



Climate Risk Management For A Resilient Asia-Pacific

Dr Cinzia Losenno
Climate Change Adaptation Focal Point
Asian Development Bank

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ADB

Outline

- Why Managing Climate Risks
- Approaches to Climate Risk Management
- Resources for Climate Risk Management
- Initial lessons and key challenges
- Structure of the Workshop



Why Managing Climate Risks

- Climate variability and change is a threat to development goals
 - Greater frequency of extreme weather events
 - Changes to average temperature
 - Changes to precipitation patterns
 - Sea level rise
- Climate change is a risk multiplier
 - amplifies or alters existing risks
 - for example raw material availability (e.g. water) or transport disruption due to extreme weather events
 - can result in economic losses - as high as 6.7% in Southeast Asia by 2100 (in Indonesia, Philippines, Thailand and Viet Nam assuming a business as usual scenario)



Multiplier Effect of Weather Events

- Flooding in Thailand (2011)
 - 40% of hard disk drive are produced in Thailand
 - The flooding of manufacturing plants led to increase in global price of hard disk drives and electronics
- Droughts in the US (2012)
 - Droughts and record breaking hot temperature led to reduced crops
 - Lack of feed stock and corn led to increase of meat and dairy prices
 - Global food prices increased by 10% in June and July 2012

Source: PwC analysis, <http://www.pwc.com/gx/en/governance-risk-compliance-consulting-services/resilience/publications/business-not-as-usual.jhtml>

