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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Glossary

Acronym	Full name
BBB	Build Back Better
CA	Consortium Agreement
CCA	Climate Change Adaptation
CH	Cultural Heritage
CNH	Cultural and Natural Heritage
CNHM	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. Miro[1] 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

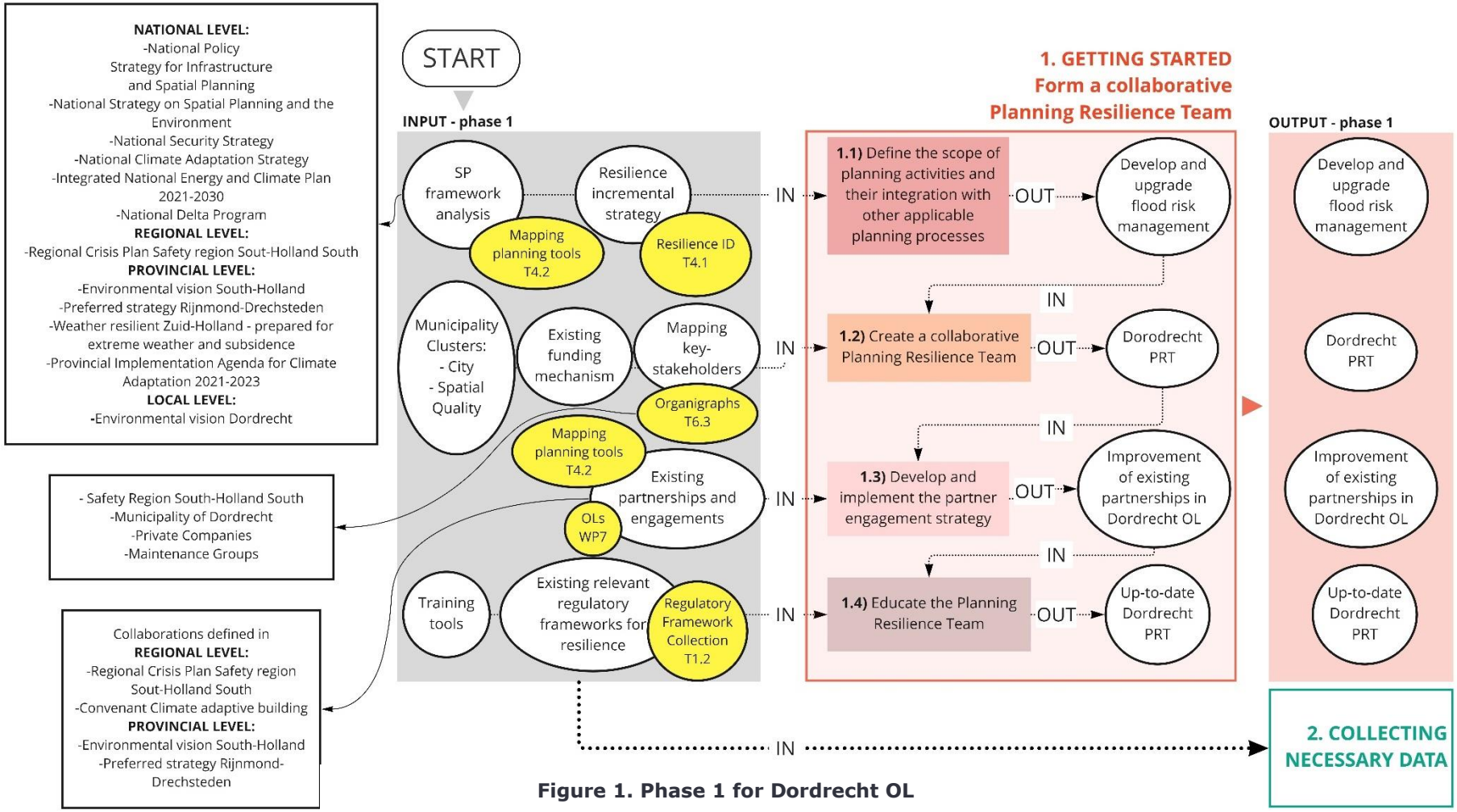

Figure 1. Phase 1 for Dordrecht OL

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 level	National Policy Strategy for Infrastructure and SP
	National Strategy on SP and the Environment
	National Security Strategy
	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
Provincial level	Environmental vision South-Holland
	Preferred strategy Rijnmond-Drechsteden
	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.

