CLIMAAX
climate ready regions

Risk Evaluation Protocol

for Key Risk Assessment

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Key Risk Assessment Protocol

The Key Risk Assessment supports local/regional interpretation of risk outcomes from the previous Risk Analysis step calculated through the CLIMAAX workflows. Evaluating and finally prioritizing climate risks guides downstream decisions on future Climate Risk Management (CRM) actions. It feeds from participatory processes which support the consideration of risk from various perspectives and thus their overall risk evaluation (social construction of risk). Therefore, it is crucial to involve stakeholders of various sectors, experts and representatives from vulnerable groups to assess different aspects of the generated risk analysis output. Stakeholder selection should be gender-balanced and include representatives of vulnerable and marginalized social groups (such as migrant communities, the elderly, etc.) to reflect their perspectives, realities and needs. Finally, through stakeholder engagement (e.g., stakeholder workshop, focus group discussions) risk severity, urgency and resilience capacity can be identified.

The following steps should be repeated for every hazard specific risk to be evaluated. If there is only one risk analysis output, a community still profits from further insights regarding the risk especially in light of future resilience pathways. Assessing Key Risks that require further action starts with gathering output from the Risk Analysis step, assessing the relative Risk Severity and Urgency, combining it with Resilience Capacity and eventually leading to prioritizing risk. This provides entry points for future CRM and further informs the subsequent Monitoring & Evaluation step within the Framework.

Each risk evaluation is given one row in the matrix below (Fig. 1) through which (present and future) severity, urgency as well as resilience capacity is being assessed in terms of qualitative judgement by the process participants.

Risk Workflow	Severity		Urgency	Capacity	Risk Priority
	C	F		Resilience/ CRM	
River flooding					
Coastal flooding					
Heavy rainfall					
Heatwaves					
Drought					
Fire					
Snow					
Wind					

Severity	Urgency	Resilience Capacity	Risk Ranking
Critical	Immediate action needed	High	Very high
Substantial	More action needed	Substantial	High
Moderate	Watching brief	Medium	Moderate
Limited	No action needed	Low	Low

Figure 1. Matrix for Key Risk Assessment considering Severity (of current – C and future – F risk), Urgency and Resilience Capacity. Qualitative integration of the three evaluation elements allows a decision on risk priority.

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1) Gather Output from Risk Analysis step

The Risk Analysis step generates quantitative risk information and data for the selected hazard(s). To ensure stakeholders, experts, and representatives of priority groups can effectively interpret the results, the available information must be carefully collected and prepared. The aim is to use the raw Risk Analysis output and evaluate it in terms of severity, urgency, and resilience capacity. The following points summarize key tasks involved in this preparation:

- Collect output from Risk Analysis step such as
  - Hazard type (flooding, drought, heatwaves, etc.)
  - Quantified impact via relevant metrics (e.g., monetary values, flood depths, etc.) or other available metrics
  - Probability or frequency of risk/hazard (if available)
  - Other important information or specifications available from the workflows
- Process output and prepare adequate presentation for stakeholders
- Prepare contextualization of relative output metrics for stakeholders (e.g., amount of people living in certain areas, economic centres, protected areas, areas with residents being affected by a low socio-economic status, economic means of region/municipality, etc.)

It is important to recognize that severity, urgency, and resilience capacity are interdependent and may influence one another, potentially requiring a dynamic evaluation process that moves back and forth between these three elements. Therefore, iteration and dialogue are recommended.

2) Assess Severity

The severity relates to the quantitative risk analysis output and puts it into a region's/community's perspective. This includes a sensemaking process of calculated risk metrics and potential impacts (losses and damages) to communities, ecosystems, assets and infrastructure, the economy or health and other topics that regard the wellbeing of a community's citizens. Therefore, by contextualizing the given value and respective metrics of the quantified risk it is possible to start shading light on the social construction of the relative risk.

To start with, evaluate severity for **current** (if available) and **future** risk outcomes according to the categorical grades listed below. For additional guidance, you can draw on "Severity" guiding questions provided under Key Risk Assessment on the CLIMAAX Handbook.

- **1 - Limited**: Minimal and/or acceptable impacts of the climate risk on society and sectors or low frequency.
- **2 - Moderate**: Moderate impacts for the region or community with effects on certain sectors; the risk to communities, ecosystems, assets and infrastructure, the economy or citizens may be tolerable but is still harmful.

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- **3 - Substantial**: High frequency and/or substantial impacts for the region or community with potentially intolerable, systemic effects; the functioning of communities, ecosystems, assets and infrastructure, the economy or the life and well-being of citizens is threatened.
- **4 - Critical**: High frequency and/or severe impacts for the region/community with potentially intolerable outcomes; potentially systemic effects such as cascading impacts or risks; critical disruption of communities, ecosystems, assets and infrastructure, the economy or life-threatening conditions for citizens.

3) Assess Urgency

Urgency brings in temporal aspects of hazard to act as a signalling device for changes in climate hazard and process (anticipated rate of change). Urgency determines how soon action on the climate risk is required. It depends on the severity but also coincides with timing of occurrence, persistence, or hazard acceleration trends (slow-onset vs. sudden-onset). Further, at this point it is beneficial to consider how long it might take to adapt to the climate risk.