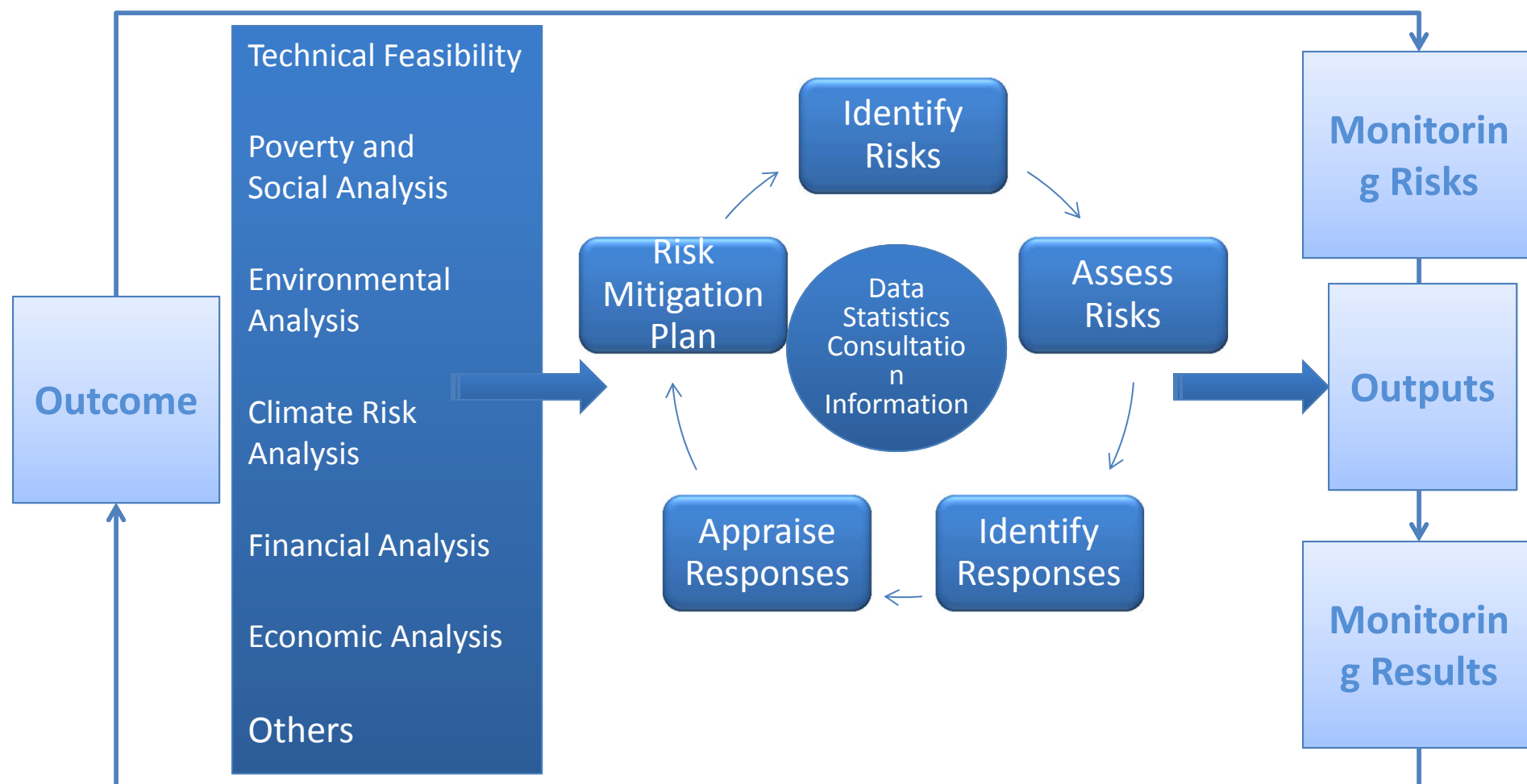


No longer 'why' but 'HOW':

- Managing risks is a process aimed at realizing potential opportunities whilst managing adverse effects
- Individuals, governments, businesses and decision-makers are no strangers to dealing with risks
- Decision-making always requires integrated risk management
 - financial
 - social
 - environmental
 - regulatory
 - reputational
 - political
 - climate variability and change



Iterative Risk Analysis for Decision Making



Climate Risk Management

- “Climate risk management is a process for incorporating knowledge and information about climate-related events, trends, forecasts and projections into decision making to increase or maintain benefits and reduce potential harm or losses. It is a multidisciplinary activity that calls for an integrated consideration of socioeconomic and environmental issues.”

Source: Editorial, Climate Risk Management 1 (2014)



Climate Risk Management

- Climate risk management is an approach to identify, assess and respond to climate risks
- Managing climate risks aims to ensure that intended outcomes of strategies, policies and investments are achieved despite the threats posed by a changing climate and the uncertainties associated with it
- Managing climate risks is a way of reducing the chances of making the wrong decisions (no- or mal-adaptation), e.g.:
 - Dependency on climate sensitive resources
 - Development in vulnerable coastal areas



Different Levels of Risk Analysis

- National planning process
 - National development strategies
 - Poverty reduction strategies
 - Sector plans
- Sub-national development plans
 - Provincial plans
 - Municipalities
 - Community level plans
- Investment projects
 - Projects aimed at addressing climate vulnerabilities
 - Projects with broader development objectives



Main Elements of a Climate Risk Management Framework

- Climate risk screening
 - Aimed at filtering out activities that are not at risks, and focusing attention on relevant risks at very early stages of plan or project development
 - Context sensitive
- Climate change risk and vulnerability assessment
 - Aimed at quantifying risks
 - Requires analysis of risks resulting from current vulnerabilities and projected climate change
- Technical and economic evaluation of adaptation options
- Identification of adaptation options
- Monitoring and reporting of level of risk and climate-proofing measures

