

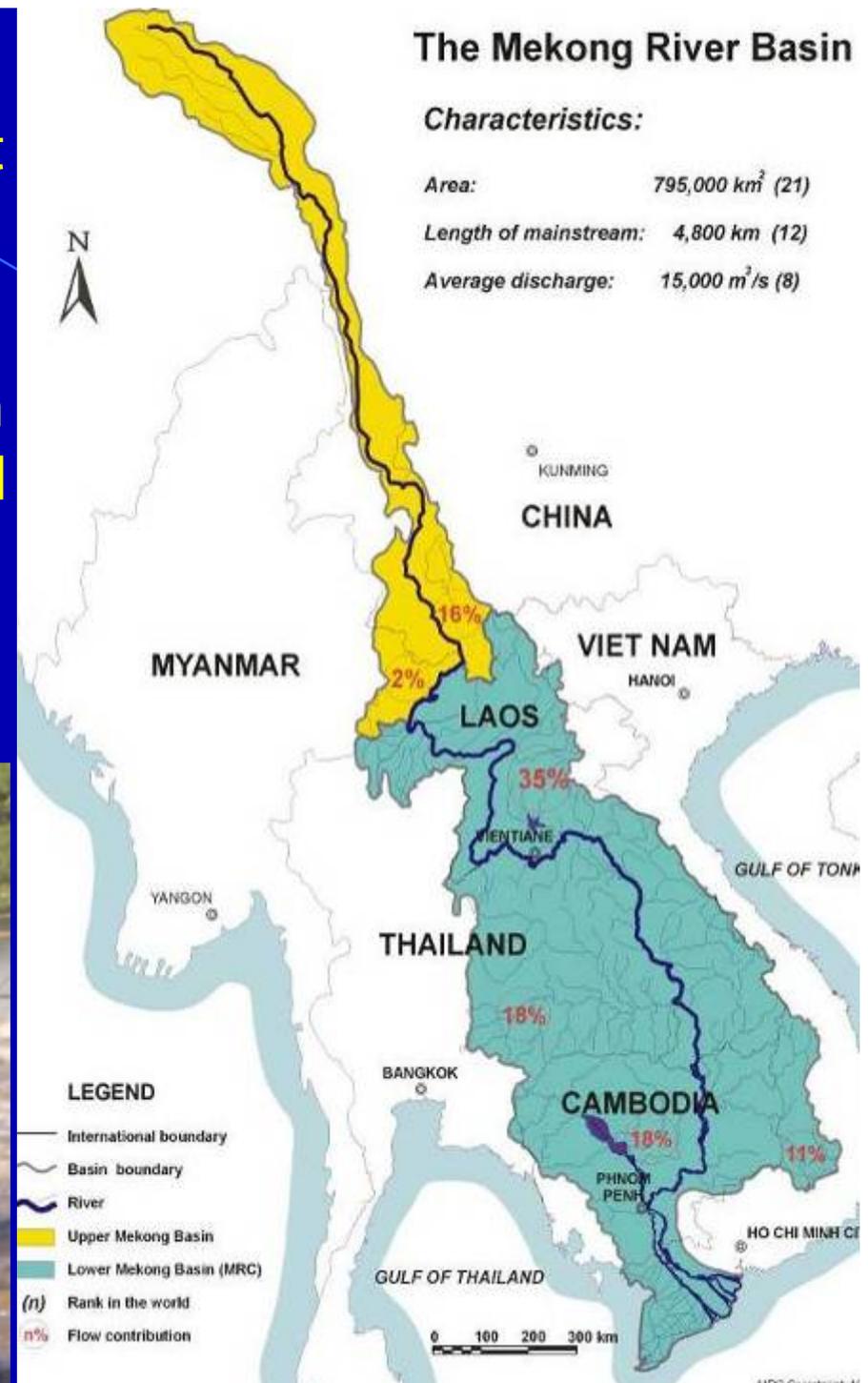


Mekong Climate Change and Adaptation Initiative of the Mekong River Commission

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- Mekong is one of world's longest rivers (4,800 km), a home for about 60 millions people.
- Climate change in Mekong basin must be considered and assessed in trans-boundary and regional development context, including the influence from upstream.



The real threat: climate change impacts in Lower Mekong Basin

- Modifications to weather patterns in the LMB e.g. temperature, rainfall and wind;
- More intensive occurrence of existing challenges: changes in both intensity, duration and frequency of extreme events. Example: More frequent flooding, longer periods of drought, water shortages; increased salinity intrusion in the Delta;



The real threat: climate change impacts in Lower Mekong Basin

- This will affect natural ecosystems, all economic sectors, e.g. agriculture and food production, threaten food security in context of increasing food demand of growing populations.
- This will affect people livelihoods, especially the poor people and communities living along the Mekong, who strongly depend on its water and related resources

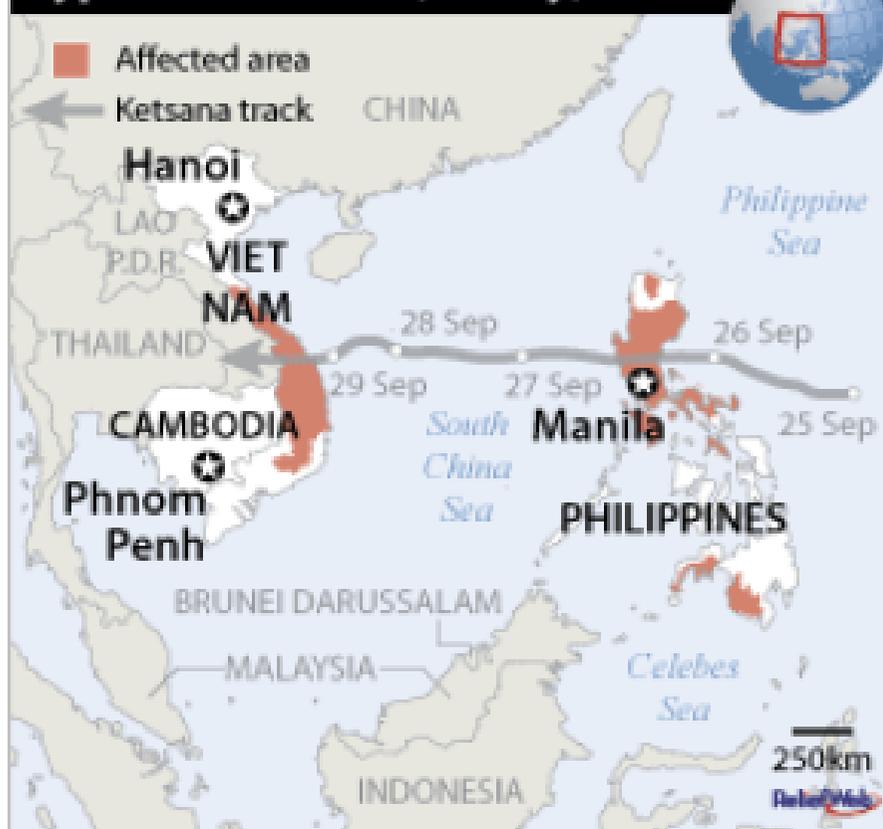




More frequency and intensity of disasters in Lower Mekong: Linkage to climate change ?!

Recent example: Typhoon Ketsana - official damage and losses (data at 09 October 2009)

Typhoon Ketsana (Ondoy)



Philippines, 26 Sep 2009 - Over 1.8 million people affected, 240 dead, 37 missing and close to 370,000 in 607 evacuation centers after Typhoon Ketsana (Ondoy) hit the Philippines.¹
Viet Nam, 29 Sep 2009 - Forty one people dead, 10 missing and close to 60,000 houses collapsed or damaged after Ketsana hit Viet Nam.²
Cambodia, 29 Sep 2009 - Eleven dead as a result of Ketsana.³

Death toll in:

- Lao: 16
- Vietnam: 163
- Cambodia: 17 (Source AFP)

People missing	19
People injured	199
Houses collapsed	6376
Houses flooded	173611
Schools damaged	503

Source: CCFSC



Some MRC works on CC studies

- Downscaling of global climate change scenario climate to Mekong region (with SEA START)
- Overview studies of basin vulnerability (with IWMI and Institute of Environmental Studies);
- Assessing threats, local vulnerabilities and adaptation capacities in two watersheds in Lao PDR and Cambodia (with GTZ); Site specific studies (eg Songkram River with Finland);
- Climate and Hydrological modeling for assessing CC impacts (with CSIRO and IWMI);
- Other related works...