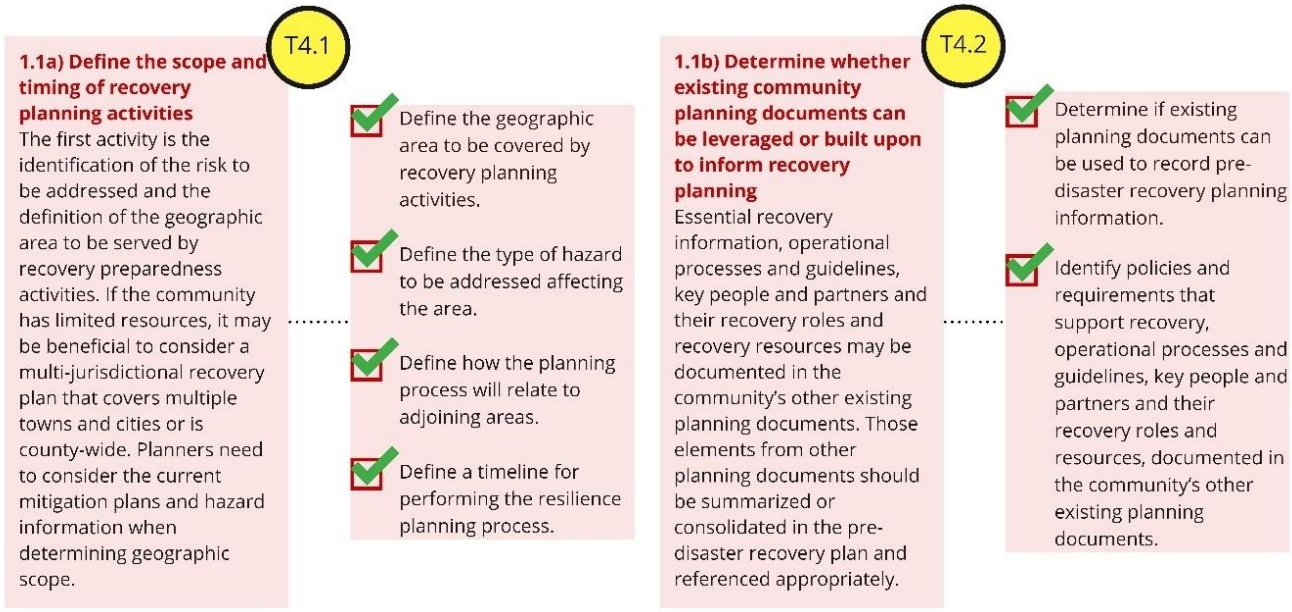

Figure 2. Key-activity 1.1 for Dordrecht OL

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

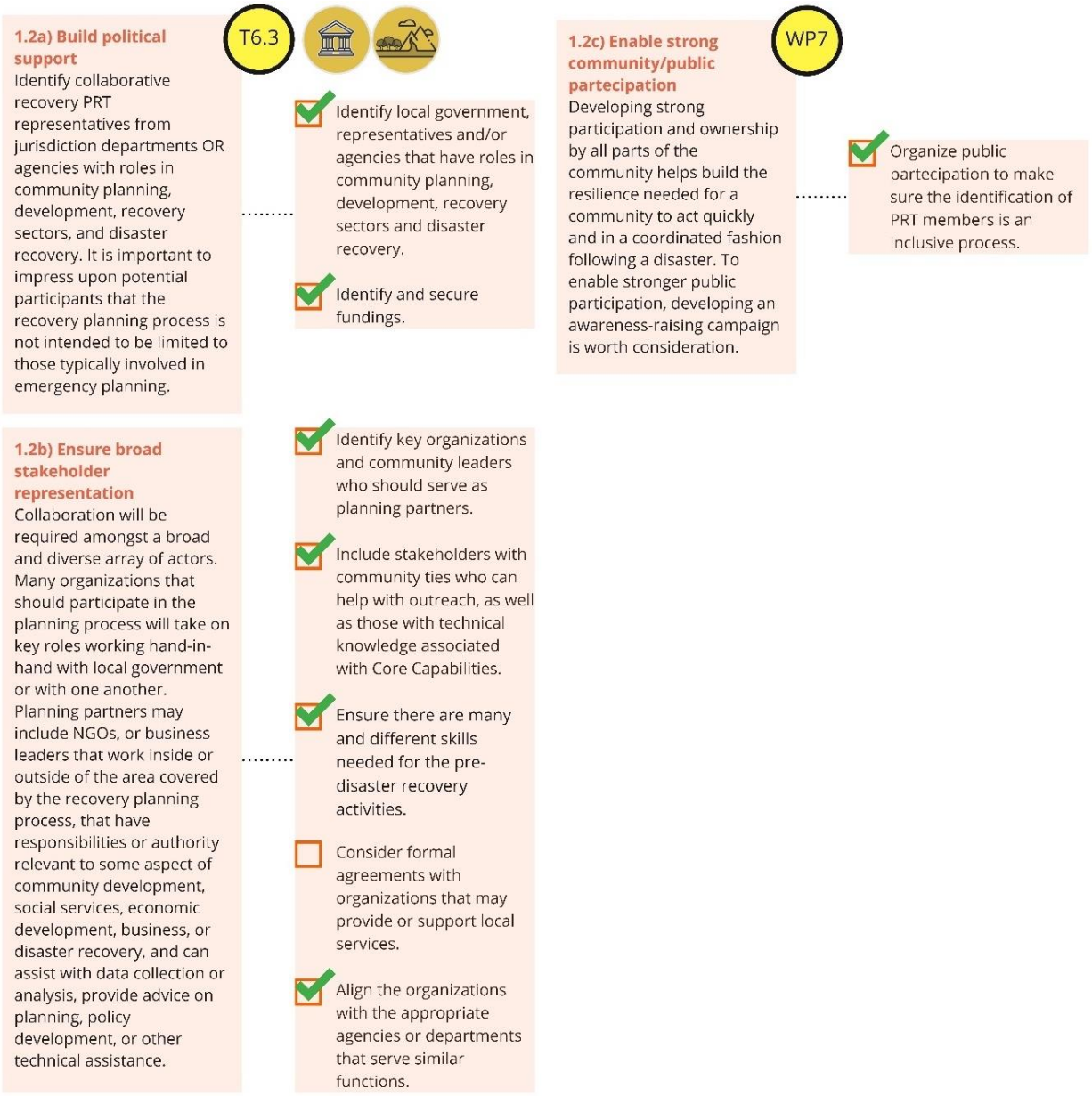

Figure 3. Key-activity 1.2 for Dordrecht OL

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
Regional level	Regional Crisis Plan Safety region South-Holland South
	Convenant Climate adaptive building
Provincial level	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.