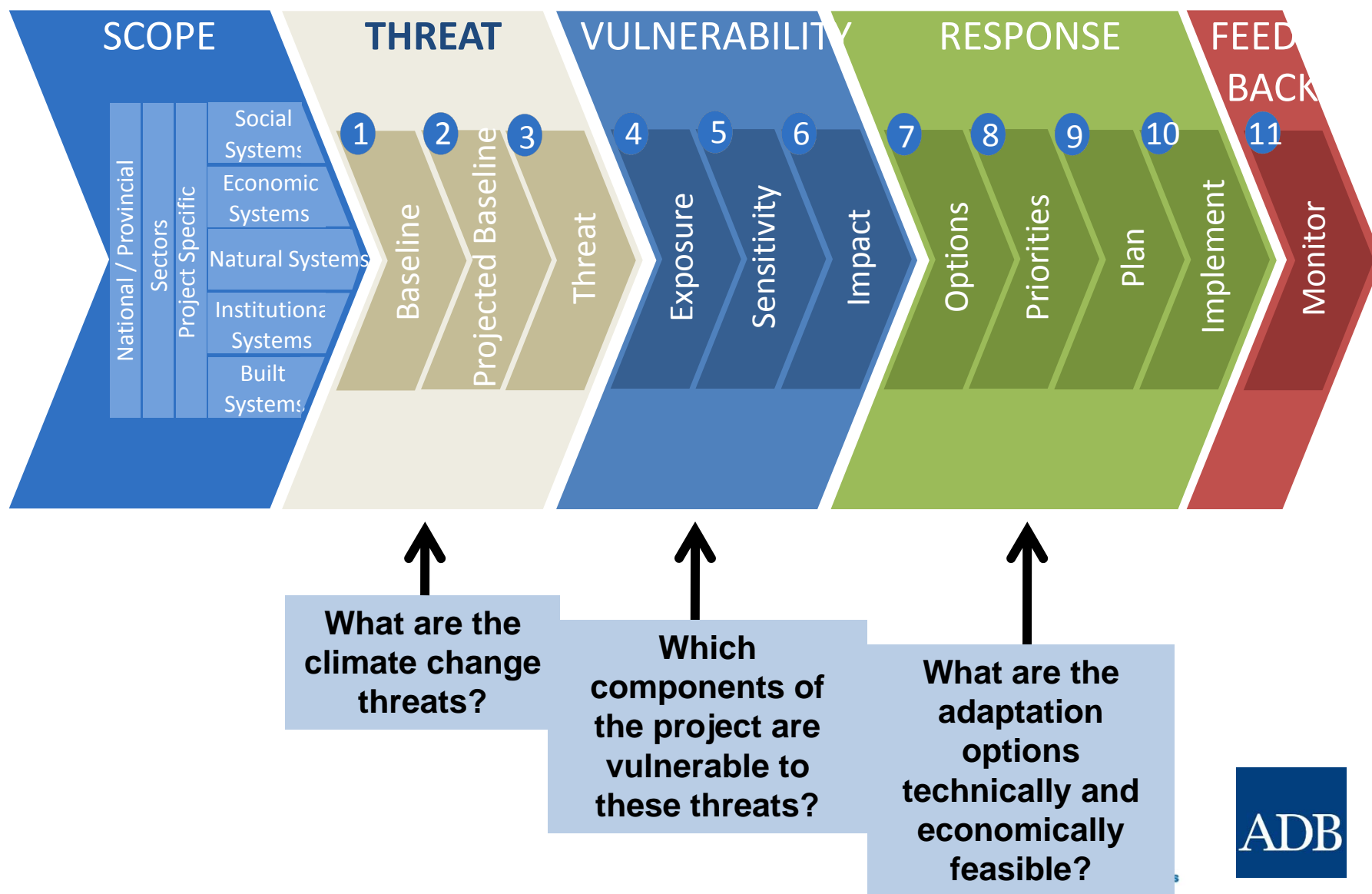


Climate Risk Screening

- Risks considered are those resulting from changes in temperature, precipitation, sea level rise, wind speed, solar radiation, water, flooding, landslide, tropical storms, wildfire, permafrost, sea ice, snow loading, etc.
- Community based tools
 - Community-based Risk Screening Tool Adaptation and Livelihoods – CRISTAL (IISD and partners)
- Sector tools
 - Climate Project Screening Tool for agriculture projects (United States Department of Agriculture)
 - CRITSTAL for forestry and food security
- Custom made tools
 - World Bank screening tool
 - African Development Bank screening tool
- Commercial tools
 - AWARE for Project
- Many others

