

Annex A2:

Climate change vulnerability assessment

Additional activities or measures that are adapted to climate change — or that enable adaptation — can be considered eligible, if they contribute to increasing the sector's resilience and are aligned with at least one of the vulnerability assessment criteria listed below:

Criterion 1: Reduction of physical and material risks associated with climate change

Criterion 2: Implementation of adaptation support systems

Criterion 3: Contribution to the adaptation of other economic activities

Criterion 4: Adoption of best practices for monitoring adaptation results

Criterion 1: Reduction of physical and material climate risks:

The economic activity must reduce physical and material climate risks for that activity to the extent practicable.

Description:

1.1 The economic activity integrates physical and non-physical measures aimed at reducing, to the extent practicable and through all reasonable means, all material physical climate risks for that activity, as identified through a risk assessment (MMA, 2024).

The criteria for risk assessment may be qualitative or quantitative, depending on the level of risk:

- For low risks: a qualitative technical analysis should be developed to identify criticality or vulnerability and the actions to mitigate the risk.

- For moderate risks: a qualitative analysis should be used to identify criticality or vulnerability, including stakeholder consultation on actions to mitigate the risk.

- For high risk: both qualitative and quantitative analyses should be carried out to identify criticality or vulnerability, conduct stakeholder consultation, and identify the actions to mitigate the risk.

Note: any of the following methodologies may be considered to assess risks and vulnerabilities:

- Taxonomy of adaptation solutions (BID, 2020).
- Methodology for assessing disaster and climate change risks (Barandiarán, Esquivel, Lacambra, Suarez, & Zuloaga, 2019).
- National Adaptation Strategy.
- Assessment of Brazilian socio-environmental vulnerability methodologies as a result of urban issues in Brazil (Maior, Cândido, 2014).
- ABNT NBR ISO 14090; 14091; 14092, or equivalent ABNT Technical Standards.

1.2 The risk assessment has the following characteristics:

- It considers the best available information on climate variability, observed changes and future climate change scenarios, using a multi-modal approach to estimate the uncertainties associated with climate modeling.
- It is based on a robust analysis of available climate data and projections in a series of future scenarios at various scales (national, regional, local).
- It seeks to measure the probable losses avoided through the implementation of adaptation measures.
- It is consistent with the expected lifespan of the targeted activity and sector.

- For activities with a life expectancy of less than 10 years, the assessment is carried out, as a minimum, using climate projections on the smallest appropriate scale.
- For all other activities, the assessment is carried out using the most advanced climate projections and at the highest resolution available, considering a range of possible future scenarios consistent with the activity's expected life cycle.
- The future scenarios include the Intergovernmental Panel on Climate Change's Shared Socioeconomic Pathways and the most up-to-date future scenarios for the country.
- It considers possible unintended consequences or side effects.

1.3 If the risk assessment determines that climate change will have a significant impact on the activity or asset, a corresponding adaptation plan must be defined, describing how the identified climate risks will be managed throughout the project.

Criterion 2: Adaptation support systems

The economic activity and its adaptation measures do not negatively affect the adaptation efforts of other people, nature, and property. It also supports systemic adaptation.

Description

2.1 The economic activity and its adaptation measures do not negatively affect adaptation efforts or the level of resilience to physical climate risks of other people, nature, cultural heritage, assets, and other economic activities. Avoid maladaptive climate actions, where measures in one sector affect and increase the risk of another sector.

2.2 The economic activity and its adaptation measures are consistent with local, sectoral, regional, or national adaptation strategies and plans; and consider the use of nature-based solutions or blue or green infrastructure to the extent practicable.

Criterion 3: Contribution to the adaptation of other economic activities

The economic activity reduces material physical climate risk in other economic activities and/or reduces systemic barriers to adaptation. Activities that enable adaptation include, but are not limited to:

- Promote innovative technologies, products, practices, governance processes and uses of existing technologies and practices (including those related to natural infrastructure).
- Remove information, financial, technological, and capacity barriers to facilitate the adaptation of other people, activities, or assets.

Description

3.1 The economic activity reduces or enables adaptation to physical climate risks beyond the limits of the activity itself. The activity should demonstrate how it supports adaptation through:

- An assessment of the risks of current climate variability and future climate change, including uncertainties, using a multimodal approach, which the economic activity will help to mitigate based on robust climate data.
- An assessment of the effectiveness of the contribution of economic activity to reducing these risks, considering the scale of exposure and vulnerability to these risks.
- An assessment of the co-benefits of adaptation in terms of climate change mitigation, disaster risk reduction, and avoided losses.

3.2 In the case of infrastructure linked to an activity that allows adaptation, this infrastructure must also meet the technical selection criteria for Adapted and enabling activities.

Criterion 4: Best practices for monitoring adaptation results

The results of adaptation must be monitored and measured based on defined indicators. Recognizing that risk evolves over time, updated physical climate risk assessments should be carried out at an appropriate frequency, at least once a year. The three procedures below are recommended for monitoring activities or measures based on the vulnerability assessment.

1. Establish measurement indicators

- Define clear and measurable indicators to assess the reduction of climate-related physical risks.
- Ensure that these indicators are relevant and reflect the actual impact of the activity on adaptation.
- The adaptation plan should include implemented measures to reduce physical risks in accordance with the vulnerability assessment and the indicators for monitoring.

2. Continuous monitoring

Establish a continuous monitoring system to measure and evaluate the results of adaptation over time. In addition, conduct updated climate risk assessments at an appropriate frequency, considering changes in circumstances and the evolution of risks.

3. Transparent communication

Establish a communication plan focused on delivering results related to adaptation. This is necessary to provide clear information on how efforts contribute to climate risk reduction and the successful adaptation of other economic activities.