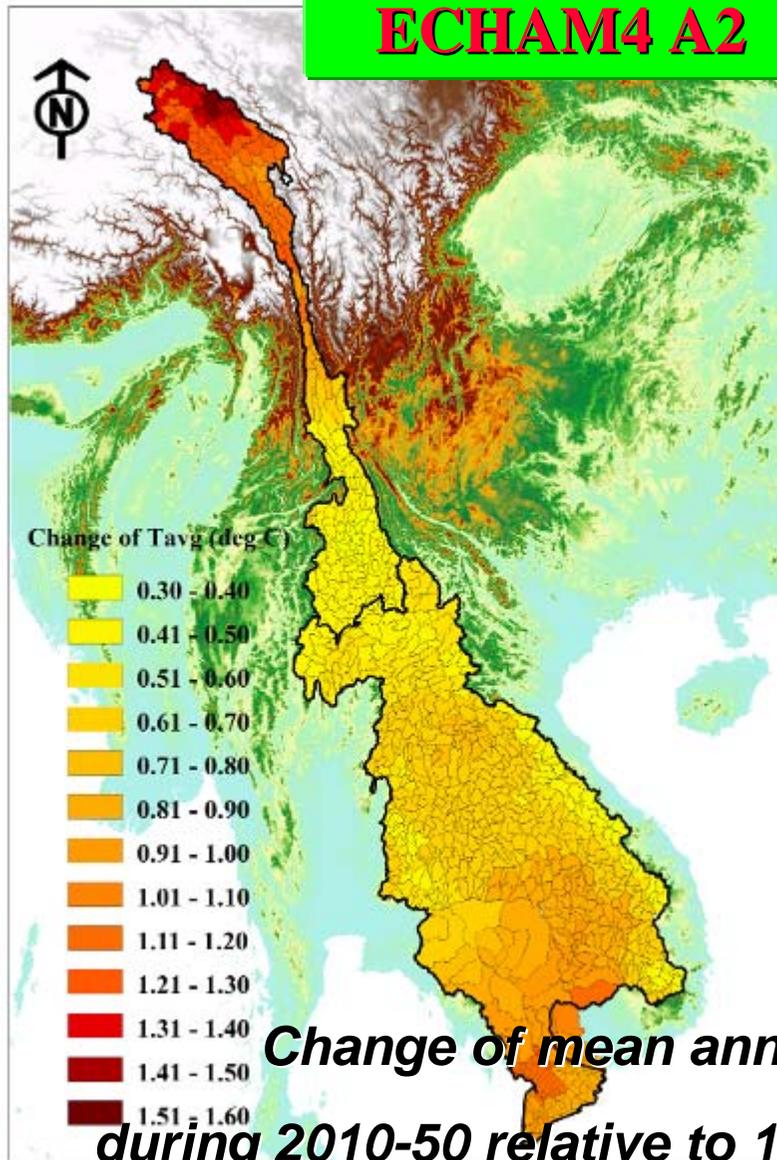


Future climate change scenarios in the Mekong Basin

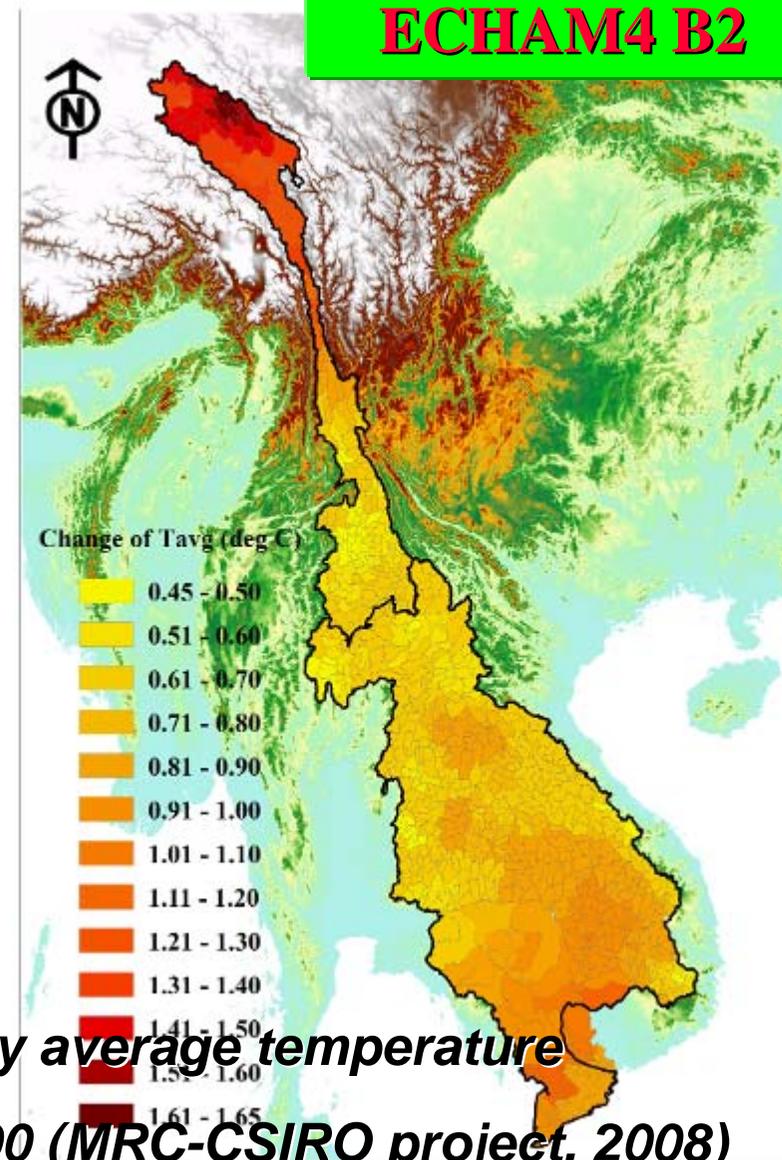
- Basin wide temperature increase of 0.79°C , with greater increases in the northern part.
- Average annual precipitation increase of 20 cm, (equivalent to 15.3%) predominantly in wet season.
- Increase in total annual runoff of 21%, but strong water stress during dry season remains in some areas such as North-Eastern Thailand and Tonle Sap.
- Increase in dry season precipitation in northern part and a decrease in dry season precipitation in southern part of the basin.
- Increase in flooding in all parts of the basin, with the greatest impact in downstream part of the Mekong mainstream.

