



**Regional Stakeholder Consultation on Climate Services for
the Third Pole Region**

Jaipur, India

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**WATER IN THE THIRD POLE REGION IN THE
CONTEXT OF THE
GLOBAL FRAMEWORK FOR CLIMATE SERVICES
(GFCS)**

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Setting the scene (1)

- 30% of the world's population live in the HKH-Region
- About 550 million people live in the Gangetic plane alone
- The Himalaya serves as the Water Tower of Asia
- The storage capacity of ice, snow and water in permafrost makes the Himalayas essential for feeding 7 of the largest rivers on earth.
- Close to 70% of the discharge of the Ganga river originates from Himalayan glaciers.
- Changes in water availability from the Ganges would affect some 35% of India's irrigated land.
- Likewise, intensification of low flow periods could further heighten tensions over sharing dry season flows in transboundary basins.

In numbers, the high Asian cryosphere contains a volume of
5.6 x 10¹² m³ in glacier volume;
750 x 10¹² m³ in snow water equivalent
9.5 x 10¹² m³ of ice in permafrost

We observe a volume reduction of glaciers in the order of 20 % from the 60-ies to 2000 alone

Setting the scene (2)

Box 1.1 Water management aspects dependent on climate and weather information

Hydrological characterization. Catchment/Watershed planning; general water balance

Flood management and control. Structures (dams, river training); flood forecasting and warning; flood plain zoning/flood frequency estimation; coastal inundation; erosion

Drought Management. Structures (dams, weirs, etc.), demand,

Irrigation and drainage. Supply; demand scheduling; drainage management; salinity

Groundwater. Recharge; groundwater flooding

Navigation. Canal systems; dredging

Power generation. Hydropower; cooling water

Water supply. Potable water; industrial processing

Water quality. Effluent disposal; pollution control; dilution; salinity and sedimentation

Fisheries and conservation. Hydro-ecology; hydromorphology; amenity; public access; recreation

