



European Union
Civil Protection

Union Civil Protection Mechanism -
Peer Review Programme
for disaster risk management



Peer Review Assessment Framework

Peer Review Assessment Framework



European Union
Civil Protection

Union Civil Protection Mechanism -
Peer Review Programme
for disaster risk management



Authors: **Jaroslav Mysiak, Veronica Casartelli, Silvia Torresan**

Version/release date: **June 30th, 2021**

Disclaimer

The content of this deliverable does not reflect the official opinion of the European Commission. Responsibility for the information and views expressed herein lies entirely with the author(s).

Suggested citation

Mysiak J, Casartelli V and Torresan S (2021). Union Civil Protection Mechanism - Peer Review Programme for disaster risk management: Assessment Framework.

<https://doi.org/10.25424/CMCC-CHC1-TF40>



1441
DREUSEK

1341
DTC - 697

241
TOMER

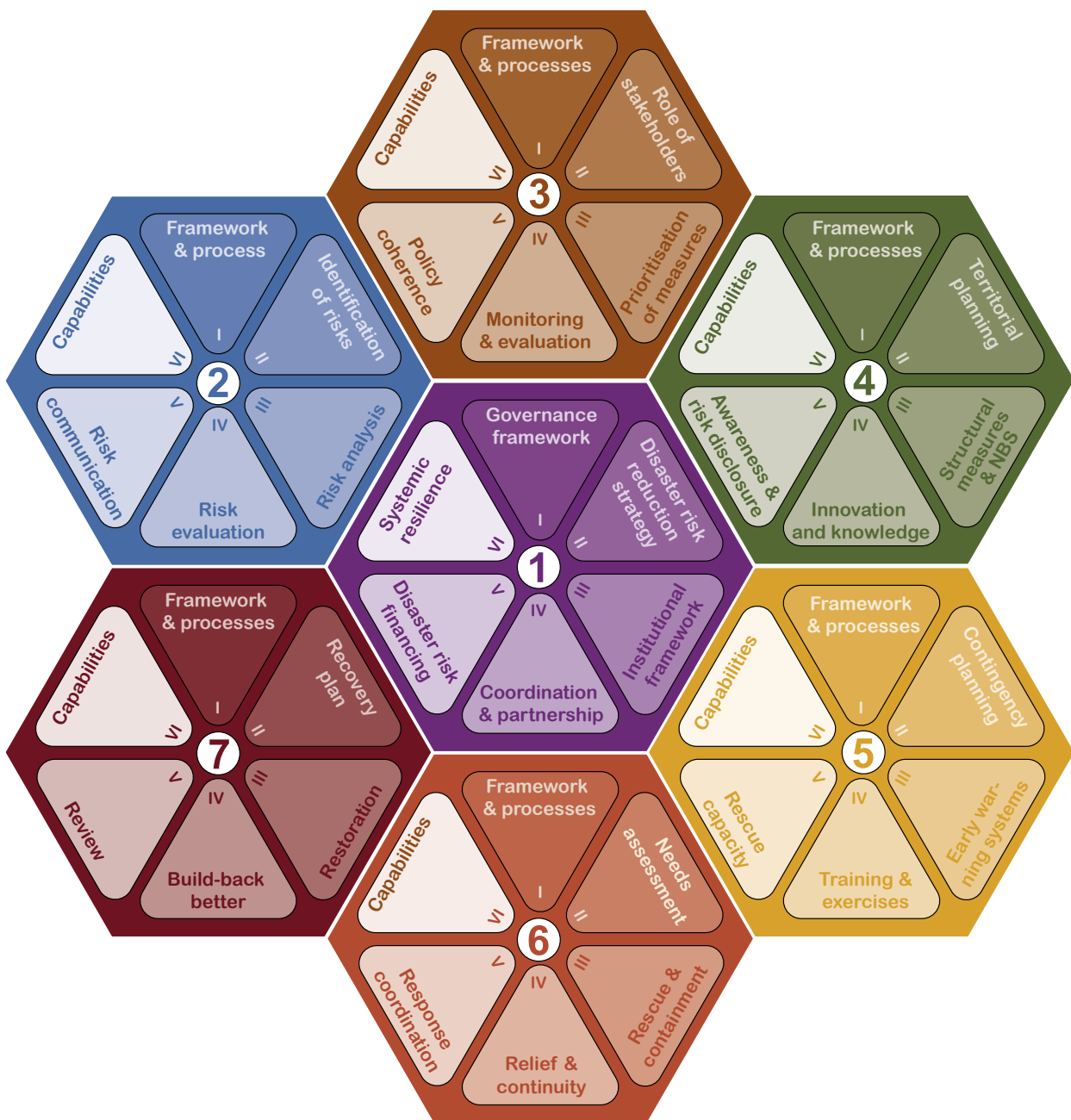


Executive summary

The Peer Review Assessment Framework (PRAF) revises, updates, and expands the framework used in the previous (2017-2019) programme cycle. The revisions draw on various inputs, including the outcomes of the 2017-2019 programme cycle, the Organisation for Economic Co-operation and Development (OECD) recommendations commissioned for this purpose, the recently revised ISO 22392:2020 Guidelines for conducting peer reviews¹, the legislative proposal² amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism (UCPM), and a series of

interviews conducted with major experts knowledgeable about risk management capabilities and peer review.

The suggested PRAF is composed of **seven thematic areas** (ref. hexagons in the below figure), relevant for reviewing disaster risk management capabilities. Each thematic area is made up of **six detailed topics** ('wedges') for examining the practices of risk management in the host country.



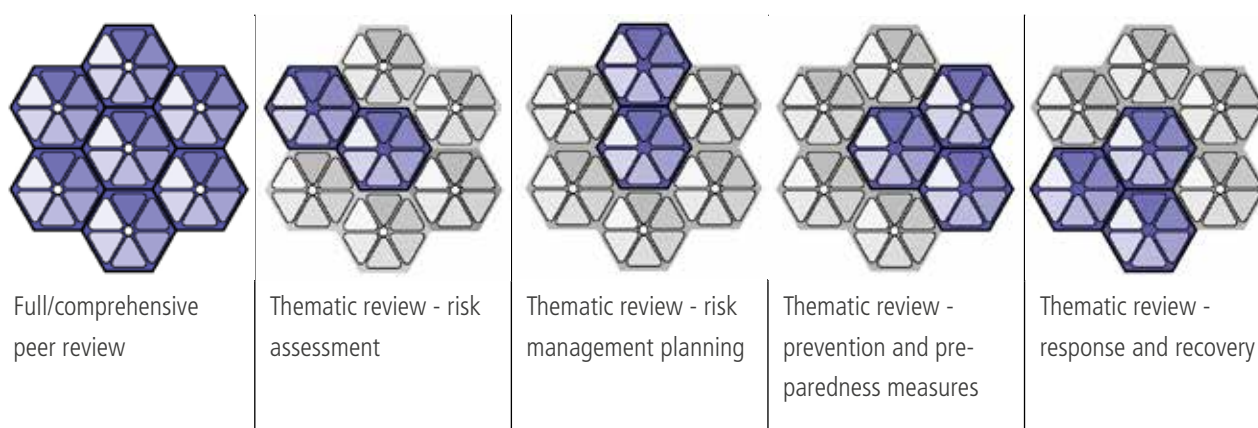
The analytical areas are aligned with the UCPM policy requirements and terminology. In addition to the **ex-ante** peer review areas (risk assessment, risk management planning, risk prevention and preparedness measures), the framework also includes **ex-post** peer review of emergency responses, and recovery and lessons learned. The latter serves to address how relatively recent disasters and crises, including the COVID-19 pandemic, have been managed, and what lessons can be drawn from them.

Other added topics for the peer review include:

- access to and exploitation of Copernicus satellite imaging services (Emergency, Land Monitoring, and Climate Change Services);

- assessment of resilience, coping and adaptive capacity using indicator-based assessment and composite indices;
- role of and support for nature-based solutions in disaster risk prevention and implementation of the building back better strategy.

The host country can choose the peer review focus that best addresses its needs. A **comprehensive review** covers all thematic areas, whereas a **targeted review** can focus on risk assessment, risk management planning or any of the risk management stages: prevention, preparedness, or emergency response to post-disaster recovery.



A detailed description of which actors are involved in and/or contribute to the peer review, how the information and evidence are collected (methods and tools), the process of collecting information and interactions from the actors (workflow), and the principles and rules of conduct applied throughout the assessment exercise is included in a separate document: *Peer review programme: Guidelines*. In brief, the workflow for peer review is aligned with the ISO 22392:2020 standard and extended, with special reference to:

- a central role of the facilitator in writing the initial desk review and drafting the peer review report, based on the available knowledge and the continuous input of the reviewing peers;
- a systematic use of fact-finding data collection methods prior to the peer review, and formulation of initial hypotheses regarding the good practice examples and strengths/limitations of the risk management practices – areas that are

to be addressed during the peer review mission;

- additional supporting material produced to guide the peer reviews, such as the training kit and the peer review guidelines;
- suggesting a voluntary self-assessment by the host country prior to the peer review mission;
- a follow up assessment after the review, on whether and how the recommendations have been taken into account by the host country.

The peer review workflow is structured in 12 steps, as per the figure below.