MRC efforts to CC Modeling for Mekong River Basin

ECHAM4 A2



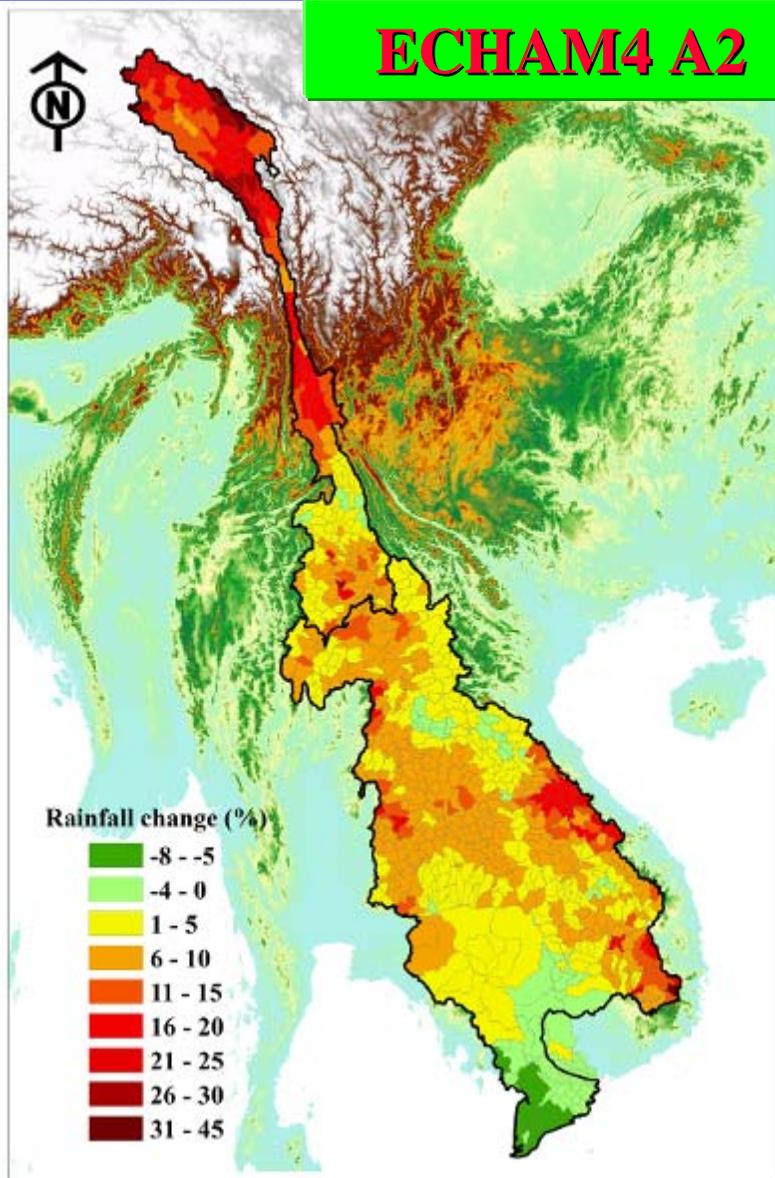
ECHAM4 B2



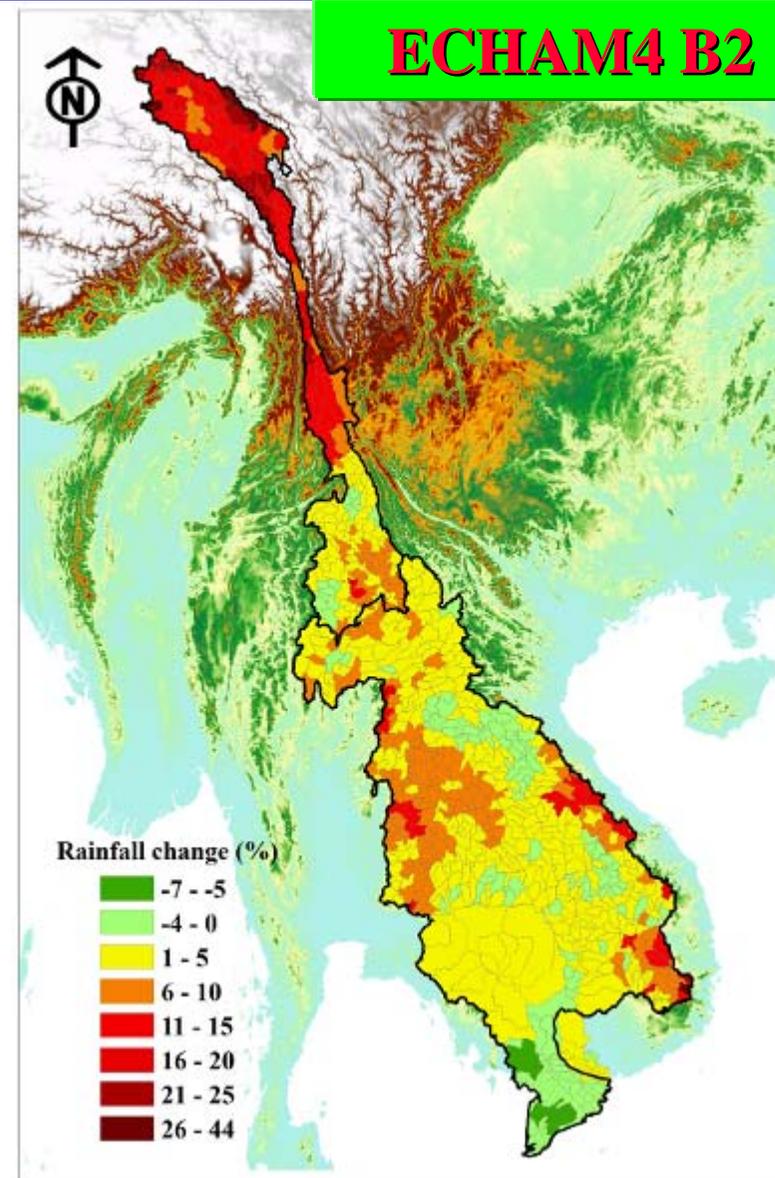
*Change of mean annual daily average temperature
during 2010-50 relative to 1985-2000 (MRC-CSIRO project, 2008)*

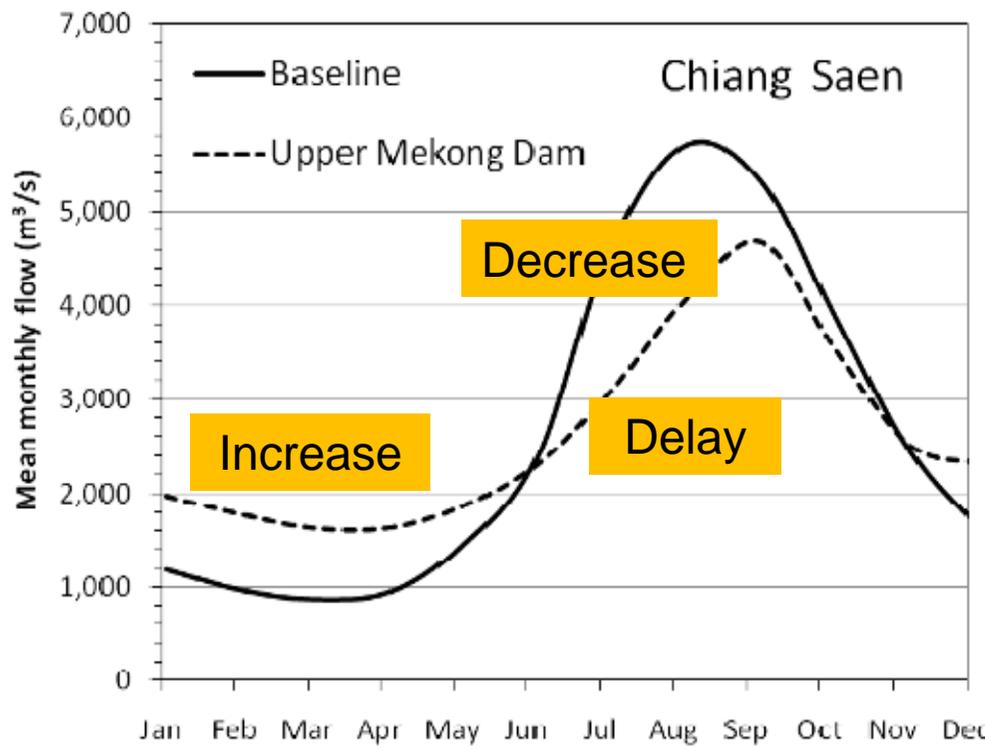
Change of mean annual subbasin rainfall (%) during 2010-50 relative to baseline 1985-2000

