of planning resilience: it has a clear structure, a large range of actors with different skills and all roles and responsibilities are very well determined.

It is necessary to highlight that in the Netherlands there is a tradition of informal relationships among actors involved in the DRM, without formal agreements. However, all agencies and stakeholders have their roles and responsibilities and they are very well aligned together.



1.1.2 PHASE 2 – COLLECTING NECESSARY DATA: Understand the situation



Figure 6. Phase 2 for Dordrecht OL



Activity 2.1 - Determine community risks and vulnerabilities, impacts and consequences (Figure 44)

The Dordrecht OL can use many different instruments to obtain specific disaster risk information.

From SHELTER, the available inputs are:

- Data Mapping Form, which collects all current available data
- Historic knowledge baseline, to be informed about past events' impacts
- Multi-Hazard Risk Assessment
- Rapid Risk Assessment
- Set of KPIs, as hazard exposure and vulnerability indicators

Furthermore, there are some planning tools, that provide also specific disaster risk information (Table 10).

LEVEL	SP TOOL
National loval	National Security Strategy
	National Delta Program
Provincial level	Preferred strategy Rijnmond-Drechsteden

Table 3. Relevant SP tools for Dordrecht OL for Activity 2.1

At the national level, the *National Security Strategy (NSS)* provides an overview of all threats and risks and specifies their urgency, based on the degree of resilience and their coherence within the national security approach, in order to help protect social continuity and the democratic rule of law. Also, the *National Delta Program* can be considered a relevant tool: it focuses on flood risk management, developing measures, studies and projects to protect the Netherlands from flooding. The *National Delta Program* is detailed in the *Preferred strategy Rijnmond-Drechsteden*, at provincial level. The latter conducts risk dialogues and stress tests identifying threats and vulnerabilities, to formulate adaptive strategies of DRM.

Regarding the second phase, it is possible to say that Dordrecht OL has many available data, to gather information about hazards, risk and vulnerabilities to address in its territory. Impact analysis have been made as well as scenario's written out, identifying impacts and consequences.





Figure 7. Key-activity 2.1 for Dordrecht OL

1.1.3 PHASE 3 – FORMULATING RECOVERY GOALS AND PRINCIPLES



Activity 3.1 – Assess community's capacity and identify capability targets (Figure 46)

Based on the risk assessment of the previous phase, this activity is to evaluate strengths and weakness of existing DRM operations and organizations.

First of all, it is possible to take relevant information from some planning tools collected in Task 4.2, related to recovery activities.

LEVEL	SP TOOL
National loval	National Security Strategy
National level	National Delta Program
Regional level	Regional Crisis Plan Safety Region South-Holland
Drovincial loval	Preferred Strategy Rijnmond-Drechsteden
	Weather resilient Zuid-Holland

The most important tools are the followings (Table 11).

Table 4. Relevant SP tools for Dordrecht OL for Activity 3.1

From SHELTER, the available input is:

• Resilience Index, that provides a list of resilience assessment and monitoring indicators

In this step, it is relevant to take into account all the previous assessments, regarding threats, risks and impacts that the community should address. Also, the partner engagement strategy, developed in phase 1, is helpful to evaluate staffing resource, in terms of quantity and expertise, and the financial resources available, identifying potential community needs and gaps.

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Figure 9. Key-activity 3.1 for Dordrecht OL

Activity 3.2 – Build a shared vision of a post disaster future (Figure 47)

The main potential recovery goal for Dordrecht OL could be: Improve water safety and reduce heritage vulnerability. This goal coincides with the overall aims and the objectives of the following planning tools (Table 12).

LEVEL	SP TOOL
National level	National Delta Program
Drevinciel level	Preferred Strategy Rijnmond-Drechsteden
	Weather resilient Zuid-Holland
Local level	Environmental vision Dordrecht

Table 5. Relevant SP tools for Dordrecht OL for Activity 3.2

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Regarding the third phase, it is possible to say that in Dordrecht OL the identification of community needs and gaps is very well-covered. For DRM and any potential recovery activities, there are financial resources and budget available mostly at the national level, but also at the lower levels. In addition, in the Netherlands there is a strong and well-defined strategy to raise awareness and preparedness regarding the importance of recovery planning, that involves all the community, starting from young people and children in schools. Citizens are also aware of the high value of the CH, and of the importance to protect it. In fact, many buildings and spaces in the area of Dordrecht are considered CH and both the government and the community are focused to safeguard and maintain them and people to continue living there.