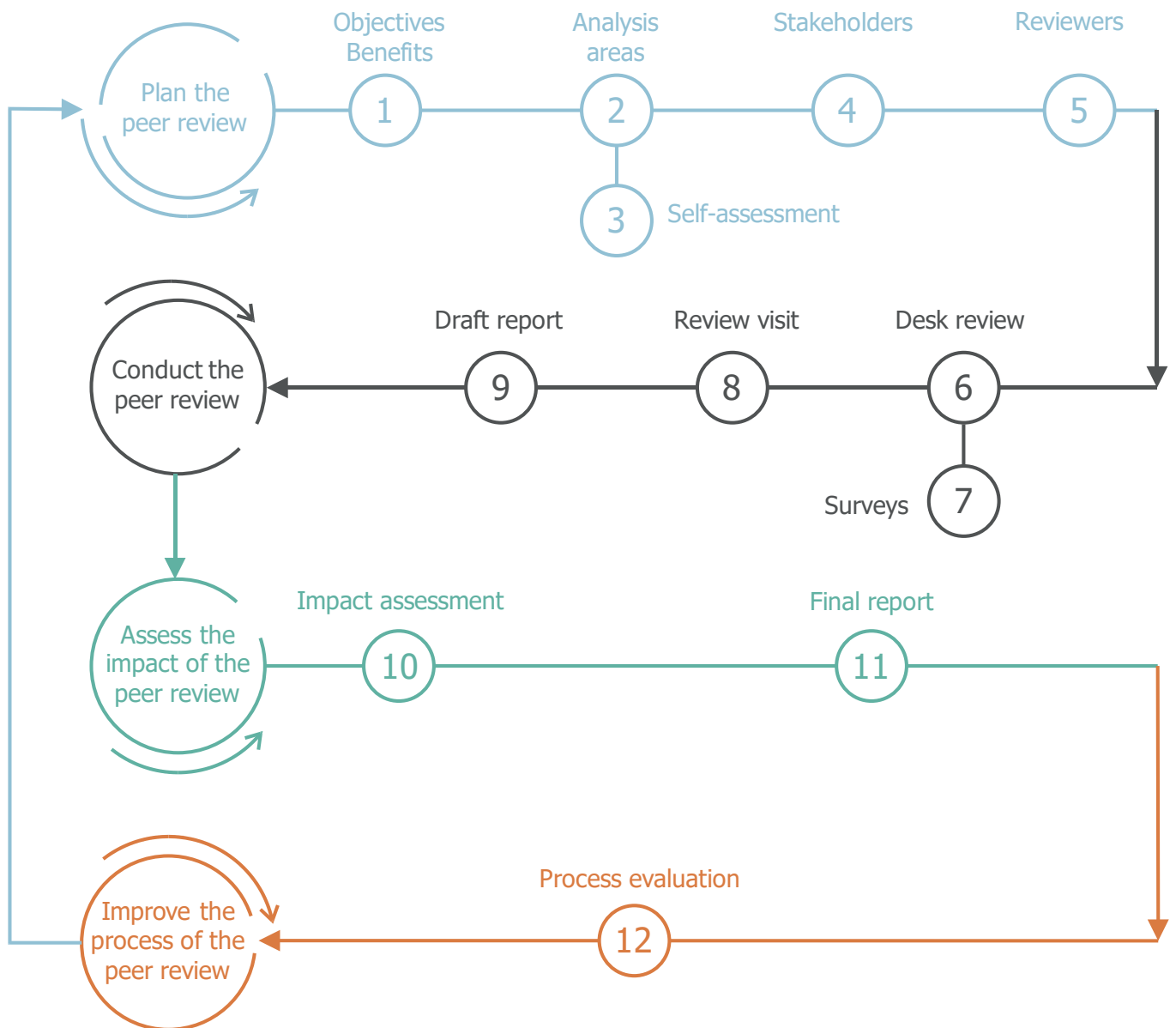


Table of Contents

1 Introduction	15
2 Thematic areas of the peer review	17
2.1 - Overview and thematic areas of the peer review	18
2.2 Governance of disaster risk reduction	21
2.2.1 - Introduction	22
2.2.2 - Governance framework	22
2.2.3 - Disaster risk reduction strategy	23
2.2.4 - Institutional framework	23
2.2.5 - Coordination and partnership	24
2.2.6 - Disaster Risk Financing	25
2.2.7 - Systemic resilience	25
2.3 Risk assessment	27
2.3.1 - Introduction	28
2.3.2 - Legislative framework and processes	30
2.3.3 - Risk Identification	30
2.3.4 - Risk Analysis	31
2.3.5 - Risk Evaluation	31
2.3.6 - Risk communication and the role of stakeholders	31
2.3.7 - Administrative, financial and technical capacities	32
2.4 Risk management planning	33
2.4.1 - Legislative framework and processes	34
2.4.2 - Roles of stakeholders	35
2.4.3 - Prioritisation of measures	35
2.4.4 - Monitoring, evaluation and reporting	36
2.4.5 - Policy coherence	36
2.4.6 - Administrative, financial and technical capacities	36
2.5 Risk prevention	39
2.5.1 - Legislative framework and processes	40
2.5.2 - Territorial planning	40
2.5.3 - Structural measures and nature-based solutions	41
2.5.4 - Innovation and knowledge services	41
2.5.5 - Awareness and risk communication	42
2.5.6 - Administrative, financial and technical capacities	42

2.6 Risk preparedness	45
2.6.1 - Legislative framework and processes	46
2.6.2 - Contingency planning	46
2.6.3 - Early warning systems	46
2.6.4 - Training and exercises	47
2.6.5 - Rescue capacity	47
2.6.6 - Administrative, financial and technical capacities	47
2.7 Emergency response	49
2.7.1 - Legislative framework and processes	50
2.7.2 - Needs assessment	50
2.7.3 - Rescue and containment operations	50
2.7.4 - Relief and business continuity	50
2.7.5 - Response coordination	50
2.7.6 - Administrative, financial and technical capacities	50
2.8 Recovery and lessons learned	51
2.8.1 - Legislative framework and processes	52
2.8.2 - Recovery plan	52
2.8.3 - Restoration	52
2.8.4 - Build-back better reconstruction	52
2.8.5 - Lessons learned	53
2.8.6 - Administrative, financial and technical capacities	53
References	55
Annex: List of interviewed experts	57



1 | Introduction

This document organises the Peer Review Assessment Framework (PRAF) for the 2020-2022 programme cycle. The Framework builds upon and draws inspiration from the following inputs and initiatives:

- The European Commission conducted an evaluation of the 2017-2019 peer review programme and held an expert workshop in Brussels on January 15, 2020. The evaluation indicated several limitations to be addressed, including unclear objectives and differences in the types of peer reviews, excessive and somehow ambiguous guiding questions, and a too complex assessment framework.
- Experts were interviewed to collect suggestions and recommendations for the PRAF. The experts included peers from previous reviews as well as leading experts from the United Nations Office for Disaster Risk Reduction (UNDRR), OECD and other organisations.
- The Organisation for Economic Co-operation and Development (OECD) has analysed the results of the 2018-2019 peer review programme and elaborated 22 specific recommendations³.
- The Technical Committee *Security and Resilience* of the International Organization for Standardization (ISO) released the Guidelines for conducting peer reviews¹ in February 2020. The Guidelines offer help to organisations in designing, organizing, conducting and receiving feedback from and learning from a peer review of their disaster risk reduction policies and practices.
- The European Commission released a legislative proposal² amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism (UCPM) in June 2020. The proposal intends to reinforce a cross-sectoral and societal preparedness approach to trans-boundary disaster risk management, improve planning in prevention and preparedness, further reinforce the comprehensive risk management approaches

based on multi-hazard and ecosystem-based approaches, and pay close attention to likely climate change impacts. The proposal also introduced Union-wide Disaster Resilience Goals as part of risk management capacities and was adopted as Regulation 2021/836 of the European Parliament and of the Council of 20 May 2021 amending the Decision No 1313/2013/EU on a Union Civil Protection Mechanism²⁵.

- The European Environment Agency has produced a report on Monitoring, Reporting and Evaluation (MRE), analysing the progress made on climate adaptation and climate risk management⁴. The report summarises the best practice examples of how to evaluate and monitor progress and create benchmarks for cross-country comparison.

The next sections of the PRAF describe the focus areas of disaster risk management that are to be reviewed. Starting by giving an overview in section 2.1, in section 2.2 to 2.8 the structure of this document covers the following seven thematic areas: governance of disaster risk reduction, risk assessment, risk management planning, risk prevention, risk preparedness, emergency response, recovery and lessons learned. The host country can choose all or a subset of the thematic or analytical areas to define the scope of the peer review.

Please note that a separate document, *Peer review Programme: Guidelines*, describes in detail the methodology of the peer review programme, the roles and responsibilities of the actors involved and the general workflow.

2 | Thematic areas of the peer review

2.1 - Overview and thematic areas of the peer review

The PRAF addresses the thematic areas of the risk management capabilities as defined by the UCPM (Figure 1).

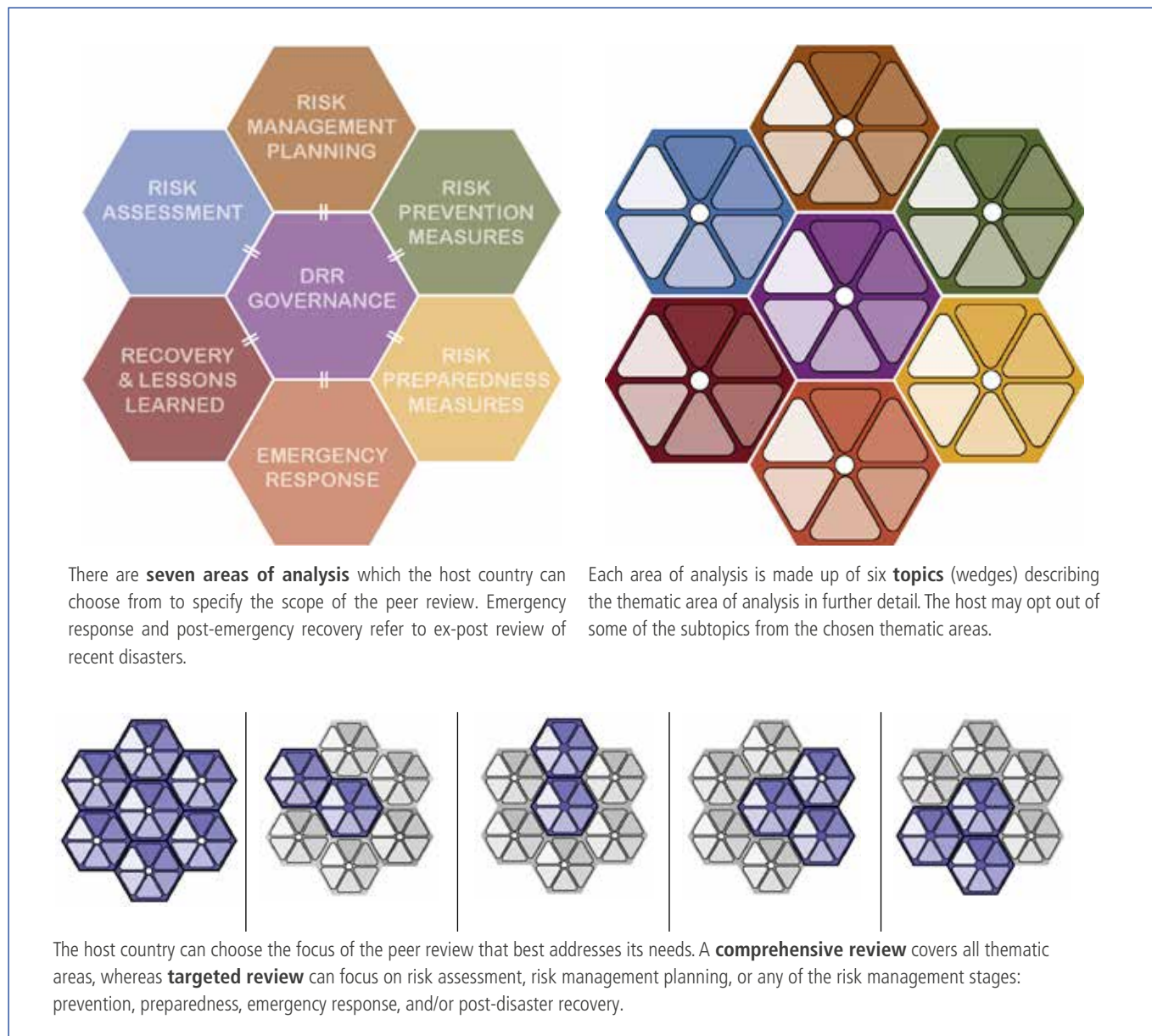


Figure 1 - Main thematic areas of analysis for the UCPM Peer review 2020-2022.

The proposed framing of the areas of analysis (as shown in Figure 1) is aligned with the UCPM requirements and terminology, thus providing a basis for a consistent analysis, compatible with the regulatory requirements.

It includes ex-ante peer review of risk assessment, risk management

planning, and risk prevention and risk preparedness measures, as well as ex-post assessment of the emergency response and recovery. This addresses how relatively recent disasters and crises - including the COVID-19 pandemic - have been managed and what lessons can be learned from them.