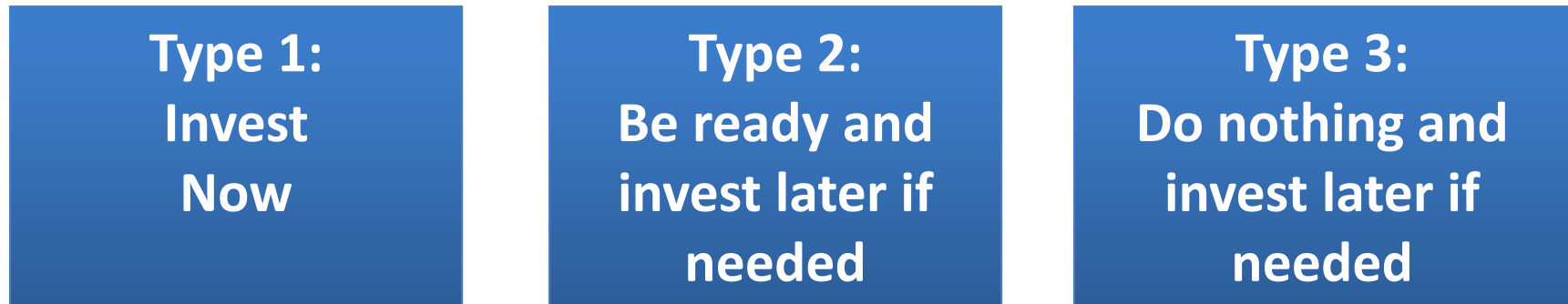


Climate Risk and Vulnerability Assessment

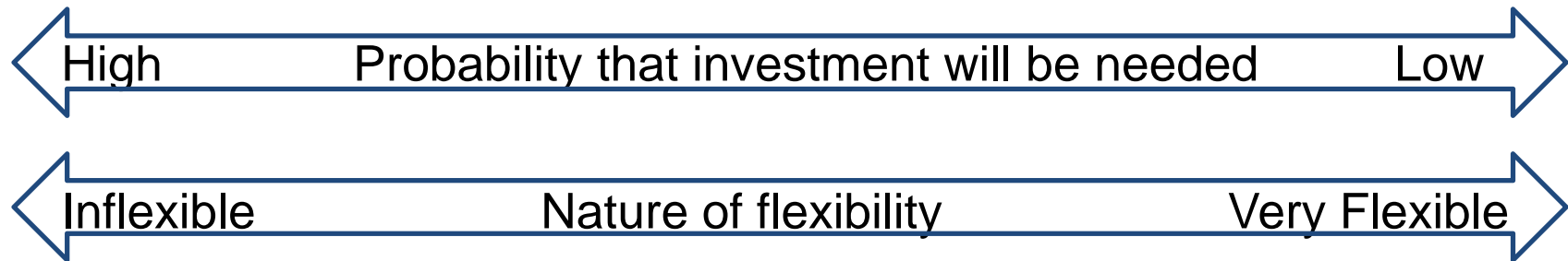


Adaptation Assessment: 3 Approaches

A menu of climate-proofing decisions



Important determinants



- It is not always necessary to act now, but it is important to assess now!

