Gaps and Opportunities for Climate Services in RA V

Erwin Makmur

WMO RA V Regional Seminar,

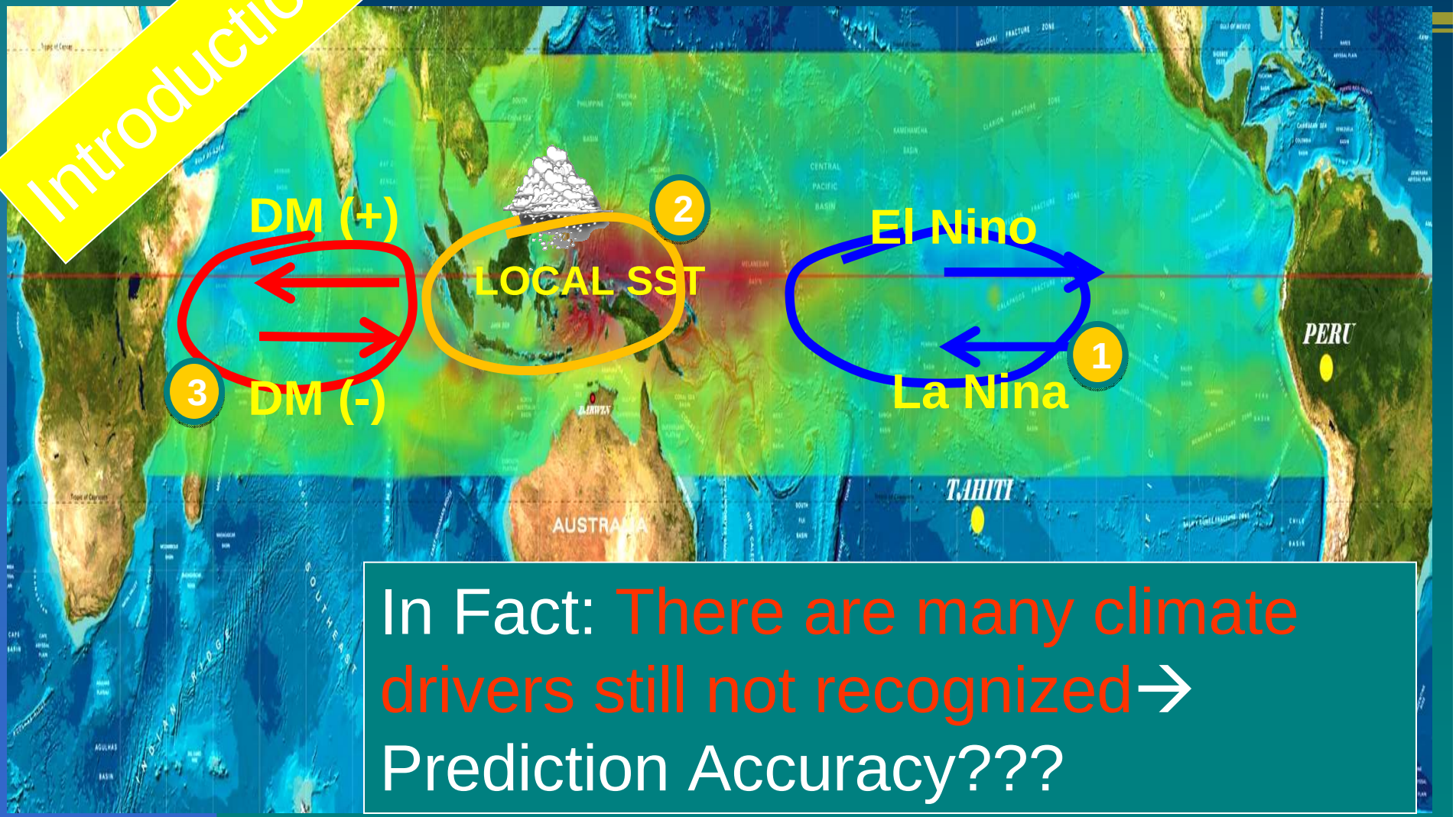
Heritage Park Hotel, November 3, 2011

OUTLINE

- INTRODUCTION
- CHALLENGES AND OPPORTUNITY
- SUMMARY

CLIMATE DRIVER FOR RA V COUNTRIES

Introduction

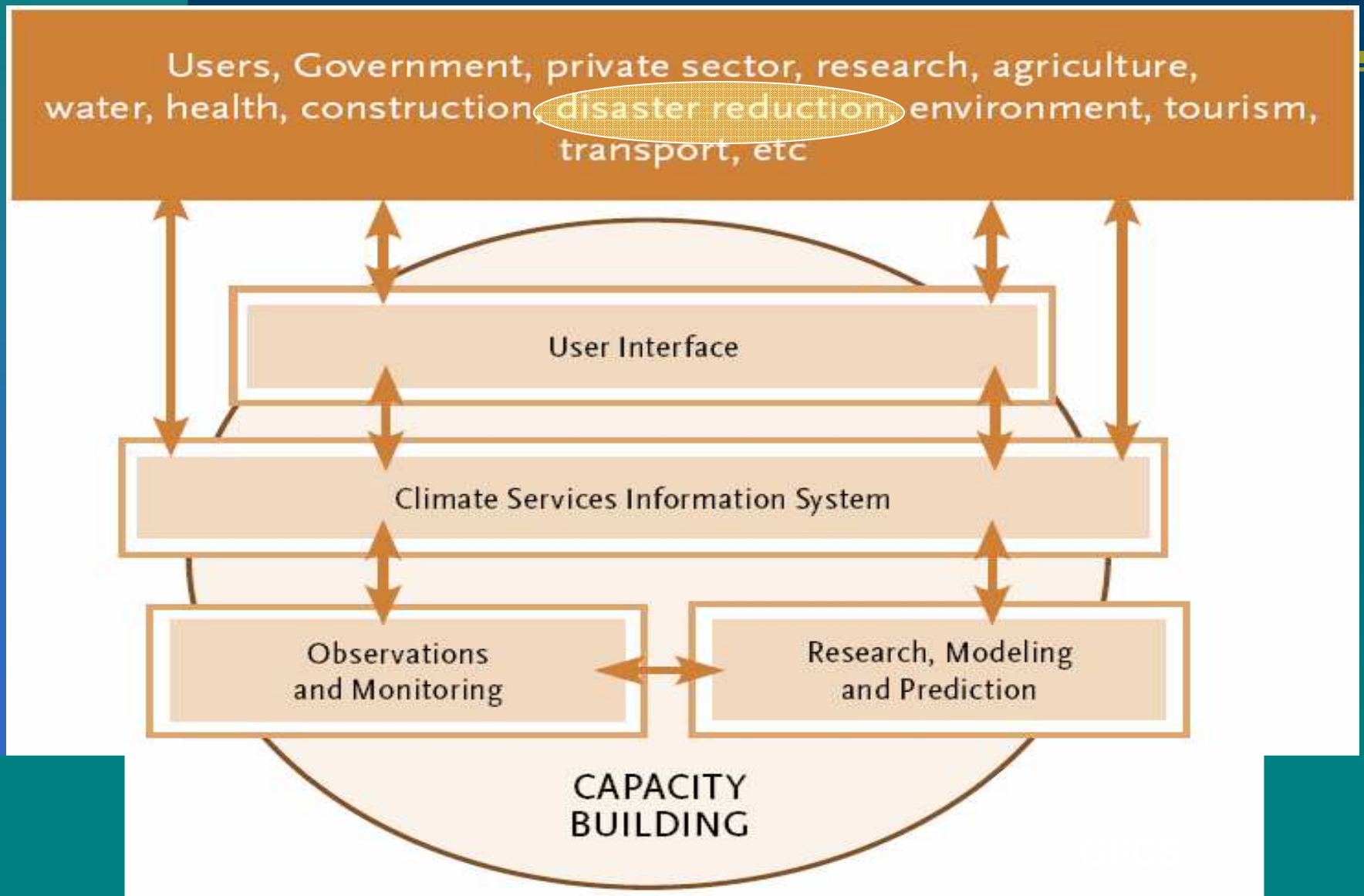


In Fact: There are many climate drivers still not recognized→ Prediction Accuracy???