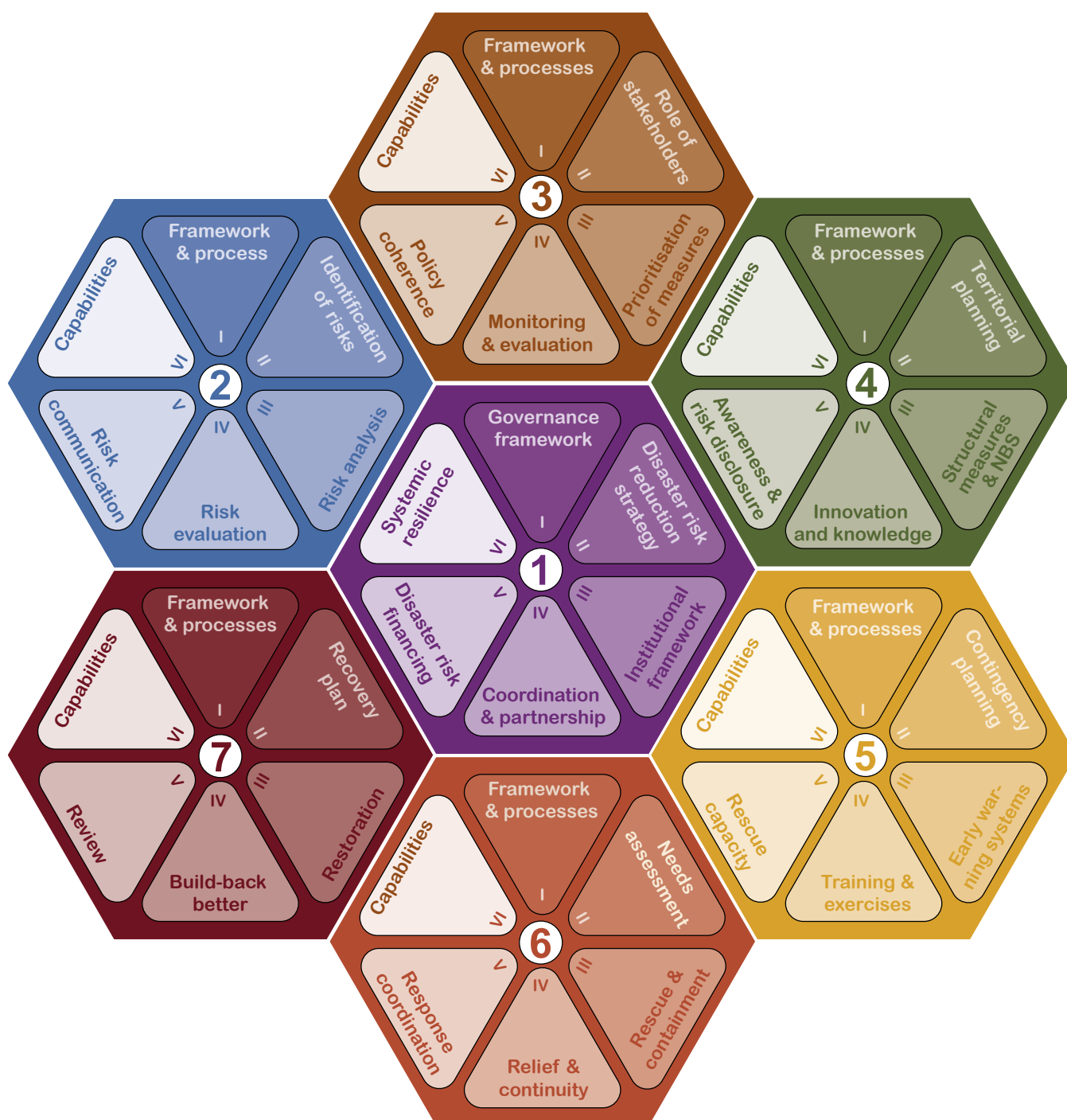


Figure 2 - Proposed main thematic areas of analysis.

As shown in Figure 2, each area of analysis is further divided into six topics ('wedges'). The host country can not only choose a

combination of thematic areas, but also opt in/out of some of the topics within the selected thematic areas.



Sendai Framework was still in consultation stage and today our focus is squarely on implementation. As you can see where...

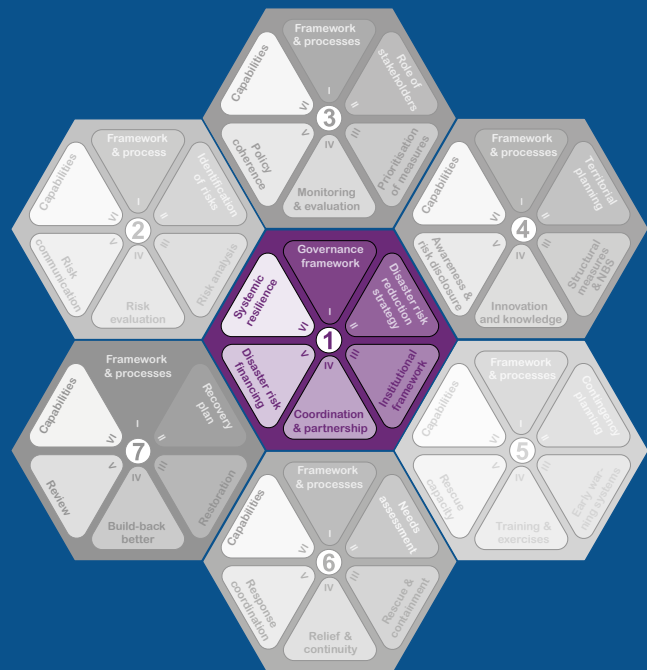
GP2019

ASIAN DEVELOPMENT BANK

UNESCO

MONETIS

2.2 Governance of disaster risk reduction



2.2.1 - Introduction

The International Risk Governance Centre (IRGC), an interdisciplinary unit dedicated to extending knowledge about the increasingly complex, uncertain and ambiguous risks that affect society, refers to risk governance as “actions, processes, traditions and institutions by which authority is exercised and decisions are taken and implemented”^a.

As one of the four principles for action, the Sendai Framework⁵ calls on governments to strengthen disaster risk governance for prevention, preparedness, response and recovery. Similarly, the OECD Recommendations on the governance of critical risks⁶ call for comprehensive, all-hazards and transboundary approaches to risk governance.

This area of analysis is supportive of and complementary to risk management capabilities as defined by the UCPM. According to the ISO 22392:2020¹, governance of disaster risk reduction should either be covered by each future peer review, or, if this area is not chosen as a target, a consolidated synthesis of the country’s risk governance should be provided to the reviewers.

Governance aspects are further refined and elaborated in all successive areas of analysis. The initial and more broadly described risk governance architecture is necessary to avoid redundancies and guide the reviewers in understanding the complex interactions of institutional roles and coordination thereof.

ISO 22392:2020¹ recommends the following risk governance aspects to be covered by the peer reviews:

- governing and decision-making structures;
- roles of relevant departments;
- legislative and legal frameworks;

- measures used for governance;
- coordination of interested parties;
- delegated authority and financial support;
- external alliances and partnerships;
- mechanism for gathering, using and disseminating risk and hazard information;
- how the importance of risk reduction features in actions, policies and standards.

Priority 2 of the Sendai Framework for DRR 2015-2030 calls for “strengthening disaster risk governance”, and one target calls for “substantial increase in the number of countries with national and local disaster risk reduction strategies by 2020”.

The United Nations Office for Disaster Risk Reduction (UNDRR) commissioned the developing national disaster risk reduction strategies as part of a series of thematic guidelines under its “Words into Action” initiative to support national implementation of the Sendai Framework. This Guidance specifies ten core requirements that strategies and plans should address. The revised PRAF covers all of them.

As for the COVID-19 pandemic, disaster risk governance was chosen as the overarching theme for the 2020 International Day for Disaster Risk Reduction (DRR) by UNDRR, drawing attention to national and local DRR strategies, *which shall be multi-sectorial, linking policies in several different areas, such as land use, building codes, public health, education, agriculture, environmental protection, energy, water resources, poverty reduction and climate change adaptation*^b. The revised PRAF suggests this holistic approach, providing an appropriate multidisciplinary analysis.

2.2.2 - Governance framework

The EU Civil Protection Mechanism Decision is central to the legislative framework on DRR in Europe, which has been formed by several thematic legislations, covering civil and critical infrastructure protection, environmental protection, flood risk, industrial accidental risks, financial instruments of cohesion policy, cross-border health risks, agriculture and food security, and integrated coastal management.

The Action plan for sustainability⁷ outlines how the sustainable development goals will be integrated into the European policy framework and made to conform with the priorities of the European Union. In the recent past, the EU Action Plan on Sendai Framework 2015–2030 recognised the UN Framework as an opportunity to advance the DRR agenda in Europe and to reinforce resilience to shocks and stresses. Although no longer in force, the Action Plan

a - <https://irgc.org/risk-governance/what-is-risk-governance>

b - www.undrr.org/news/covid-19-and-climate-emergency-tell-us-all-we-need-know-about-disaster-risk-governance

still represents an important reference document, summarising in its Annex 1 the contribution of EU policies to fulfilling the Sendai Framework for Disaster Risk Reduction (SFDRR) priorities and targets, including in the fields of climate adaptation, critical infrastructure protection, flood risk management, water and biodiversity protection, research and innovation, global health security, and food and nutrition security.

The review does provide **an overview of the legislative framework at the country level**. The references will be further refined in the subsequent analytical areas (i.e. risk assessment and risk management planning), and the information collected should identify:

- key legislative framework and regulations designing the risk governance at the national level;
- key pieces of legislation and regulations transposing the EU acquis into a national context, including regular reports of their implementation.

On the basis of the checklist produced during the scoping phase of the peer review, the facilitator will review the country's implementation reports of EU risk related provisions and complement the information and knowledge gaps in collaboration with the host country.

2.2.3 - Disaster risk reduction strategy

Disaster risk reduction (DRR) strategies are an essential element of the disaster risk governance system. Sendai target E refers to substantially increasing the number of national and local strategies for disaster risk reduction, with a deadline set for 2020. The UNDRR Guidance⁹ defines DRR Strategy as a planning instrument which defines long-term vision, goals and objectives, as well as tangible actions and measurable indicators of progress. DRR strategies take account of and are tailored to specific country context as well as to the evaluation of DRR capacities and capabilities. The Strategy is normally accompanied by an Action Plan for implementation specifying budget and resources, and assigning roles and responsibilities.

The **UNDRR Assessment tool** has been developed to support the independent assessment of national DRR strategies. The tool builds upon the UNDRR Words into Action - Development of National DRR Strategies and employs ten core requirements. The tool is made up of a series of more than 80 indicators and sub-indicators gathered in an interface allowing:

of each indicator; 2/space for copying an extract of the strategy as a means of verification; 3/space for free observation.

UNDRR has conducted a peer review of Belarus and Moldova over 2019/2020 and in early 2020 announced⁶ that it started a planning to conduct a review of DRR Strategies of other countries such as Bulgaria, Slovenia, Poland, Tajikistan and Uzbekistan.

For the purpose of UCPM, the DRR strategies developed under the Sendai Framework can be assessed by using the same methodology. Where the DRR Strategy has been previously assessed by UNDRR, the UCPM reviewers should have access to the main evaluation report and recommendations. The analysis by the peers shall complement and integrate the review eventually made under the UN umbrella, providing updates and additional in-depth information.

Key reference documents: UNDRR, 2019: Words into action - developing national disaster risk reduction strategies⁹.

2.2.4 - Institutional framework

Complementary to the legislative references, the UCPM peer review should be built upon a good understanding of the institutional setup and the roles and responsibilities assigned to various organisations. The decision-making procedures include formal rules and statutory powers exercised throughout the disaster risk management.

The term institution refers to rules and social norms as well as to the organizations that facilitate the coordination of human action. Therefore, they include norms, values, traditions and legislation that

determine how people are supposed to act, as well as actors or organizations and their capacities.

In collaboration with the host country, the facilitator collects the information and elaborates a detailed description of institutions and structures involved in the different stages of the risk management cycle at the national and sub-national level (from prevention and preparedness to response and recovery). Building upon the national DRR strategies where available, the facilitator

c - www.undrr.org/news/undrr-assess-drr-strategies-support-implementation-sendai-framework-and-sdgs

will complete an institutional analysis and mapping as a part of the desk report made available to reviewers prior to the peer visit. This analysis will encompass a general description focused on the organisational assets of each main Institution involved in DRM. In particular, the profiling of each entity will:

- assess the legal mandate of the key Institutions involved in DRM, determining whether there are gaps/overlaps between

them;

- characterise the staff enrolled and its technical capacity to carry out the tasks assigned;
- evaluate the resources and facilities available to manage disaster risks, e.g. adequate emergency operations centres;
- assess the available budget, both operating and investment, dedicated on a regular basis to DRM.

2.2.5 - Coordination and partnership

The Sendai Framework calls upon countries to establish National Focal Points (NFPs) and National and Local Platforms for DRR.

National Platforms are mechanisms for coordination and policy guidance on disaster risk reduction that are “multi-sectoral and interdisciplinary in nature, with public, private and civil society participation involving all concerned entities within a country”¹⁰. Local Platforms are a “locally or municipally owned and led coordination mechanism or committee of multi- stakeholders”, serving as a hub for common areas of priority through a coordinated and participatory process (ibid). National Focal Points are appointed by the country for the purpose of the Sendai Framework with a clear mandate and sufficient authority to influence and shape national

DRR strategies, to leverage national political commitment, and to represent the country in the regional and global context.

At the international level, the Global Platform on Disaster Risk Reduction has focused on policy coherence across Climate Change Adaptation (CCA), DRR and the Sustainable Development Agenda (Table 1).

The facilitator, together with the host country, collects information on policy coherence between the three strategies and on the level of coordination among the authorities in charge of their definition and implementation at the national level.