Some Considerations

- Scope and rigor of the assessment may vary, no “one size fits all” approach
 - expert opinion
 - desk studies using published literature on regional, sectoral climate risks
 - detailed, model-based study supported by climate projections data for complex or high-risk projects
- Sectoral impact models (e.g., hydrologic simulation models and crop models) may be required
- Decisions on CRVA approach should be guided by nature, complexity and scale of the project and nature and magnitude of risk(s)
- CRVA cost can vary significantly
 - In ADB experience, CRVA can cost \$40,000 - \$500,000, with typical values around \$100,000



Resources for Climate Risk Management

- Technical experts to support climate risk screening and assessment
- Financial resources to meet the cost of:
 - Climate risk and vulnerability assessments
 - Adaptation of project at risk
 - Strengthening capacity and institutions
 - Developing knowledge and document experience
- Tools and guidance material for consistent and systematic screening and assessment
 - Online resources
<https://www.climatesmartplanning.org>
 - ADB technical reference material available at
<http://www.adb.org/publications/climate-risk-management-adb-projects>



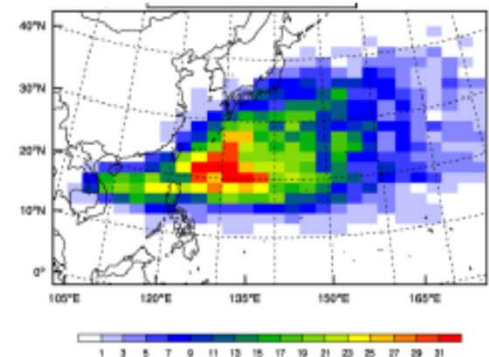
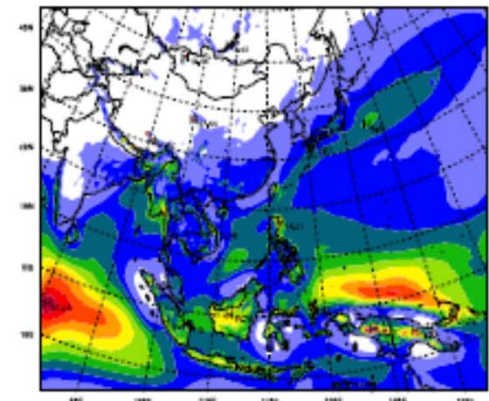
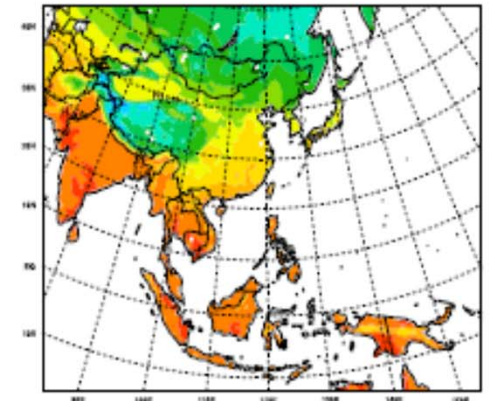
The Role of National Institutions

- National Institutions
 - Ministries
 - Hydrometeorological agencies
 - Coordination mechanisms
- Local governments
- Communities
- NGOs
- Private sector
- International institutions



The Importance of Knowledge and Capacity

- **Local knowledge** provides insight in experienced risks, perceived priorities, management approaches and responses that have been tested for long periods of time
- **Climate Information and High Resolution Climate Projections** are the evidence base required to support risk and vulnerability assessments and inform adaptation planning
- **Institutions** may need to develop new technical skills and decisions-making support processes to anticipate and manage climate risks



The Role of Partnerships

- Partnerships is crucial to mobilize resources, leverage knowledge, disseminate best practice and meet unique vulnerabilities across the region
 - Asia Pacific Adaptation Network
 - USAID ADAPT-Asia
 - Climate Investment Funds
 - MDBs Working Group on Climate Finance Tracking



