

# Basin-wide Climate Change Impact and Vulnerability Assessment for Wetlands of the Lower Mekong Basin for Adaptation Planning

## Overview of Study

Prepared for the Mekong River Commission  
By ICEM • WorldFish • IUCN • SEA START

# Project Objectives

---

- To undertake a **climate change impact and vulnerability assessment** for the Mekong wetlands considering their functions and biodiversity
- To provide **recommendations for adaptation options** aiming at **securing wetland values**

# 4 Sub-objectives

- Provide an detailed understanding of the **implications of climate change to the health and function of wetlands** in the Mekong basin to the extent necessary to permit the formulation of specific **adaptation and management recommendations**;
- Develop an **evidence base** from case study sites to systematize the characteristics of vulnerability for different wetland types;
- Develop a **methodological framework for assessing climate change vulnerability of wetlands**, which can be easily translated between wetlands of the same type and between the local, sub-basin and basin spatial scales
- Include an element of **capacity building** to strengthen the respective analytical and management capabilities in the concern line agencies of the MRC member states

# The Partnership

- **ICEM** – the International Centre for Environment Management as lead partner
- **IUCN, Lao PDR** – the International Union for the Conservation of Nature,
- **WorldFish Centre** regional office in Cambodia
- **SEA START RC** - South East Asia START Regional Centre.

# International Specialists

- **Peter-John Meynell** - Team Leader, Mekong Wetland Ecology & Natural systems
- **Jeremy Carew-Reid** - Mekong Climate Change Adaptation and Institutional
- **Marie-Caroline Badjeck** - Mekong Wetland Livelihoods
- **Mark Bezuijen** - Climate Change & wetland biodiversity
- **Benoit LaPlante** - Senior Wetlands Valuation
- **John Sawdon** - Mekong Social Economist
- **Tran Thanh Cong** - Mekong GIS Specialist
- **Tarek Ketelsen** – Hydrologist
- **Tristan Skinner** - Project Coordinator

# Riparian Experts

## **Cambodia**

- **Prom Nga**- Coordinator, Livelihoods & Institutional specialist
- **Mam Kosal** - Wetland Ecologist
- **Sideth Muong**- Environmental Economist

## **Lao PDR**

- **Phaivanh Phiapalath**- Coordinator, Wetland Ecologist
- **Charlotte Hicks** - Wetland Livelihoods and Institutional specialist
- **Saykham Voladeth** - Socio-economist