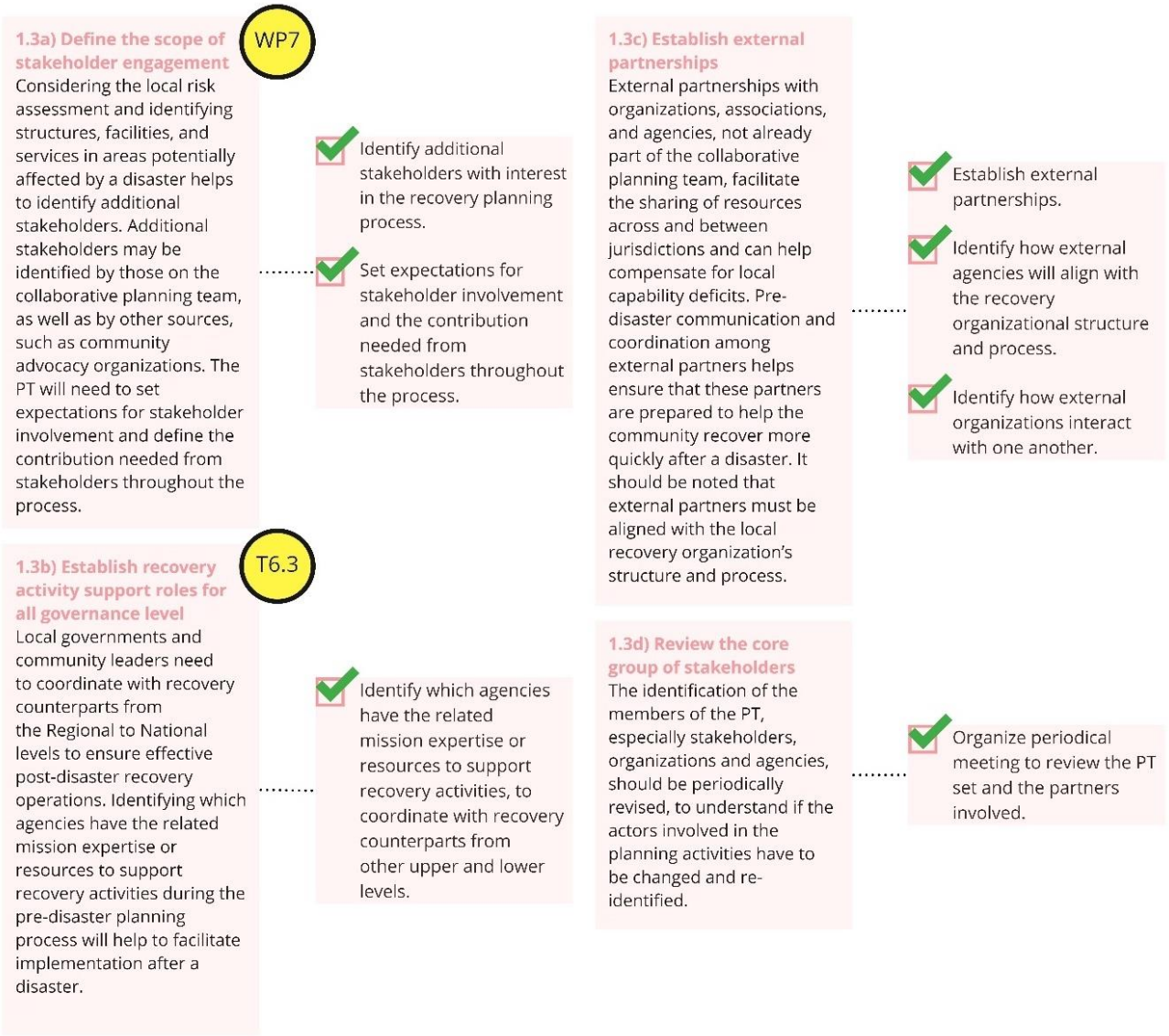

Figure 4. Key-activity 1.3 for Dordrecht OL

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

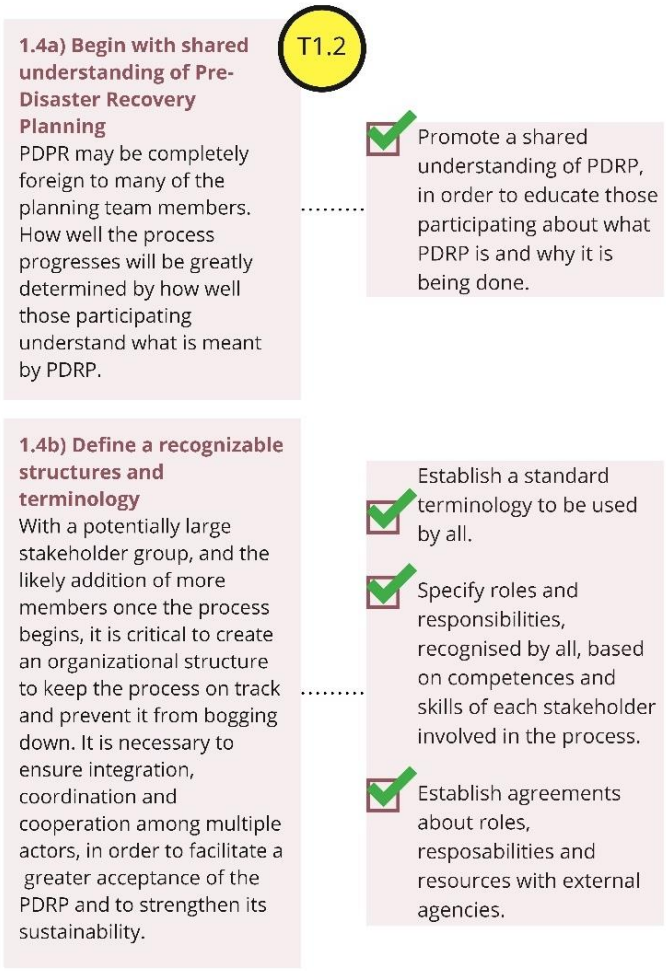

Figure 5. Key-activity 1.4 for Dordrecht OL

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

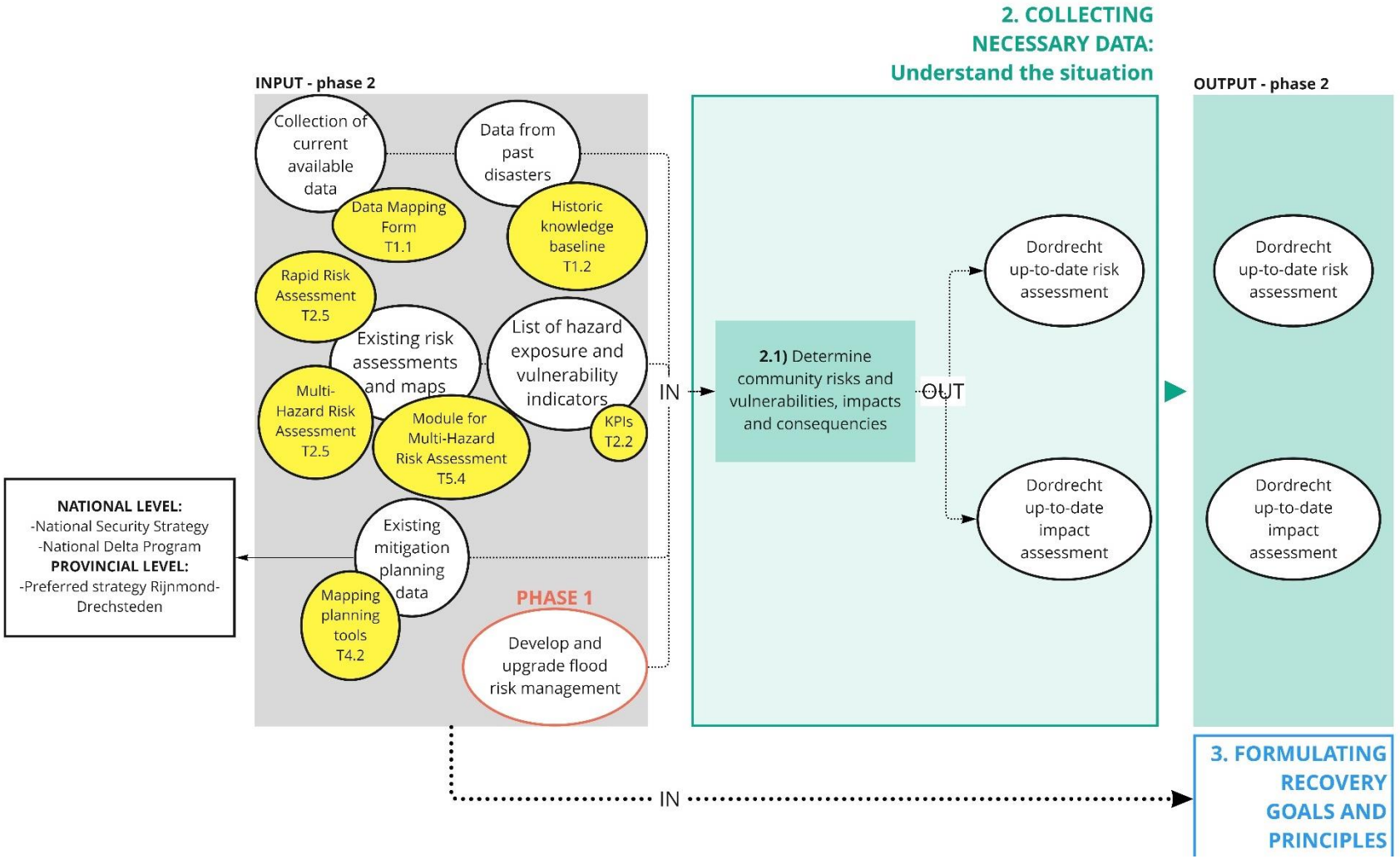

Figure 6. Phase 2 for Dordrecht OL

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 level	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.