Tourism

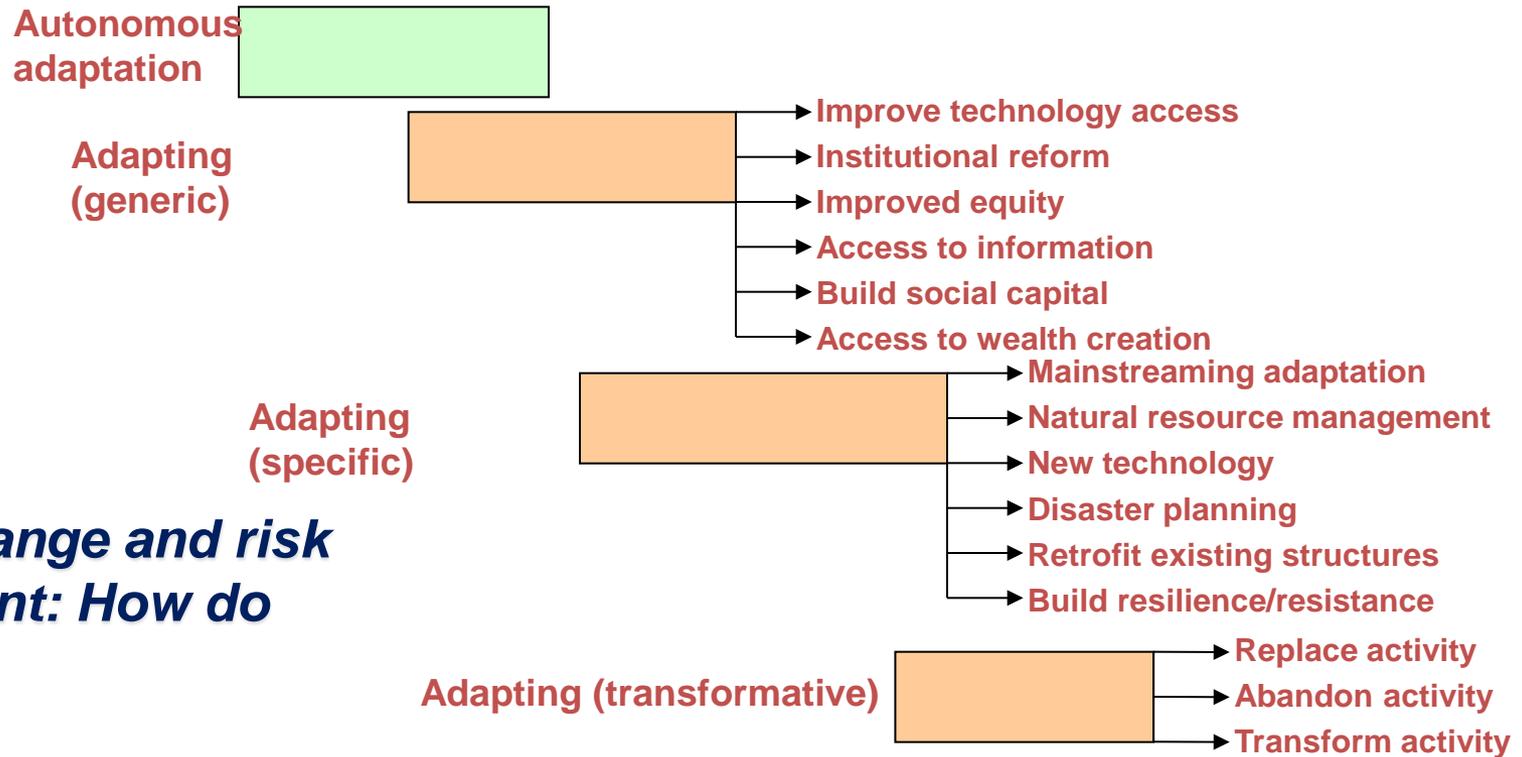
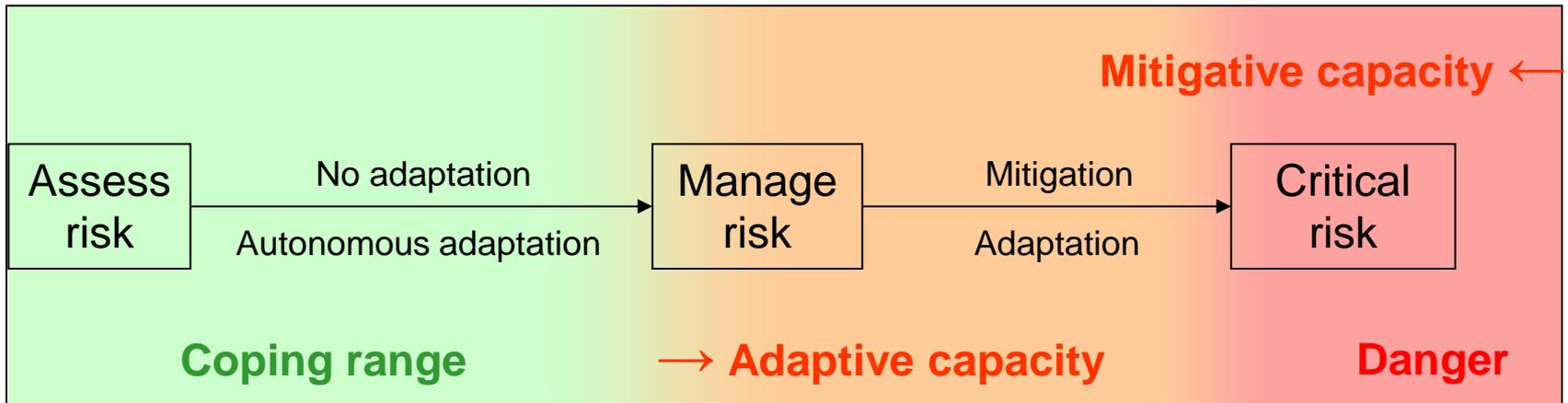
Monitoring is not enough!