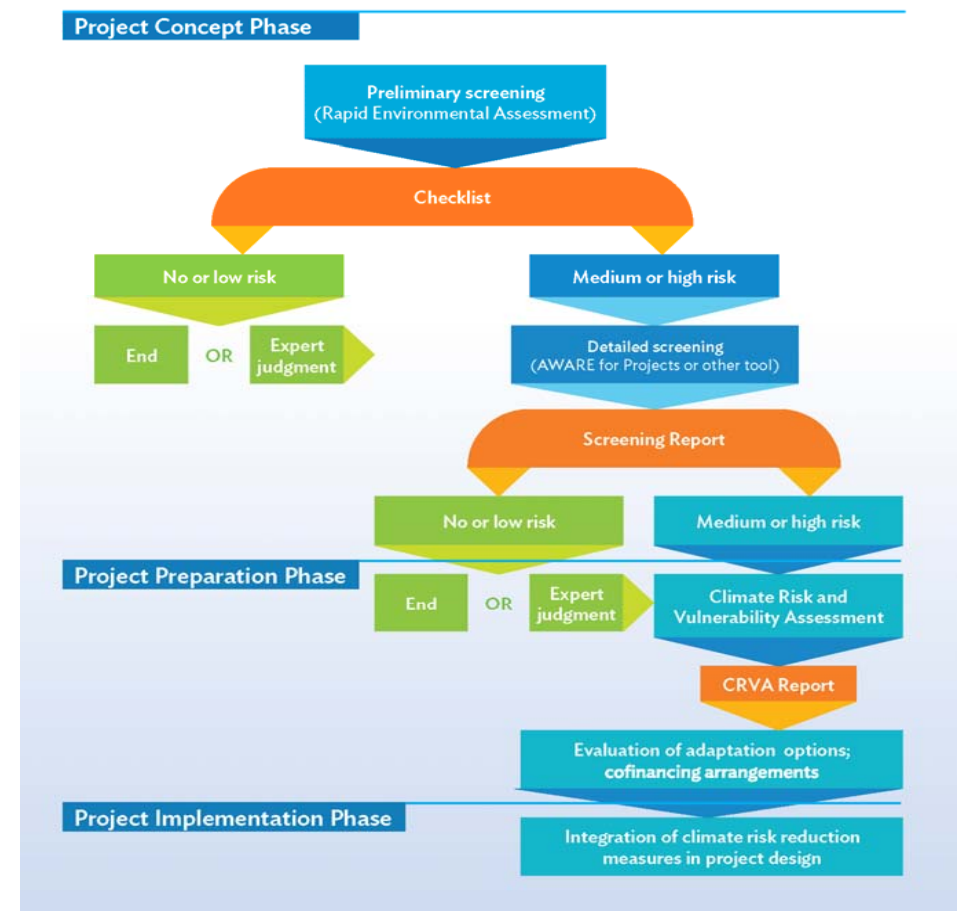
ADB Experience

- The ADB case
 - First study on climate risk management in the Pacific (2003)
 - Climate Change Implementation plan were developed for each sub-region (2008)
 - Strategy 2020 committed ADB to mainstreaming climate change adaptation (2008)
 - Human resources mobilized in 2009
 - Mid-term Review reinforced commitment (2014)
 - Institutional climate risk management approach rolled out (2014)
- Ongoing learning process



ADB Climate Risks Management Framework

- Climate risk management as one process:
 - All investment projects screened for climate risk
 - **Climate risk screening** at the concept development stage
 - **Climate risk and vulnerability assessment** in the preparation of projects at risk
 - **Technical and economic evaluation** of adaptation options
 - **Monitoring and reporting** of climate risk ranking and adaptation spending



AWARE for Projects

- Systematic, consistent web-based tool for climate risk screening projects
- Uses data from 16 general circulation models, and several databases on extreme events
- Combines exposure data and sensitivity information for 16 areas of risks to assess risk level
- Provides output report with:
 - Links to more detailed source data
 - Summary notes on model agreement, uncertainty, critical thresholds and robust decision making
 - Further reading guidance

03

Project Risk Ratings

Below you will find the overall risk level for the project together with a radar chart presenting the level of risk associated with each individual risk topic analysed in Aware™. Projects with a final "High risk" rating are always recommended for further more detailed climate risk analyses.