	Sustainable Development Goals	Paris Agreement on climate change	Sendai Framework for Disaster Risk Reduction
Background	Global agenda for action towards sustainable development	Agreement on the global response to climate change; adaptation, mitigation and finance	Global framework to guide multi-hazard management of disaster risk
Climate change adaptation and disaster risk reduction	Climate action and disaster risk reduction are cross-cutting issues, but explicitly mentioned in: <ul style="list-style-type: none"> • Goal 13 to combat climate change and its impacts • Goal 11 to make cities inclusive, safe, resilient and sustainable • Climate action also contributes to the achievement of many of the other goals 	Articles 7 and 8 explicitly focus on CCA and DRR: <ul style="list-style-type: none"> • Article 7.1, on enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development • Article 8.1, on averting, minimising and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events 	Paragraph 13 recognises climate change as a driver of disaster risk, and points to the opportunity to reduce disaster risk in a meaningful and coherent manner
Country ownership	Stresses the importance of strengthened national ownership and leadership at the country level	Emphasises the importance of action on adaptation to “follow a country-driven, gender-responsive, participatory and fully transparent approach” (Article 7.5)	Specifies the role of all-of-society and all-of-State institutions engagement in managing and reducing disaster risk, while emphasising that each State has the primary responsibility to prevent and reduce disaster risk
Role of development co-operation	Stresses the need for strengthened global solidarity, with the participation of all countries, all stakeholders and all people (17.16-17.17)	Recognises the “importance of support for and international cooperation on adaptation efforts” (Article 7.6) and the provision of scaled-up financial resources that aims to achieve a balance between adaptation and mitigation (Article 9.4)	Recognises that the ability of developing countries to manage risks may be strengthened through the provision of “adequate, sustainable and timely provision of support, including through finance, technology transfer and capacity building from developed countries and partners” (Paragraph 19)

Source: (UNFCCC, 2015_[24]), (UN, 2015_[25]), (UNDRR, 2015_[26])

Table 1 - Common ground between the Paris Agreement, the Sendai Framework and the Sustainable Development Goals¹¹ (OECD, 2020).

2.2.6 - Disaster Risk Financing

The OECD methodological guide¹² defines risk financing as strategies and instruments used to manage the financial impact of disasters, ensuring adequate capacity to manage and mitigate the costs of disaster risk, thereby reducing the financial burden and economic costs of disasters and enabling rapid recovery of economic activity. A thorough understanding of risk exposure and risk-bearing capacity, as well as institutional arrangements creating favourable regulatory and market infrastructure are the major constituents of the comprehensive disaster financing strategy.

Disaster risk financing embraces a variety of instruments that are aimed at and capable of achieving different outcomes. Each of these instruments can efficiently handle only a certain type of risk, depending on its frequency, intensity and impacts. Consequently, a strategy that builds upon a diversified pool of mutually complementing financial tools and institutions is better equipped to cope with and respond to a variety of natural and man-made hazards.

Disaster risk financing and transfer address several **functions of responsible and accountable government**, including fiscal

(risk) and budgetary policies, public finance, market and business development, and social protection. Disaster risk poses implicit and explicit liabilities: explicit liability arises from statutory and contractual obligations, while implicit liability results from public expectations and political pressures.

Governments play multiple roles in both the demand and supply sides of risk financing. As rule makers they: (i) provide public insurance and finance recovery and reconstruction expenses for public assets; (ii) organise (and cover the costs of) post-disaster order, rescue and relief; (iii) ensure social protection for vulnerable populations; and (iv) regulate and supervise financial markets (including insurance) and institutions. Similarly, international collaboration among financial businesses and financial regulators is growing, focused in large part on knowledge sharing and capacity building. The Financial Stability Board (FSB) convened a Task Force on Climate-related Financial Disclosures (TCFD, n.d.) focusing on disclosing market-relevant information on climate-related financial risk, the results of which were released in December 2016.

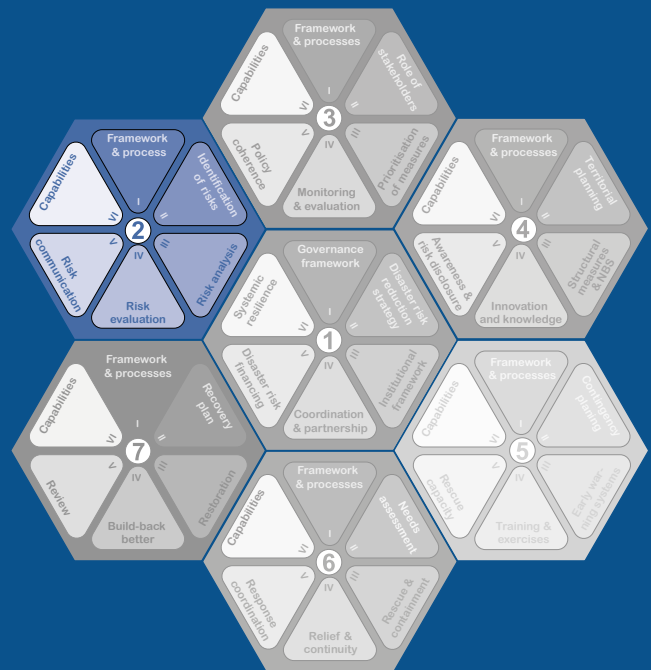
2.2.7 - Systemic resilience

Composite indices translate multi-faceted indicators of progress into statistical measures of overall performance, building upon frameworks that determine how individual indicators are selected, combined and weighted, based on their importance. Composite indices support analysis of disaster and climate change-related

risks. Composite indices make it possible to evaluate progress of disaster risk reduction and adaptation to climate change, as well as measuring gains in terms of adaptive capacity and resilience.



2.3 Risk assessment



2.3.1 - Introduction

Risk assessment informs all stages of the risk management cycle. The national risk assessments (NRA) and assessments of risk management capabilities mandated by the UCPM are primary sources of information for the desk review. NRAs are expected to identify natural and man-made risks that are sufficiently serious to trigger major civil contingencies. NRAs should enable an understanding of the relative importance of different risks for a given country. The summaries of the assessment are to be made available to the EC. For key risks with cross-border impacts, and for risks characterised by low probability and high impact, the reporting obligations include a summary of priority prevention and the preparedness measures adopted.

The purpose of the risk assessment is to provide inputs into the decision-making process and to inform policymakers, major stakeholders and the public about risks. The assessment helps to monitor and review risks and vulnerabilities and provides a basis for planning disaster risk management and implementing related measures¹³. Risk assessment approaches vary, depending on the risks to be addressed and the purpose of the analysis and data available. ISO 31000¹⁴ provides a common general approach to risk assessment, dividing the assessment into risk identification, risk analysis and risk evaluation.

The Disaster Risk Management Knowledge Centre (DRMKC) was launched in 2016 to bring together the expertise of various services of the EC, and to create a knowledge platform engaging experts, practitioners and policymakers within and beyond the EU. It has been established to foster partnership, co-develop knowledge and

support innovative disaster risk management solutions that benefit national risk assessment processes. The DRMKC publishes, among others, periodic review reports on disaster risk management¹⁵. In 2019, the Joint Research Centre developed the Recommendations for National Risk Assessment for Disaster Risk Management¹⁶.

The Organisation for Economic Cooperation and Development (OECD) has reviewed NRAs in 20 developed countries¹⁷, including fifteen European countries. The review found that longer-term assessments of the potential effects of climate change are beginning to feed into the national planning and regulations. Since 2009 the OECD had systematically promoted NRAs as a good practice in disaster risk management and inaugurated the High-Level Risk Forum to facilitate exchange of experiences and insights. Jointly with the G20, the OECD developed a Methodological Framework for Disaster Risk Assessment and Risk Financing¹². The review, carried out in 2018, builds upon expert interviews and includes country fiches summarising the governance framework, methods used, as well as challenges encountered.

Climate risk assessments across Europe are regularly reviewed and assessed by the European Environment Agency in the context of Monitoring, Reporting and Evaluation¹⁸. All EU member countries have completed vulnerability assessments as part of their national adaptation planning. A variety of climate change impact and vulnerability (CCIV) assessments methods have been used, including sophisticated quantitative methods, such as scenario analysis, impact modelling, indicators and indexes.

Definitions^{13,16}

Risk assessment is the overall cross-sectoral process of risk identification, risk analysis, and risk evaluation undertaken at the national or appropriate sub-national level.

Risk identification is the process of finding, recognising and describing risks, possibly in probabilistic terms. It is a screening exercise that serves as a preliminary step leading on to the subsequent risk analysis stage.

Risk analysis is the process of combining the risk components of hazard, exposure and vulnerability to determine the level of risk. For every risk and risk scenario identified in the risk identification stage, risk analysis determines the potential impacts and the probability of occurrence.

Risk evaluation is the process of comparing the results of risk analysis with risk criteria to ascertain whether the risk and/or its magnitude are/is acceptable.

Risk criteria are the terms of reference against which the significance of a risk is evaluated. They may include associated costs and benefits, legal requirements, socioeconomic and environmental factors, concerns and stakeholders.

Risk scenario analysis can be useful to identify potential key risks, where appropriate, including future and/or emerging key risks, key risks with a cross-border impact and key risks with low probability and high impact. National risk analyses may strive to consider not only analysis of single-risk models/scenarios, but also some multi-risk scenarios or models.

Multi-risk analysis entails a multi-hazard and multi-vulnerability perspective. It incorporates possible amplifications and cascading effects arising from interaction with other risks. In other words, one risk may be increased through another risk, or because another kind of event has significantly altered the system's vulnerability or exposure.

Multi-hazard means, according to UNDRR terminology¹⁹, that (1) a country may face multiple major hazards, and that (2) various hazard events may occur simultaneously or consecutively, and their impacts may accumulate over time or be interrelated.

Multi-vulnerability refers to the variety of sensitive targets exposed to risk, such as population, transport systems and infrastructure, buildings and cultural heritage. These potential targets exhibit different types of vulnerability to the various hazards and require different types of capacities to prevent and cope with hazards.

Key reference documents:

- Risk Management Capability Assessment Guidelines. Commission Notice (2015/C 261/03)
- Reporting Guidelines on Disaster Risk Management, Art. 6(1)d of Decision No 1313/2013/EU. Commission Notice (2019/C 428/07)
- IEC, and ISO. 2018. ISO 31000: 2018. Risk Management — Guidelines
- Poljanšek, K. *et al. Recommendations for National Risk Assessment for Disaster Risk Management in EU.* (2019). doi:10.2760/084707
- EEA. National climate change vulnerability and risk assessments in Europe, 2018. European Environment Agency (2018). doi:10.1109/TDEI.2009.5211872²⁰

2.3.2 - Legislative framework and processes

Under this topic, the review should address the organisation of the risk assessment exercise, and explain the specific legal, procedural or technical conditions under which the assessment is conducted.

- Describe the legislative, procedural and institutional aspects governing the risk assessment. Explain who holds responsibility for risk assessment at the national and sub-national level, and across the various sectors.
- Describe the available procedural or technical guidelines developed and used for the purposes of NRA and sectoral risk assessment. Identify whether these guidelines foresee a

regular review of the risk assessments.

- Describe the range of major authorities and stakeholders involved in the risk assessment process. Describe the nature of their involvement, specifying their roles and responsibilities.
- Define the ways a national government encourages and stimulates risk assessment at other levels of government and across different sectors.
- Describe the models, scenario, methods & tools used for climate risk and vulnerability assessments at the national and sub-national level, the granularity of the results and the periodicity of the update.

2.3.3 - Risk Identification

Risk assessment should help to reach a common understanding of the risks, as well as their relative importance (priority). The identified, assessed and prioritised risks are then the basis for the risk management planning and the successive implementation of risk prevention and preparedness measures²¹.

NRAs should identify the key risks that could have significant adverse human, economic, environmental and political/social impacts (including security). Technical features of NRAs include hazards and elements at risk, spatial coverage, time window, consideration of climate change impacts and cross-border risks, as well as the data and models used.

- Describe the main hazards affecting the host country (frequent, low-impact and intensive, occasional, high impact events), what needs to be protected (the elements at risk), the potential impacts (i.e. the potential human, economic, environmental and political/social impacts) and the coping capacity of the community.
- Find out if cultural heritage is clearly taken into account among the elements at risk in the analysis.
- Describe the scope (spatial coverage), granularity (level of detail) and the time window used in the assessment for the analysis of potential impacts.
- Describe whether and how the new and/or emerging risks are identified and assessed.
- Determine which of the above-mentioned key risks are directly linked to climate change impacts.