1.1.4 PHASE 4 – DEVELOP THE PLAN: Establish post-disaster recovery organisation and outline recovery-specific decisions



Activity 4.1 – Determine the organizational structure, positions and applicable skills (Figure 49)

Those involved in the planning process should start by evaluating the existing recovery organization.

In the Netherlands, there is a multi-layer DRM. This approach aims at reducing flood risks, according to three levels:

- Layer 1: defensive measures against floods
- Layer 2: resilient SP measures
- Layer 3: crisis management

The last layer is developed mostly by the Safety Region, a public body whose task is to facilitate regional cooperation in dealing with crises, disasters and disruptions of public order. Safety Regions must protect communities against risks and relief in case of disaster, promoting a centralized coordination among emergency and recovery actors and enhancing administrative and operational powers.

Dordrecht OL is part of the Safety Region South-Holland South. Within the municipality there is a Safety Department, that works with the Safety Region during an emergency. Thanks to the multi-layer approach, the organizational structure is well-established and there is a well-defined network of relationships to activate in case of emergency.

The main reference planning tool for this phase is the *Regional Crisis Plan Safety Region Sout-Holland South*, promoted by the Safety Region in according with the municipalities in South-Holland South. This plan lays down how to manage the efforts of emergency services and organizations in responding to crisis or disasters. It provides structure and uniformity in this cooperation and describes tasks, responsibilities and powers of people involved in disaster response and crisis management.

Within the multi-layer DRM, adopted in the Netherlands, protocols and procedures of communication and engaging recovery partners and mechanism for collecting damage data are well-established. In particular, there are tools such as a National Crisis website² and a telephone service of alert, but also local services like a municipal platform for communication about issues and problems in crisis situations.

From SHELTER, the available input is:

• Chatbot, that can be used as protocol of communication for notifying and engaging recovery partners.

² <u>www.crisis.nl</u>

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4.1a) Establish an

organizational structure It is imperative to determine how the recovery has to be organized. First, it's necessary to identify a Local Disaster Recovery Manager (LDRM), that organizes, coordinates and advanced recovery at the local level. It's also important to decide which agencies and organizations will serve in lead roles and which will provide support. It could be useful to work in sub-groups and to have coordinators who would also be the primary points of contact for recovery in that subject area and would provide updates and other situational awareness to the LDRM.

4.1b) Ensure recovery resource identification, management and coordination

After recovery roles and responsibilities are determined, it is also important to identify the general administrative coordination and planning activities, that occur during a recovery process. A lack of resource coordination among recovery participants can lead to conflicts and inefficiencies.

4.1c) Develop a process for notifying and engaging recovery partners in preparation for or immediately after a disaster

Creating a chain of communication and predetermined location(s) for convening partners enables recovery planning and implementation to be initiated in a timely manner. Use of technology for virtual coordination and information sharing can be considered. Care should be taken in this step to clearly delineate responsibility for leading the engagement of recovery partners either in preparation for, or immediately after a disaster has occurred.



Establish a protocol of

notifying and engaging

communication for

recovery partners.

4.1d) Prepare a process for gathering damage information and assessing impacts to evaluate and support recovery activities through the long-term One of the first post-disaster recovery activities is to assess damage and gather information. While each disaster impacts a community in a different way, steps can be taken during the pre-disaster planning process to establish information sharing practices. The full range of partners identified through the planning process will assist with preparing a broader and longer-term statement of impact needs. Sectorspecific coordinators and other community leaders should identify, pre-disaster, what sorts of information they need and how best to obtain that information. Consideration must also be given to data collection

4.1e) Develop guidelines for recovery-related public communications

mechanisms and long-term

impact analysis.