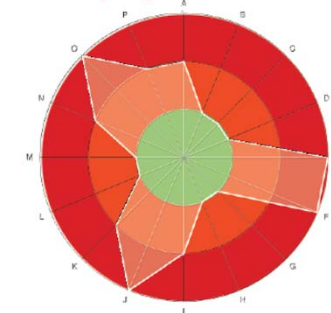
The radar chart provides an overview of which individual risks are most significant. This should be used in conjunction with the final rating to determine whether the project as a whole, or its individual components, should be assessed in further detail. The red band (outer circle) suggests a higher level of risk in relation to a risk topic. The green band (inner circle) suggests a lower level of risk in relation to a risk topic.

In the remaining sections of this report more detailed commentary is provided. Information is given on existing and possible future climate conditions and associated hazards. A number of questions are provided to help stimulate a conversation with project designers in order to determine how they would manage current and future climate change risks at the design stage. Links are provided to recent case studies, relevant data portals and other technical resources for further research.

Final project risk ratings

Medium Risk

Breakdown of risk topic ratings



A) Temperature increase
B) Wild fire
C) Permafrost
D) Sea ice
E) Precipitation increase
F) Flood
G) Snow loading
H) Landslide
I) Precipitation decrease
J) Water availability
K) Wind speed increase
L) Onshore Category 1 storms
M) Offshore Category 1 storms
N) Wind speed decrease
O) Sea level rise
P) Solar radiation change



CRVA Example: Transport Sector

- Stock-taking exercise of 11 ADB transport investments
 - main roads and bridges, rural roads, urban metro, ports and inland waterways
- Wide range of climate risk and vulnerability analysis to suit project needs, from desk review of available literature to climate projections
- Wide range of risks
 - Thawing permafrost, increasing temperature, precipitation, and storm surges
 - Risk of flood a recurrent threat
- Large number of adaptation options considered
 - 7 case studies climate proofed, 1 is climate ready, 3 no change
- Cost of adaptation ranged from 0.5% to 8.7% of total project cost
- Limited application of cost-benefits analysis of climate-proofing
- Uncertainty about climate change, limited availability of high resolution climate projections and lack of capacity to interpret projections were identified as key challenges

Source: ADB. 2015. *Climate Proofing ADB Investment in the Transport Sector: Initial Experience*. Manila



Insights from ADB Experience

- Risks need to be identified at the early stage of project development
- **Context of vulnerability** (what is the project vulnerable to and what are we trying to adapt to) is key
- Climate risk and vulnerability assessment can be undertaken within a reasonable timeframe and limited resources
- Adaptation is not cost neutral but may not always expensive
- Adaptation is context specific – no ‘standard cost’
- A large menu of engineering and non-engineering adaptation options are available
- Continued *learning* process

Source: ADB. 2015. *Building Climate Resilience in Asia and the Pacific: Insights from ADB Experience*. Manila (upcoming)



Key Challenges

- Promote an institutional culture on the importance of managing climate risks
- Create a clear institutional understanding of the process
- Promote good practice for climate risk and vulnerability assessments
- Secure technical and financial resources
- Document good practice for climate risk and vulnerability assessment
- Stronger focus on country programming



Structure of the Workshop

- Today
 - Morning Session use of evidence and information
 - Afternoon Session on adaptation planning and economic analysis
 - Interactive session
- Tomorrow
 - Morning Session on case studies and financing
 - Interactive session
- Evaluation Forms



Discussions points

- What is your experience in climate risk management?
- Are you familiar with screening tools?
- Do you use climate information in your work activities?
- Do you use sector impact assessment in your work activities
- How do you appraise different adaptation options?



Some References

- Climate risk screening tools
 - <https://www.climatesmartplanning.org>
 - <https://www.iisd.org/cristaltool/>
 - http://www.fs.fed.us/psw/publications/documents/psw_rp263/psw_rp263.pdf
- Climate risk management
 - <http://www.sciencedirect.com/science/journal/22120963>
- Climate risk and vulnerability assessment
 - <http://www.adb.org/publications/climate-risk-management-adb-projects>