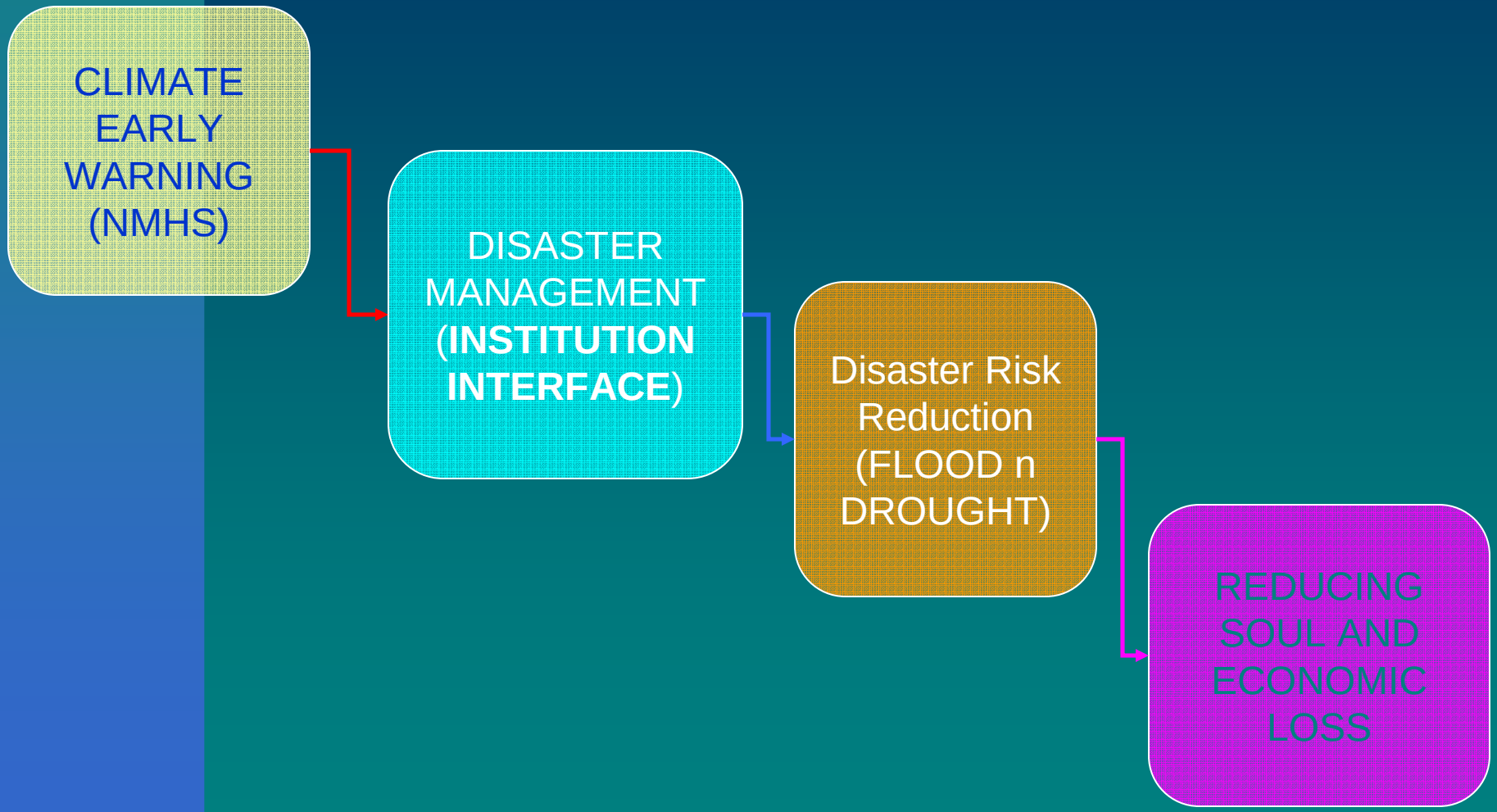
WMO OPERATING PLAN FOR THE SIXTEENTH FINANCIAL PERIOD (2012-2015)