ECHAM4 A2



ECHAM4 B2





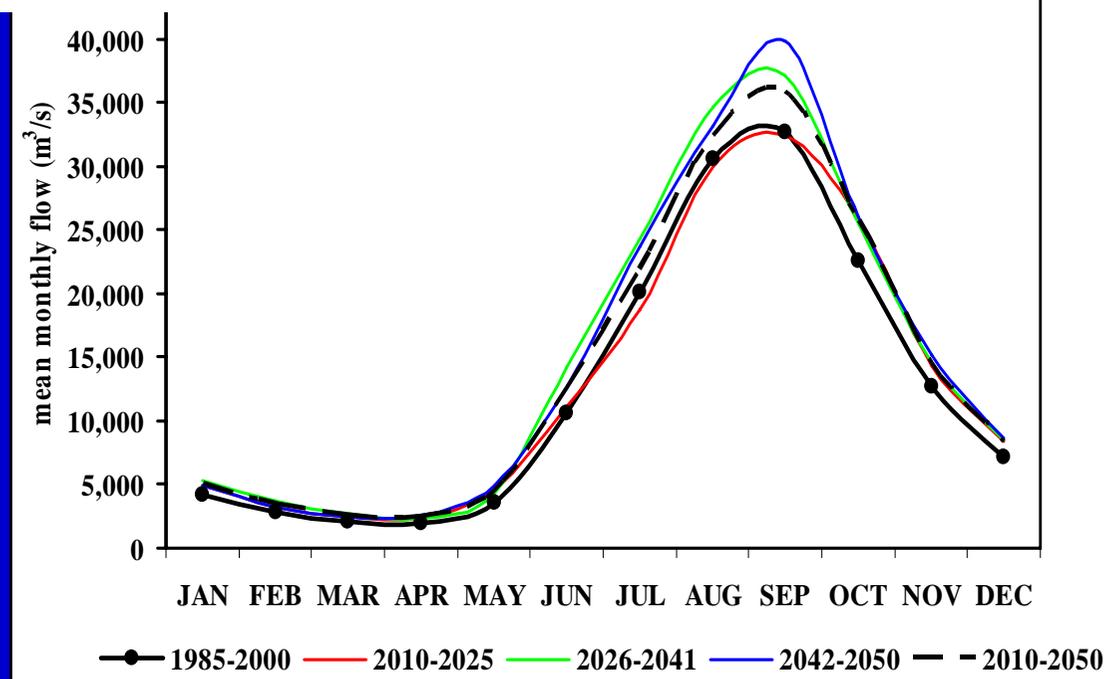
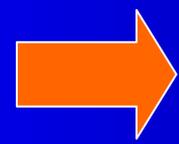
Modeling results:
Change in flow due
to upper Mekong
dams - without
climate change

Water level (m)



Baseline Scenario
Mean Monthly Flow of Mekong at Kratie

Change in flow with
climate change for
different periods up
to 2050 (Scenario
A2, ECHAM4)

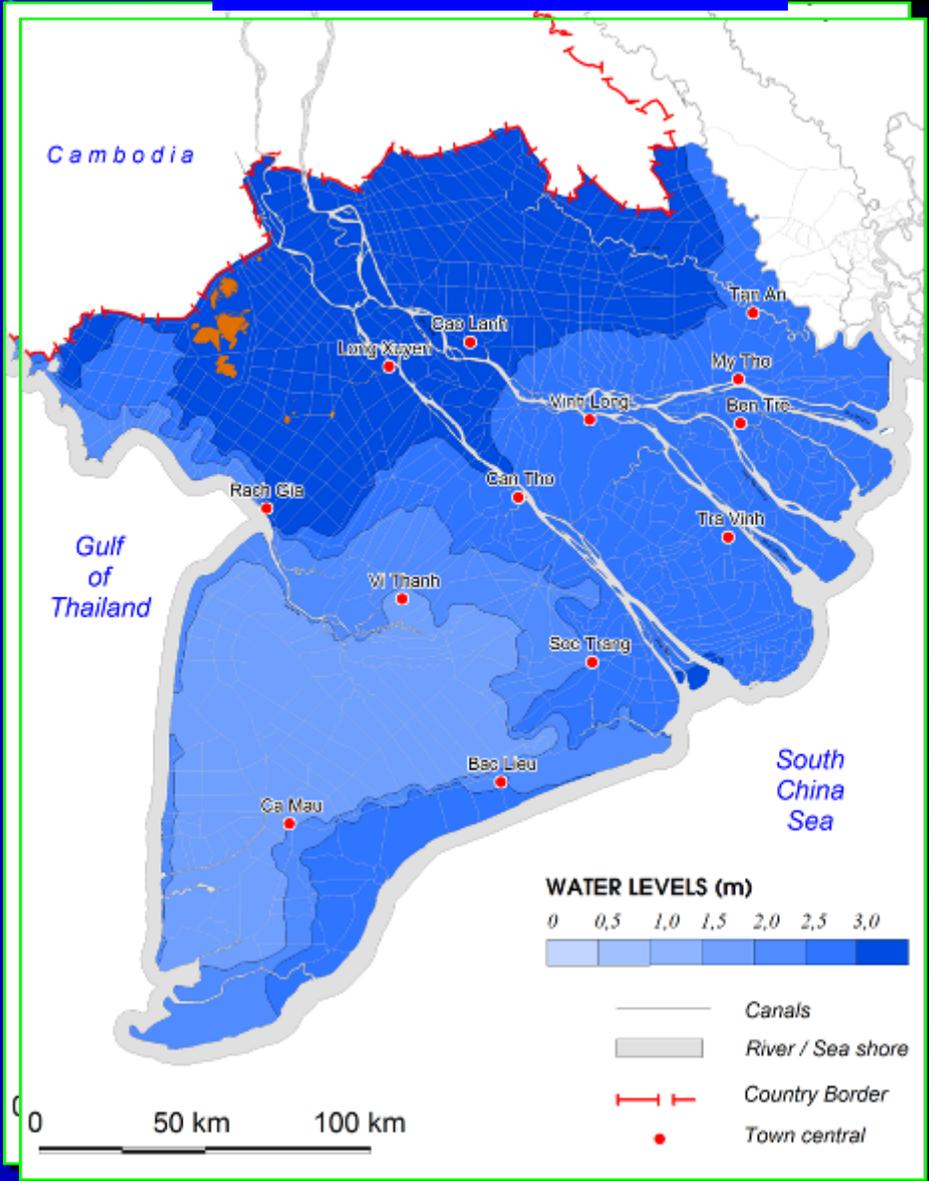
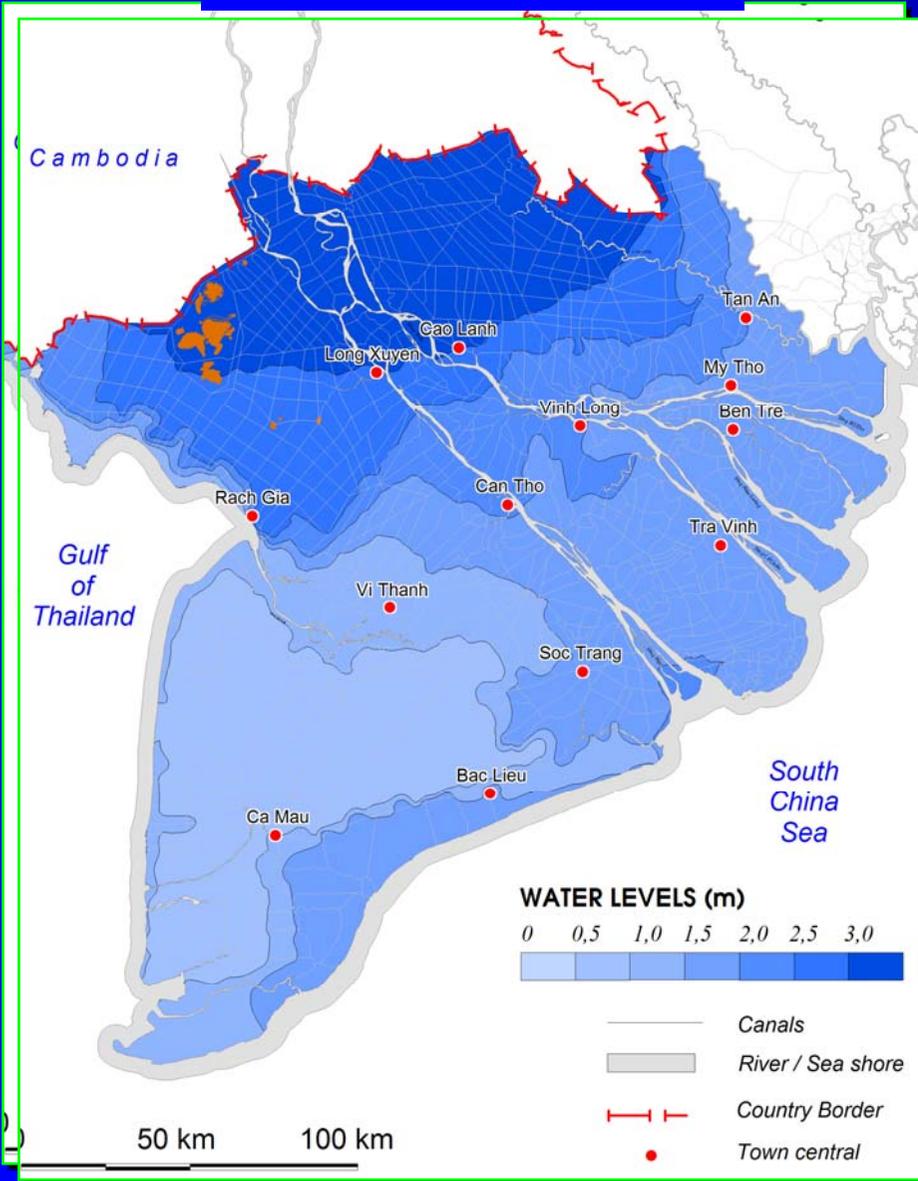




Sea level rise and flooding in Mekong Delta

MAX WATER LEVEL OF PRESENT CONDITION

MAX WATER LEVEL OF SEA LEVEL RISE 100 CM





What is Mekong Climate Change and Adaptation Initiative (CCAI)?