Specific Outcome (1)

Enhanced understanding of the needs for climate services

- National sensitization programs;
- Interaction with “Communities of Practice” (actually the end-users of climate services to gauge their information and knowledge requirements that will drive the development of specific water-related climate services);
- What should water-related climate services deliver? Mapping of user requirements that would lead to the development of specific products that can be offered as society-relevant climate services
- On a national and regional base: Standardized documentation of hydro-climatic and cryospheric changes and mapping of their observed and projected impact in selected areas of socio-economic development;
- Mobilization of national and regional science and research activities geared towards the development of climate services



Climate change and risk management: How do we cope?

Further requirements:

Development of improved Third Pole climate scenarios aiming to project specific impacts

Development of climate change adaptation plans: Which are the data and information (model) requirements? In turn: Which are the climate services necessary?

Few examples of available tools and mechanism:

- WMO Manual on Water Resources Assessment
- Integrated Flood Management tools
- Integrated drought management tools
- Regional Climate Outlook Fora
- Transboundary river basin agreements in the region

Specific Outcome 2:

Improved knowledge of existing interface mechanisms and possible improvements

- Mapping of governmental and non-governmental water programs and activities including those of the NHSs;
- Mapping of national and international in-situ and satellite based observation and monitoring programs;
- Mapping of national and regional water-related projects with a “Third-Pole” aspect including through projects funded by development partners (such as Worldbank, PPCR etc);
- Mapping regional projects including trans-boundary river-basin programs and projects (HKH-HYCOS; ARAL-Sea HYCOS, CRYONET..)

Specific Outcome 3:

Understanding of capacity developing needs to implement GFCS

- Interpretation of observational data and model outputs;
- Focus on how to use products that have been developed for climate services;
- From information to decision-making;
- Decision-making under uncertainties;
- Transformation of information into policies
- Organizational management including change-management
- Specific technical and professional capacity building at the level of line agencies and their capacity requirements

Specific Outcome 4:

Necessary steps to develop a plan for Third Pole climate services

- Definition of common strategic objectives and means of implementation
- Develop a focus on the nexus concept. The water - food - energy nexus will be of prime importance for the socio-economic development of countries in the HKH region.***
- Define and establish an architecture for an end-to-end process from observations to decision-making
- Focus on identified priority services
- Establishment of partnerships
- Establishment of a knowledge management platform
- Establish network of contributing organizations
- Develop plan for resource mobilization
- Develop implementation plan and implementation oversight

