

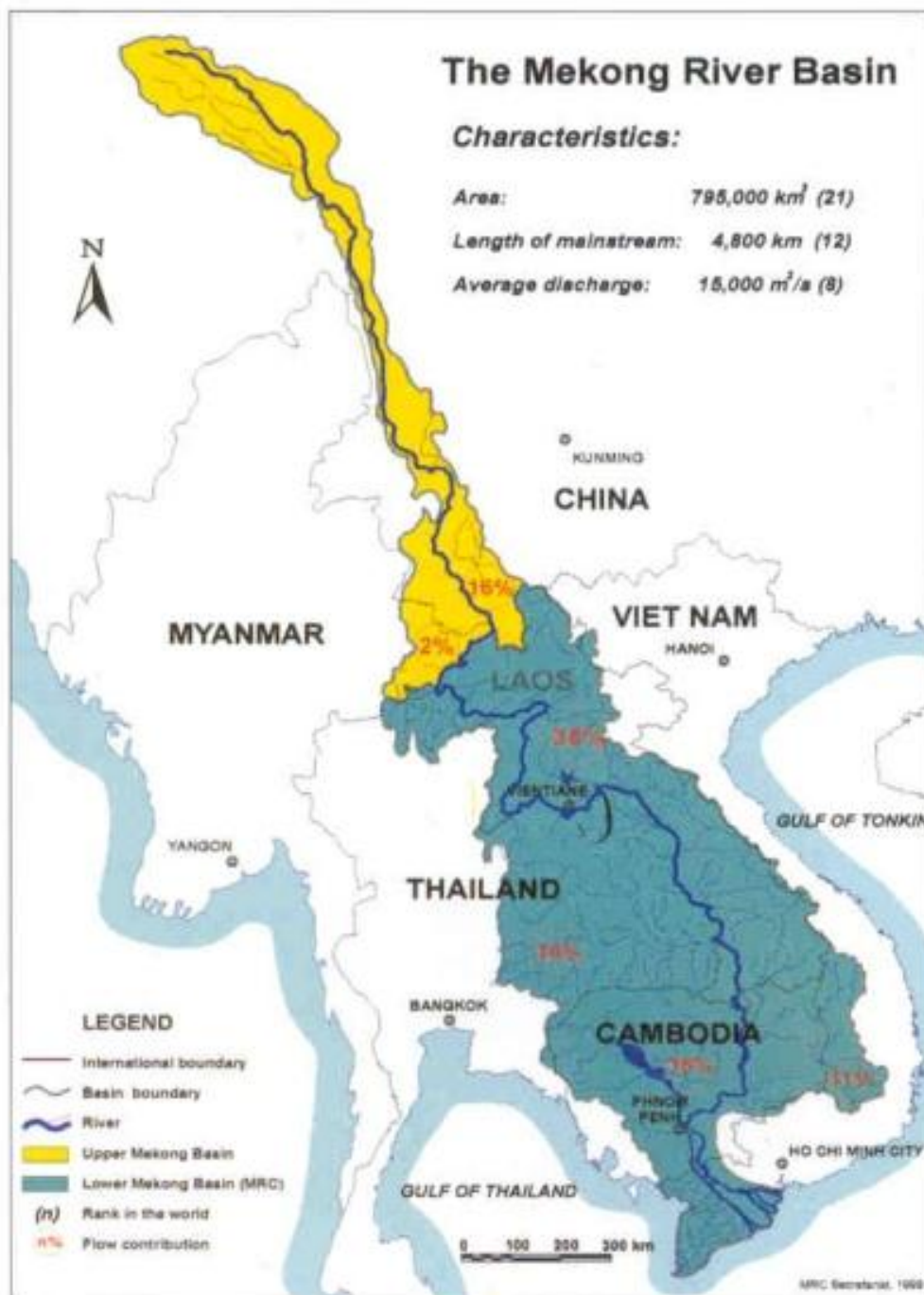


THE UNIVERSITY NETWORK FOR WETLAND RESEARCH AND TRAINING IN THE MEKONG REGION

The Role of Universities in the Mekong Basin in Filling Research Needs

Sansanee Choowaew, Tran Triet, Duong Van Ni, Jeb Barzen
and all colleagues

Mekong River System Science Data Workshop
16 - 18 September 2014, Ho Chi Minh City, Vietnam