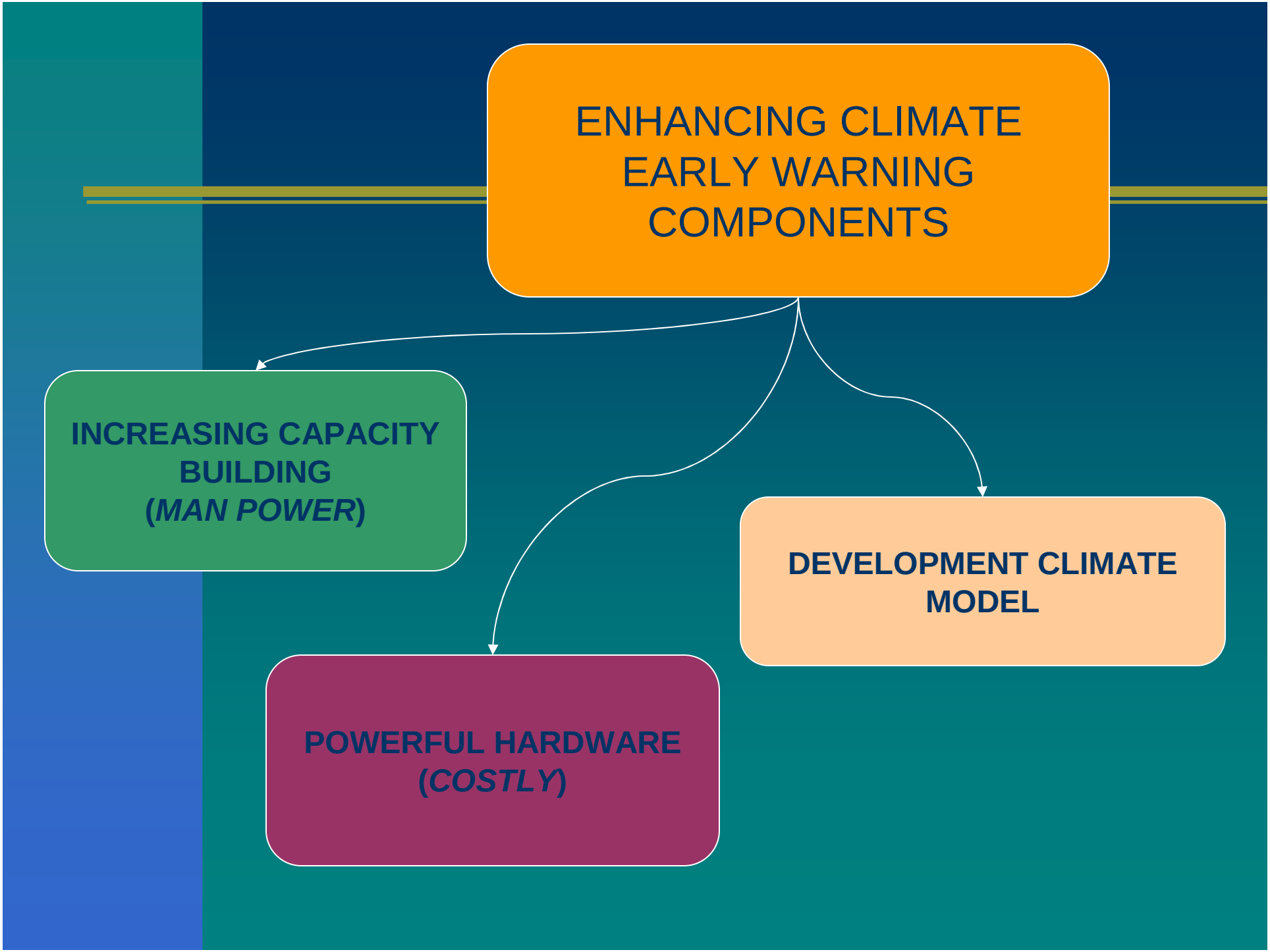
- **Expected Result 2:** Enhanced capabilities of Members to **reduce risks and potential impacts of hazards** caused by weather, climate and water and related environmental elements
- **Expected Result 3: Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, predictions and warnings to support in particular climate impact and adaptation strategies.**