The recovery organization needs a defined position dedicated to ensuring that information related to the recovery effort is being effectively communicated to the public in accessible formats. Specifically, the planning team should determine who is responsible for delivering effective public communication, how this will be accomplished, how often, in what formats, and for what purposes.



Establish mechanisms for collecting damage data and sharing them among recovery partners.

Identify a figure who is responsible for delivering public communications.

Establish a procedure for a clear, effective and accessible communication.

Figure 12. Key-activity 4.1 for Dordrecht OL

Activity 4.2 – Plan strategies and actions (Figure 50)

Considering the application of the multi-layer DRM and the *Regional Crisis Plan Safety Region Sout-Holland South,* it is possible to assert that in Dordrecht OL strategies and actions to address recovery issues, both before and after a disaster, are already defined. At the level of Safety Region, also the process for monitoring recovery actions is established.



Figure 13. Key-activity 4.2 for Dordrecht OL

Activity 4.3 – Write and adopt the recovery plan (Figure 51)

If the community needs to develop a new PDRP, all information, documentations and decisions made in the previous phases have to be gathered to form a new written plan.

When the plan is adopted, the whole community is invited to review and provide feedback before the final approval of the document. After an appropriate period of time to allow feedback, planners need to hold hearings to assess all observations from the community and modify the PDRP, if necessary. Once the plan has been corrected, there is the final approval phase of the planning process and the consequently release.

As mentioned above, the public participatory of documents is mandatory, even if the community does not participate in co-design processes.





Regarding the fourth phase, Dordrecht OL is already provided with an effective postdisaster operational process. OL does not need to write and approve a new planning tool.



1.1.5 PHASE 5 – ASSESSING AND MAINTAING THE PLAN: review and update





Activity 5.1 – Identify ongoing preparedness activities (Figure 53)

Phase 5 is made to encourage planners to identify training and exercise opportunities, and to establish a schedule for revision and review of plans. Reviews and revisions of PDRPs are based on real world events, such as wildfires, exercise experiences or lessons learned by other jurisdictions.

Ongoing activities ensure that recovery stakeholders are able to effectively manage postdisaster recovery activities (FEMA, 2016).

ÍII 5.1a) Undertake regular activities to increase To maximize understanding and build capacity in the recovery process. communities should review. establish a regular schedule of training, exercises and document review, revision and update. This will enable planners to address outstanding capability or process gaps, mitigation needs and other preparedness needs. Recovery plan-focused exercises should be integrated into other community preparedness activities. 5.1b) Evaluate new ulnerabilitie Characteristics of a community may change over time, which means that planners must regularly reevaluate the threats. hazards and vulnerabilities of their community. Predisaster recovery planners need to work closely, and regularly, with hazard mitigation experts to

research and understand

changing community

cornerstone of preparedness, and opportunities to mitigate should be considered and utilized. Planners must also consider

new community vulnerabilities that arise from changes in policies at all governance levels.

vulnerabilities. Hazard mitigation is a fundamental

Establish a regular schedule of training, exercises and document review.

Review the community's capabilities and capacity to support recovery, periodically.

Organise regular activities to increase the community preparedness. reviews of the Pre-Disaster Recovery Plan Basing on the periodically review of community's capabilities and capacity to support recovery, and on the evaluation of new vulnerabilities, stakeholders, partners and the public should be regularly invited to comment on the plan, provide their concerns and suggestions for revision/updates the contents of the PDRP.

5.1c) Conduct regular

5.1d.Document best practices and lessons learned

As the final activity in developing a Pre-Disaster Recovery Plan, the collaborative PT should document the steps that were followed in the planning process. Lessons learned from the planning process, or from execution of the plan postdisaster, should also be used to guide future revisions of the pre-disaster plan. Invite stakeholders, partners and the public to comment on the plan, provide their concerns and suggestions for revisions or updates, periodically.

Document the steps that were followed in the planning process and the lessons learned from the execution of the plan post-disaster.

Re-evaluate the threats, hazards and vulnerabilities of the community, periodically.

