Providing and applying climate information – some of the key challenges

Pradeep Kurukulasuriya, PhD
Senior Technical Advisor- Adaptation
Energy and Environment Group/GEF
Bureau of Development Policy,
United Nations Development Programme

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UNDP'S Strategy in Environment and Energy:

Fostering dual benefits from climate resilient and low emission development

GOAL

Supporting countries to make a transition to green, low emission and climate resilient development

OBJECTIVES

Capacity development and market transformation for green low emission development

Capacity development for climate resilient economies, communities and ecosystems

Support countries to access and sequence multiple sources of funds

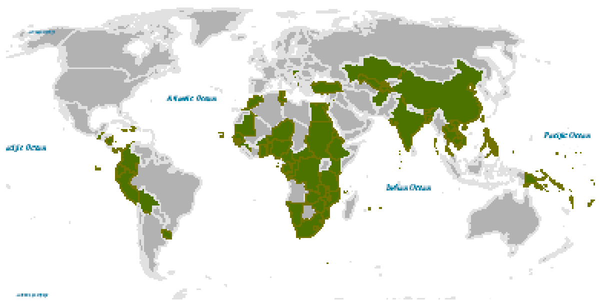
Australian Government AusAID

JAPAN

gef

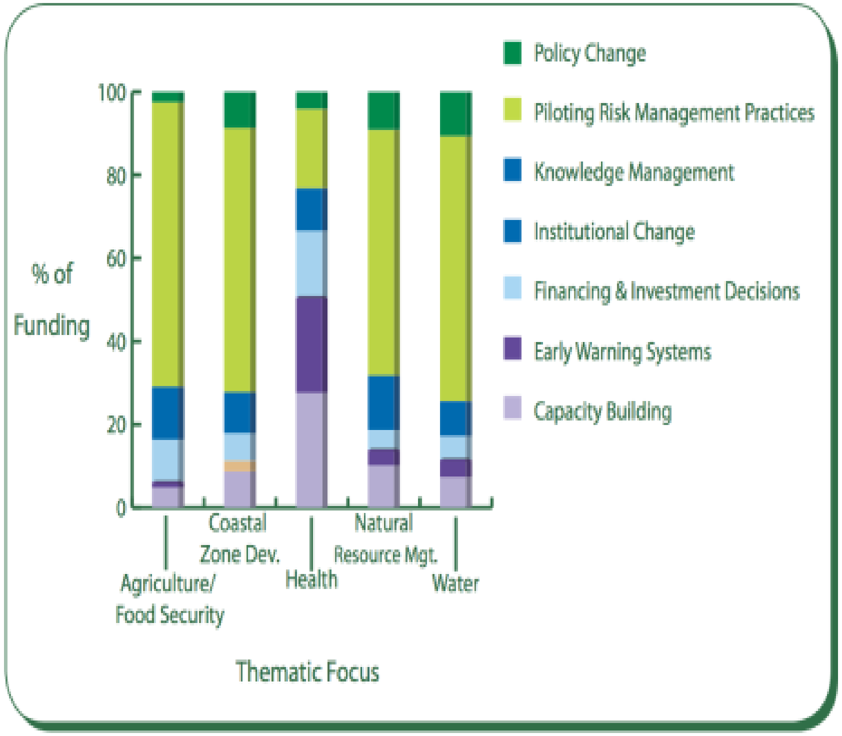
ADAPTATION FUND

Country Demands for Services from Adaptation Finance



Least Developed Country Fund
Special Climate Change Fund

Managing risks through a suite of interventions



1. Develop Technical Capacity
- Identify climate change risks and opportunities
- Prepare long-term risk management strategies

2. Internalize Climate Change Risks
- Integrate climate change risks into planning, budgeting, management
- Incorporate climate change risks into decision making process for key economic sectors

3. Policy and Institutional Support
- Revise and formulate national, sub-national and sectoral policies
- Establish institutional support mechanism

4. Implementing CC-Risk Management
- Replicating tested approaches and technologies and testing innovative solutions for climate change risk management