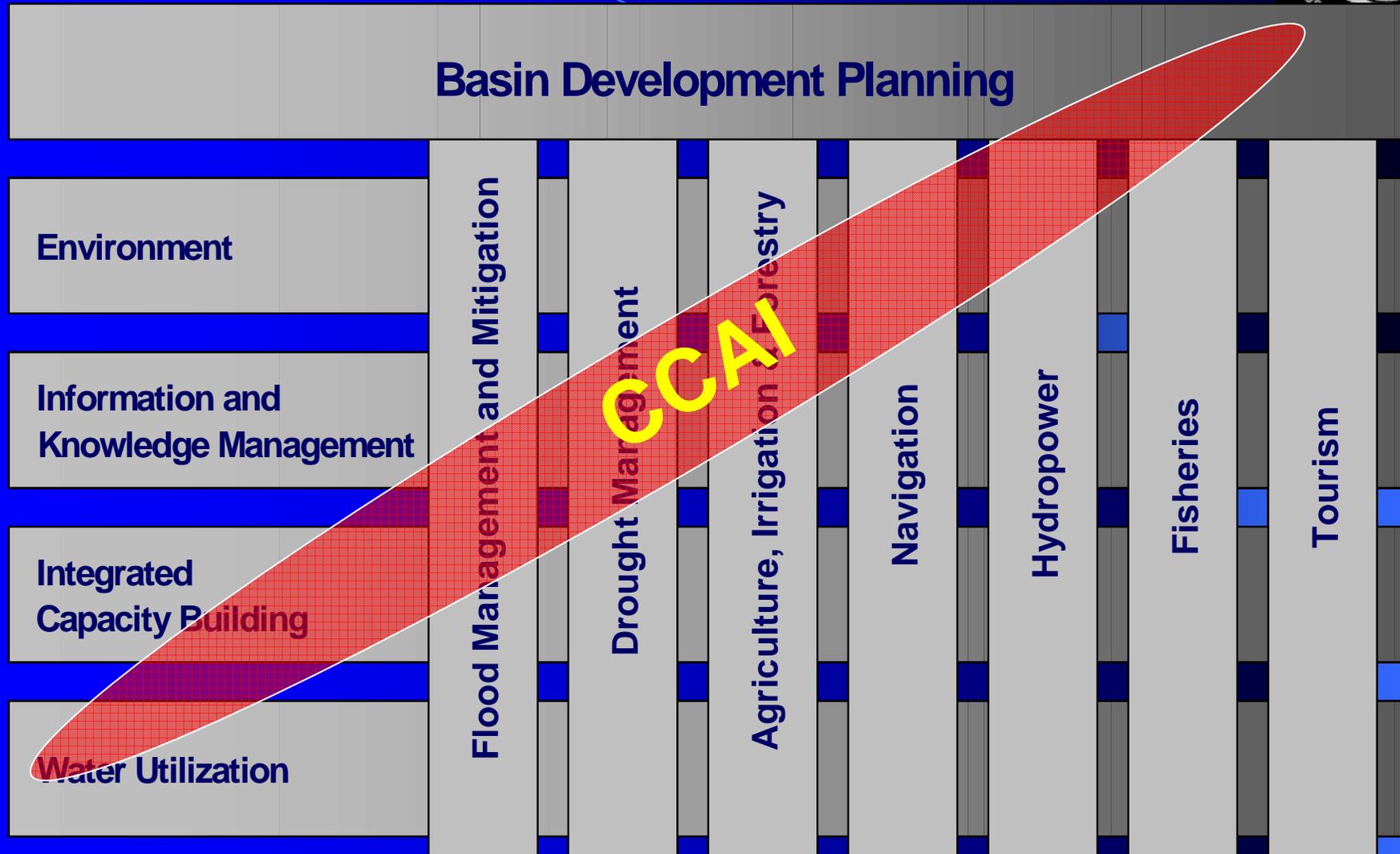
A collaborative regional initiative of Lower Mekong Basin countries aiming to support the countries in adapting to the impacts and new challenges of climate change through improved planning, implementation and learning.

*The CCAI is integrated to and collaborative with all MRC programmes and the **Basin Development Plan**.*

- **Where:**
 - Lower Mekong Basin – 4 Member Countries
 - Considering Upper Mekong influence
- **Duration and cyclical:**
 - Long duration (eg 15 years in 5 year cycles)
 - Program approach
 - Phased to match the MRC and member states five years planning cycles



IWRM



The Mekong CCAI is a cross-cutting initiative under IWRM umbrella in Mekong context



Mekong Climate Change and Adaptation Initiative (CCAI)

Objective:

Climate change adaptation planning and implementation is guided by improved strategies and plans at various levels and in priority locations throughout the Lower Mekong Basin

Scope:

A basin wide integrated initiative consistent with IWRM approach and the MRC 1995 Agreement, focusing on climate change impact and vulnerability assessment; adaptation planning and implementation within the Lower Mekong Basin.

Outcome:

Contribution to achieving the MDGs, poverty reduction and improved food security.



Mekong CCAI implementation period

- CCAI is a long-term sustainable initiative going through at least three 5 year phases
- CCAI is linked to the MRC Strategic Planning cycle (the current SP is 2006-2010).
 1. **2009-2010 = Intermediate phase, focusing on:**
 - Institutional and management arrangements; Initial priority activities;
 - Identify pilots, define and implement demonstration activities.
 - Development and improvement of tools for assessment;
 - Establish monitoring and evaluation system linked to MRC M&E system;
 - Establish and strengthen national and regional partnerships;
 2. **SP 2011-2015 = Phase 1**
 3. **SP 2016-2020 = Phase 2**
 4. **SP 2021-2025 = Phase 3**



The CCAI Outcomes & Outputs

Outcome 1:

Adaptation planning and implementation is piloted & demonstrated throughout the region drawing lessons learned from existing practices and demonstration with feed back to improve performance and influence strategies and plans

Example of Outputs:

- 1.2: Local demonstration activities and projects in adaptation are established and working
- 1.3: Basin-wide sector and trans-boundary adaptation plans/guides are prepared and piloted building on existing activities where feasible