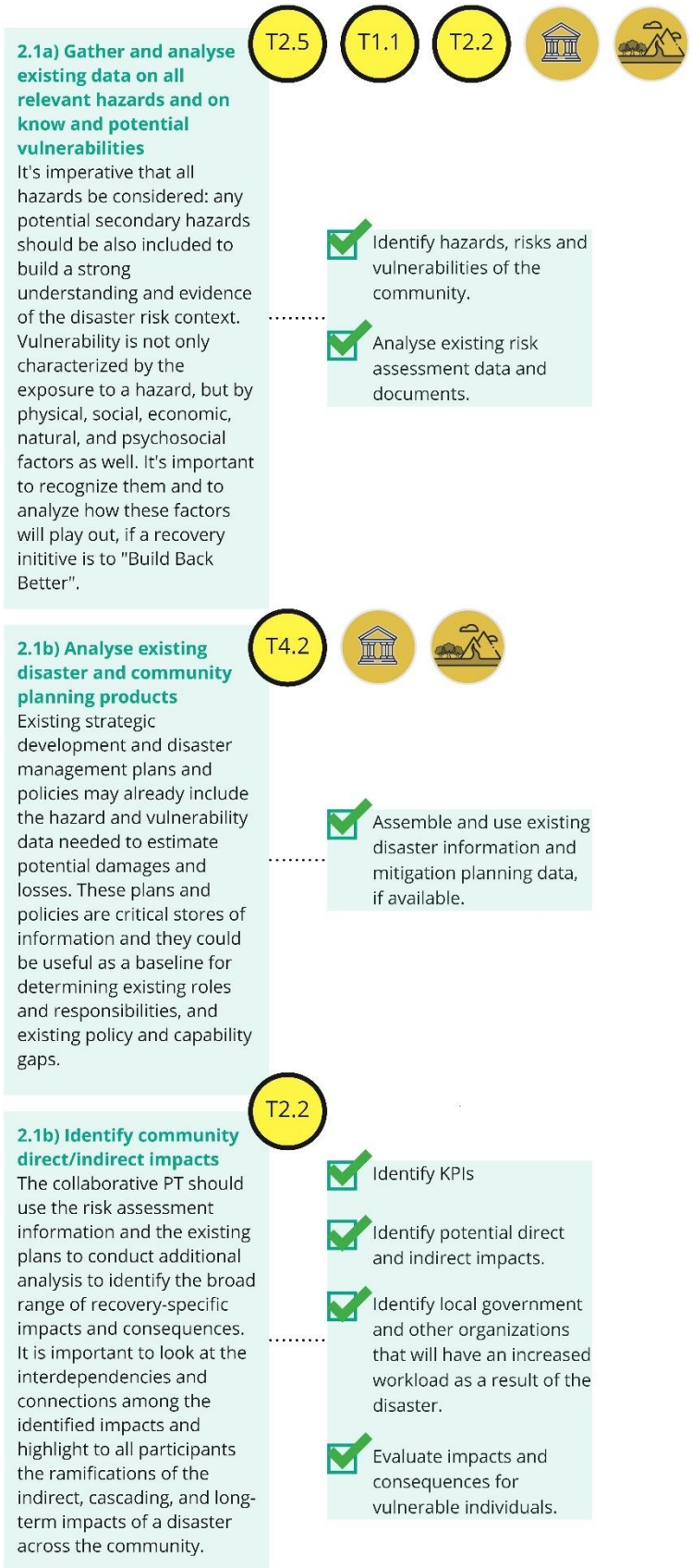

Figure 7. Key-activity 2.1 for Dordrecht OL

1.1.3 PHASE 3 – FORMULATING RECOVERY GOALS AND PRINCIPLES

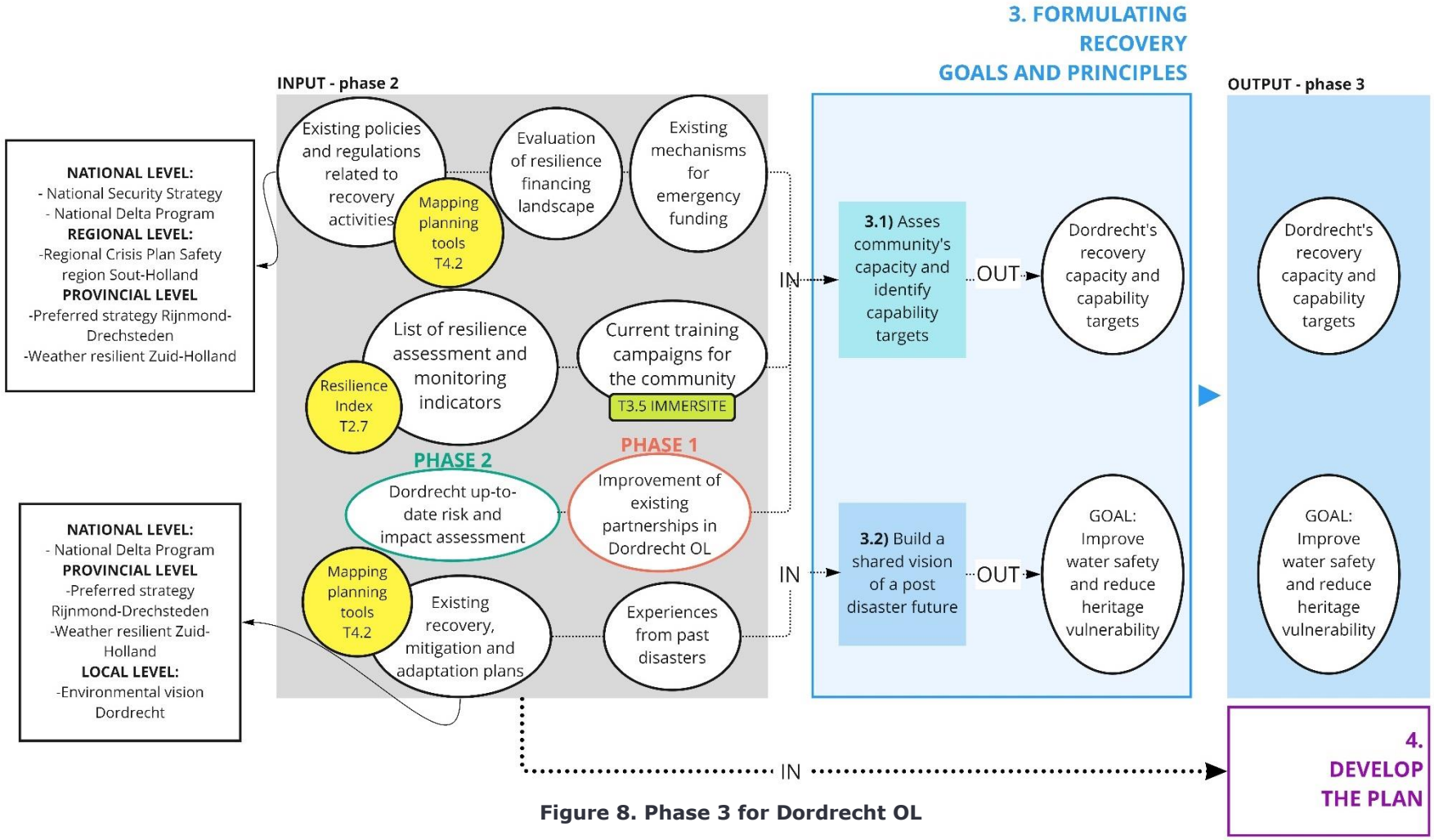

Figure 8. Phase 3 for Dordrecht OL

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.

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

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

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.