5. Knowledge Sharing
- Codify and disseminate knowledge and best practices

Role of UNDP

Making sure climate services support project objectives

UN DP

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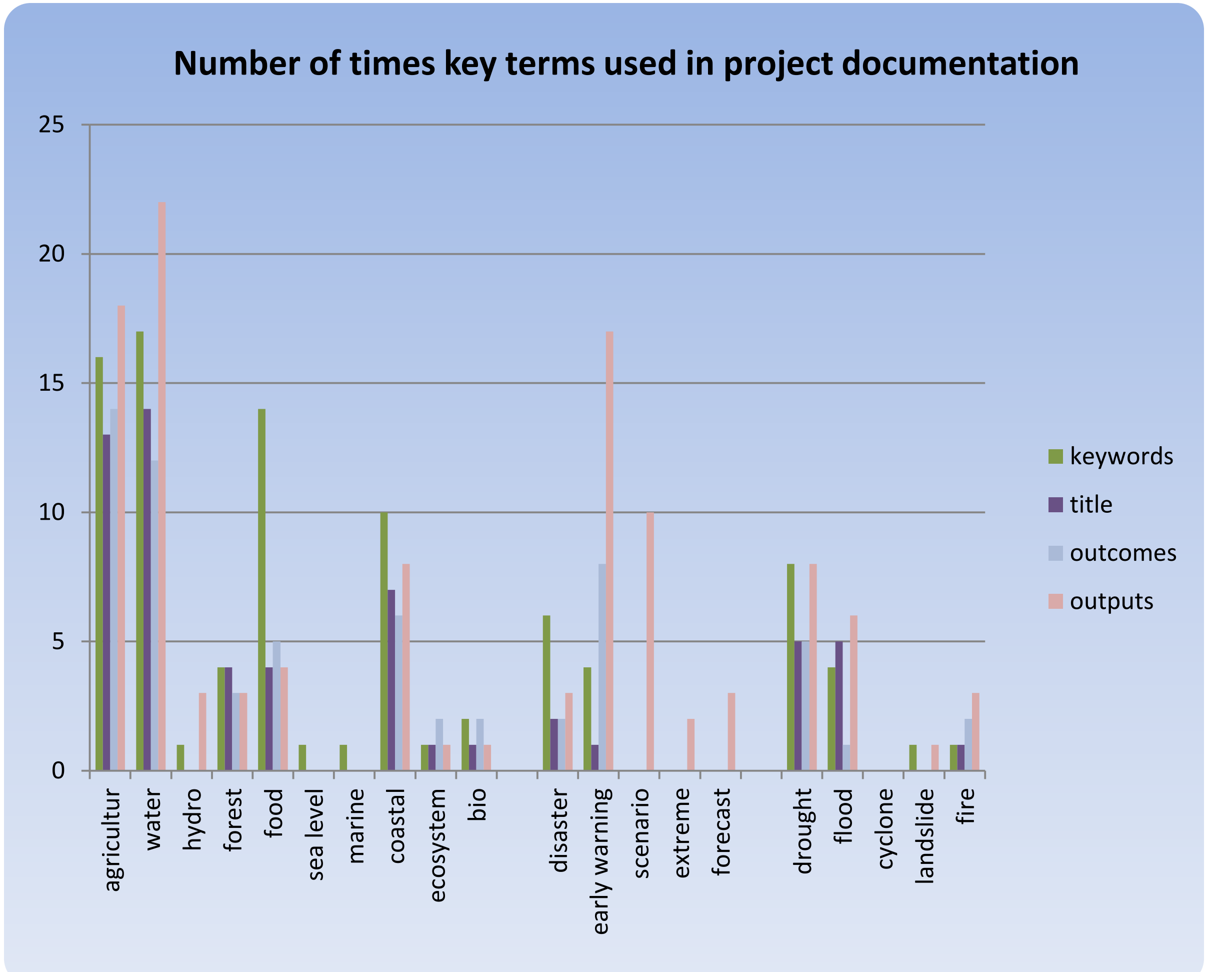
- Work with in-country partners to identify decision-relevant information requirements
- Support analyses of historical climate to understand current hazards and risks
- Ensure early warning systems are developed that address current and future needs (focus on hydro-meteorological hazards and dovetail with existing systems)
- Support development of appropriate regional/local scenarios of climate change
- Establish a network of partners who can provide identified services

The project portfolio

Which climate-related information do projects specify ?