The Mekong River Systems

- natural ecosystems - under serious threats
- importance of basin-based technical approach & collaboration

→ → The University Network for Wetland Research and Trainings in the Mekong Region, established in 2002

20 University members (as of September 2014)

CAMBODIA (4)

- Royal University of Agriculture
- Royal University of Phnom Penh
- Build Bright University
- Pannasastra University

CHINA (1)

- Southwest Forestry University

LAO PDR (2)

- Champasack University
- National University of Laos

MALAYSIA (1)

- Universiti Sains Malaysia

MYANMAR (2)

- University of Forestry
- Yezin Agriculture University

THAILAND (5)

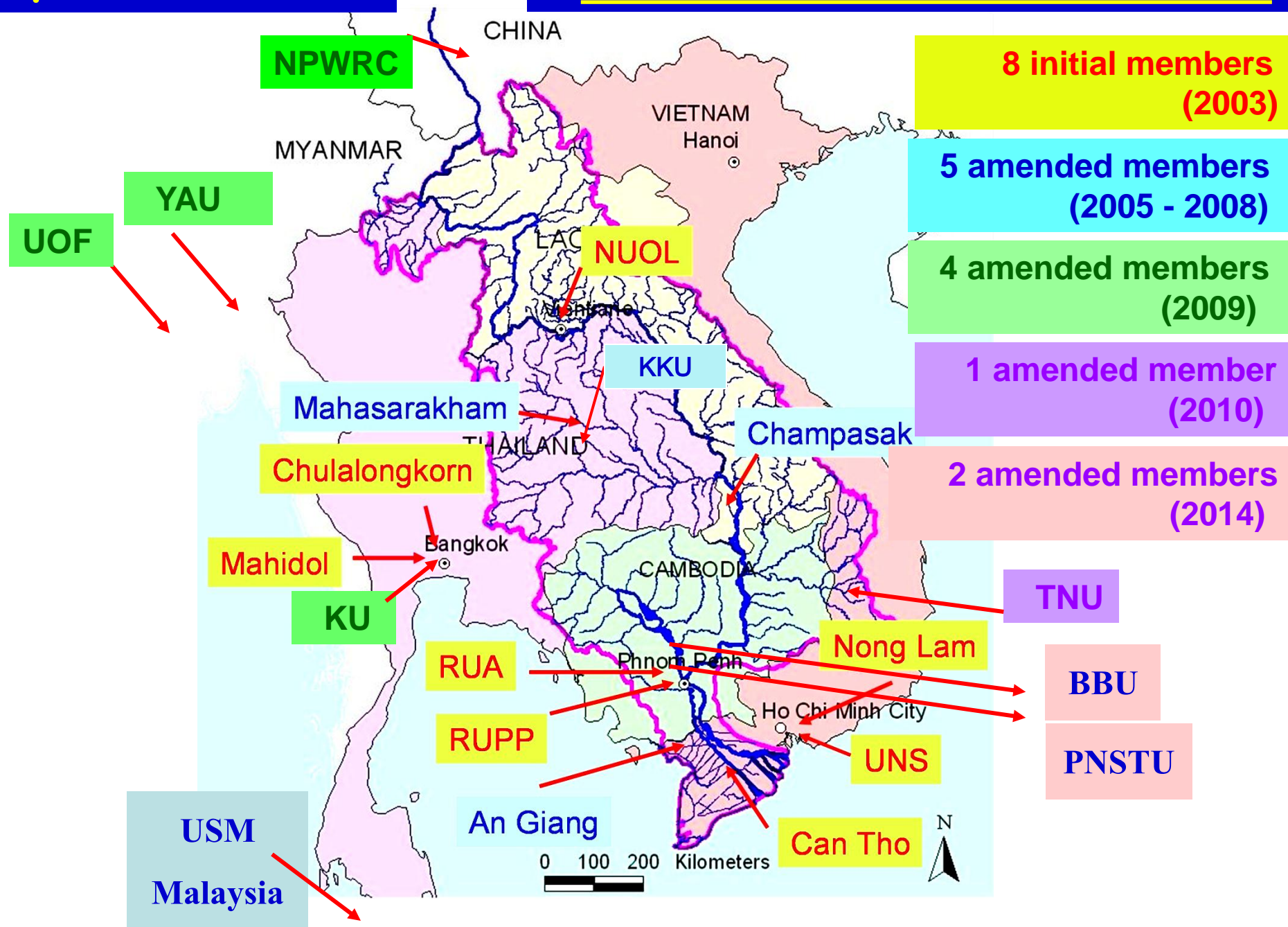
- Chulalongkorn University
- Kasetsart University
- Khon Kaen University
- Mahasarakham University
- Mahidol University