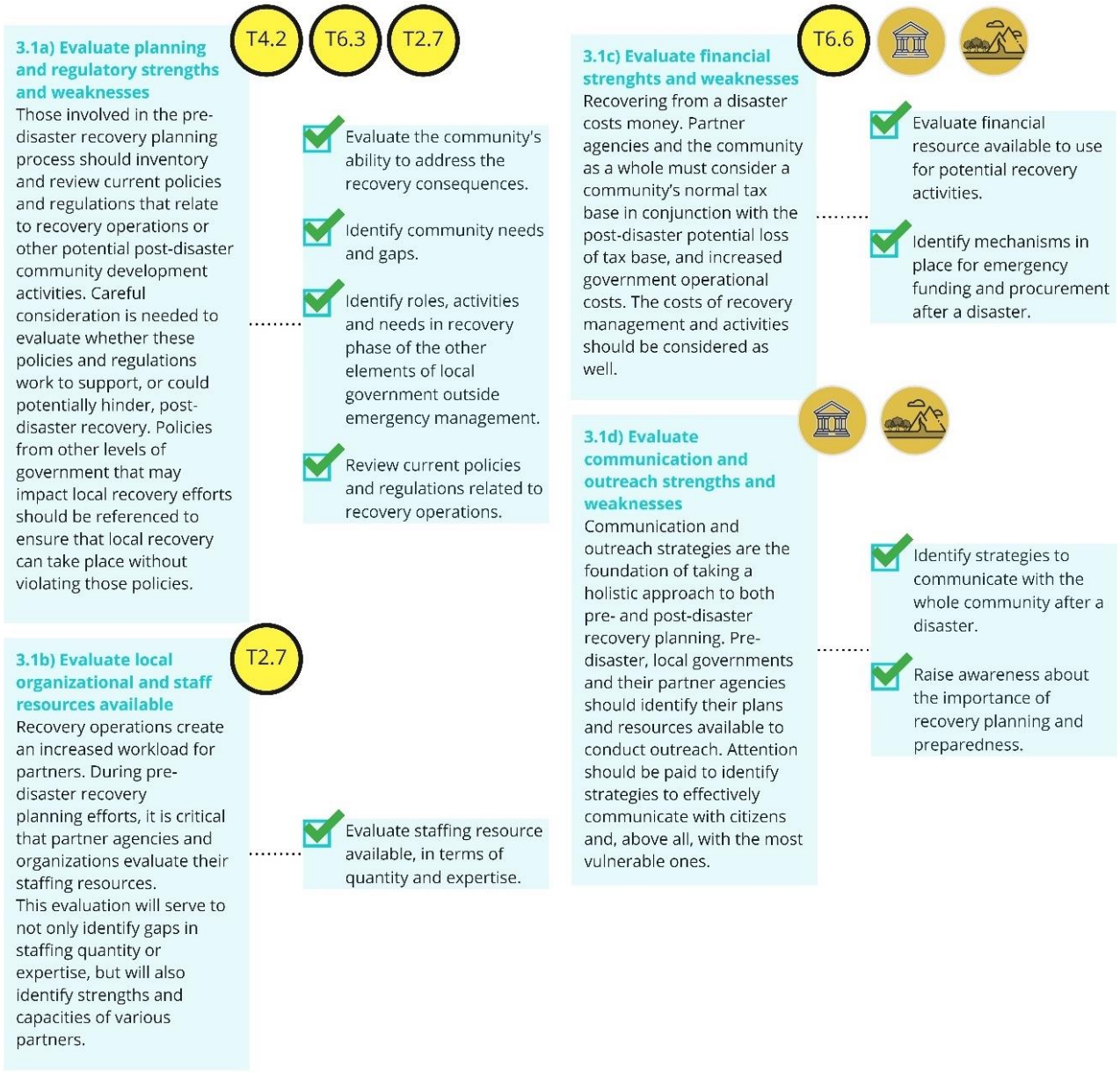

Figure 9. Key-activity 3.1 for Dordrecht OL

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
Provincial 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