- Identify any key risks which could have significant adverse cross-border impacts, coming from or affecting the neighbouring country or countries.
- Describe which of the assessed risks include a cross-sectorial and cascading dimension and to what extent this is included in defining the risk scenario.
- Identify key risks that may become more acute in future (climate change, systemic risks).

Collection and use of data

- Describe the information and data (including historical data) used to carry out the risk assessments, including national/ European disaster loss database, relevant research projects, past efforts of risk assessments within the country, and international efforts related to national risk profiling.
- Describe if there are monitoring and early warning systems in place to constantly collect and analyse data on precursors of risk.
- Describe how past events are recorded, e.g. using reports of occurred emergencies, statistical databases or a case history analysis.
- Highlight if methods for damage and human loss reporting are developed and if the costs of damages are estimated, documented and stored.
- Describe if future climate change projections are considered in the assessment and what databases and models are used for such assessment (single-model or multi-model projections).

- Describe if the assessment considers the potential future losses due to changes in assets exposure and vulnerability.

2.3.4 - Risk Analysis

Under this topic, the review will address the analysis of priority risks under reference scenarios. Emphasis is placed on the description of methods, models and techniques used to assess the probability and impacts of various hazards and risk scenarios, and presentation/visualization of results and uncertainties (risk matrices, graphs etc.).

- Describe the methods used for risk analysis (qualitative, semi-quantitative: risk matrix and indicator-based; quantitative:

deterministic and probabilistic).

- Elaborate on whether and how the analysis addresses human, economic, environmental, political and social impacts.
- Describe how the outcomes of risk analysis are aggregated and presented.
- Elaborate on the spatial disaggregation and distributions of major risk.

2.3.5 - Risk Evaluation

This topic will describe the risk evaluation process used to ascertain whether the risk and/or its magnitude is acceptable. It depicts the risk criteria used to compare the results of risk analysis, representing the terms of reference against which the significance of a risk is evaluated (e.g. costs and benefits, legal requirements, socioeconomic and environmental factors).

- Explain if the results of the risk analysis are evaluated to determine whether the assessed risks are below an acceptable threshold.
- Describe which criteria are used to determine whether the risk and/or its magnitude is tolerable or if remedial action is necessary.

2.3.6 - Risk communication and the role of stakeholders

Proper communication enables risk assessments to be used in decision-making. This topic should describe the process of communicating and disseminating the findings of NRAs. It will investigate whether and how the public is informed about the findings of risk assessment, and how the findings are shared among policymakers, public authorities, and other major stakeholders.

- Explain how the public is informed about the NRAs.
- Explain whether the risk scenarios and maps are accessible and reusable in new studies.
- Highlight if the levels of vulnerability or risk for different sectors or impacts are presented in a common metric (e.g. economic impact) or a summary illustration/map.
- Describe if uncertainties are communicated with the assessment findings and how.
- State whether major stakeholders (academia, research organisations, the private sector, as well as government authorities not directly contributing to the assessment process) are informed about and involved in the disaster risk management process(es) for the key risks identified. If they

are, describe how (e.g.: are risk assessments published and announced for consultation? How is this process designed? How are stakeholders informed about the particular risks they face?).

- Explain how the authority/ies in charge of defining sustainable development strategies is/are informed about and made aware of the NRAs.

Sound risk assessment relies on contributions and engagement of a wide range of stakeholders. Major authorities and stakeholders can include national and regional authorities, including those that do not contribute directly to the assessment process, as well as academia, research organisations and the private sector.

- Describe the range of major authorities and stakeholders involved in the risk assessment process (e.g., vertical or horizontal cooperation).
- Describe the nature of their involvement, specifying their roles and responsibilities.

2.3.7 - Administrative, financial and technical capacities

This topic focuses on organizational and expert skills, human resources, financial funds available for risk assessment, as well as how these funds are distributed among the institutions contributing to the risk assessment.

For the assessment of the administrative capacity, it is important to concentrate on the allocation of competencies and responsibilities and on the existence of required expertise to perform the risk assessment. The experts carrying out the risk assessment should have the necessary competencies and responsibilities and, if needed, receive adequate training.

Administrative capacities

- Describe which entities or departments participate in the risk assessment, how they are selected, and based on what competencies.
- Describe the level of coordination and cooperation among national, regional and local institutions and authorities that have a mandate for risk assessment at different scales and for different sectors.
- Describe on what basis responsibilities for the risk assessment are distributed within the administration, if this basis or the corresponding procedures are documented in writing (e.g. in legal texts), if overlaps or needs exist, and how these are addressed.
- Describe which entities or departments participate in the risk assessment process, how they are identified/selected, and what competencies are considered when the responsibilities are distributed.
- Assess if sufficient human resources are available to carry out the risk assessment based on the identified risks.
- Describe if and what kind of training is available for experts, the level of experience of experts, and what technical expertise and tools are used and considered necessary in carrying out risk assessments.
- Describe if there is a strategy to build capacity on risk assessment, targeting specific sectors or public servants.

Financial capacities

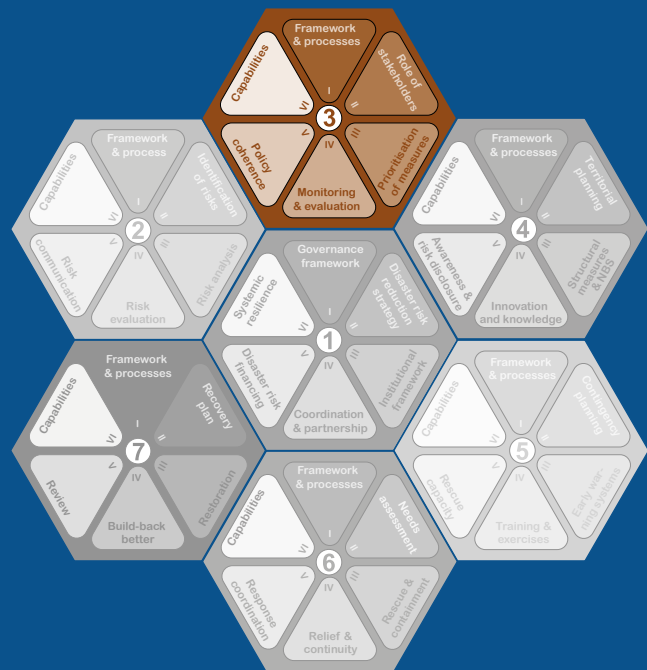
- Describe financial resources available for risk assessments.
- Describe how the organisations in charge of conducting risk assessment invest in and manage research and innovation actions.
- Describe the involvement in European cooperation programs (e.g. INTERREG, LIFE), research and innovation projects (e.g. H2020) and other projects funded by the UCPM (e.g. DG ECHO).

Technical capacities

For the assessment of the technical capacity, it is important to evaluate use and management of information, data and information and communications technology (ICT) infrastructure.

- Describe what kind of infrastructure is available to carry out the risk assessments, which can include ICT tools, satellites, etc. Member States and Participating States could describe ongoing research for the development of new ICT infrastructure to support risk assessment. In the event that infrastructure is shared with other countries, Member States and Participating States could also describe the type of cooperation in place (e.g. satellite imagery).
- Describe what sources of information and data are used and whether databases exist to carry out risk assessments. Member States and Participating States could describe new developments that are under way to improve the collection of data and information.

2.4 Risk management planning



Definitions¹⁹

Disaster risk management plans lay out the goals, objectives and actions for accomplishing them.

The plans should be guided by the Sendai Framework for Disaster Risk Reduction 2015-2030 and coordinated with relevant sectoral risk management plans, e.g. River basin district management plans (RBDMPs), Flood Risk Management Plans (FRMPs), National Climate Adaptation Plan (NAP) as well as national, regional and local sustainable development plans.

National-level plans need to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances. The timeframe and responsibilities for implementation and the funding sources should be specified.

This section addresses the risk management planning process at the national and relevant sub-national levels, building upon the risk assessment process and focusing on administrative, technical and financial capacities of risk management bodies.

Risk management planning lays out how each significant risk can be reduced, adapted to or mitigated in terms of impacts and likelihood, by means of prevention and preparedness measures²¹.

Legislative, procedural and institutional framework focuses on legal aspects and mandated roles and responsibilities. Risk management planning identifies and prioritises risk reduction measures through inclusive decision-making processes that sufficiently involve all major stakeholders, so as to secure a good understanding of the measures, their necessity and priority, thus ensuring broad support²². A specific section is dedicated to understanding the roles of key stakeholders participating in the planning process and the

actions undertaken to facilitate the collaboration and cooperation between the entities involved.

The methodologies used for the **definition and prioritisation of measures** are tailored to the needs and governance structures of the specific host country. After that, in order to define the iterative process that should be applied in risk management planning, an area of investigation is dedicated to the approach set up to conduct **monitoring, evaluation and reporting**. A specific section is dedicated to the evaluation of the Country's capabilities to carry out risk management planning, taking into account **administrative, financial and technical** aspects. Finally, linkages with **sustainable development and climate adaptation** in the field of risk management planning are evaluated.

Key reference documents

- Risk Management Capability Assessment Guidelines. Commission Notice 2015/C 261/03^d.
- Reporting Guidelines on Disaster Risk Management, Art. 6(1)d of Decision No 1313/2013/EU. Commission Notice 2019/C 428/07.

2.4.1 - Legislative framework and processes

The scope of this section is to explore the legal, institutional and procedural framework related to risk management planning. This section builds upon and complements the thematic area Governance of disaster risk reduction.

Legislative framework

- Describe the legislative framework underpinning risk management planning, with emphasis on main hazards and risk (identified as such throughout the national risk assessment).
- Describe what regulations and guidelines are in place. Elaborate on sectorial legislation dealing with specific hazards, with reference to the EC legislation. In particular,

among others:

- » River basin management (Water Framework Directive 2000/60/EC) and relative water use/management regulations.
- » Flood risk management (Floods Directive, 2007/60/CE).
- » Prevention of major accidents involving dangerous substances (Seveso Directives 2012/18/EU).
- » Protection of Critical Infrastructure (2008/114/EC)^e.

Institutional framework

- Identify the entities participating in the planning of risk prevention and prevention measures, and describe their responsibilities and roles/functions, to identify possible

^d Replaced by Reporting Guidelines on Disaster Risk Management, Art. 6(1)d of Decision No 1313/2013/EU. Commission notice 2019/C 428/07.

^e Currently under review.

overlapping and mismatches.

- Describe on what basis responsibilities for the planning process are distributed within the administrations and how the responsibilities for specific risks are ensured.
- Describe the established procedures for vertical and horizontal cooperation and coordination across national, sub-national and local governance levels.
- Describe the roles and responsibilities of authorities at the national and sub-national level.

Procedural framework

- Describe how the risk assessment findings have been considered for the definition of risk management plans (at the national and/or subnational level) and verify whether an official procedure/guideline/regulation explains the process to be applied. Describe the process in relation to the key

hazards identified.

- Describe whether low probability - high impact risks with cross border impacts are considered in risk management planning, in addition to the risks relevant for the host country alone.
- In relation to key risks, describe whether one or more lead agencies/authorities have been identified.
- Describe the national or sub-national approaches to risk management planning, focusing on the methodologies to assess the effectiveness of prevention and preparedness measures.
- Describe the procedures established to ensure cooperation at the cross-border, interregional and international levels for the disaster risk management planning of identified key risks. Identify and describe international/bilateral agreements on risk management planning dealing with key risks.

2.4.2 - Roles of stakeholders

The scope of this section is to investigate the type of involvement of major stakeholders in the planning process, as the capability to manage risk depends greatly on cooperation with various public and private stakeholders (such as health services, fire services, transportation/electricity/communication operators, voluntary organisations, citizens/volunteers, scientific experts, the armed forces, etc.).

- Describe if and how the participatory approach has been assured in the definition of disaster risk management plans. In particular, define in what way the involvement of and the collaboration between various public and private stakeholders is covered in defining risk management plans related to the key risks identified.