VIETNAM (5)

- An Giang University
- Can Tho University
- Nong Lam University
- University of Science
- Tay Nguyen University

September, 2014

20 Present Member Universities



4 Executive Meetings; 3 Signing Ceremonies of Agreements on Academic Cooperation (2002, 2003, 2008, 2013)





1 : Vietnam



2 : Thailand



3 : Lao PDR



4 : Cambodia



5 : Vietnam



6 : Thailand



7: Thailand & Lao PDR



8 : Cambodia



9 : Malaysia



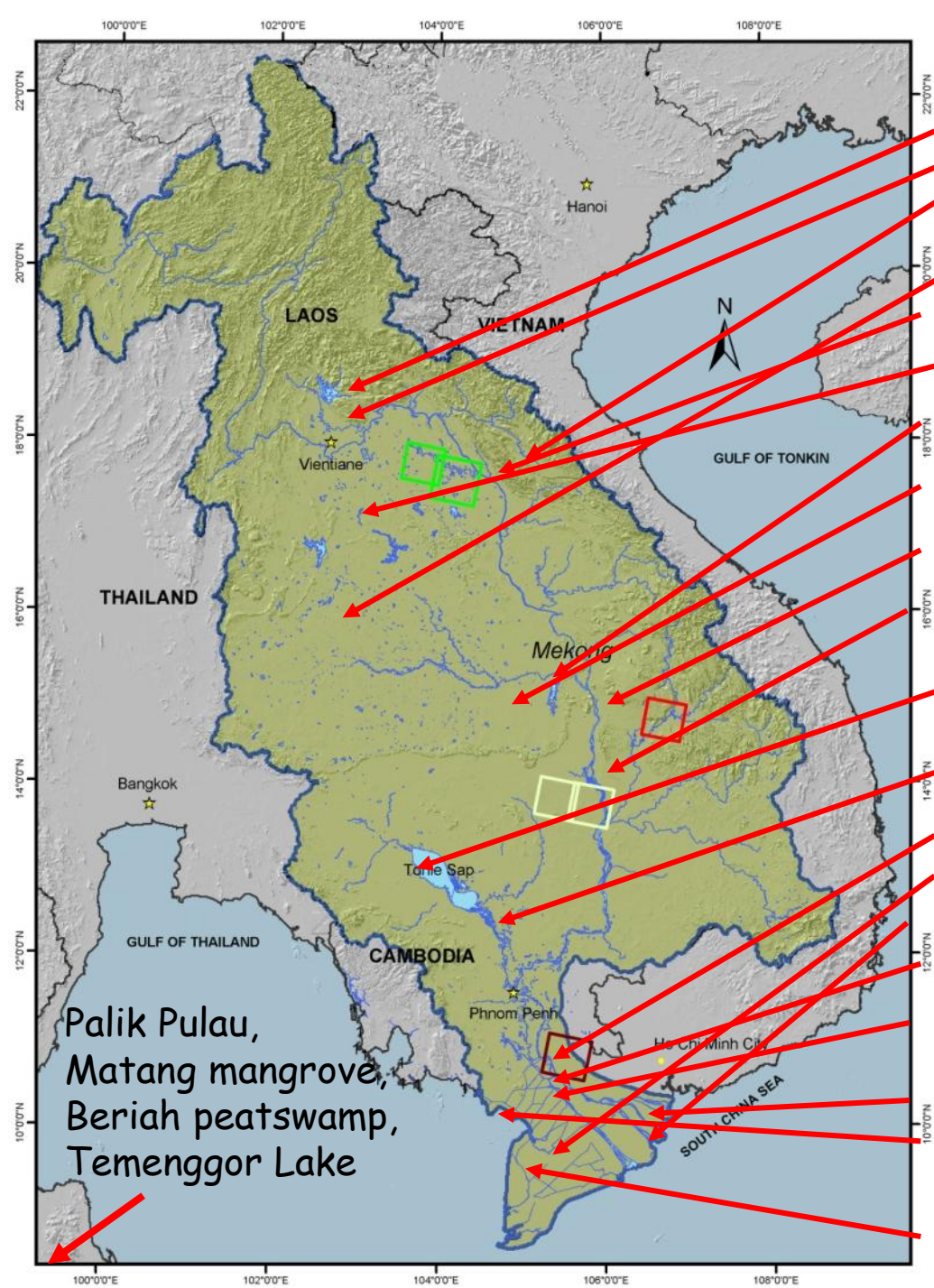
10 : Vietnam



11 : Thailand

- 2003 – 2014 : 11 International field-based Training Courses on 'Wetland Ecology and Management' ; member universities take turn hosting the trainings on a yearly basis; 243 junior lecturers, researchers, officers, practitioners of 10 countries; using almost 40 wetlands of different types in 5 countries as natural classrooms/laboratories; **region-wide data collection & accumulation**

> 40 field study sites



- Nam Ngum Reservoir
- Bung Nong Nok
- Bung Khong Long
- Kaeng Lawa, Kud Daeng
- Songkhram River & Mekong River
- Phu Khieo Wildlife Sanctuary
- Sanambin Wildlife Non-Hunting Area
- Mun River, Pak Mun Dam, Mekong River
- Nong Khum Keo, Nong Sanh, Nong Sala & Don Khieo Island
- Si Phan Don wetlands & Mekong
- Prek Toal & Tonle Sap Lake
- Bung Cheung Ek, Phnom Penh
- Tram Chim National Park
- Hoa An Research Center
- Phu My Grassland
- Bung Binh Thien - riverine floodplain/ swamp
- Tra Su Protected Area - Melaleuca swamp forest
- Can Gio Mangrove
- Hon Chong Coastal Wetland
- U Minh Thuong National Park



Soil & Geology



Hydrology



Socio-economics