Components of Framework for Climate Services



Role of NMHS for Supporting DRR

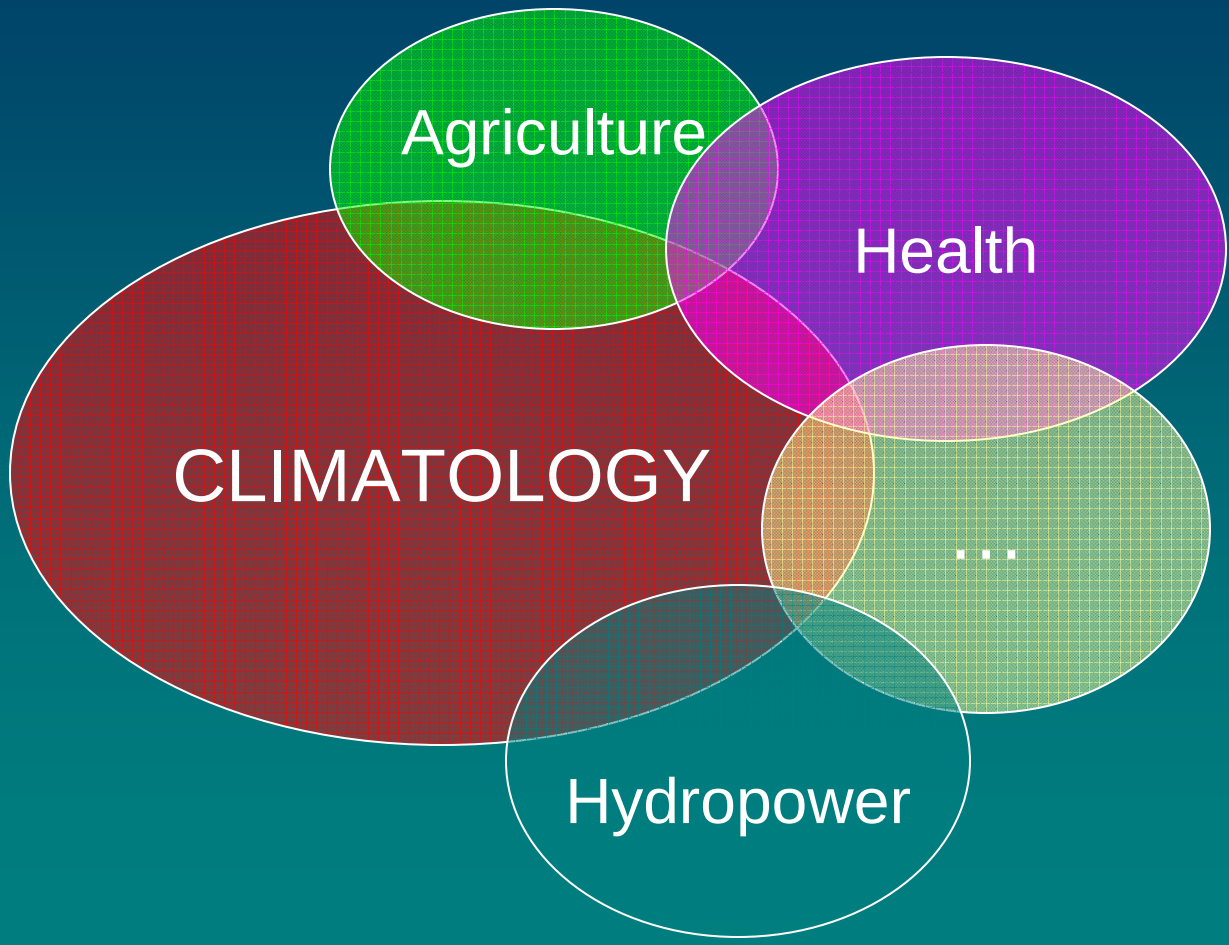



ENHANCING CLIMATE EARLY WARNING COMPONENTS
INCREASING CAPACITY BUILDING (*MAN POWER*)
DEVELOPMENT CLIMATE MODEL
POWERFUL HARDWARE (*COSTLY*)

Report Working Group on Climate Matters, Bali 2010

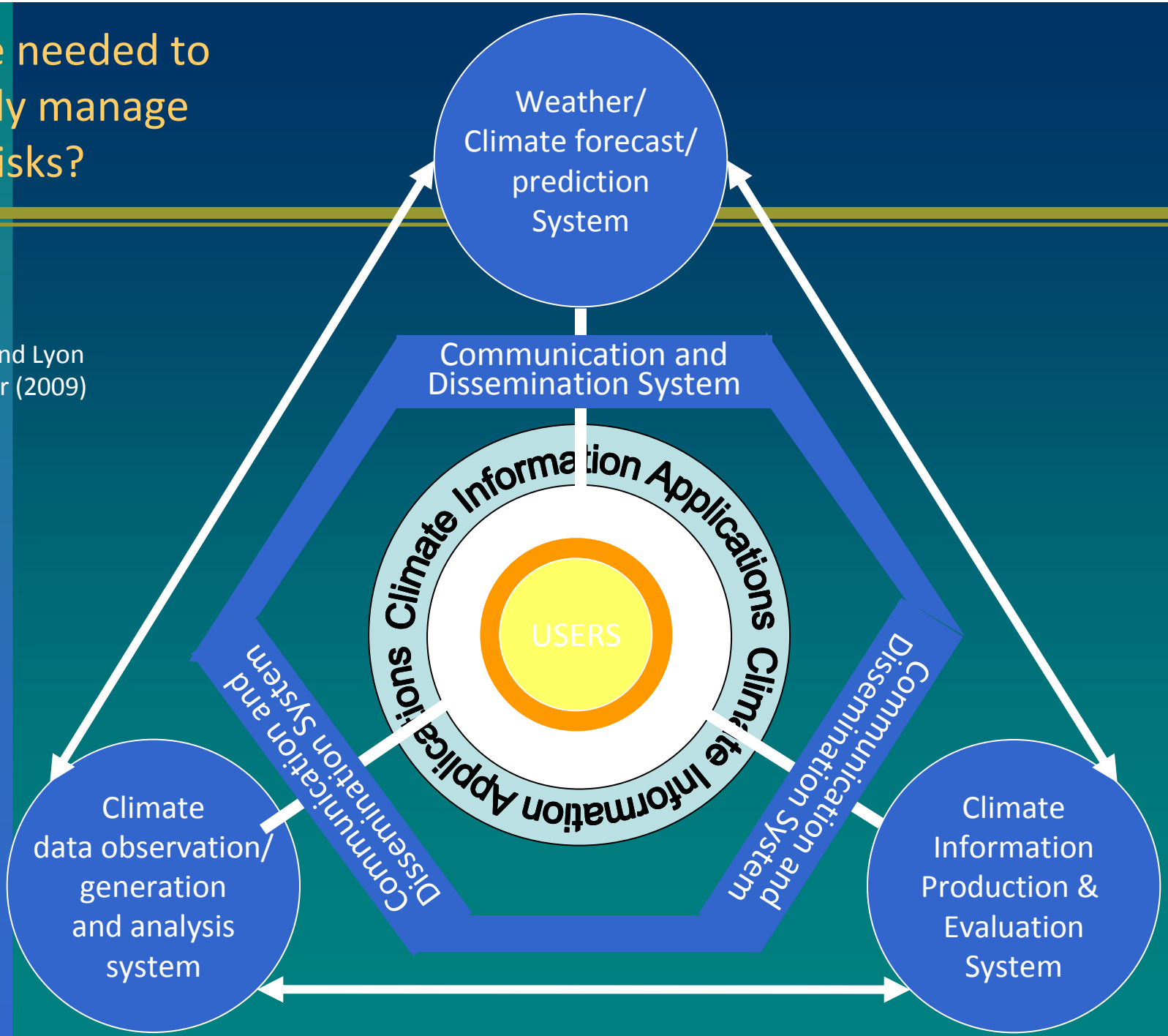
- There are a number of challenges facing Climate Services and other areas:
  - To improve the accuracy of extended range forecasts and climate outlooks;
  - To provide regional climate change projections in formats suitable for risk assessment and management;
  - To better convey complex information to the media and other end users.
- To properly convey probabilistic forecasts.