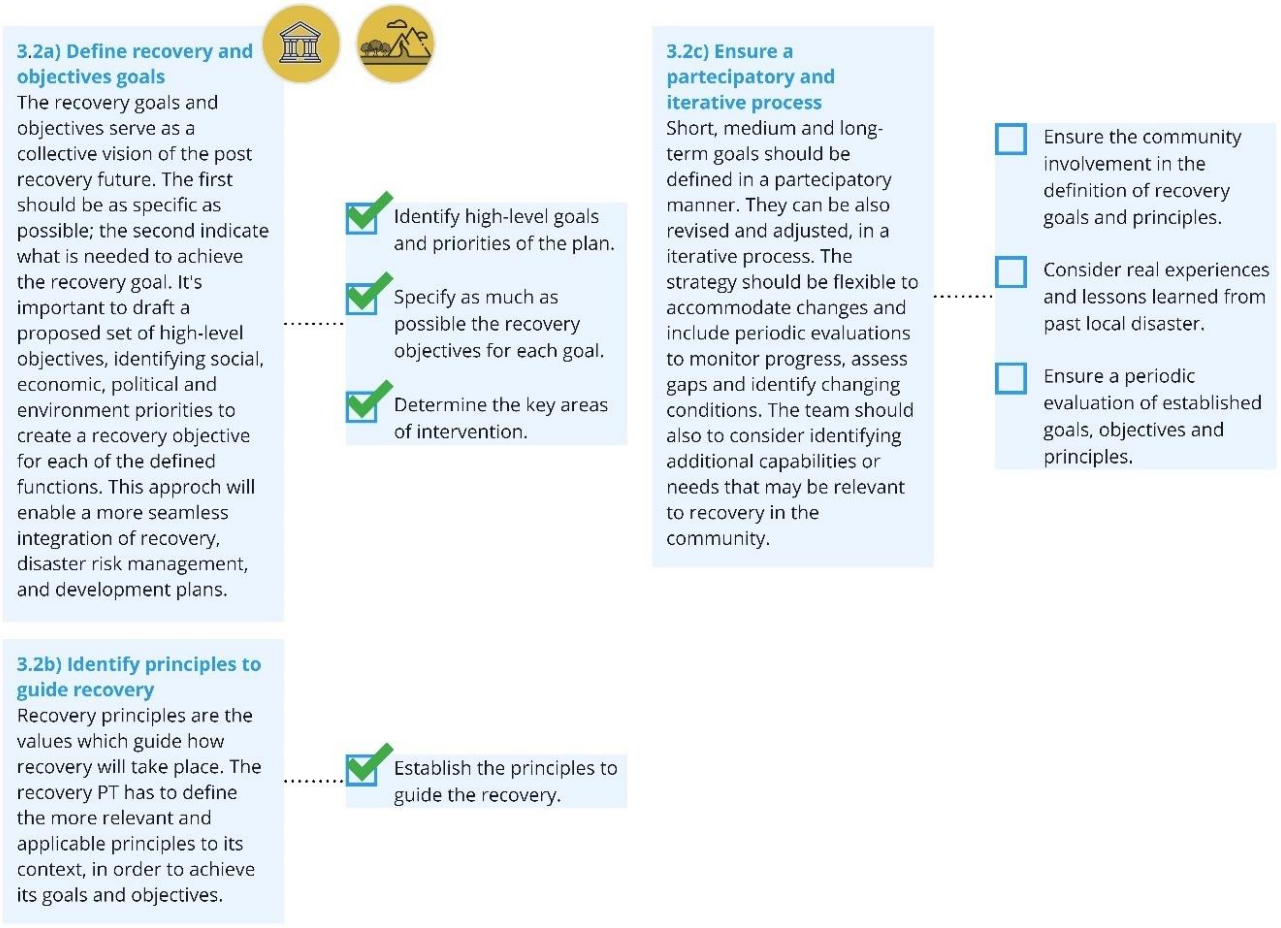

Figure 10. Key-activity 3.2 for Dordrecht OL

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

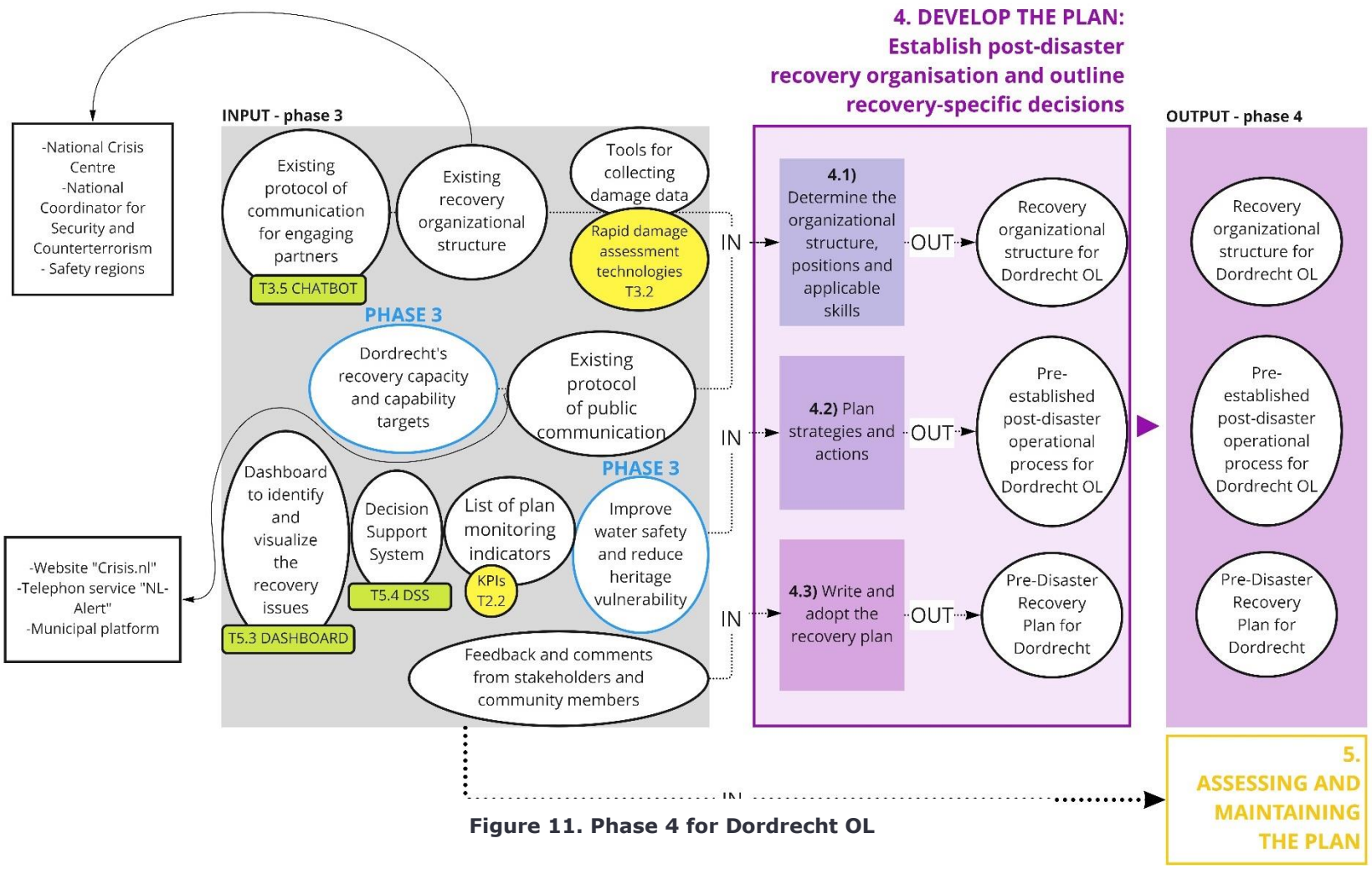

Figure 11. Phase 4 for Dordrecht OL

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 website[2] 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] www.crisis.nl

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.

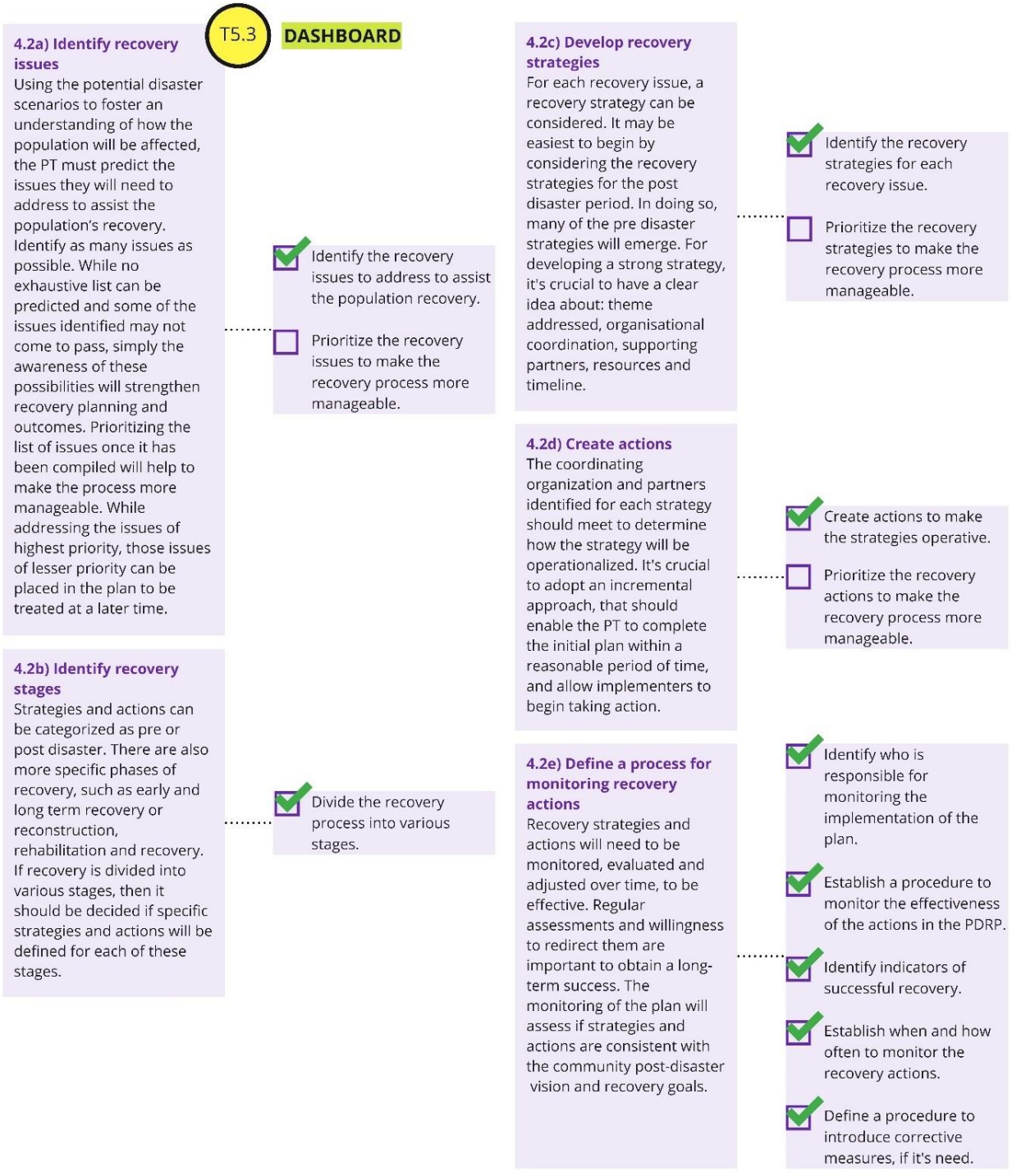

Figure 13. Key-activity 4.2 for Dordrecht OL

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.