- Define the process used to encourage private and public stakeholders to participate in risk management planning.
- Define if citizens are involved in the definition of risk management plans and describe the process in relation to the key risks identified.
- Describe what rules and procedures are in place that allow for information sharing, data sharing and communication with various stakeholders.
- Describe how the information flow between different public and private stakeholders, and between different levels of the administration is organised to ensure that the major stakeholders are knowledgeable and able to contribute their knowledge.

2.4.3 - Prioritisation of measures

This section focuses on the process underpinning the definition of prevention and preparedness measures, with the aim of highlighting the effectiveness of the plans defined. Priority prevention and preparedness measures can be identified by the expected positive impact they are having or will have on risk reduction²³. Priority measures can also be those that are most urgent to address in relation to a given risk. Describe the process in place to define and select prevention and preparedness measures adopted in risk management plans referring to the different key risks identified.

- Clarify the criteria used to prioritise measures included in the plans and specify if this analysis is officially adopted into guidelines/guidance. Verify if cost/benefit analysis and win-win criteria have been included.
- Define if both structural and non-structural measures have been considered and included into disaster risk management plans.
- Investigate whether specific measures are planned to protect critical infrastructure regarded as crucial for the continuation of vital societal functions. In relation to this,

define if a list of major national critical infrastructures has been compiled and regularly reviewed. If managing prevention, preparedness and response measures for critical infrastructure requires a cross-sectoral approach, reference can be made to existing EU legislation.

- Investigate whether specific measures are planned for protecting cultural heritage (movable/immovable) sites and if an effective coordination with the Responsible Authority has been established to define an appropriate strategy.
- Define if measures to protect against low probability – high impact risks have been prioritised and included in the plans.

2.4.4 - Monitoring, evaluation and reporting

The aim of this section is to explore the monitoring, evaluation and reporting process in use in the host country. These key aspects ensure the effectiveness of the planning process by following the implementation and the results of the measures identified.

- Describe the process in place for regularly monitoring and evaluating the effectiveness of the defined risk management

plans. Identify if an iterative process organized into planning cycles has been defined by law (specify for each key risk).

- Identify the main indicators used within the monitoring and the evaluation phase, specifying the roles and responsibilities of the competent authorities involved in the process.
- Describe the reporting procedure in place, identifying the key actors and the existing tools/technologies in use.

2.4.5 - Policy coherence

The purpose of this section is to explore if and how synergies are ensured between sustainable development, climate change adaptation and national (or sub-national) prevention and preparedness measures. Climate change adaptation can support efforts to prevent climate-related disasters, and cost-effective adaptation measures require good coordination at various levels of planning.

- Describe if and how the sustainable development strategy and the climate change adaptation strategy are integrated with the planning of risk prevention and preparedness measures, and are embedded in the overall disaster risk reduction strategy.
- Specify if this integration has been defined by law or included in official guidelines/documents dealing with risk management planning.

2.4.6 - Administrative, financial and technical capacities

This topic focuses on administrative, financial and technical capacities in relation to disaster risk management planning, following the risk management capability assessment guidelines²¹.

Administrative capacities

- Identify the process used to ensure that the experts involved in risk management planning are informed about the overall policy objectives and priorities related to disaster risk management.
- Define whether a sufficient number of experts are available to carry out the planning of prevention and preparedness measures, and if an effective training programme is available for them. Moreover, describe how knowledge is shared among the experts involved in the planning process and the process in place to ensure that this knowledge is preserved and further developed.

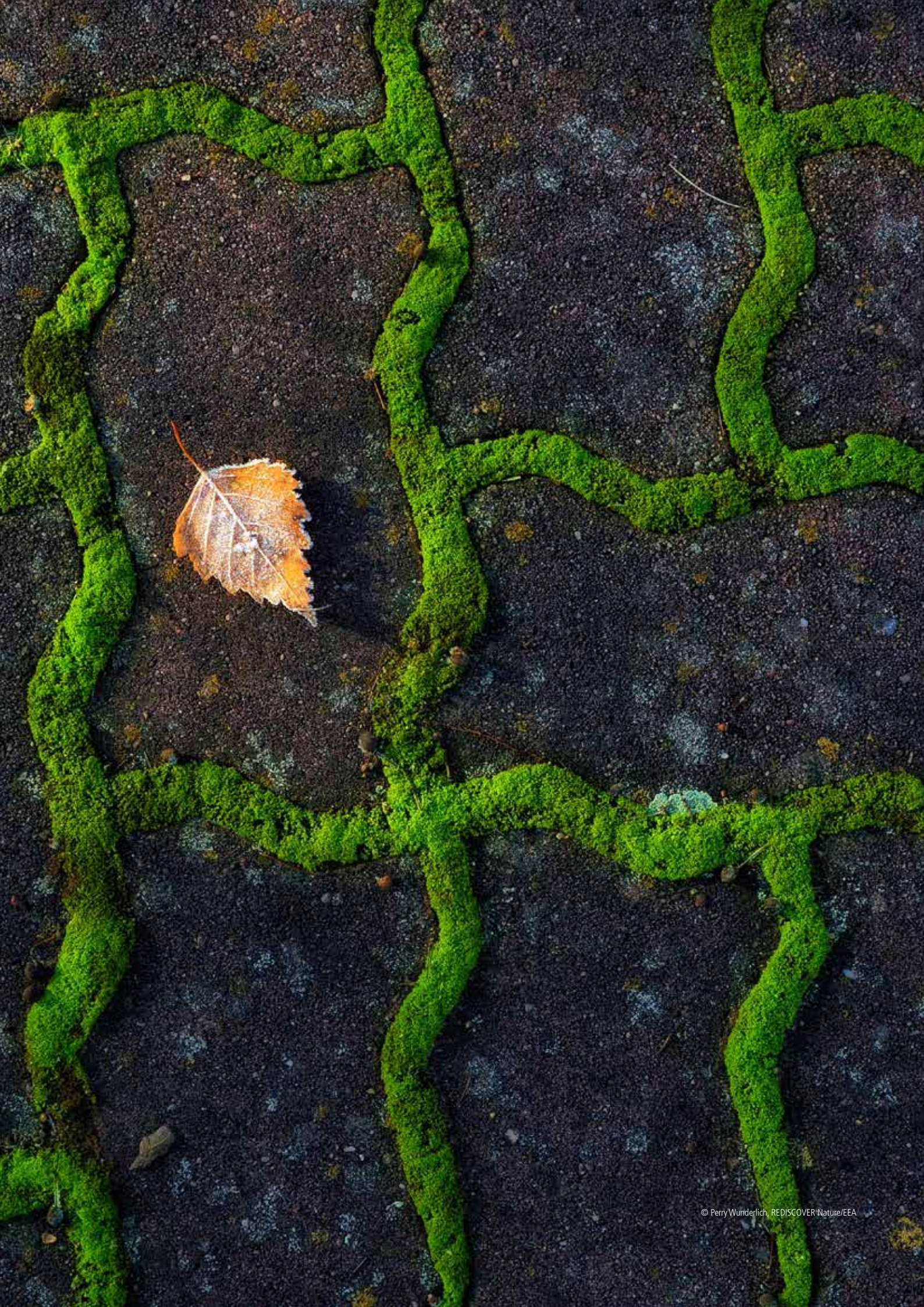
Technical capacities

- Describe if and what equipment and tools are available to support and carry out the planning of prevention and preparedness measures and find out if there are any further needs, mismatches and overlaps.
- Identify what tools/instruments made available by the EC are used in the planning phase (such as Copernicus programme).
- Describe what is done to ensure that enough assets are available to mitigate the impact of disasters and respond promptly to disasters associated with the key risks identified.

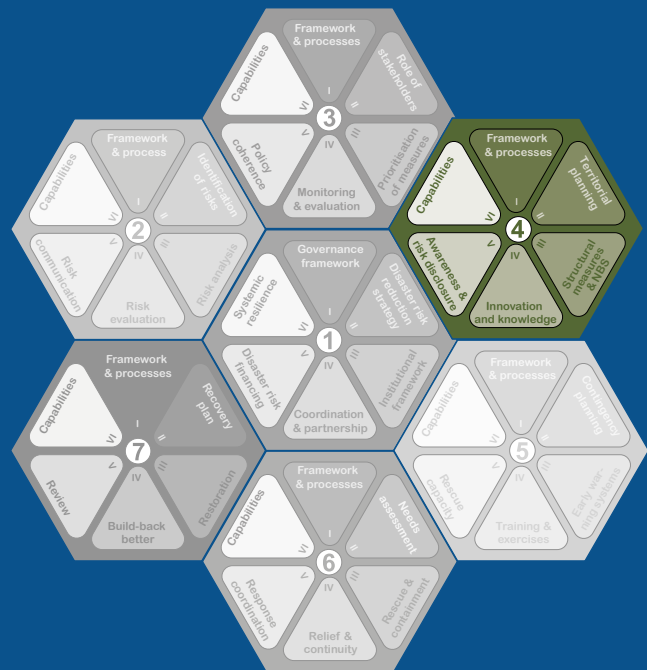
Financial capacities

- Describe if financing needs for the implementation of mitigation measures have been estimated and if possible sources of financing have been identified as part of the planning process.

- Describe if and how the planning process helps to identify future investment priorities, to what extent private organisations are involved in this process, and if cooperation with the private sector is sought for the financing of prioritised investments.
- Describe how budgetary and legal questions related to flexible resource allocation are treated in the planning process, if concrete measures are taken or launched that allow for flexibility, and if legal or political barriers to such an approach exist.
- Identify if financing needs for the implementation of measures targeted at the protection of cultural heritage sites are estimated and possible sources of financing identified.



2.5 Risk prevention



Definitions²³

Risk prevention measures are partly covered by the previous Framework's guiding questions, particularly related to the monitoring and reporting of the implemented measures, and the financial and technical capacity to design and implement them. The scope of the prevention measures also includes territorial and land use zoning and building codes which may be added.

Implemented measures: ongoing measures which are currently reducing disaster risk (or are intended to do so).

Planned measures: measures which will definitely be carried out, either because funding has already been secured or because they are part of an approved and binding plan or strategy. If appropriate, these can be contrasted with (but should be differentiated from) measures that should ideally be taken to reduce risk (but are not planned so far).

Structural measures: measures are any physical construction to reduce or avoid possible impacts of hazards, or the application of engineering techniques or technology to achieve hazard resistance and resilience in structures or systems. These can include population relocation, modification of the natural environment when justified (e.g. slope terracing), nature-based solutions (e.g. natural water retention measures), or forest management practices (e.g. forest conversion, fire breaks, controlled fires).

Non-structural measures: measures not involving physical construction which use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, raising public awareness, training and education.

2.5.1 - Legislative framework and processes

Legislative framework

- Describe the legislative framework underlying the implementation of risk reduction measures at the national and sub-national level.
- Identify redundancies, gaps and mismatches within and across thematic sectors.
- Describe guidelines dealing with the implementation of risk reduction measures. In-depth analysis of sectorial legislation dealing with specific hazards is to be addressed, with reference to EC legislation.

Institutional framework

- Identify the entities responsible for the implementation of prevention measures.
- Describe the roles and responsibilities of the competent

authorities at the national or sub-national level.

- Describe the procedures to ensure vertical and horizontal cooperation/coordination between the national, sub-national and local level authorities.

Procedural framework

- Describe the national or sub-national approach that links the planning process to the implementation of measures.
- Describe the national or sub-national approaches to the implementation of risk management plans.
- Describe the procedures established to ensure cooperation at the cross-border, interregional and international levels for the implementation of disaster risk management plans. Identify and describe international/bilateral agreement dealing with key risks.

2.5.2 - Territorial planning

- Describe how the territorial and urban planning instruments and processes take into account hazard and risk assessment (including zoning and building prescriptions/codes).
- Describe the safety requirements for building physical assets and infrastructure systems in hazard-prone areas, and the building permit procedures.
- Describe the provisions applicable to facilities for storing and processing the hazardous substances, meant to ensure human safety, security and environmental integrity.

2.5.3 - Structural measures and nature-based solutions

Structural measures are historically among the most important prevention measures planned and implemented by governments to protect communities against the likely impacts of hazardous events. Nowadays, the importance of their implementation, together with non-structural measures (such as early warning systems), has been recognised. Nevertheless, structural measures play a central role in protecting territories and communities and, in specific cases, they remain the only and most effective protection.

