



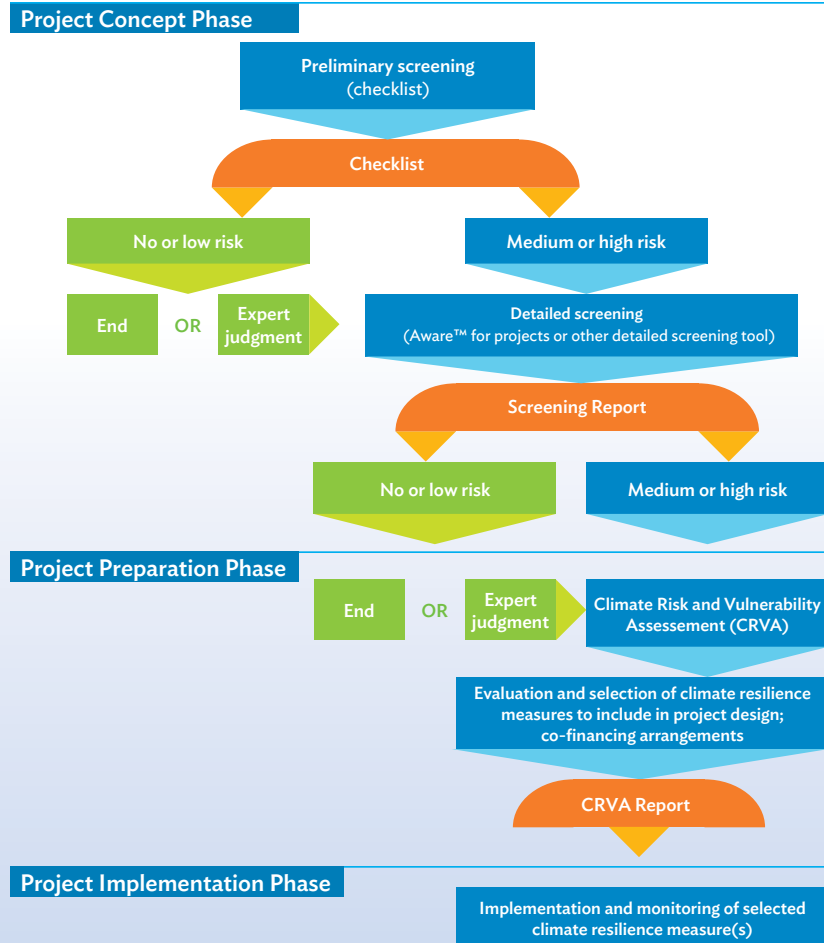
# CLIMATE RISK MANAGEMENT IN ADB PROJECTS

# ADB's Climate Risk Management Framework

The climate risk management approach of the Asian Development Bank (ADB) aims to reduce risks resulting from climate change to investment projects in Asia and the Pacific. ADB's framework identifies climate change risks to project performance in the early stages of project development, and incorporates adaptation measures in the design of projects at risk. ADB climate risk management framework comprises the following steps:

- (i) context-sensitive climate risk screening at the concept development stage to identify projects that may be at medium or high risk;
- (ii) climate change risk and vulnerability assessment during preparation of projects at risk;
- (iii) technical and economic evaluation of adaptation options;
- (iv) identification of adaptation options in project design; and
- (v) monitoring and reporting of the level of risk and climate-proofing measures.

## Flow Chart for Climate Risk Management of Investment Projects



## 1. Climate Risk Screening

All ADB projects are screened for climate risks. An initial screening is carried out by the project teams by filling in a checklist. Projects identified to be at medium or high risk undergo a further screening through dedicated screening tools, such as the online tool AWARE for Projects. Risks considered are those resulting from temperature increase, precipitation change, wind speed change, sea level rise, solar radiation change, water availability, flooding, tropical storms, wildfire, permafrost, sea ice, snow loading, and landslide.

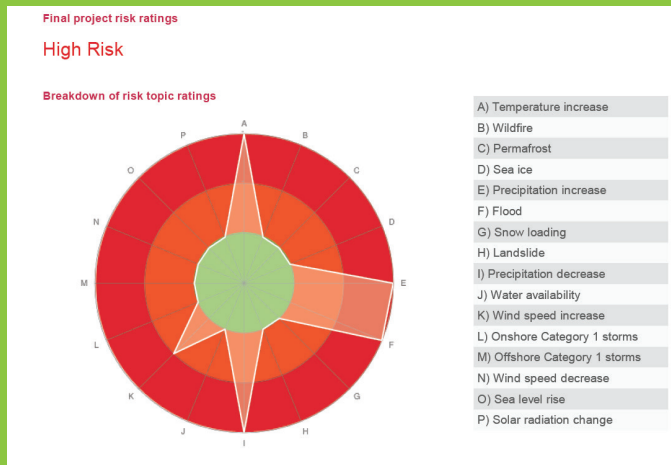
## 2. Climate Risk and Vulnerability Assessment

A detailed climate risk and vulnerability assessment is carried out for projects classified as medium or high risk during project preparation. The assessment aims to quantify risks and identify adaptation options that can be integrated into the project design. The level of technical rigor of the assessment depends on the project complexity and availability of climate data and information for the project area. It can range from a simple desk analysis to a complex assessment based on custom climate projections to enable a more detailed assessment.

This assessment is usually conducted by experts with background in climate modeling, impact assessment, and economics of climate change who work together with the ADB sector specialists, the executing agencies, the project sponsors, and other stakeholders to formulate adaptation solutions for the project.