Evaluate Urgency according to the category descriptions listed below. For additional guidance, you can draw on "Urgency" guiding questions provided under Key Risk Assessment on the CLIMAAX Handbook.

- **1 - No action needed**: Climate hazard and process conditions are projected to not change significantly. The hazard is not projected to happen during critical timing or persist.
- **2 - Watching brief**: Climate hazard and process conditions are relatively stable and are not projected to change significantly yet. The risk is unlikely to persist or happen during critical timing. If a future trend of hazard increase will be observed, the region/community is able to take action quickly.
- **3 - More action needed**: Climate hazard and processes conditions are observed or projected to change significantly. They are anticipated to persist or happen during critical timing. If a future trend of hazard increase will be observed, the region/community is limited in taking action quickly. Adapting to the respective climate risk may take years to a decade.
- **4 - Immediate action needed**: Climate hazard and process conditions are projected to worsen significantly. They have high probability of occurrence and may affect many people as well as important, strategic assets and processes of a region. Adapting to the climate risk may take over a decade and therefore needs immediate action.

4) Understand Resilience Capacity

Resilience capacity of a region/community can significantly modulate the respective climate risk. It informs risk prioritization by considering financial, human, natural, physical and social capacity. Additionally, understanding gaps in a region's/community's individual resilience capacity can support future CRM efforts to guide strategic action.

Assessing resilience capacity can focus on generic and specific capacities that address climate risk. You can draw on examples provided in "Resilience Capacity" guiding questions available under Key Risk Assessment on the CLIMAAX Handbook.

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Evaluation of Resilience Capacity may proceed according to the following category descriptions:

- **1 - Low:** Low resilience capacity or lack of CRM measures in place.
- **2 - Medium:** Medium resilience capacity or some CRM measures in place.
- **3 - Substantial:** Substantial and broad resilience capacity with specific CRM measures in place, but space for improvement.
- **4 - High:** Comprehensive resilience capacity across various dimensions with a diverse portfolio of CRM measures in place.

5) Decide on Risk Priority

The final step of assessing key risks integrates the three sub-evaluation processes Severity, Urgency and Resilience Capacity. After contextualizing the risk outputs of the selected hazards in the provided excel template, Risk Priority can be assigned manually in the final column. The individual risk context of the region or community requires a final, qualitative evaluation where e.g.,

- High Severity, high Urgency, and low Resilience Capacity positively contribute to risk prioritization (very high risk prioritization; workflow 1 in Fig. 2);
- Low Severity, low Urgency, and high Resilience Capacity negatively contribute to risk prioritization (low risk prioritization; workflow 2 in Fig. 2).

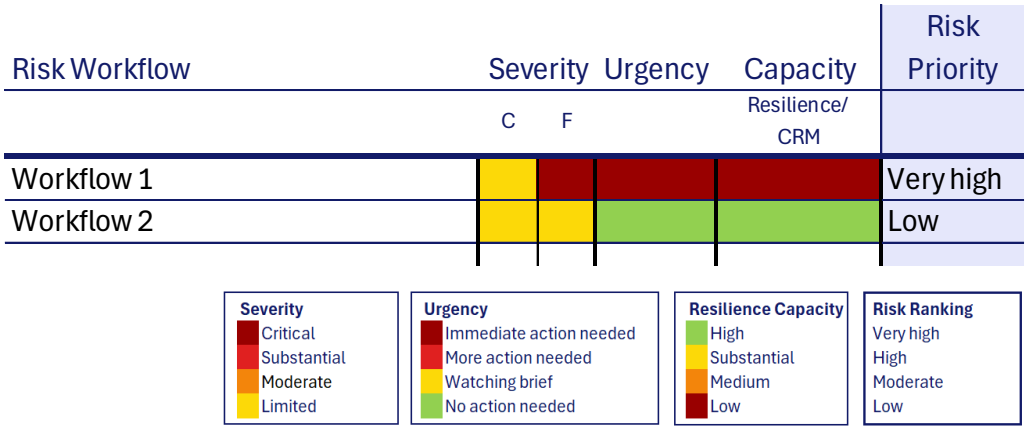

Figure 2. Exemplary risk prioritization of two idealized risk situations. Workflow 1 exhibits low Severity for current and high severity for future risk, high Urgency and low Capacity which translates into a very high risk prioritization. On the other hand, workflow 2 shows low Severity (current and future), low Urgency and high Capacity resulting in low risk prioritization.

When interpreting the three components of the risk evaluation process, it should be noted that they have a different impact on the final risk prioritization: Low severity and low urgency, both reduce risk, while low capacity increases risk.

Finally, the risk prioritization process has the potential to go beyond the sheer selection of risks that are ought to be addressed by CRM. Debating on Severity, Urgency and especially on the Resilience

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Capacity of a region or community contributes to co-production of knowledge, knowledge generation and exchange through participation and inclusion. Such information and knowledge are of great importance for future CRM planning and implementation.

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