Figure 16. Key-activity 5.1 for Dordrecht OL



Another important ongoing preparedness activity is the regular evaluation and review of the PDRP, policy documents and ordinances, because capabilities, threats, hazards, and vulnerabilities of the community may gradually change over time and a plan update can be necessary. Changes in the PDRP may also be done to comply with new governments regulations and laws. Furthermore, lessons learned from execution of the plan in a postdisaster phase should be documented to guide future revisions of the plan.

In Dordrecht OL, discussion and reviewing of the post-disaster operational process is happening in collaboration with Safety Region and all actors and stakeholders are involved.

1.1.6 Summary of the Early Recovery Roadmap for Dordrecht OL

Figure 54 shows the progress of Dordrecht OL for each phase of the PDRR, through a qualitative indicator in the form of a loading bar.



Figure 17. Progress in the PDRR for Dordrecht OL

In addition, the following summary list (Table 13) is helpful to identify which activities are already done and which not, to highlight the complete aspects and the pending ones in the process of PDRP for Dordrecht OL.

PHASE 1	
complete sub-activities	 1.1a) Define the scope and timing of recovery planning activities 1.1b) Determine whether existing community planning documents can be leveraged or 1.2a) Build political support 1.2b) Ensure broad stakeholder representation



	1.2c) Enable strong community/public partecipation
	1.3b) Establish recovery activity support roles for all governance level
	1.3c) Establish external partnerships
	1.3d) Review the core group of stakeholders
	1.4a) Begin with shared understanding of Pre-Disaster Recovery Planning
	Consider formal agreements with organizations that may provide or support local
pending sub-activity	services in sub-activity 1.2b
PHASE 2	
	2.1a) Gather and analyse existing data on all relevant hazards and on know and
complete sub-activities	potential vulnerabilities
	2 1b) Identify community direct/indirect impacts
pending sub-activity	-
PHASE 3	
	3.1a) Evaluate planning and regulatory strengths and weaknesses
	3.1b) Evaluate local organizational and staff resources available
complete sub-activities	3.1c) Evaluate financial strenghts and weaknesses
	3.1d) Evaluate communication and outreach strengths and weaknesses
	3.2a) Define recovery and objectives goals
pending sub-activity	3.2c) Ensure a partecipatory and iterative process
	4 1a) Establish an organizational structure
	4.1b) Ensure recovery resource identification, management and coordination
	4.1c) Develop a process for notifying and engaging recovery partners in preparation for
	or immediately after a disaster
	4.1d) Prepare a process for gathering damage information and assessing impacts to
	4 1a) Develop quidelines for recovery activities infough the long-term
complete sub-activities	4 2a) Identify recovery issues
· · · · · · · · · · · · · · · · · · ·	4.2b) Identify recovery stages
	4.2c) Develop recovery strategies
	4.2d) Create actions
	4.2e) Define a process for monitoring recovery actions
	4.3a) While the Pre-Disaster Recovery Plan
	4.3c) Disseminate the Pre-Disaster Recovery Plan
	Identify the LDRM in sub-activity 4.1a
	Prioritize the recovery issues to make the recovery process more manageable in sub-
nonding out optivity	activity 4.2a Drighting the receivery strategies to make the receivery process more manageable in
pending sub-activity	sub-activity 4 2c
	Prioritize the recovery actions to make the recovery process more manageable in sub-
	activity 4.2d
PHASE 5	
	5.1a) Undertake regular activities to increase preparedness
complete sub-activities	5.10) Evaluate new vulnerabilities
	5.1d.Document best practices and lessons learned



pending sub-activity

-

Table 6. Completed/pending activities for Dordrecht OL

To summarise, the application of the early recovery Roadmap to the Dordrecht OL has shown that 3 out of 5 steps have been already completed thanks to the provisions included in national, regional, provincial and local policy and planning instruments. In addition, Dordrecht OL is provided with a policy instrument called *Regional Crisis Plan Safety Region South-Holland* that undertakes largely most of the activities and subactivities foreseen by the Roadmap. A brand-new PDRP is not needed for this OL, and the few pending sub-activity identified regards the need of ensuring a participatory and iterative process in the definition of recovery goals and principles in phase no. 3, and the need of prioritizing recovery strategies and actions in phase no. 4.