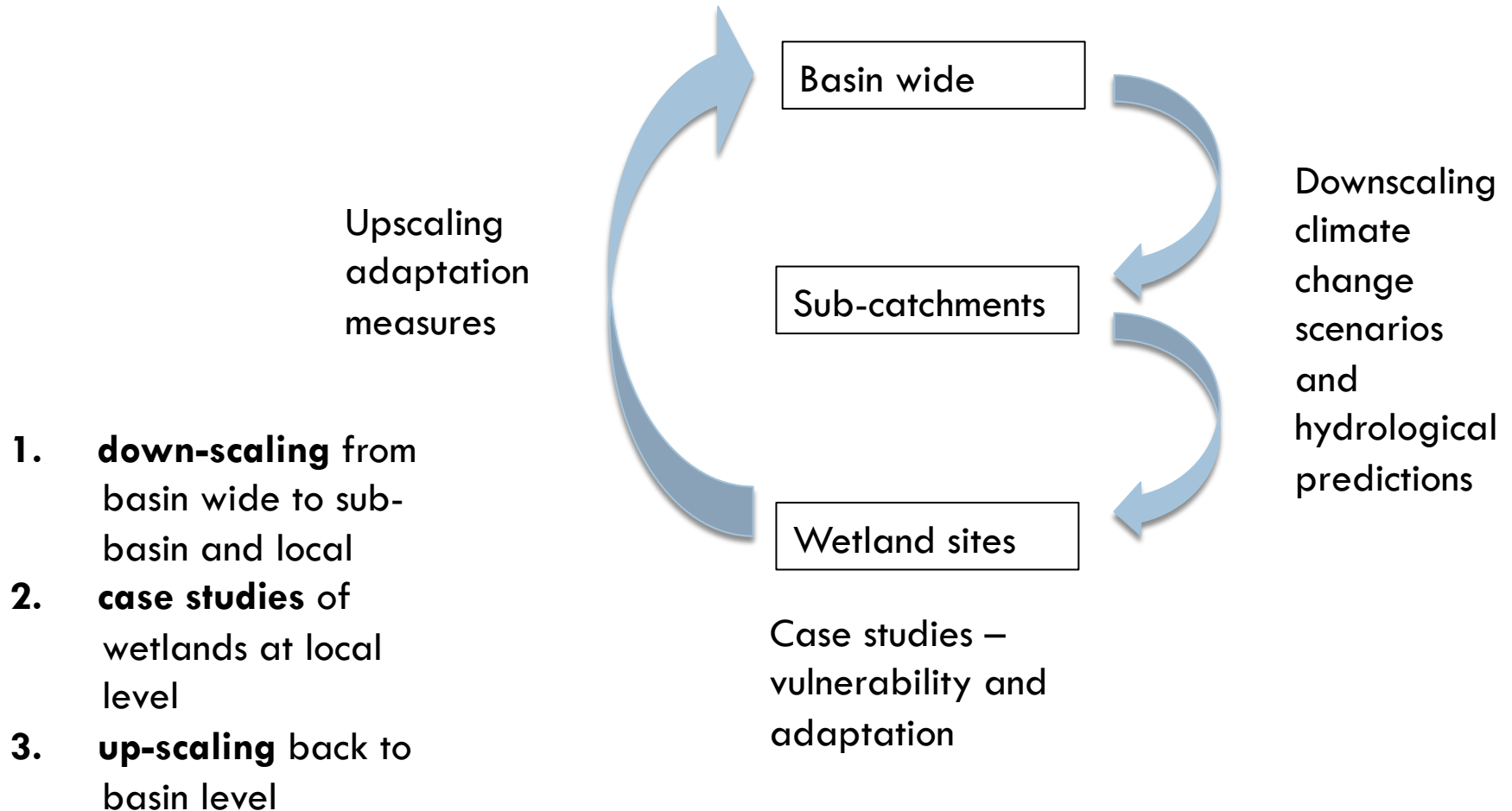
## **Thailand**

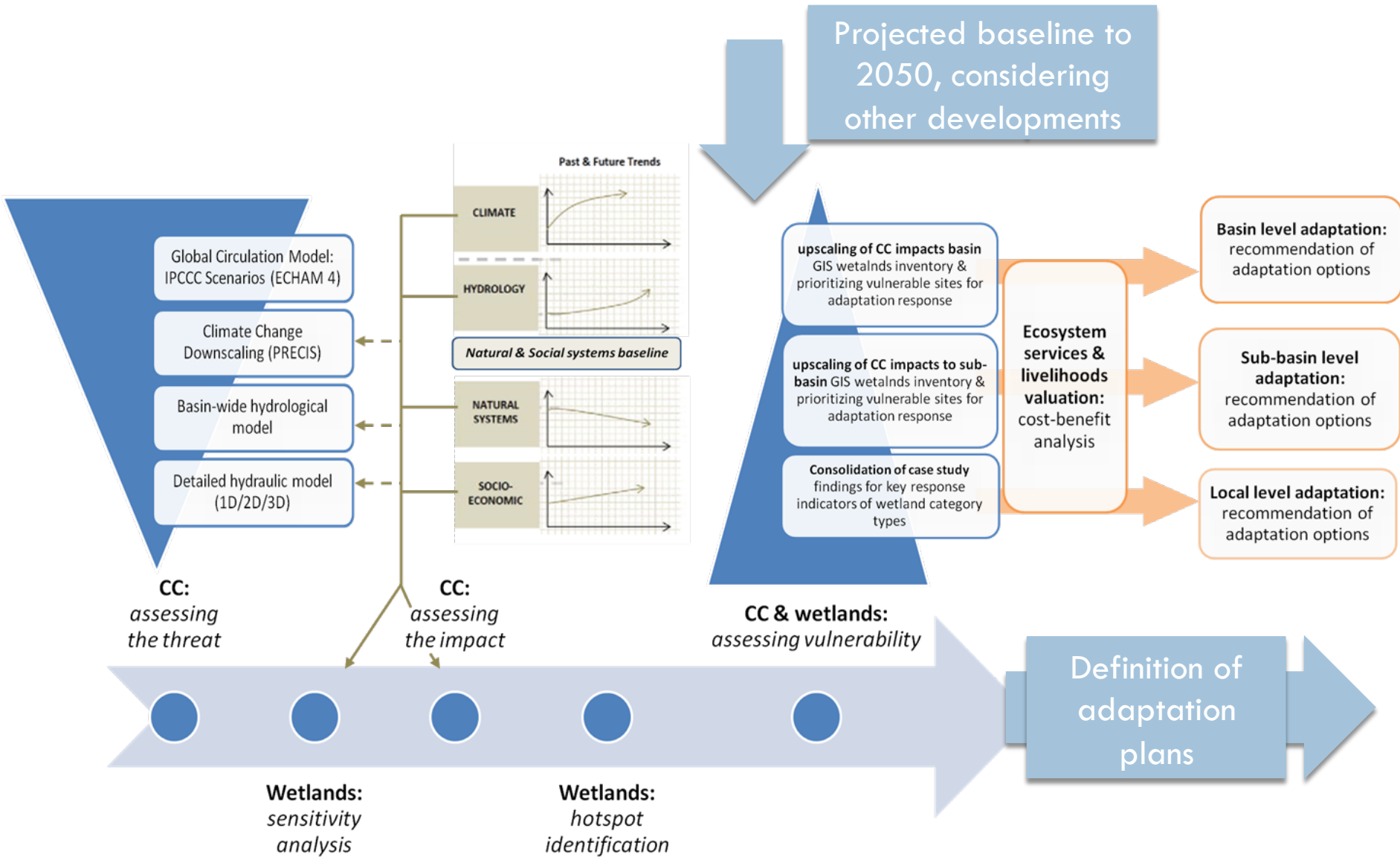
- **Suppakorn Chinvanno**- Coordinator, CC institutional specialist
- **Sansanee Choowaew** - Wetland Ecologist
- **Adcharaporn Pagdee** – Socio-economist

