

Evidence-based Climate Risk Management

A.R. Subbiah, Director, Climate Risk Management

&

Ramraj Narasimhan, Disaster Management Specialist,
Climate Risk Management

Structure of Presentation

- **Introduction**
- **Challenges & Opportunities**
- **Climate Change and Disaster Risks**
- **Approaches**
- **Cases**

Climate change implications on disaster risks

- i. Alteration of the mean state of climate**
- ii. Increased frequency and intensity of extreme climate events**
- iii. Combination of i. and ii.**
- iv. Climate surprises (i.e. emergence of historically unexpected and sudden climate change-induced patterns)**

For anticipated risks:

Draw on experiences of human systems in dealing with **current climate variability and extremes** to provide guidance in designing adaptation strategies

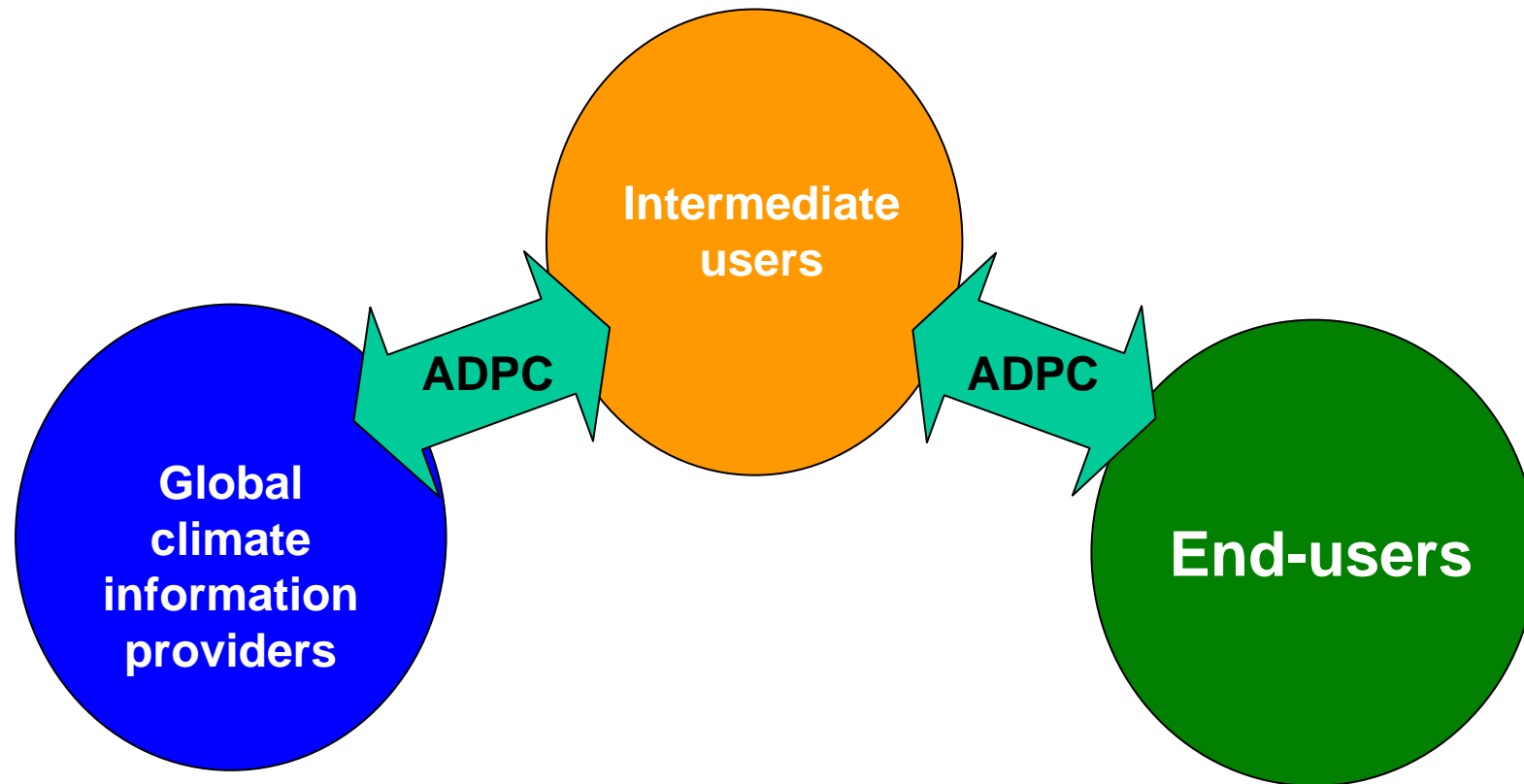
For unanticipated risks:

Draw on experiences of human systems in dealing with **extreme climate events of rare severity** to provide guidance in designing adaptation strategies

Practical approach to address constraints

Addressing risks associated with **present day climate variability** would enhance capacity of vulnerable communities to withstand **future climate change** impacts.