- Describe any policy and financial instruments at the national and sub-national level that deal with the planning and implementation of structural risk reduction measures.
- Identify whether the process of defining structural measures is coordinated with the process dealing with non-structural measures, in order to carry out an effective risk reduction strategy and a comprehensive cost-benefit analysis.
- Describe if the authorities in charge of the definition/implementation of structural and non-structural measures work in close contact one to each other.

Ecosystems are a source of vital services, benefits and goods for mankind, and can provide means to mitigate natural hazard

risks and boost societal resilience, locally or regionally. Compared to engineered or built solutions, ecosystem-based approaches may be cost-effective, have certain co-benefits, and may become increasingly valuable in the face of more frequent and/or severe extreme events. They have an economic value in the context of natural disaster risk reduction, as their provision and/or maintenance is relatively free of charge. Ecosystem services and nature-based solutions are promoted as preferred ways of reducing risks and adapting to climate change, including those proposed in the Green Deal and in the revised EU Biodiversity strategy. A thematic peer review can address how ecosystem-based measures for risk reduction are reflected in risk governance and prevention, for example through ecosystem protection and restoration.

- Describe any policy and financial instruments at the national and sub-national level that prioritise the nature- or ecosystem-based disaster risk reduction solutions.
- Describe how the ecosystem-based solutions are assessed (in terms of costs and benefits) and what assistance is provided for this purpose.
- Describe best practices serving as inspiration for others to follow.

2.5.4 - Innovation and knowledge services

Innovative weather, hydrological and climate services produce action-oriented knowledge that galvanises disaster risk reduction. Climate services have been defined in multiple ways, and the EU research and innovation roadmap for Climate Services portrays them as 'transformation of climate-related data — together with other relevant information — into customised products such as projections, forecasts, information, trends, economic analyses, assessments (including technology assessment), counselling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large²⁴. The EU, under the Copernicus Earth observation programme, has made large investments in frontline systems enabling modern meteorological services. The Copernicus Climate Change Service (C3S) is one of six Copernicus service components designed to

deliver knowledge to support adaptation and mitigation policies. The targeted peer review areas can investigate how the Copernicus climate change services are used and deployed for the purposes of risk management in the host country.

- Describe how innovation and climate services are promoted at the national and sub-national levels.
- Describe whether a Copernicus User Forum exists and how it operates.
- Describe whether a climate services observatory exists and whether the services are systematically evaluated for benefits they provide to public and private users.

2.5.5 - Awareness and risk communication

- Describe how the population is informed and educated about hazards/risks.
- Clarify if a defined strategy to strengthen public education and awareness is established, and identify if it includes objectives, responsibilities, activities and target groups. Verify if the strategy is legally regulated, and the competent authorities involved in the process.
- Find out if the scientific community is contributing to the definition of the risk awareness strategy and define the level of involvement of research and academia in its implementation.
- Define if the communication strategy includes an overview of the government's preparatory measures and/or advice on how the general public could be better prepared.
- Describe to what extent public information on disaster risk management has been provided, and how easy it is for the general public to understand the behaviour expected of it in case of emergencies.
- Identify if the communication strategy is based on an inclusive approach and, therefore, if it considers language as well as cultural and social factors/fragilities.
- Define if preparedness-related policies and plans are translated into capacity building measures and if there is a strategy available to build capacity, targeting specific sectors of public servants, communities and volunteers to ensure effective implementation of policies and plans.
- Describe if and how media are integrated into a dialogue with the population. Define if media are considered as reliable partners and find out their active role in raising public awareness (if this is the case).
- Explore the role of the media in communicating alert notifications and information concerning the emergencies.
- Identify if a social media policy has been defined and published by the competent authorities.
- Describe the different uses (if any) of social media in the different phases of disaster risk management cycle and the involvement of the general public.
- Explore if social media is used by the authority/ies in charge of disaster risk management to collect data from citizens/the general public during emergencies. Specify what tools are in place to support the process and the results achieved.

2.5.6 - Administrative, financial and technical capacities

This topic focuses on administrative, financial and technical capacities, based on the EC Risk management capability assessment guidelines²¹.

Administrative capacities

- Describe how the experts involved in the implementation of measures are informed about the policy objectives and priorities related to disaster risk management.
- Describe whether sufficient experts are available to carry out and monitor the implementation of measures.
- Describe how knowledge is shared among the experts involved in the implementation process and the methodologies in place to ensure that this knowledge is preserved and further developed.

Technical capacities

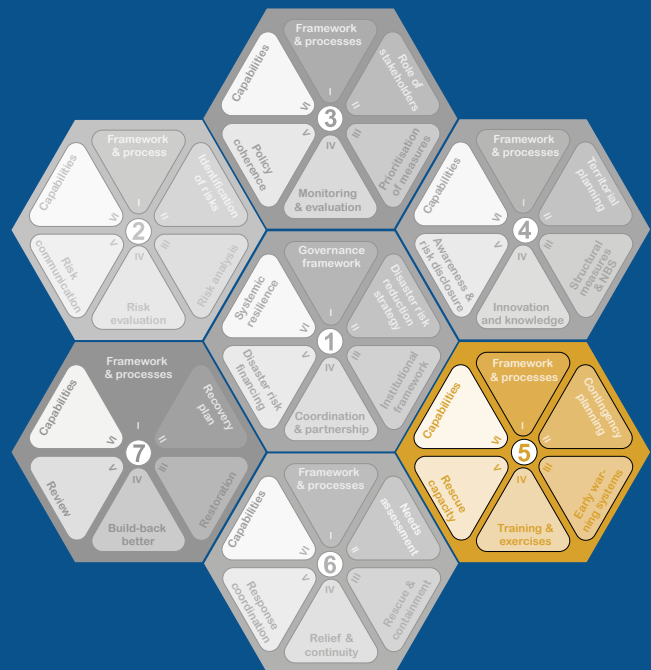
- Describe the technical expertise available for implementing prevention measures.
- Explore whether experts receive training to constantly update their knowledge to enable them to adequately use the technical tools at their disposal to measure implementation. Describe how and what training is provided to build up or develop this expertise or any other.
- Describe the strategy adopted to ensure that knowledge is shared and preserved among the persons involved in the implementation of measures and how professional development is encouraged.
- Describe if and what equipment and tools are available to support and carry out the implementation of measures.
- Identify what tools/instruments made available by the EC are used in the implementation phase (such as Copernicus programme).

Financial capacities

- Describe if financing needs for the implementation of measures are estimated, and possible sources of financing identified as part of the planning process.
- Describe how budgetary and legal questions related to flexible resource allocation are treated in the implementation process, if concrete measures are taken or launched that allow for flexibility, and if mismatches or further needs, legal or political barriers to such an approach exist.
- Describe if any plans are in place for sharing of the financial burden; if the host country has approached stakeholders, which stakeholders have been approached and if any agreements are sought or in place to cover these costs.
- Identify what financial instruments, offered by the EC and other organizations, are used to support the implementation phase at the national/sub-national level (e.g. Prevention and Preparedness programme, ...).



2.6 Risk preparedness



Definitions

Preparedness²⁵ is a state of readiness and capability of human and material means, structures, communities and organisations enabling them to ensure an effective, rapid response to a disaster, obtained as a result of action taken in advance. Preparedness measures are designed to build the capacities needed to efficiently manage all types of emergencies²².

2.6.1 - Legislative framework and processes

- Describe the legislative, procedural and/or institutional framework (similar to 2.5.1 but applied to risk preparedness).

2.6.2 - Contingency planning

- Describe regulations addressing definition and implementation of contingency plans at different territorial levels.
- Describe the types of contingency plans that are in place (e.g. generic plans, hazard-specific plans, multi-agency plans, ...).
- Define how contingency plans are linked to risk assessments.
- Describe how different stakeholder groups, including private sector stakeholders, research and innovation and vulnerable/marginalised social groups, are involved in designing contingency plans.
- Define the main structure and content of contingency plans (reference scenarios chosen, procedures included, ...).
- Identify if contingency plans include specific procedures for safeguarding cultural heritage sites.
- Describe how contingency plans are reviewed and updated, and how their effectiveness is assessed.
- Verify if contingency plans contain procedures for the UCPM activation.

2.6.3 - Early warning systems

- Describe the early warning systems in place at different territorial levels.
- Describe the systems in place for hazard detection, monitoring and forecasting for the key risks identified.
- Identify if a national (or sub-national) hydro-met service has been established and clarify its role within all phases of the DRM cycle, specifying the relationship with other key institutions involved in DRM (mainly civil protection authority/ies).
- Describe if and how the Copernicus Emergency Services have been integrated (e.g. European Flood Awareness System EFAS, European Forest Fire Information System EFFIS, European Drought Observatory EDO).
- Describe and review the protocols related to the early warning systems in place.
- Describe whether early warning communication systems have been defined, using an inclusive, community-based approach, taking into account specific social-cultural needs and the needs of the most fragile groups.
- Describe how the emergency/contingency plans are activated, based upon notifications from the early warning systems.
- In case of cross-border risks, clarify if early warning systems (or their results) are shared with neighbouring countries. Specify if bilateral agreements are in place and if standard operating procedures have been set up.
- Describe the process through which early warning information is shared with key stakeholders from technical and crisis management organisations.

2.6.4 - Training and exercises

- Describe the training programmes and exercises organised at different levels (e.g. full scale, table-top, command post).
- Describe the conceptual process in place that leads to the definition of exercises and training. Specify if they refer to the risk assessments conducted and, in particular, to the key risk scenarios identified. Besides this, specify if they are used to verify the capacity goals defined on the basis of the mentioned scenarios.
- Describe if the capacity building encompasses participation in international training programmes and exercises (EU, North Atlantic Treaty Organization NATO, Euro-Atlantic Disaster Response Coordination Centre EADRCC, UN, regional, bilateral...). Explain whether the capacity building includes participation in the UCPM training programme (exchange of experts programme and others).
- In case of cross-border risks, describe specific exercises organised subsequent to bilateral agreements.
- Clarify if capacity building activities are organised according to a strategy for all major stakeholders at different levels, specifying how often this plan is updated.

2.6.5 - Rescue capacity

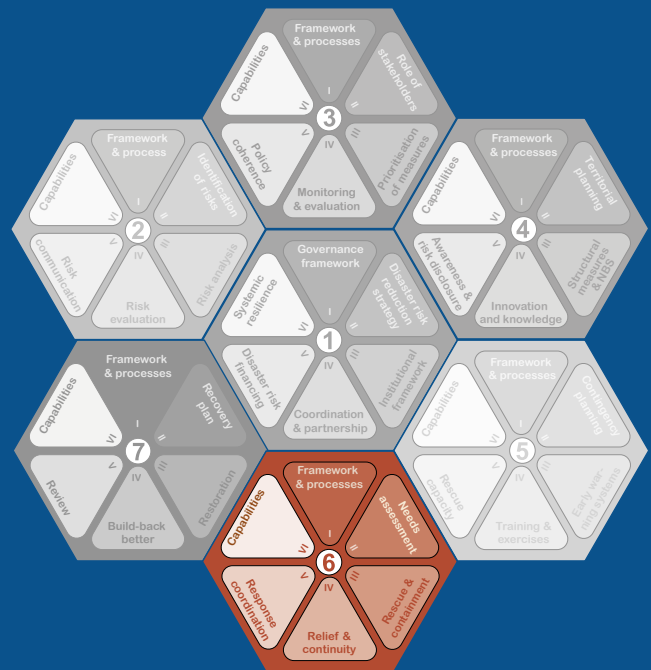
- Describe the capacity of the civil protection modules and assets available for emergency operation.
- Define what kind of national rescue teams/modules are in place and their distribution on the territory.
- Define if a list has been made up of experts in the specific fields to be deployed in case of emergency.
- Define if the Country also operates EU civil protection modules/experts within the European Civil Protection Pool.
- Describe to what extent volunteers are involved in responding to a disaster, the legal basis and the procedures in place for their activation.

2.6.6 - Administrative, financial and technical capacities

- Describe the administrative, financial and technical capacities (as in 2.4.6 but focusing on implementation of preparedness measures).



2.7 Emergency response



This area refers to an ex-post assessment of the emergency response operations.

2.7.1 - Legislative framework and processes

- Describe the legislative, procedural and/or institutional framework (similar to 2.5.1 but applied to emergency response).