## **Vietnam**

- **Nguyen Huu Thien** - Coordinator, Livelihoods & Institutional specialist
- **Vu Xuan Nguyet Hong** - Senior Socio-Economist
- **Hoang Van Thang** - Wetland Ecologist

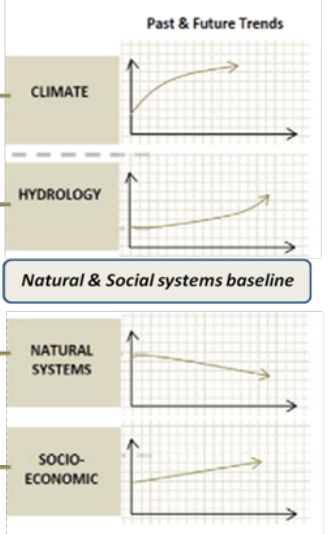
# Three Phases to the approach





Projected baseline to 2050, considering other developments

- Global Circulation Model: IPCC Scenarios (ECHAM 4)
- Climate Change Downscaling (PRECIS)
- Basin-wide hydrological model
- Detailed hydraulic model (1D/2D/3D)



- upscaling of CC impacts basin  
GIS wetlands inventory & prioritizing vulnerable sites for adaptation response
- upscaling of CC impacts to sub-basin  
GIS wetlands inventory & prioritizing vulnerable sites for adaptation response
- Consolidation of case study findings for key response indicators of wetland category types

**Ecosystem services & livelihoods valuation: cost-benefit analysis**

- Basin level adaptation:** recommendation of adaptation options
- Sub-basin level adaptation:** recommendation of adaptation options
- Local level adaptation:** recommendation of adaptation options

**Definition of adaptation plans**

# Phase 1 – Establishing the baseline and defining the threat

- ▣ National **policy and institutional reviews** on wetlands and climate change
- ▣ Basin-wide synthesis of national policy reviews
- ▣ Global, basin & sub-basin CC baseline and **situational analysis** of wetland biodiversity, ecosystem services and livelihoods
- ▣ **Climate change downscaling** – review and revision of existing models for Mekong basin and sub-basins
- ▣ Categorising and **basin-wide wetland mapping** and grouping of wetlands
- ▣ Develop **case study guidelines**



# Phase 2 - Case Studies

- ▣ **Hydrological modeling** from basin to sub-basin to case study locations (if appropriate)
- ▣ **GIS mapping** of case study locations showing current (baseline) & wet and dry seasons in 2050
- ▣ **Field studies** at each case study location covering wetland ecology, livelihoods and wetland economics and vulnerability to climate change assessments
- ▣ Case study **stakeholders consultation meetings** & Identification of adaptation mechanisms
- ▣ **Valuation of losses and gains** due to climate changes and cost-benefit analysis of adaptation mechanisms & recommendations for adaptation mechanisms



# Case studies – Assessing Vulnerability and Adaptation

- 2 wetland sites per country
- Site selection criteria
  - ▣ Representativeness – main wetland types
  - ▣ Importance – biodiversity, ecosystem services, livelihoods
  - ▣ Scale
  - ▣ Ease of downscaling and upscaling
  - ▣ Information available
- 1 – 2 weeks per site
- Includes stakeholder consultation at each site
- Includes participatory video interviews
- Includes valuation of adaptation potential

# Phase 3 – Up-scaling

- ❑ **Upscaling** of case study findings to the different wetland types found in the sub-basins and LMB
- ❑ **Basin-wide recommendations**
- ❑ **Final report** – adaptation recommendations based upon regional synthesis workshop



# Events

- First Regional Workshop - Wetland and climate change specialist consultation meeting (Vientiane, 1 March)
- Second Regional Workshop - Mekong wetland and climate change workshop (Hanoi, early July)
- Case study stakeholder meetings (May/June)
- Third Regional Workshop – Synthesis findings of the results (Phnom Penh, early November)

# Products

- Scoping report
- Baseline Vulnerability Assessment – includes:
  - **Mekong Basin Wetland Situation Analysis**
  - **Basin Wide Wetland CC impact and modelling technical**
  - **National (X4) Policy and Institutional Analysis**
  - Presented and discussed at second regional meeting
- Case study reports – 2 per country, includes:
  - working papers on biodiversity and ecosystem services, livelihoods and valuation of adaptation mechanisms
  - Consultation meeting reports
  - Participatory video interviews
  - Feed into synthesis report
- Synthesis report - **Climate Change Impact and Vulnerability of Wetlands in the Mekong basin**
  - Presented and discussed at third regional meeting