Operational programs:

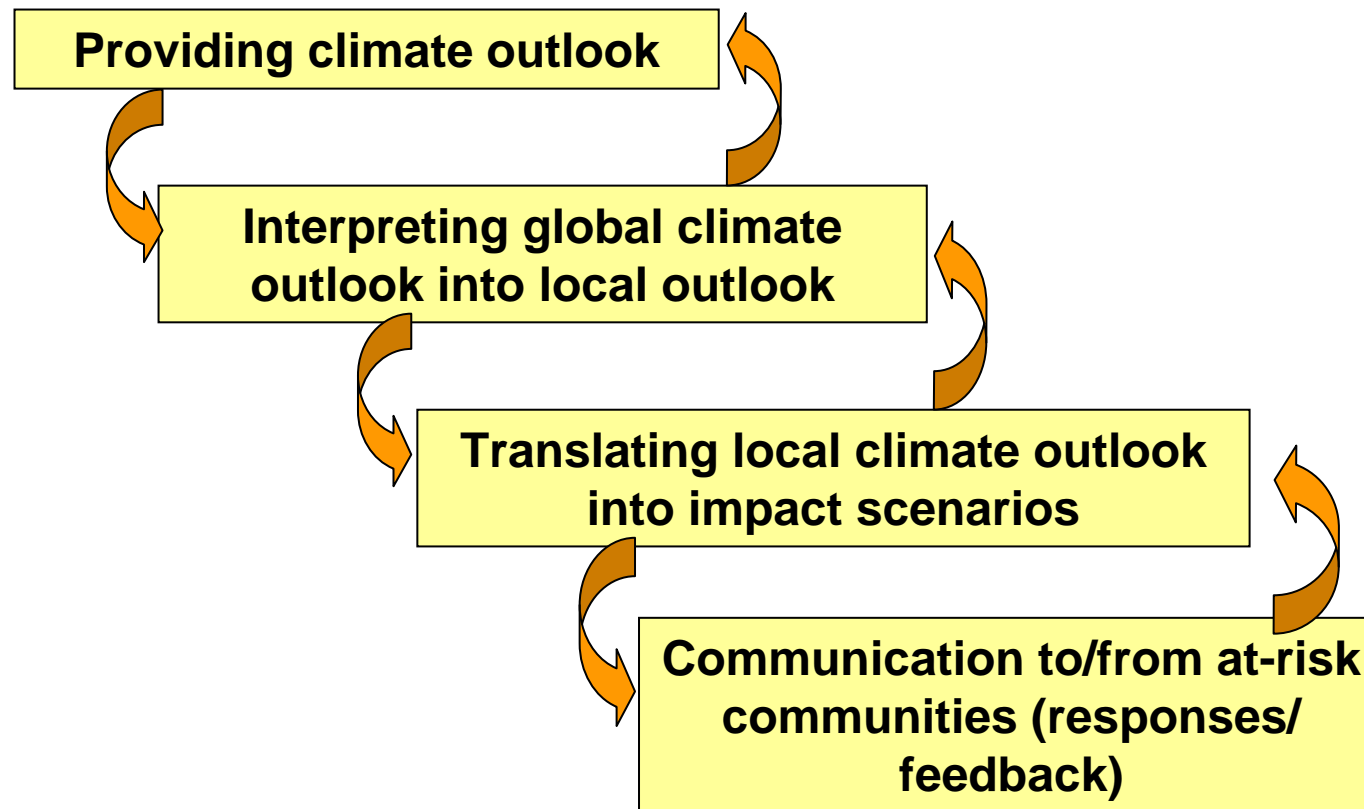


Three pronged strategy for enhancing adaptive capacity:

- ❖ **Utilizing recent extreme climate event analogs**
 - ❖ to evaluate if coping mechanisms are able to withstand higher amplitude climate variability
- ❖ **Utilizing advanced climate forecast information**
 - ❖ to provide experience in managing risks from current climate variability
- ❖ **Utilizing results from climate change models**
 - ❖ particularly where known impacts lead to a certain direction (e.g. glaciers retreat in Nepal as a result of continued warming)

Operational program:

End-to-end Climate Information and Application System



Demonstration potential:

Demonstrate the value of applying climate information derived from **past climate analogs, currently available climate information** at different time scales, and **results from climate change models, wherever locally actionable** at the community level, through demonstration projects in high-risk areas and, through this process, promote replication through policy advocacy.