What is applied Climatology ?



What are needed to effectively manage climate risks?

Ropelewski and Lyon (2003) in Boer (2009)



WMO Five Priority Areas

- Global Framework for Climate Services (GFCS);
- Aviation meteorological services;
- Capacity Building for the developing and least developed countries;
- Implementation of the WMO Integrated Global Observing System (WIGOS) and WMO Information System (WIS); and
- Disaster Risk Reduction (DRR).

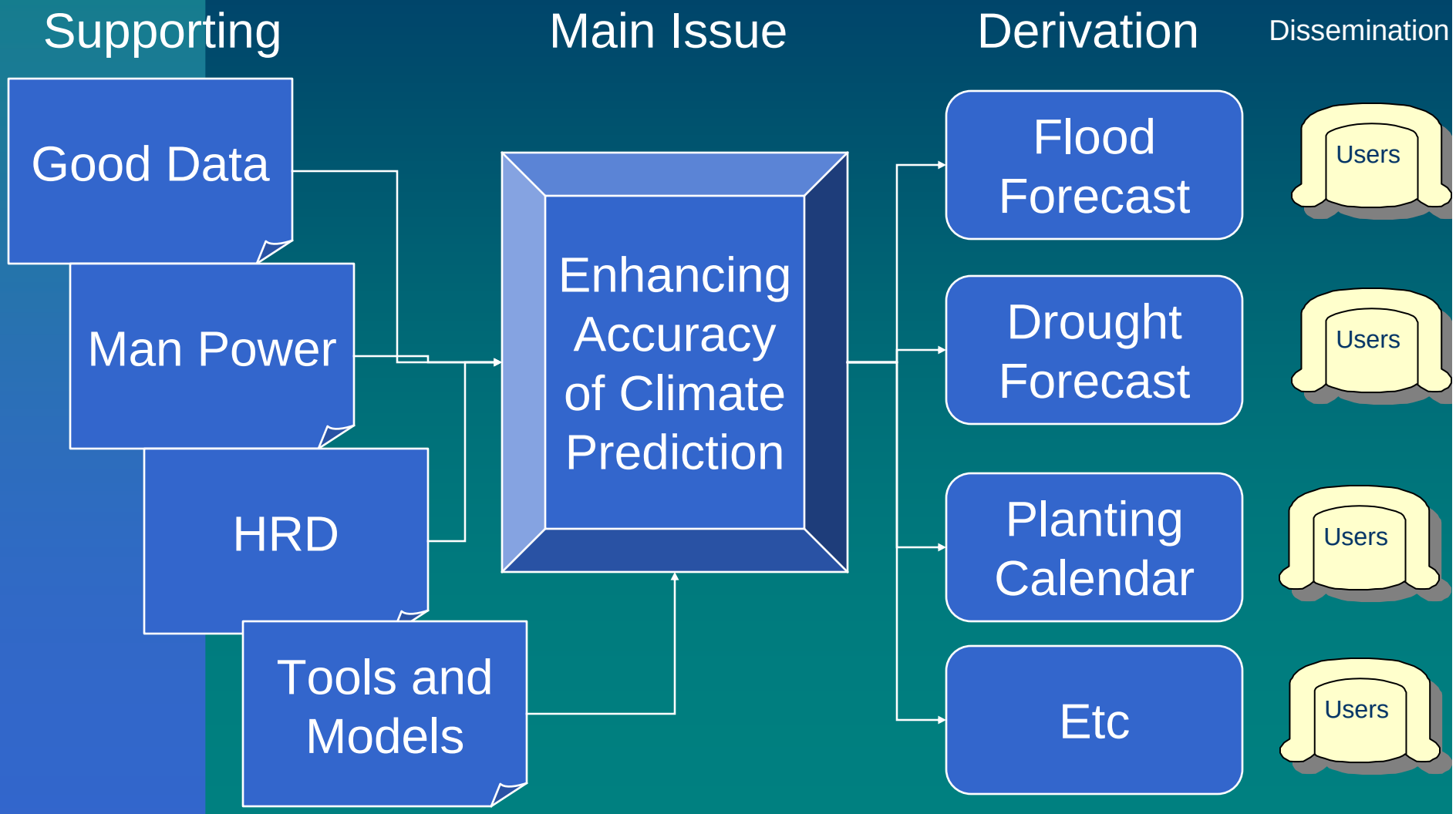
RA V STRATEGIC OPERATING PLAN (SOP) FOR 2012-2015