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Broken down by sector, type and hazard:

- Agriculture & Water dominant sectors
- Early warning systems as important as climate scenarios
- Drought and floods are most common hazards

Current requirements

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'Hard'ware – data, instruments and information

- Climate information on a range of time (weeks to decades) and spatial scales – application dependent
- Application relevant variables e.g. rainfall, temperature, wind, humidity, sea level rise etc.
- Efficient monitoring networks linked to easily accessible databases
- Early warning systems with effective communication and dissemination channels

Current requirements

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'Soft'ware – human/institutional capacities

- ❑ Capacity to translate climate information into user relevant information
- ❑ Sharing climate and environmental info. between institutions
- ❑ Accessible decision support systems (DSS) – ongoing development and testing
- ❑ Mapping out the decision space – include uncertainty + vulnerability (thresholds)

Current practices

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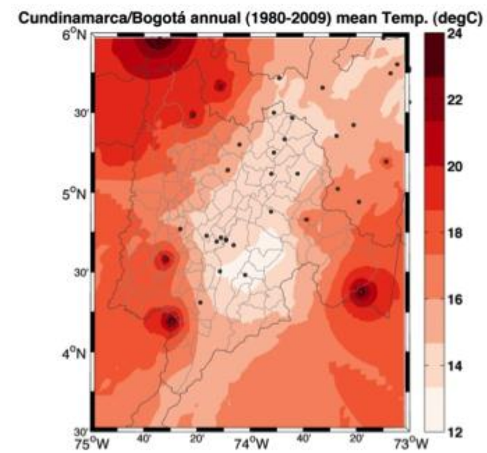
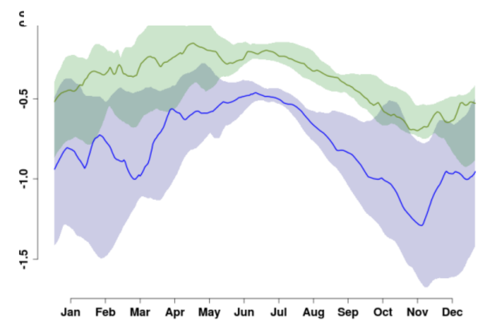
Historical climate

- ❑ Historical trends in average + extreme climate – weather station data
- ❑ Gap filling and interpolation of station data – local climatology



Future climate

- ❑ Range of GCMs + scenarios for 2030-2100 period
- ❑ Downscale where possible using as many GCMs as possible for earlier period (less scenario uncertainty)
- ❑ Adapt approach based on requirements e.g. blend station and satellite data
- ❑ Use decadal and seasonal forecasts when available



How do we link information for these different timescales ?

Current practices

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Capacity building

- Work with government partners and ministries
- Identify key people to 'champion' the information
- Identify ongoing processes to feed into e.g. Nat. Coms. , NAPs, NAMAs

Look for international partners

- Local and international partners brought together to enhance local capacities
- Adapt international best practises to suit local needs, data and systems
- Identify service providers of value added activities e.g. Value chain risk assessments, insurance, economic impacts

Historical climate - the good, bad ....

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Good

- ❑ Use as many stations as possible
- ❑ Statistical significance (including field significance) of trends
- ❑ Trends for 30 years or more ....
- ❑ Account for decadal variability

Bad

- ❑ Not accounting for missing data
- ❑ Not testing for unrealistic data and inhomogeneous timeseries
- ❑ Assuming annual changes are consistent across all seasons
- ❑ Not understanding the physically responsible changes in the climate system
- ❑ Assuming changes in the average are similar to changes in extremes

Ugly

- ❑ Use one single rainfall gauge (with a 15cm wide footprint) to infer change for a 1000 km^2 watershed.

Future climate - the good, bad …

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Good

- Use as many climate models as possible
- Tailor climate information to fit known vulnerabilities (incorporate thresholds if possible)
- Information matches timescale of decision making

Bad

- Applying GCM data to point or daily timescale modelling
- Not comparing GCM and (many) downscaled data
- Not understanding the physical reasons for the future change in the climate system
- Assume that a future scenario is how the climate will change in the immediate future