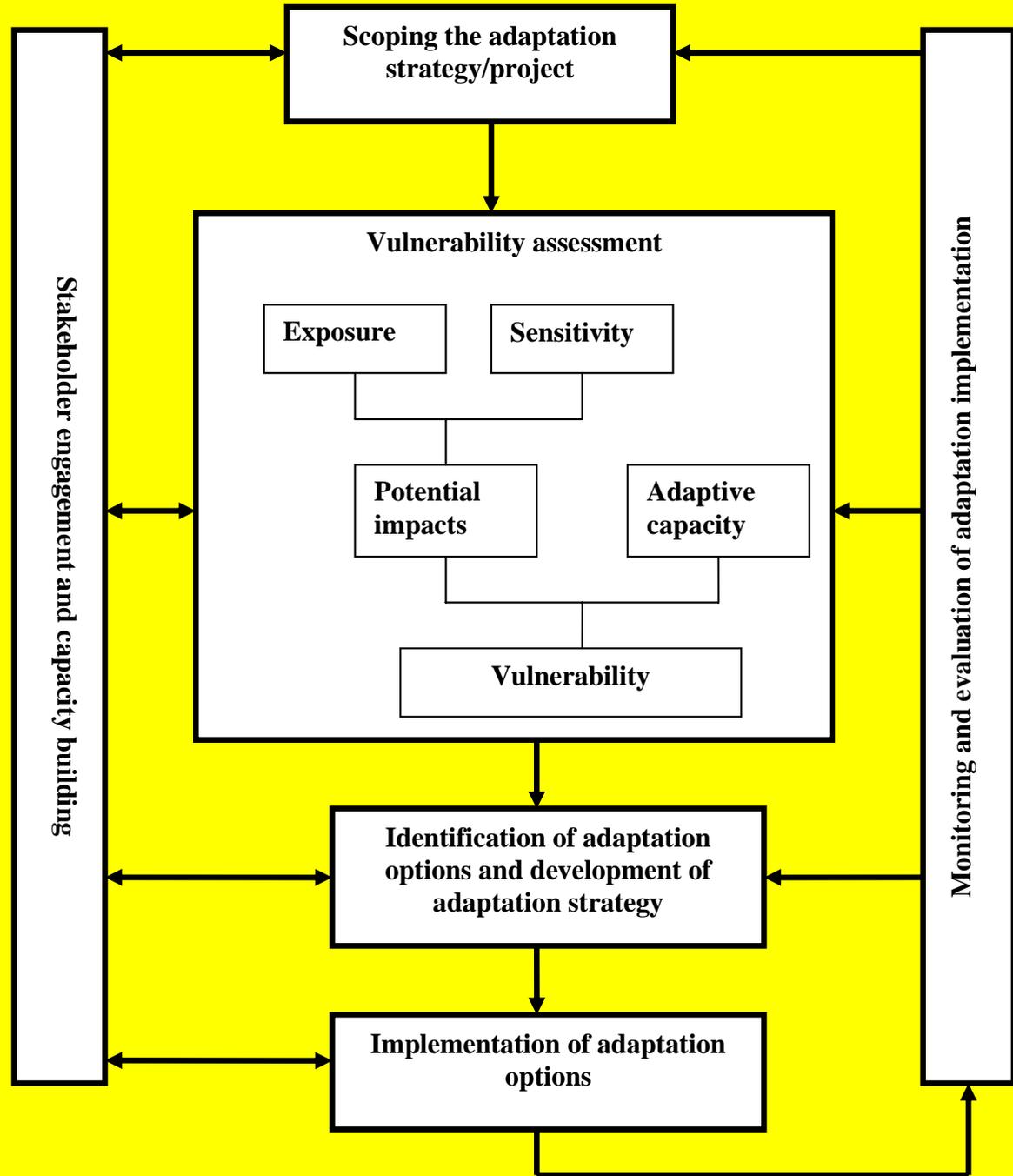


Mekong CCAI key features: Adaptation implementation and practices

- Local demonstration activities, which may focus on some of the following issues:
 - Water availability and quality
 - Increased risk of extreme events: storms, flooding and drought
 - Threats or losses of local ecosystem and biodiversity
 - Disruption to settlement patterns/ Climate migrants
 - Major disruption of local economies and livelihood especially of the poor and vulnerable groups
- Basin wide pilots e.g. on transboundary concerns or sectoral issues (next)

Description of methodology and adaptation planning process of CCAI

The adaptation planning process:





Adaptation planning steps

- Baseline assessment
- Projecting climate and hydrological change
- Socio-economic projections
- Impact assessment
- Vulnerability assessment
- Developing adaptation options
- Integrating with development plans

Development planning levels

- Basin wide
- Sub-basin/transboundary
- National
- Sub-national – eg river basins
- Province
- Cities/towns
- Local government
- Community

Development sectors

- Water supply
- Water sanitation
- Energy
- Transport
- Agriculture
- Fisheries
- Forestry
- Public health
- Tourism



Example of potential Basin wide pilots

Studies on transboundary such as:

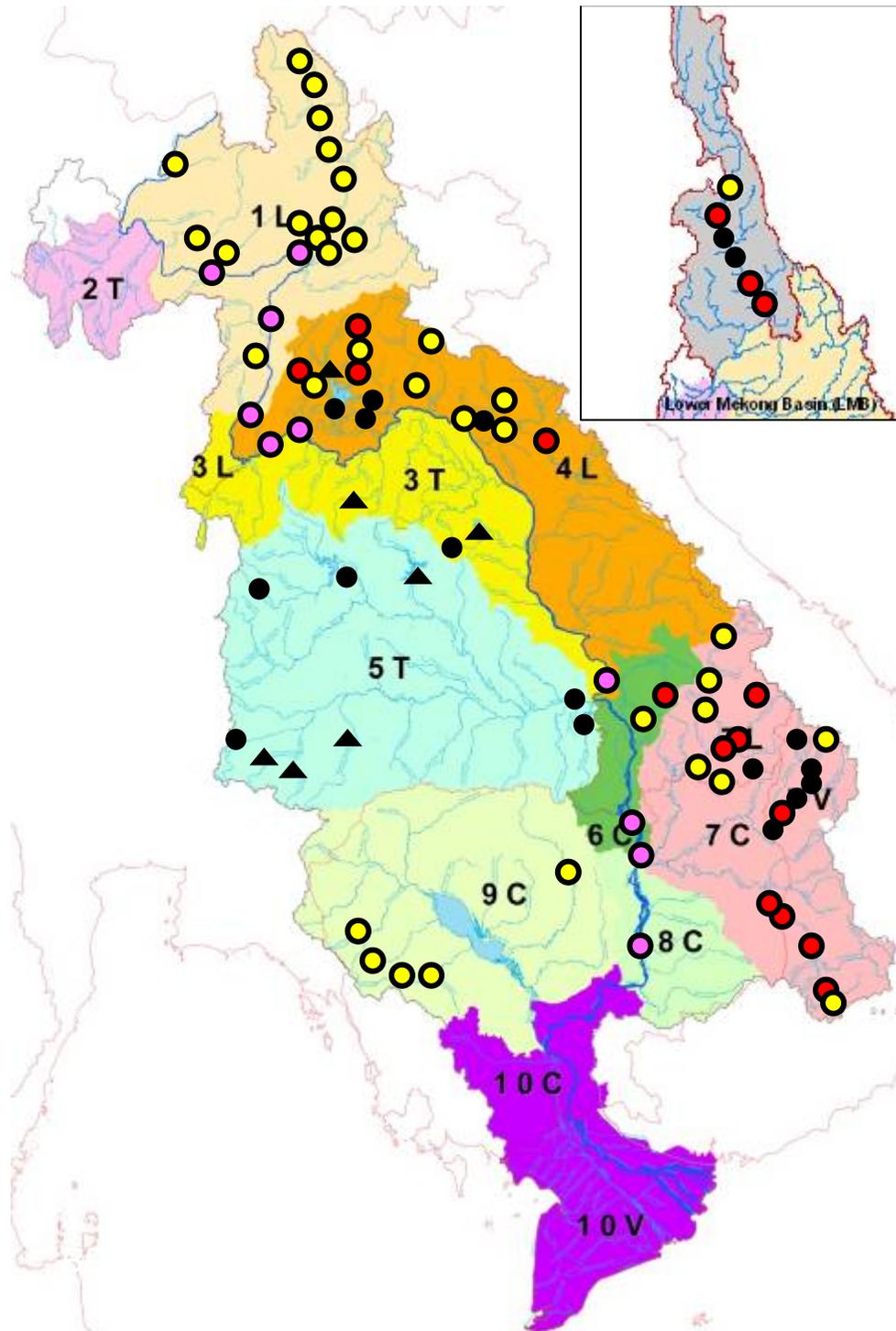
- Livelihood for vulnerable groups/ Gender,
- Natural systems (e.g. wetlands), / Biodiversity and protected areas,
- Flood and drought / Water quality, etc.

Basin-wide assessments:

- Climate modelling and scenario building,
- Hydrological modelling (e.g. basin and sub-basin water balance and hydrodynamics), sediment transport

Sector assessments: guidelines for MRC sectors and integrated assessment between sectors e.g.