Correspond to these WMO global priorities.

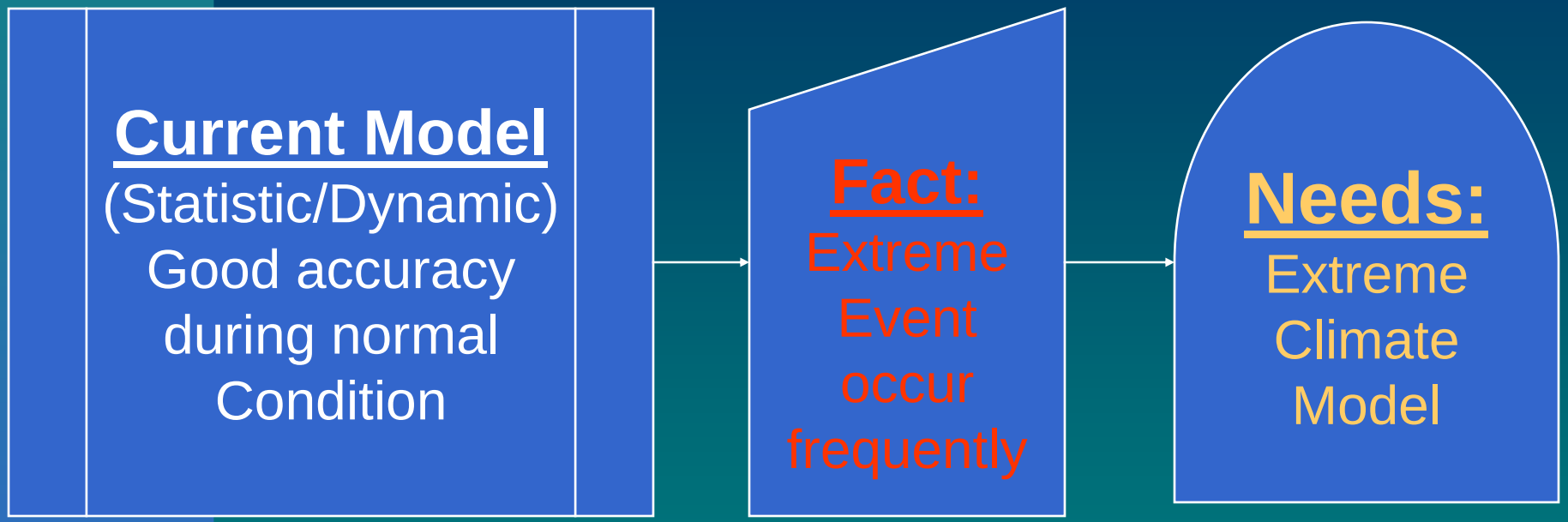
- Better climate services;
- Sustainable aviation services;
- Capacity building;
- Improved infrastructure (data and information services) for weather, climate and water; and
- Improved end-to-end Multi-Hazard Early Warning Systems (MHEWS).