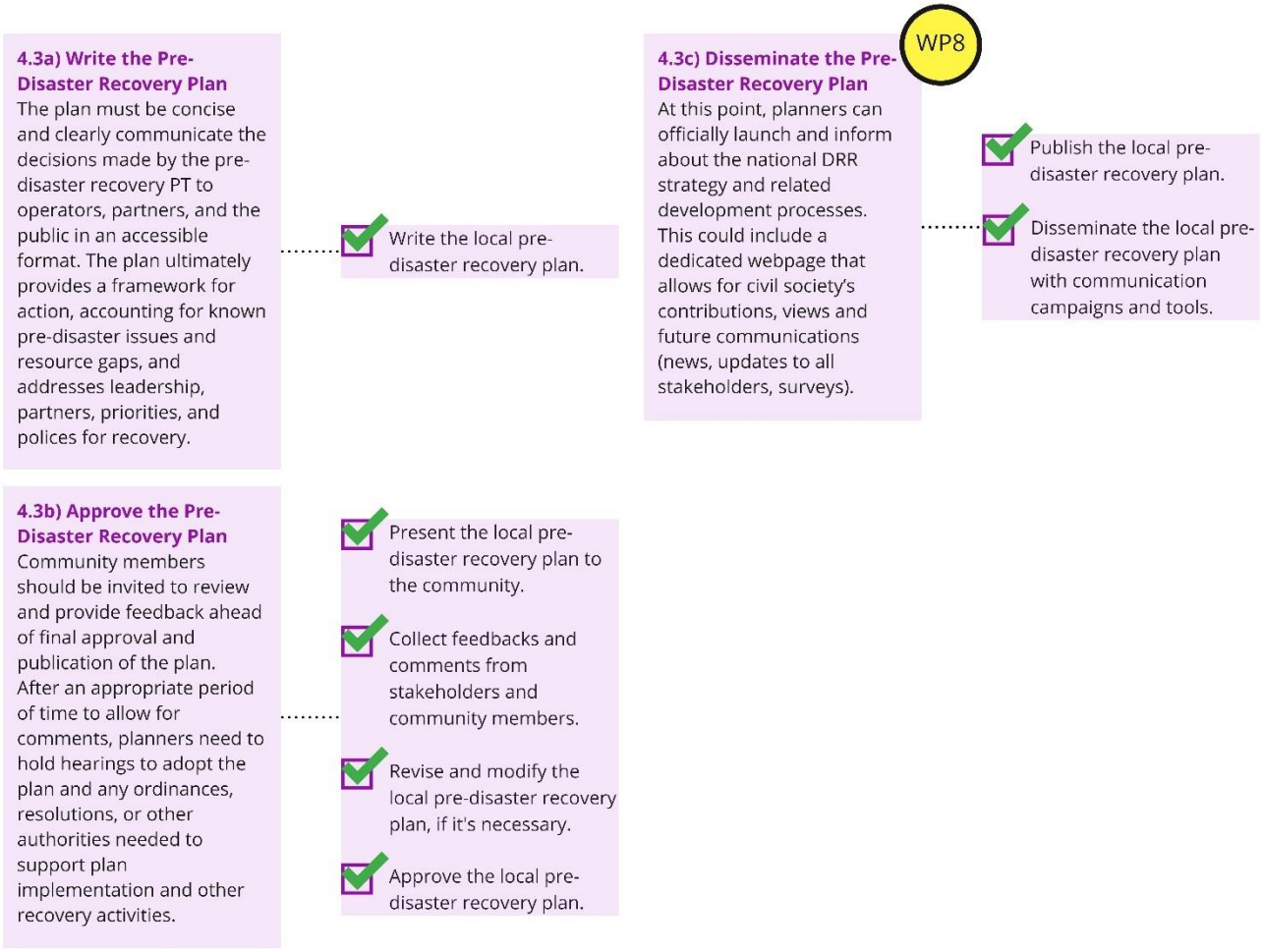

Figure 14. Key-activity 4.3 for Dordrecht OL

Regarding the fourth phase, Dordrecht OL is already provided with an effective post-disaster 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