Biodiversity

SPONSORS (number) = Training Course

- ASEAN Regional Center for Biodiversity Conservation (1)
- International Crane Foundation (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
- John D and Catherine T MacArthur Foundation (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
- IUCN/UNDP/GEF Mekong Wetland Biodiversity Conservation Programme (2,3,4)
- Rockefeller Foundation (2)
- Royal Netherlands Embassy in Vietnam (3)
- World Wildlife Fund (WWF) Russel E Train Education for Nature Program (3,5)
- USGS National Wetland Research Center (5, 6, 7, 8, 9)
- USGS Patuxent Wildlife Research Center (9, 10)
- US Department of State SE Asia Regional Environmental Hub Small Grants Program (7)
- US Embassy Thailand - East & SE Asia Regional Environment, Science, Technology and Health Office (10)
- UNS, VNU-HCM, Vietnam (1); Mahidol University, Thailand (2); National University of Laos, Lao PDR (3); Royal University of Phnom Penh, Cambodia (4); Cantho University (5); Chulalongkorn University (6, 7); Champasak University (7); Universiti Sains Malaysia (7, 8, 9, 10); Royal University of Agriculture, Cambodia (8); An Giang University, Vietnam (10); Mahasarakham University, Thailand (11)

and many others

Basin-wide Research Collaboration

*** (2010 - 2012) ***

Persistent Organic Pollutants in the Mekong River Basin

Research Partners : 8 universities (UNS, CTU, MU, MSU, NUOL, RUA, RUPP, YAU), ICF; USGS (NWRC, Water Science Center); University of Wisconsin - Madison; U.S. Department of State; OES; others (>70 researchers from 12 institutions)