- Agriculture and irrigation
- Fisheries
- Hydropower,
- Forestry and watershed management,
- Navigation



Scenario	No Project	Installed Capacity (MW)	Active Storage (MCM)
Baseline	11	1,553.2	9,638.2
Upper Mekong Dam	17	17,003.2	32,871.2
Definite Future	35	21,073.2	44,003.9
LMB Mainstream Dam	45	35,152.2	48,909.9
LMB Tributary Dam	70	26,728.2	71,936.9
LMB 20-year Plan	80	40,807.2	76,843.9

Example: Hydropower in Mekong & Climate Change

- How climate change will affect future hydropower development in the Mekong region?
- What could be the combined effect of climate change together with that of the dams to the downstream?



The CCAI Outcomes & Outputs

Outcome 2:

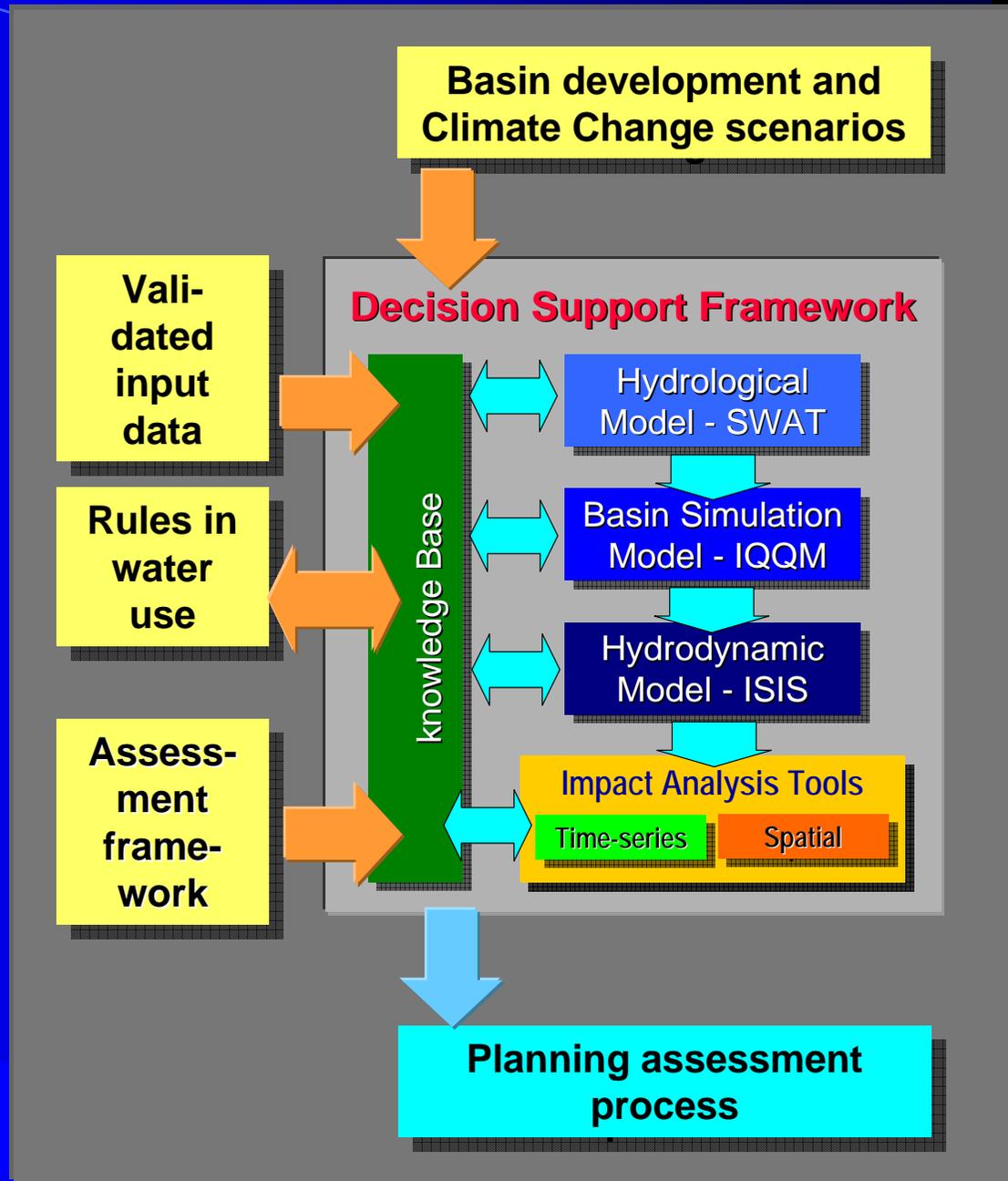
Improved capacity to manage and adapt at different levels in the Mekong including use of tools for different adaptation planning stages and methods

Example of Outputs:

- 2.1: Institutional capacity strengthened in policy making and planning for climate change adaptation in the LMB Countries
- 2.2: Tools for adaptation planning and implementation are developed, documented and capacities built in their application

Climate Change scenarios and Mekong Basin Development Plan:

The Decision Support Framework





The CCAI Outcomes & Outputs

Outcome 3:

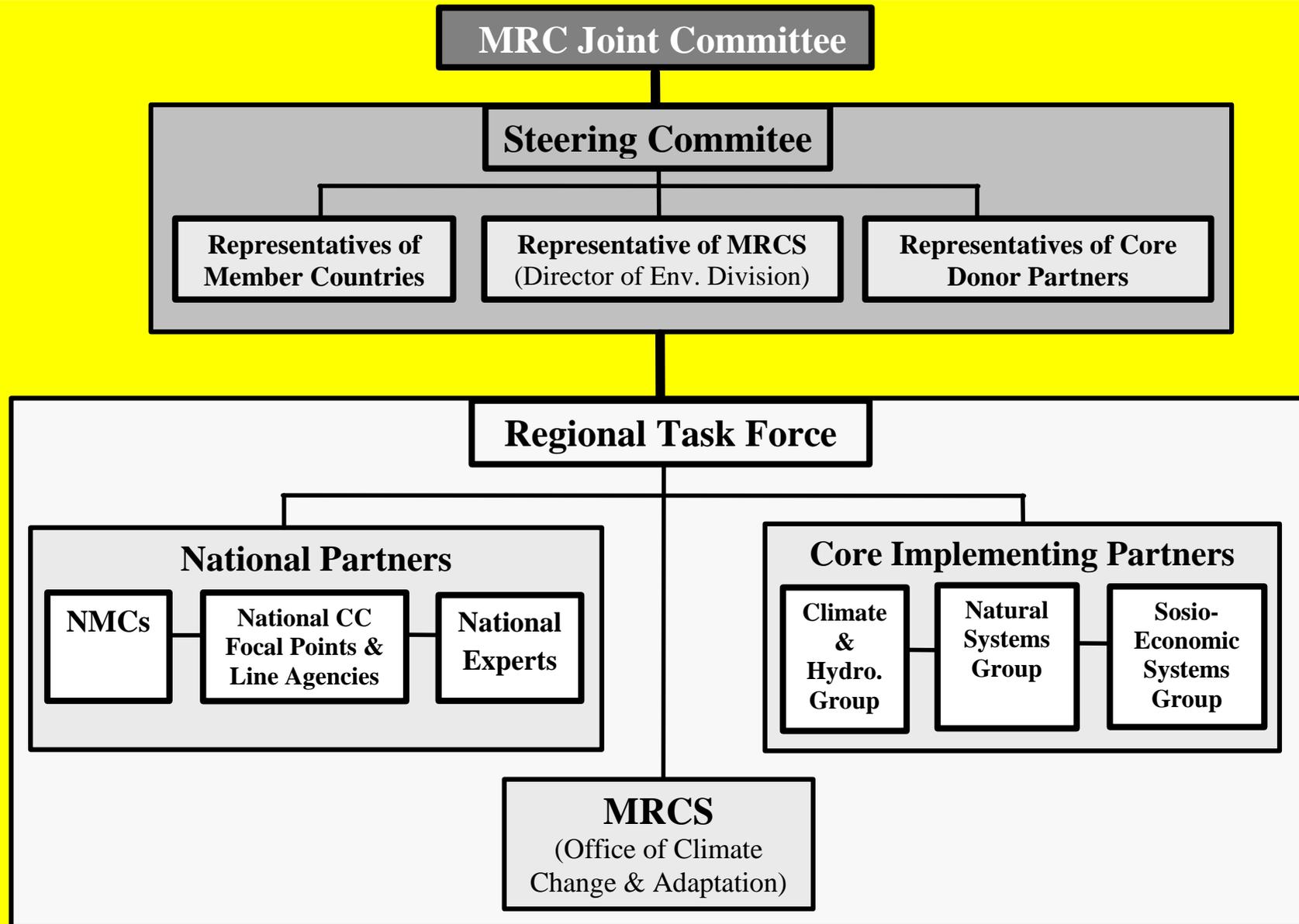
Strategies and plans for adaptation at various levels are in place and integrated with appropriate development plans, with implementation monitored and reported on a regular basis