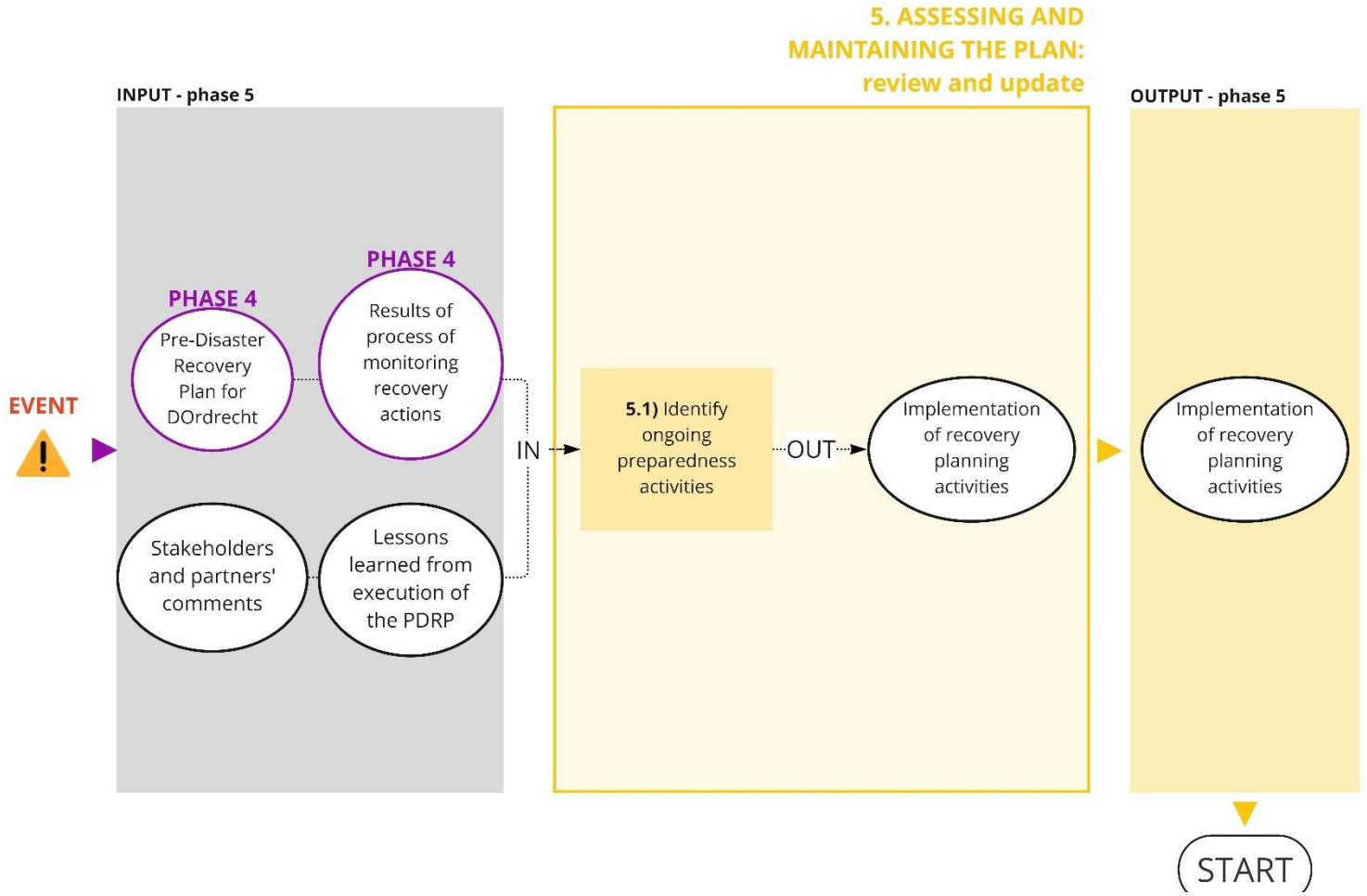

Figure 15. Phase 5 for Dordrecht OL

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 post-disaster recovery activities (FEMA, 2016).

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 post-disaster 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.

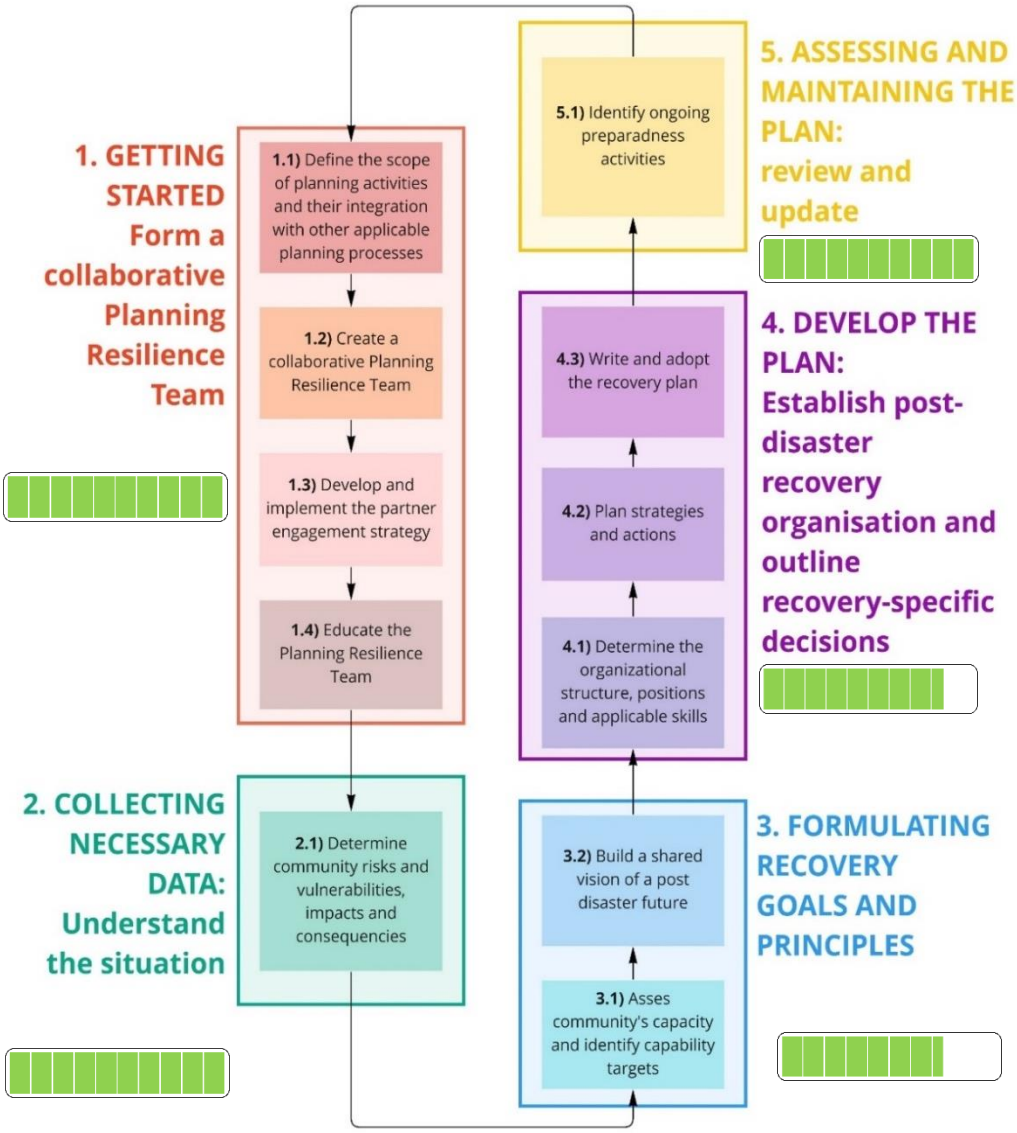

Figure 17. Progress in the PDRR for Dordrecht OL

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 1.3a) Define the scope of stakeholder engagement 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 1.4b) Define a recognizable structures and terminology
pending sub-activity	Consider formal agreements with organizations that may provide or support local services in sub-activity 1.2b
PHASE 2	
complete sub-activities	2.1a) Gather and analyse existing data on all relevant hazards and on know and potential vulnerabilities 2.1b) Analyse existing disaster and community planning products 2.1b) Identify community direct/indirect impacts
pending sub-activity	-
PHASE 3	
complete sub-activities	3.1a) Evaluate planning and regulatory strengths and weaknesses 3.1b) Evaluate local organizational and staff resources available 3.1c) Evaluate financial strenghts and weaknesses 3.1d) Evaluate communication and outreach strengths and weaknesses 3.2a) Define recovery and objectives goals 3.2b) Identify principles to guide recovery
pending sub-activity	3.2c) Ensure a partecipatory and iterative process
PHASE 4	
complete sub-activities	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 evaluate and support recovery activities through the long-term 4.1e) Develop guidelines for recovery-related public communications 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) Write the Pre-Disaster Recovery Plan 4.3b) Approve the Pre-Disaster Recovery Plan 4.3c) Disseminate the Pre-Disaster Recovery Plan
pending sub-activity	Identify the LDRM in sub-activity 4.1a Prioritize the recovery issues to make the recovery process more manageable in sub-activity 4.2a Prioritize the recovery strategies to make the recovery process more manageable in sub-activity 4.2c Prioritize the recovery actions to make the recovery process more manageable in sub-activity 4.2d
PHASE 5	
complete sub-activities	5.1a) Undertake regular activities to increase preparedness 5.1b) Evaluate new vulnerabilities 5.1c) Conduct regular reviews of the Pre-Disaster Recovery Plan 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 sub-activities 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.