Demonstration potential:

❖ **Climate forecast applications for disaster mitigation**

- ❖ **Indonesia** (agriculture: tail-end irrigated system; food security)
- ❖ **Philippines** (agriculture: rainfed and tail-end irrigated system; reservoir operation)
- ❖ **Vietnam** (agriculture: rainfed system)
- ❖ **Bangladesh** (agriculture: enhancing early warning system; flood management)

❖ **Climate change adaptation**

- ❖ **Indonesia, Philippines, Vietnam** (use of post 1950 climate variation analogs and temperature and precipitation trends for evolving community-based adaptation practices)
- ❖ **Bangladesh** (use of past extreme climate event analogs, available climate forecast information at all time scales, and climate change modeling results (Hadley and PRECIS) in generating probabilistic climate information, for translation into climate change impacts, and then to agricultural response options and livelihood adaptation practices)

Current efforts: approaches

- ❖ Manage risks from current climate variability and extremes – actions taken today to reduce vulnerability will increase resilience and security by providing a buffer against vulnerability to future climate change
- ❖ **Manage risks at all time scales (weather, climate, extremes, changing climate) in a risk management framework (Climate Risk Management)**
 - Multi-stakeholder approach
 - Involvement of stakeholders in identification and prioritization of risks and risk management options
 - Observable trends inform risk assessments
 - Managing uncertainties (probabilistic method, use of thresholds, etc.)

Adopting Climate Risk Management

- Manage current climate extremes as a way forward to manage future climate change
- Detect observable climate change trends
- Confirm observable trends with climate change models
- Downscale and provide locally usable climate information
- Establish institutional partnership with climate information providers and users
- Community based climate risk management programs grounded by adopting both Top Down and Bottom Up approaches.

Climate Risk Management approach:

1) Analysis of climate-related risks

- ❖ Elements at risk: what, where, who
- ❖ Climate stresses: historical and current climate variability and trends, prediction of climate variability and extremes to capture observable trends, selection of AOGCM that confirm substantially observed trends from a changing climate
- ❖ Non-climate stresses
- ❖ Impact assessment: climate-dependent sectors
- ❖ Assessment of coping/ adaptation strategies, acceptable risks, institutional responses
- ❖ Analysis of residual risks/ adaptation deficits
- ❖ Analysis of long-term risks through stakeholder consultation, noting considerable uncertainties in socio-economic projections

Climate Risk Management approach:

2) Analysis of institution, decision and policy landscape

- ❖ Inventory of institutions involved in climate risk management and their decision and policy frameworks for confronting climate risks
- ❖ Needs and nature of information demands to support decision-making
- ❖ Capacity to generate, interpret, translate and communicate climate information

3) Consensus-based identification and prioritization of risk management actions

- ❖ Participatory process leads to stakeholder ownership of priority actions identified and accountability in their implementation

Climate Risk Management approach:

- 4) **Development of decision-support tools. Includes climate information tailored to user needs at different planning horizons:**
 - ❖ Weather (3d) – for saving lives (DM)
 - ❖ Extended weather (10d) – for early mitigation decisions (DM)
 - ❖ Medium-term forecast (20-25d) – for logistics planning (DM)
 - ❖ Seasonal (6mos) – for resource management planning (agriculture, water)
 - ❖ Long-term trends – for evaluating how decisions and investments today can withstand future extremes (infrastructure, environment, planning)

- 5) **Institutional engagement and capacity development**
 - ❖ Active focal point able to bring DRR and CCA communities together
 - ❖ Regular dialogues (e.g. Monsoon Forum)
 - ❖ Training and demonstration

Climate Risk Management approach:

6) Local tool application

- ❖ Application of decision-support tools by planners, disaster managers, farmers, etc.
- ❖ Facilitation of user uptake of climate information

7) Policy support

- ❖ Institutions mobilize resources to support implementation of priority action

8) Receiving feedback to improve climate risk management process and tools

9) Sustaining initiatives by mainstreaming into local and national development processes

UNDP CRM project

- ❖ **Initiative of UNDP's Bureau for Crisis Prevention and Recovery (BCPR) and Bureau for Development Policy Energy and Environment Group (BDP/EEG)**
 - **Pilots in Indonesia, Armenia, Ecuador, Mozambique**
- ❖ **Focus in each country on CRM**
- ❖ **Scope: Steps 1-5 as input to national programs**

Issues to be addressed

- ❖ **Limitation of existing human systems to address climate variability-associated risks**
- ❖ **Policy changes, institutional mechanisms, strategies and practices required to address gaps to make communities resilient to current climate variability**
- ❖ **Limitation of strengthened coping mechanisms to withstand high amplitude variability due to climate change**
- ❖ **Priority actions/ measures that could be adopted to overcome identified limitations to manage risks associated with high amplitude climate change impacts**