

Climate Change and Disaster Risk Management

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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

Constraints in managing climate change risks

- ❖ **Uncertainties associated with physical climate modeling**
- ❖ **Uncertainties in socio-economic projections (population, economic, technological development) in the next 50-100 years**
- ❖ **Demands of present day development concerns vs. risks at a distant future**

However these should not be cause for non-action.

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.

Issues to be addressed

- ❖ Trends in environmental degradation
- ❖ Limitation of human systems to address climate variability-associated risks
- ❖ Kind of policy changes, institutional mechanisms, strategies and practices required to address gaps in making communities resilient
- ❖ Limitation of strengthened coping mechanisms to withstand high amplitude variability due to climate change
- ❖ Priority action/s measures to overcome limitations

ADPC approach:

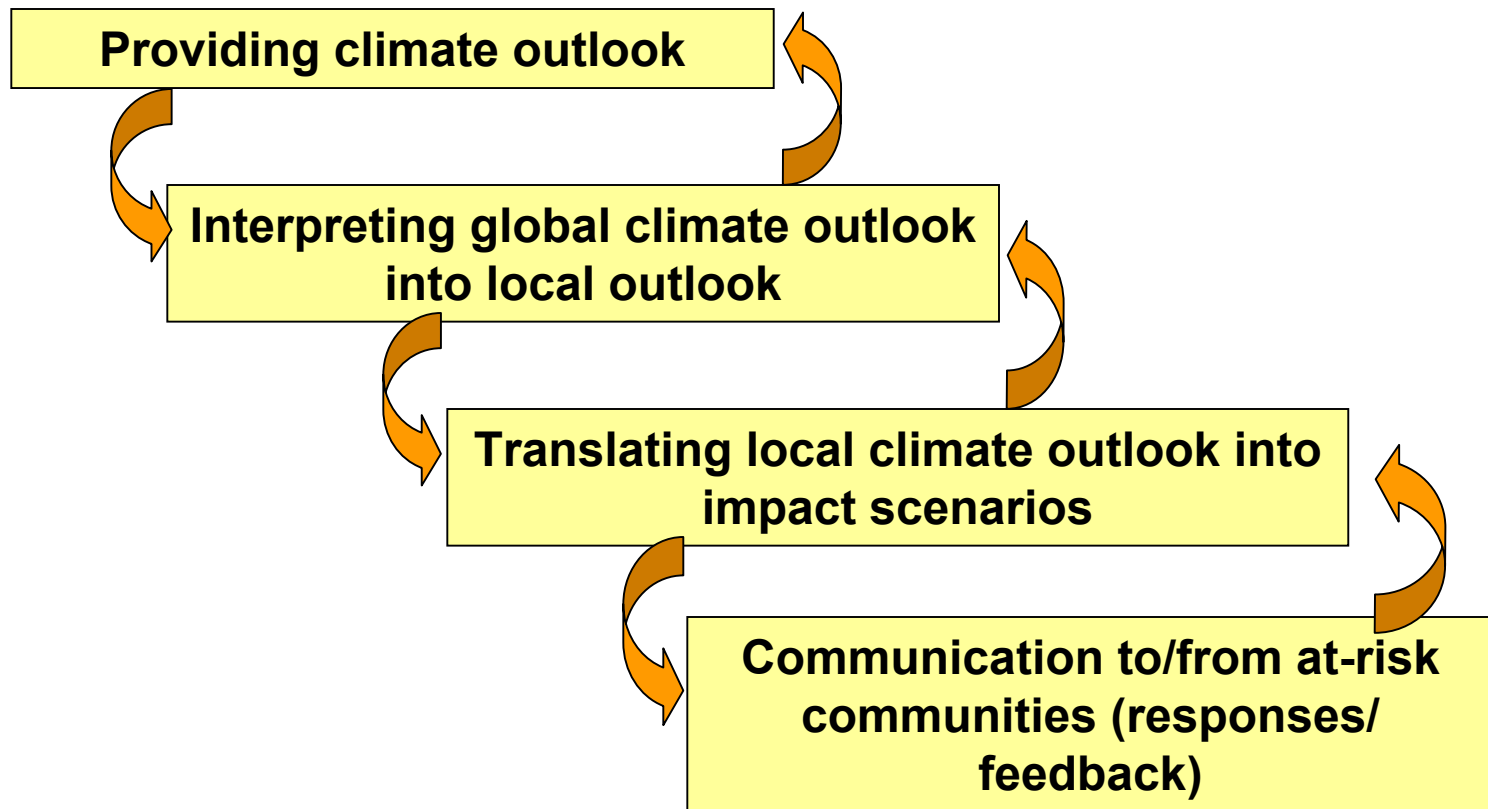
Demonstrate the value of applying climate information derived from **past climate analogs, currently available climate information** at different time scales, and **results from climate change models, wherever locally actionable** at the community level, through demonstration projects in high-risk areas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

Three pronged strategy for enhancing adaptive capacity:

