

# Capacity Building Requirements for Enhancing Forecast Generation and Application

- Consider questions related to DHMS capacity requirement
- Consider questions related to stakeholders/institution capacity requirement to utilize climate information.

# Sector requirement

- Capacity building for better understanding and utilizing services
- Research to understand climate and sector linkages – e.g. capacity development on Climate-Health models; Study to identify climate sensitive areas, crops varieties and breeds with changing climatic scenarios.

# Recent work undertaken

- *Modernizing Weather, Water and Climate Services: A Road Map for Bhutan*, World Bank, May 2015
- *Socio-Economic Study on Improved Hydro-Meteorological Services in the Kingdom of Bhutan*, Finnish Meteorological Institute (FMI), 2014
- Both the studies undertaken in collaboration with DHMS

# World Bank report: observations

- DMHS is a relatively new department and requires significant capacity strengthening
- adequate budget to support capital investments and operation and maintenance that will ensure the long-term sustainability
- Long iterative process of development

# Road Map

## ***Short-term (1-2 years)***

- ***Prepare strategic plan based on user needs***
  - to institutionalize a systematic process of assessing demand from key stakeholders and delivering services tailored to these needs.
- ***Focus on high-priority monitoring systems***
- ***Pilot end-to-end early warning systems***
- ***Strengthen sector-specific hydrometeorological and climate services***

# Road Map (*cont.*)

## ***Medium-term (3-5 years)***

- ***Enhance the observation network based on assessments of user needs***

# FMI Report

- high-quality historical hydro meteorological information is vital for practically every sector assessed in the report.
- Requirement of climatological base-line – *“Climate of Bhutan”* – 10 year normals, extremes, derived indices like drought, heavy rainfall thresholds, temperature normals and thresholds.

# FMI Report (*cont.*)

- *Demand for only historical data* - value creation requires improvements not only in the accuracy of the forecast, but also in **dissemination and use of the information**.
  - education and training of farmers and the general public is necessary before the benefits start to accrue.
- EWS, IT, Obs. network upkeep, human resources, stakeholder involvement, CC Scenarios