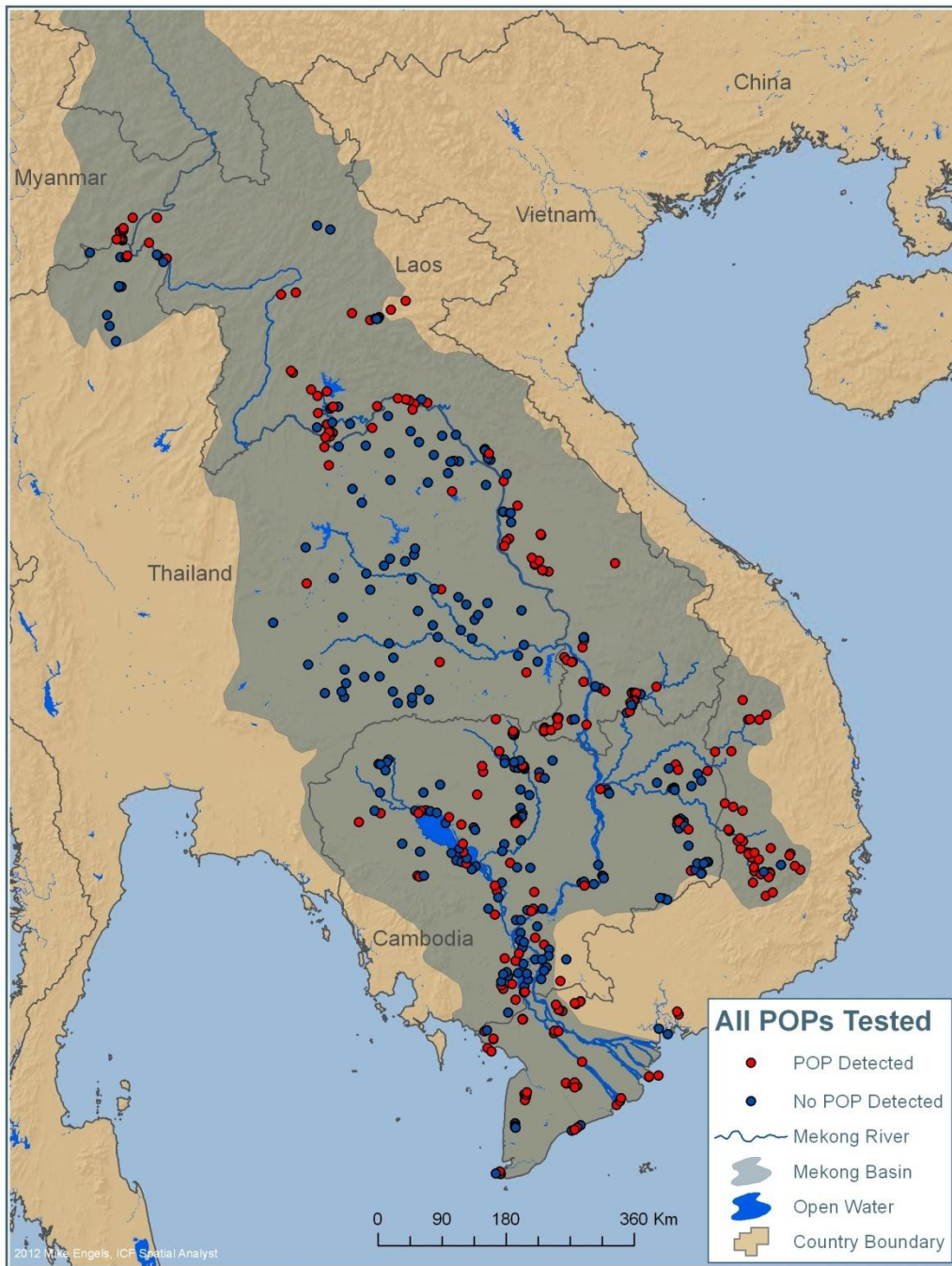
Goal : Create a baseline for POPs in the entire Mekong Basin