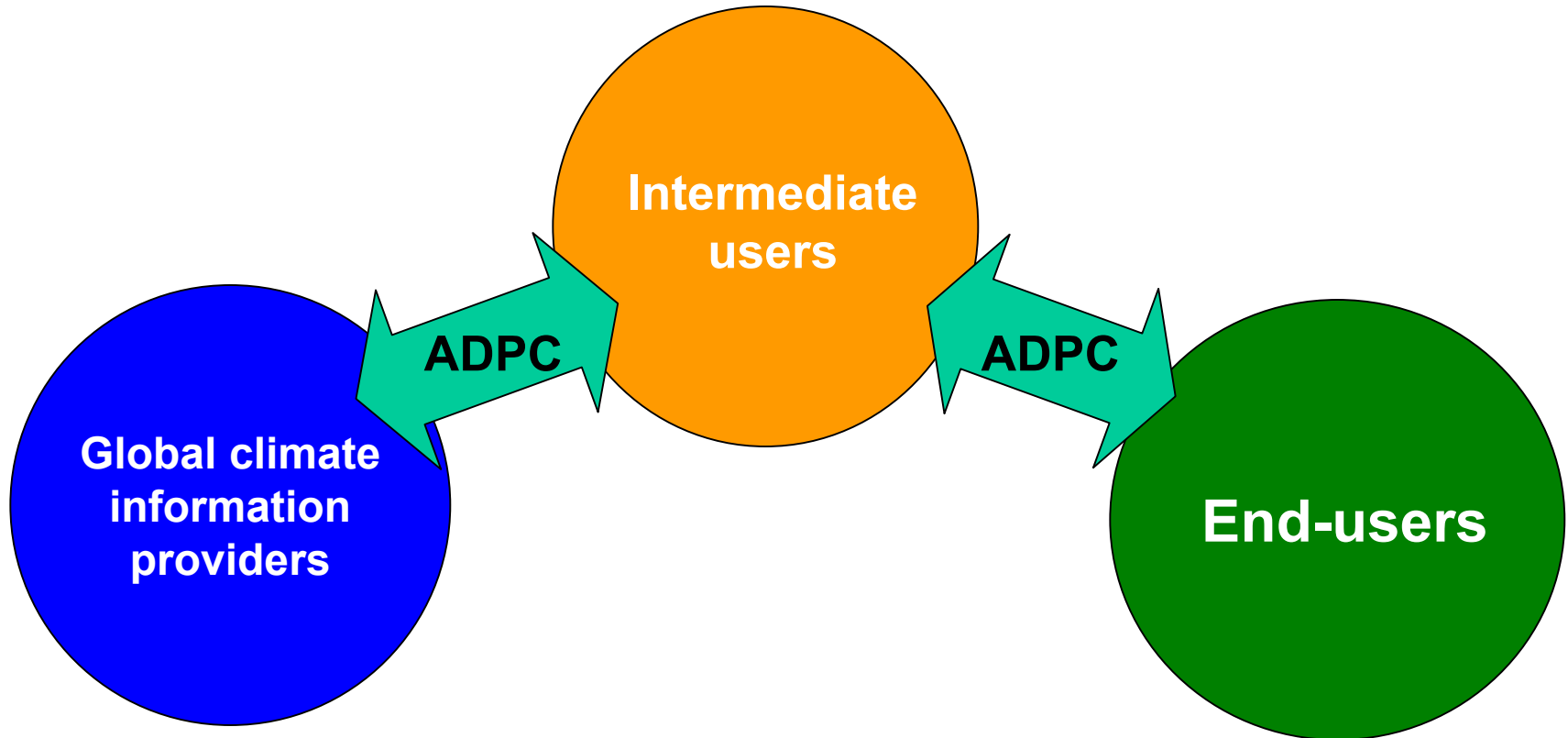
- ❖ **Utilizing recent extreme climate event analogs** (to evaluate if coping mechanisms are able to withstand higher amplitude climate variability)
- ❖ **Utilizing advanced climate forecast information** (to provide experience in managing risks from current climate variability)
- ❖ **Utilizing results 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))

ADPC's operational program:

End-to-end Climate Information and Application System



ADPC's operational program:



Countries of work

❖ **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)
- ❖ **India** (livelihoods, drought 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)

Partners

- ❖ **Global:** International Research Institute for Climate Prediction (IRI); Earth and Atmospheric Science, Georgia Institute of Technology (GATECH, Atlanta)
- ❖ **Indonesia:** BMG, Bogor Agricultural University, Ministry of Agriculture, local government
- ❖ **Philippines:** PAGASA, Department of Agriculture, National Irrigation Administration, IACWCM, local government
- ❖ **Vietnam:** IMH, ARC, CRC, local government
- ❖ **Bangladesh:** BMD, FFWC, IWM, DAE, DMB/ MDMR, CEGIS, CARE, FAO
- ❖ **India:** IMD, State and local governments

Candidate Pilot Sites

Diversity of climate-related problems

Participatory site selection with regional partners