CHALLENGES and OPPORTUNITY

State of the Art Climate Services



Climate Model Improvement: **Extreme Climate Prediction**



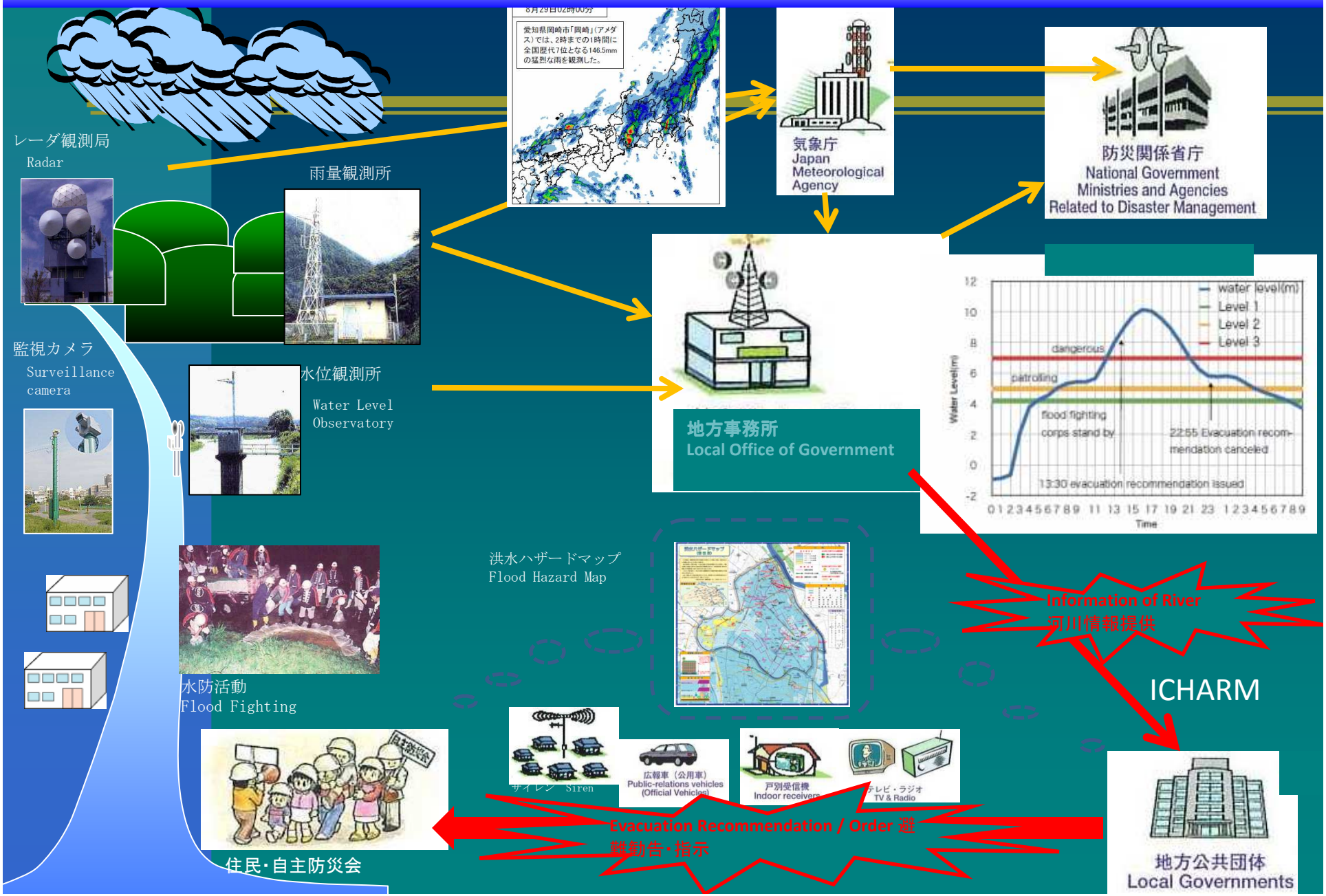
Opportunity:

Each RA V member has own climate model

Need to share through communication among forecasters

Establishing RA V Models based on local knowledge

ILUSTRATION: Outline of Flood Warning System in Japan



Summary

- WMO RA V have to implement 5 components of GFCS
- Activities should be realistic and reflect the needs of RA V members
- Products of Climate Services consider the needs of user
- Capacity development is important, need to accelerate

THANK YOU FOR LISTENING