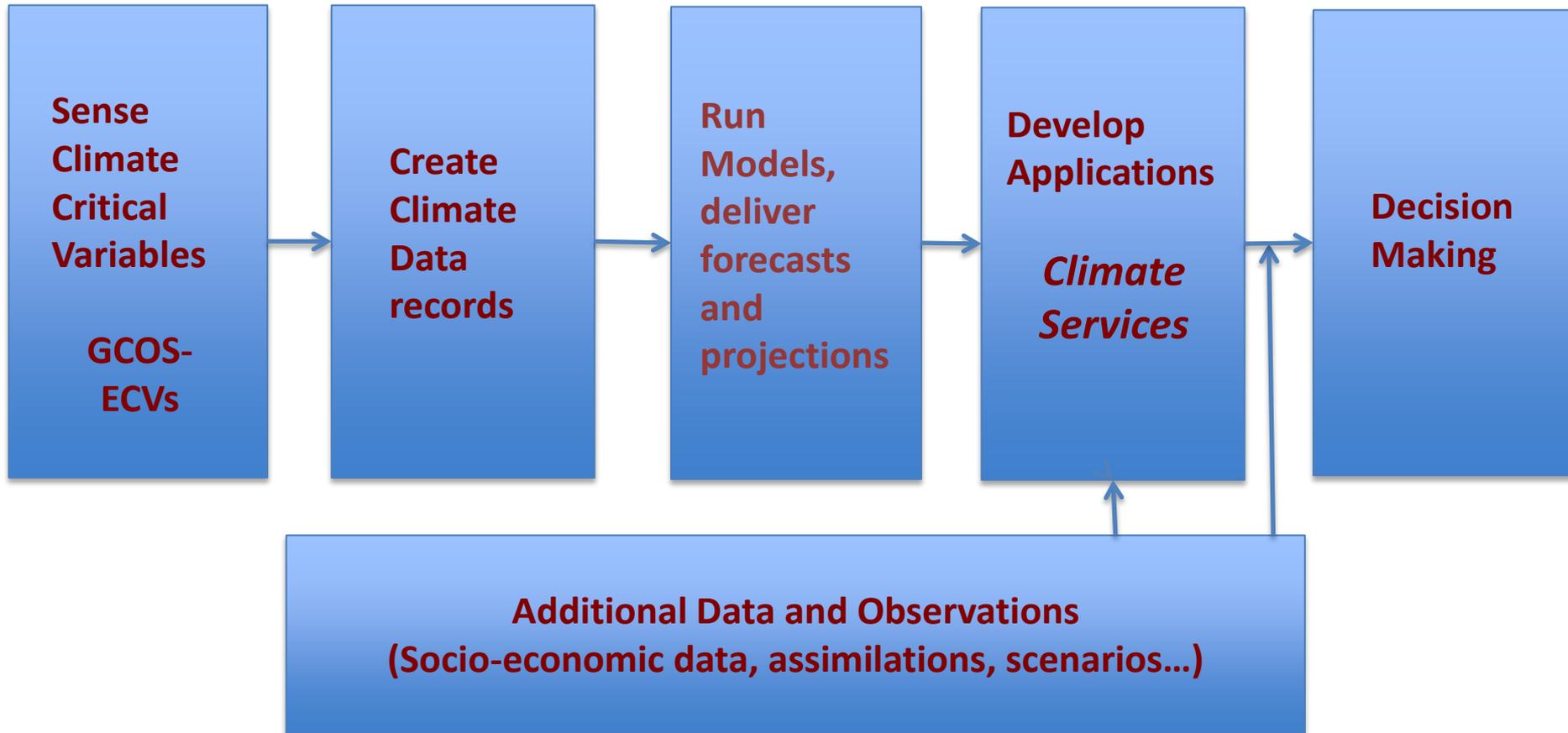
Architecture for Climate Services

← *End-to-end approach* →

Observations & climate Records

Information Generation

Reports & applications



Analyzing probable impacts

- ❑ Estimates of the bandwidth of changes (floods, droughts, changes in probabilities of events; have a special look at extreme events (floods, droughts), low-probability but high impact events
- ❑ Focus on multihazard management (Floods, droughts, landslides, Glacier Lake Outburst floods...)

Provide estimates ...

- ❑ Elasticity of water resources management systems
- ❑ Flexibility of water resources management systems including hydropower generation, water supply, irrigation water...
- ❑ Link to SDG 6: Water availability (quantity and quality) and its indicators



**Need for stakeholder participation in the development of
Climate Services**

The way forward (1)

Ideally:

- Establishment of a regional framework for climate services, building on national climate change adaptation plans
- Need to establish a regional policy framework on the basis of national climate adaptation plans
- Ensure, that climate services are embedded in national legal environments that are reflected in regional policies.
- Policies, legal framework, strengthened organizations, adaptation plans and strategies, implementation..... ensure proper resource allocation alongside national priorities and regional commitments.

The way forward (2)

Pilot Project Approach:

The GFCS Water Exemplar had proposed the development of a pilot project in river basins that highly depend on snow and glacier melt for their water resources, incorporating a User Interface Platform between the hydrological and climatological communities.

Expected Outcome: Provision of guidance and assistance in setting up a UIP at national/regional level and provision of technical guidance on practices and procedures that can be adopted.

**Thank You for your
Attention**