Example of Outputs:

3.1: Policy frameworks to facilitate and guide adaptation are in place

- 3.2: A system for monitoring and reporting on the status of climate change and adaptation in the Mekong region is implemented

Institutional arrangements for the CCAI within the MRC governance and structure





The CCAI Outcomes & Outputs

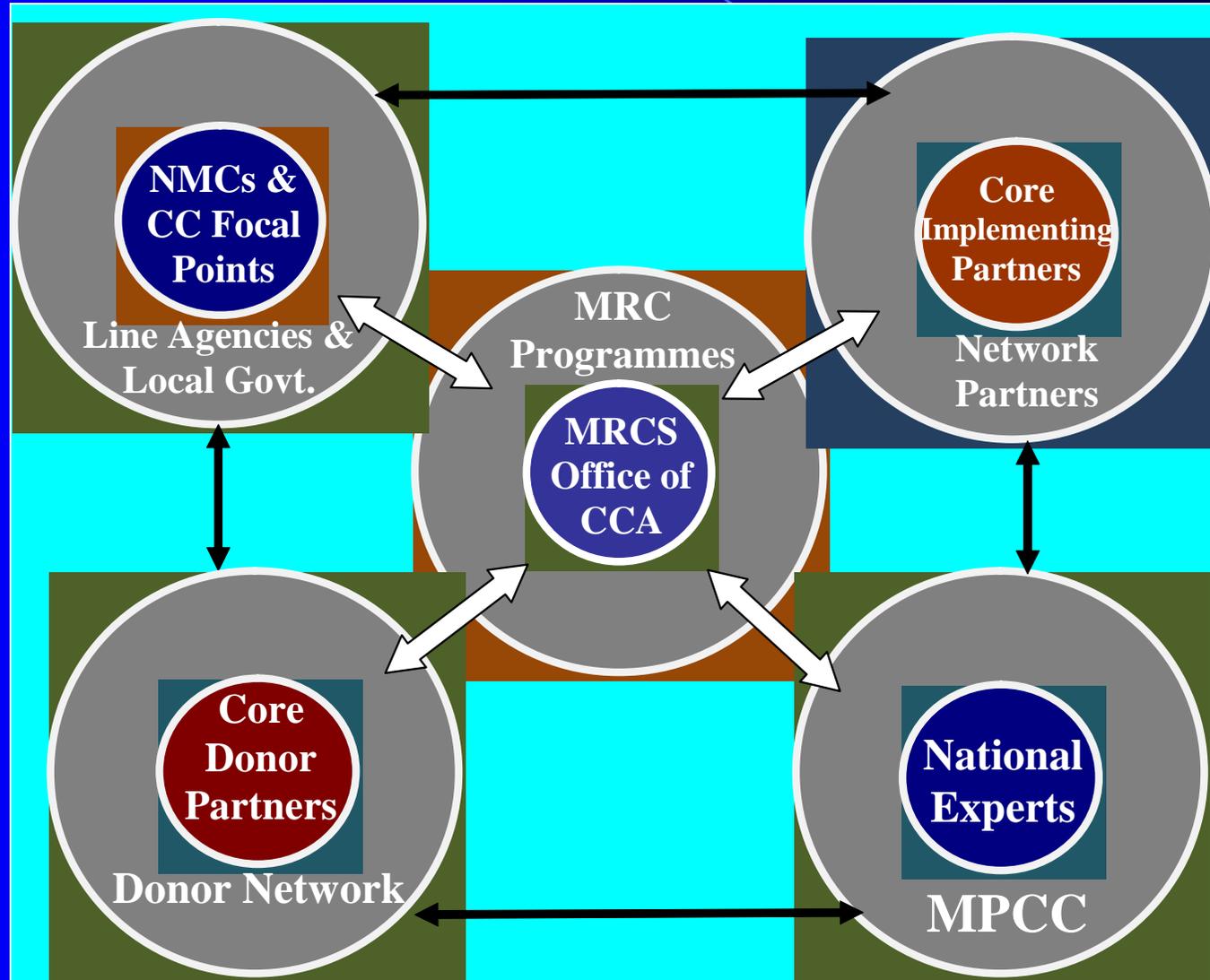
Outcome 4:

Regional cooperation, exchange and learning implemented through partnerships in a fully gender responsive initiative for at least three five-year phases with a developed longer-term sustainability strategy

Example of Outputs:

- 4.1: Partnership agreements and working relations are established and maintained with the CCAI core implementing partner organizations
- 4.4: Financing for the CCAI is secured for the three five year cycles
- 4.5: Regular review and revision of the CCAI

Building and strengthening regional and national partnerships





Building and strengthening regional partnership

CCAI implementing partners core group

Climate and hydrology group

- IWMI
- Sea START
- CSIRO
- ANU ICAM
- Others ...

Natural systems assessment group

- Wetland Alliance
- WWF
- IUCN
- World Fish
- Others ...

Socio-economic systems group

- OXFAM
- CARE
- GTZ
- SEI
- Others ...

Potential CCAI technical collaboration

- ACIAR
- ADB/EOC
- FAO
- M-POWER
- UNDP
- UNEP
- UNESCAP
- ICIMOD
- IFRC (Red Cross)
- NARBO/NAHRIM
- SEAFDEC,
- ADPC
- UNISDR
- Donor technical experts
- Others ...



Mekong Climate Change Forum, February 2009 gathered more than 250 participants from Mekong region





National response to climate change

- All LMB countries have ratified the UNFCCC & the KP.
- Each country has a **primary policy document** which outlines its strategy and responses to climate change (NAPA, NTP, National Action Plan for CC as 5-year strategy etc.)
- In general, climate change issues are not well integrated into the broader policy frameworks of national Governments.
- All LMB countries have a history of implementation of adaptation activities, although most activities implemented to date have been focused on natural disasters response, resources management.



Key on-going CCAI activities in Mekong Region in linkage with the INBO

- 1) Adaptation activities and the demonstration projects **can be linked** with related researches and studies of the INBO;
- 2) The lessons learned from adaptation planning and implementation at CCAI pilot site in member countries **can be up-scaled and replicated** for other areas/countries in the region
- 3) Partnership and collaboration, **linking** MRC network with broaden INBO network
- 4) Establish the Mekong CCAI **knowledge hub and database** for the Lower Mekong Basin



The way forwards: a clear need for regional coordination and collaboration

- 1) **Bridging** researchers / scientists and scientific studies to the policy makers and the public through training, awareness rising and capacity building for policy makers, planner, national experts and the public
- 2) **Opportunity to understand climate change impacts and vulnerability** of Mekong Delta through the whole Mekong river basin perspectives, e.g. potential trans-boundary climate change impacts are able to be identified by basin-wide pilots.



The way forwards (cont.)

- 3) **Regional collaboration and building partnership;** extend the network and sharing experiences, data and information, including with the INBO
- 4) **Sharing lesson learned** from demonstration adaptation activities in Lower Mekong with similar projects in the Greater Mekong Sub-region (GMS).
- 5) Gathering regional and national experts to make a Mekong roster of experts – **The Mekong Panel on Climate Change (MPCC).**

Global Phenomenon
Regional Collaboration
Local Action

Thank you!



Mekong River Commission
Climate Change and Adaptation
Initiative