### AWARE for Projects

AWARE for Projects is an online tool used by ADB project teams to screen projects for climate risks. The tool uses data from 16 general circulation models, as well as databases on temperature increase, wildfire, permafrost, sea ice, water availability, precipitation change, flooding, snow loading, tropical storms, and landslides. For each project screened, the tool generates an overall climate risk ranking of low, medium, or high; key risk areas; and narratives on potential impacts and adaptive measures to guide subsequent activities.

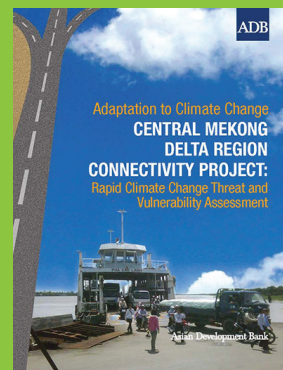


### 3. Technical and Economic Evaluation of Adaptation Options

Based on the climate risk and vulnerabilities assessed, adaptation options are identified and evaluated on the basis of their technical feasibility and economic viability. Technical feasibility evaluates whether proposed engineering and nonengineering measures can be implemented with available skills; equipment; and other local factors such as geography, governance, and capacity. The economic analysis involves estimating and comparing the cost and benefits of the project based on two different scenarios: (i) the project under climate change without adaptation measures, and (ii) the project under climate change with adaptation measures. It aims to identify which adaptation option yields the highest net benefit. It also aims to estimate the incremental cost of adaptation as the cost of project activities aimed at addressing specific climate vulnerabilities. Recognizing that investing in adaptation measures may be costly and that future benefits may be uncertain, the economic analysis can also point to the best timing for investing in adaptation.



### Climate Risk and Vulnerability Assessment for Central Mekong Delta Region Connectivity Project



The project consists of two bridges and an interconnecting road that form part of a strategic transportation link connecting the provinces of southern Viet Nam and Ho Chi Minh City. Given the estimated high exposure of the Mekong Delta to projected future flooding, a climate risk and vulnerability assessment was conducted for the project. The study found that the embankments of the connecting road were

vulnerable to the impacts of projected increases in the frequency and intensity of upstream flooding. Projected impacts included (i) erosion of road embankments and scouring of road foundations, (ii) waterlogging of road foundations leading to road subsidence, (iii) reduced stability of infrastructure, and (iv) increased maintenance effort. As a result, a phased approach to climate change adaptation was adopted. During the first phase, the project design was adjusted by adding a 0.3-meter climate change factor on road embankments to allow for expected higher floods. For the second phase, adaptation will be considered as part of further maintenance and road upgrades and expansion. ( Available at <http://www.adb.org/publications/central-mekong-delta-region-connectivity-project-rapid-climate-change-threat-vulnerability-assessment> )



## 4. Identification of Adaptation Options

The most viable adaptation options or climate-proofing measures are identified in consultation with the executing agencies or project sponsors, and are integrated in the project design. There is no standardized approach to climate proofing. In some cases, climate proofing is essential to ensure the project is not negatively affected by climate change. In other cases, the lifetime of the project is such that climate proofing is not a viable option or climate readiness is a more appropriate approach. Climate proofing may involve adjusting engineering design such as increasing drainage capacity of water supply systems, elevating roads in areas particularly at risk from flooding, or ecosystem-based adaptation measures such as revegetation of unstable slopes.

## 5. Monitoring and Reporting

The level of risk identified during project concept development and the findings of climate risk and vulnerability assessment carried out during project preparation are documented in the ADB board documents. A supplementary document describing

the assessment and adaptation measures incorporated in the project design and associated costs can also be attached to the ADB board documents. The level of risk assigned to the project and the budget allocated to the incremental cost of adaptation are recorded in the ADB project classification system for monitoring and reporting purposes.



## Resources Available to Support the Implementation of the Climate Risk Management Framework in ADB Projects

ADB has made available technical and financial resources to support this framework:

- Technical resources are available to support climate risk screening and assessment in the Environment and Safeguards Division of the Regional and Sustainable Development Department, which is ADB's adaptation focal point.
- Financial resources in the range of \$4 million were made available through ADB's Climate Change Fund at the beginning of 2014 to meet the cost of carrying out climate risk and vulnerability assessments in projects categorized as medium or high risk during initial screening.
- To support climate change adaptation investments, ADB has established dedicated trust funds in partnership with other development institutions. For example, the Urban Climate Change Resilience Trust Fund was established with support from the United Kingdom's Department for International Development, the Rockefeller Foundation, and the United States Agency for International Development. The fund is a \$150 million multi-donor trust fund administered by ADB to scale up urban climate resilience across 25 medium-sized cities in Asia. ADB is also leveraging finance from adaptation funds administered by the Global Environment

Facility and the Climate Investment Funds. It has mobilized bilateral sources such as those from the Nordic Development Fund, and the governments of Australia, Canada, and Japan. ADB remains engaged to help countries access the Green Climate Fund, which is expected to come onstream in 2015.

- ADB has developed tools, including the online tool AWARE for Projects, for consistent and systematic screening of climate risks. Technical guidance materials are available to help project teams and developing member countries manage climate risks throughout the project cycle, including climate-proofing guidance for the transport, agriculture, and energy sectors. These are accessible through the ADB website (<http://www.adb.org/publications/building-resilience-climate-change-adaptation-technical-resources>).