Ugly

- Use a single RCM (or other downscaling) for making adaptation decisions

Key challenges and opportunities

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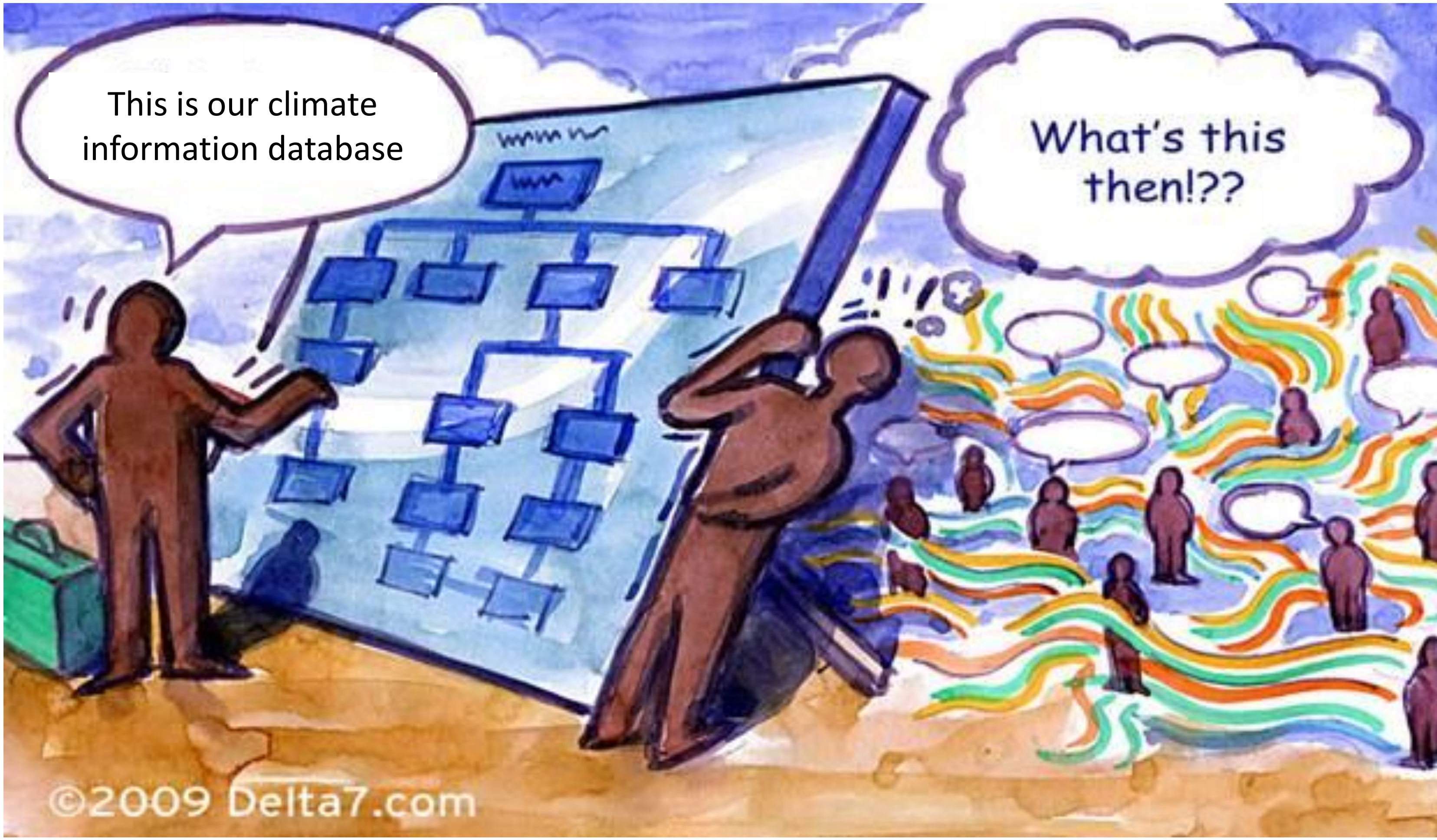
Challenges

- Making sense of potentially conflicting information e.g. the multitude of online portals
- When to believe one source of information more than another
- Generating decadal forecasts for the next 5-20 years
- Understanding what information is relevant for decisions and quantifying the degree of acceptable uncertainty

Opportunities

- Building decision support systems for a range of timescales – going beyond climate prediction
- Building robust early warning systems as the basis for successfully applying and testing climate information for adaptation
- Understanding that ‘accuracy’ is not everything – working with the information we have



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Thanks!