2.7.2 - Needs assessment

- Describe the damage and needs assessment conducted immediately after the outbreak of the emergency, as well as any update thereafter.
- Describe methodologies applied for damage and needs assessment and their performance/reliability.
- Describe who is entitled/entrusted to conduct the damage and needs assessment and verifications, and based on what training and demonstrated expertise.
- Describe if there exists a strategic plan for implementing cultural heritage first response and if it has been applied. Describe in what way rapid on-site visual inspections and documentation of damage and losses have been undertaken.

2.7.3 - Rescue and containment operations

- Describe the emergency containment measures implemented as the emergency evolved.
- Describe if a triage of cultural heritage material (the sorting and prioritisation of stabilisation actions on retrieved objects) has been used and how it works.
- Assess to what extent the emergency operations have fulfilled their objectives. Assess the costs of the containment operations and whether the state of knowledge available at that time supported the adoption of those measures.

2.7.4 - Relief and business continuity

- Describe the measures implemented to restore operation of essential services, if applicable, and continuity of business operations.

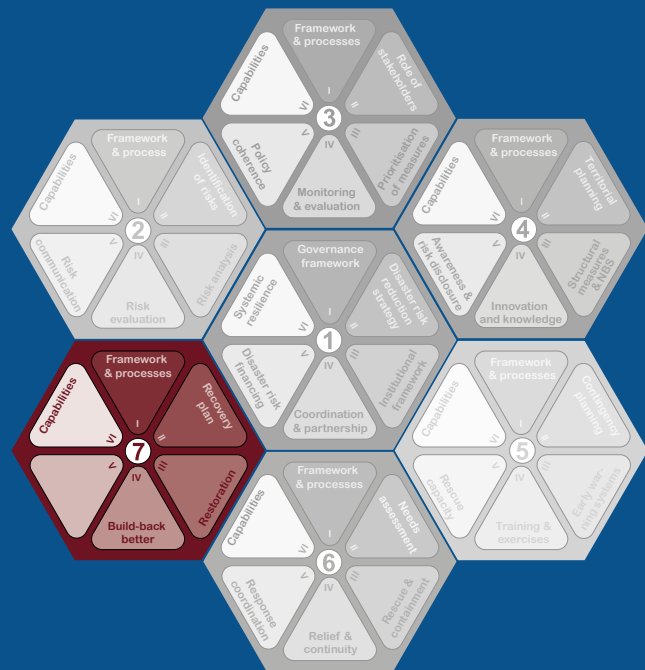
2.7.5 - Response coordination

- Describe how the response operation has been coordinated across the various subjects involved and between the relief risk containment and relief operations.

2.7.6 - Administrative, financial and technical capacities

- Describe the administrative, financial and technical capacities (as in 2.4.6 but focusing on the emergency response).

2.8 Recovery and lessons learned



This area refers to the post-disaster phase following a specific emergency or crisis. In an ex-post mode, the peer review addresses recovery in the aftermath of a disaster or an emergency where the

resource requirements change according to the time and type of post-disaster activity (Fig. 4).

2.8.1 - Legislative framework and processes

- Describe the legislative, procedural and/or institutional framework (similar to 2.5.1 but applied to recovery and review).

2.8.2 - Recovery plan

- Find out whether procedures to establish priority recovery actions and goals in case of a given scenario have been defined, in particular related to critical infrastructures and essential services.
- Describe the cornerstones of the recovery strategy and identify whether the recovery plan is linked to the post-disaster needs assessment.
- Describe the key priorities and priority instruments outlined in the recovery plan, the stages envisaged in the plan, and processes leading to its design and adoption.
- Describe the coordination mechanism across sectors and territorial governance levels applied in the plan.
- Describe how the implementation of the plan is monitored and evaluated, and what corrective instruments exist to revise the plan in the case of underperformance.

2.8.3 - Restoration

- Describe the measures implemented for immediate restoration of business continuity. Describe the priority measures related to the post-disaster clean-up and the restoration activities that are in place (buildings, infrastructures).
- Find out if a specific action plan for recovery and rehabilitation of cultural heritage has been developed and is included in the overall recovery strategy.
- Define if post-disaster health and mental health supporting actions (psychological assistance) are included in the recovery strategy, both for the population and for the rescuers involved in the disaster.
- Describe the recovery financial assistance instruments made available at the national and sub-national levels.
- Describe the aid received from European funds and conditionalities applied.
- Describe the restoration operations and their timing, including economic, social and environmental restoration, where applicable.

2.8.4 - Build-back better reconstruction

- Describe how build-back-better and recover-better principles have been taken into account, and to what extent the application of the principles has contributed to reducing disaster risk.

2.8.5 - Lessons learned

- Describe the procedural framework for a review process after major disasters to identify good/best practices and areas for improving the system in place.
- Explain how the lessons learnt have been identified and taken into account.
- Describe the roles and responsibilities in the lessons learned process.

2.8.6 - Administrative, financial and technical capacities

- Describe the administrative, financial and technical capacities (as in 2.4.6 but focusing on reconstruction and review).

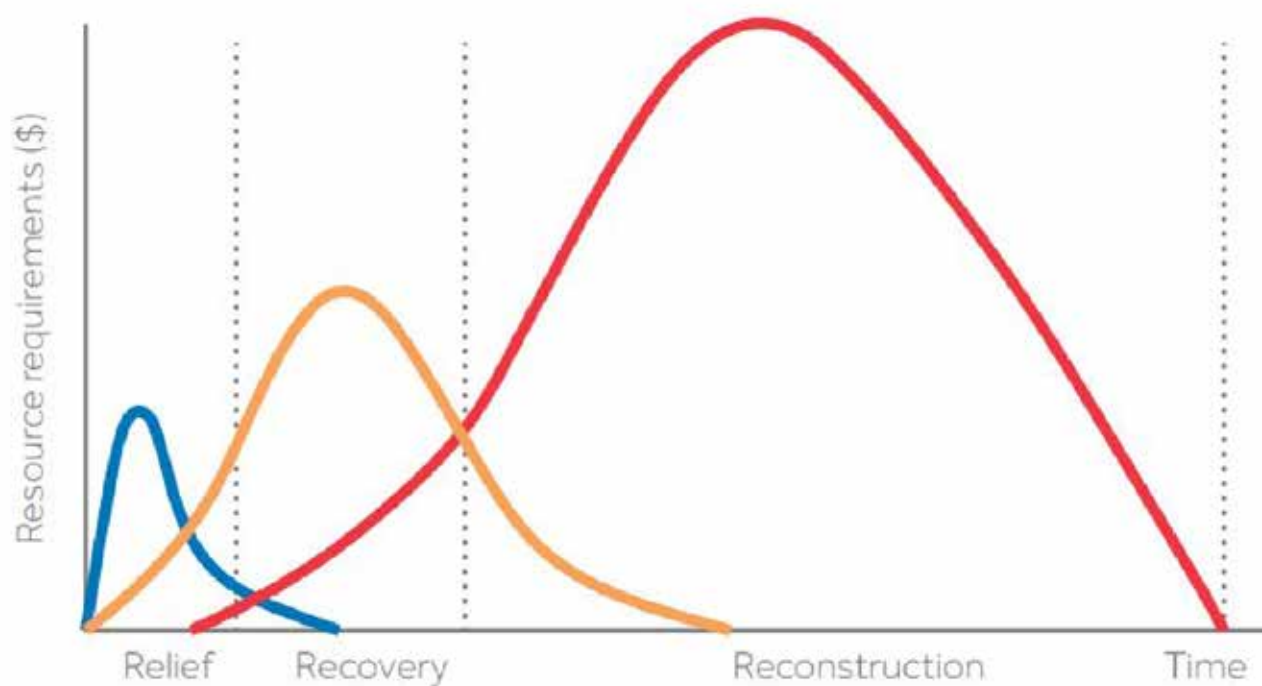


Figure 4 - Resource requirements during different disaster risk management phases¹¹ (OECD, 2020).



References

1. ISO. *Security and resilience — Community resilience — Guidelines for conducting peer reviews* ISO 22392:2020. (2020).
2. EC. *Proposal for a Decision of the European Parliament and of the Council amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism*. Brussels, 2.6.2020 COM(2020) 220 final 2020/0097 (COD). (2020).
3. OECD. *Gaps in the 2018-2019 peer review methodology*. (2020).
4. EEA. *Monitoring and evaluation of national adaptation policies along the adaptation policy cycle*. (2020).
5. UN. *Sendai Framework for Disaster Risk Reduction 2015-2030*. A/CONF.224/CRP.1. 18 March 2015. (2015).
6. OECD. *Recommendation of the Council on the governance of critical risks*. Adopted on 6 May 2014. Meeting of the OECD Council at Ministerial Level Paris, 6-7 May 2014. (2014).
7. EC. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Next steps for a sustainable European future European action for sustainability*, COM (2016) 739 final. (2016).
8. EC. *Commission staff working document - Action Plan on the Sendai Framework for Disaster Risk Reduction 2015-2030, A disaster risk-informed approach for all EU policies*. Brussels, 16.6.2016 SWD(2016) 205 final. (2016).
9. UNDRR. *Words into action - developing national disaster risk reduction strategies*. (2019).
10. UNISDR. *UNISDR Words into Action Guidelines on National Focal Points for Disaster Risk Reduction, National Platforms for Disaster Risk Reduction, and Local Platforms for Disaster Risk Reduction*. (2016).
11. OECD. *Common Ground between the Paris Agreement and the Sendai Framework: Climate Change Adaptation and Disaster Risk Reduction*. (2020).
12. OECD. *Disaster Risk Assessment and Risk Financing A G20 / OECD methodological framework*. (2012).
13. EC. Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism. Off. J. Eur. Union 924–947 (2013).
14. IEC & ISO. *ISO 31000: 2018. Risk management — Guidelines*. (2018).
15. Poljanšek, K. et al. *Science for Disaster Risk Management 2017: Knowing better and losing less*. EUR 28034 EN, Publications Office of the European Union (Publications Office of the European Union, 2017). doi:10.2788/688605.
16. Poljanšek, K. et al. *Recommendations for National Risk Assessment for Disaster Risk Management in EU*. (Publications Office of the European Union, 2019). doi:10.2760/084707 (online).
17. OECD. *National Risk Assessments*. (OECD Publishing, 2018). doi:https://doi.org/https://doi.org/10.1787/9789264287532-en.
18. EEA. *National monitoring, reporting and evaluation of climate change adaptation in Europe (No. 20/2015)*. (European Environment Agency, 2015). doi:10.2800/629559.
19. UNGA. *Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction*. A/71/644. vol. 21184 1–41 (United Nations General Assembly, 2017).
20. EEA. *National climate change vulnerability and risk assessments in Europe*. (2018) doi:10.2800/348489.
21. European Commission. *COMMISSION NOTICE: Risk Management Capability Assessment Guidelines*. Off. J. Eur. Union C 261, 20 (2015).
22. EC. *Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee of the Regions Re-use of Public Sector Information : review of Directive 2003/98/EC –. 1–10* (European Commission, 2009).
23. EC. *Reporting guidelines on Disaster Risk Management*. 8–33 (2019).
24. Street, R. et al. *A European research and innovation Roadmap for Climate Services*. Eur. Comm. (2015).
25. EU. *Regulation 2021/836 of the European Parliament and of the Council of 20 May 2021 amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism*. 2021, 1–22 (2021).

Annex: List of interviewed experts

Vittorio Bosi, Italian Civil Protection Department

Andrew Bower, United Nation Office for Disaster Risk Reduction (UNDRR)

Erika Conti, Italian Civil Protection Department

Sofia Gonzalez Lopez, Spanish Civil Protection

Siegfried Jachs, Austrian Interior Ministry

Jens Kampelmann, Consultant/Disaster Response Team member, Germany

Markus Leitner, Umweltbundesamt - Environment Agency Austria

Montserrat Marin-Ferrer, European Commission - Joint Research Centre

Kathy Oldham, Greater Manchester, Chief Resilience Officer

Sebastien Penzini, United Nation Office for Disaster Risk Reduction (UNDRR)

Jack Radisch, Organisation for Economic Co-operation and Development (OECD)

Regis Thepot, RTEau