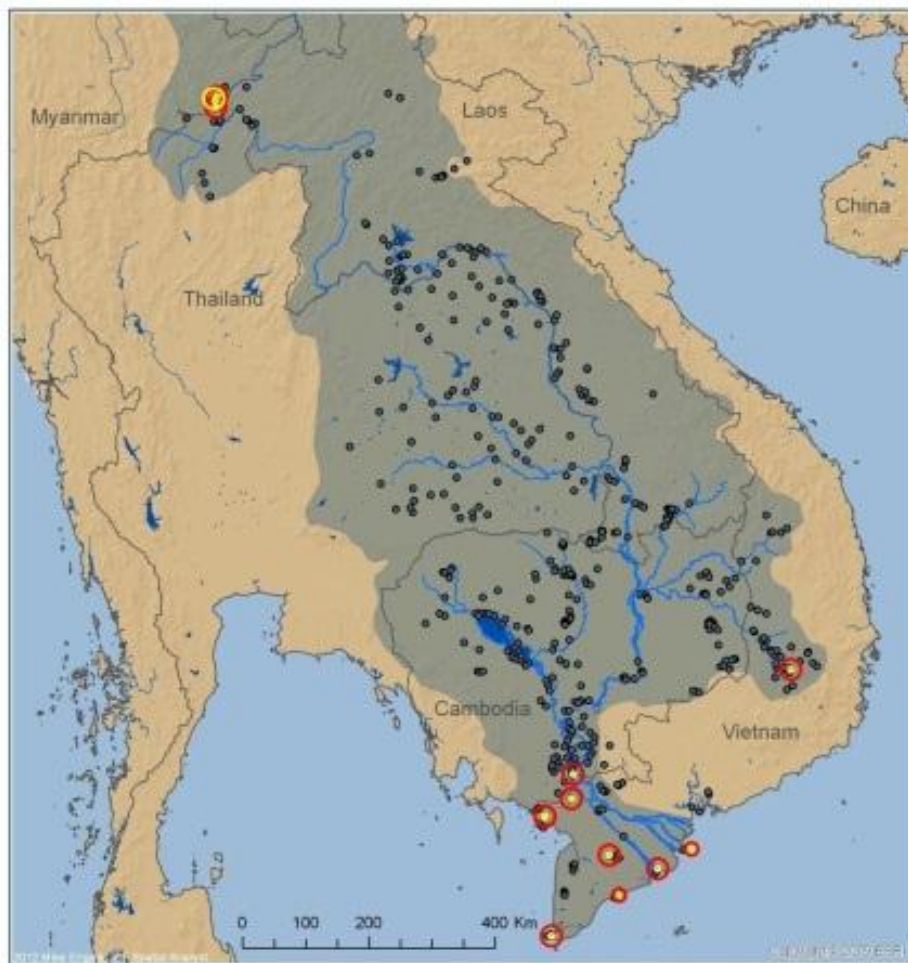
Scope : a basin-wide study on 39 POPs : 21 Organochlorine pesticides and 18 Polychlorinated biphenyls (PCBs) in wetland soils

Activities & achievements : (a) Start-up workshop; (b) Practical trainings - research/field methods, use of database; (c) Selection of sampling sites; (d) Survey & data collection : 531 sediment samples from > 450 wetlands in 5 countries in the Mekong Basin; (e) Development of POPs web-based database and data sharing; and (f) Publication : USGS Scientific Investigations Report 2013-5196 available online at <http://pubs.usgs.gov/sir/2013/5196/> ; <http://dx.doi.org/10.3133/sir20135196>

Some key findings

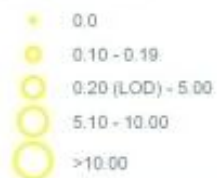
- POP residues : wide-spread in the MRB
- Magnitude of contamination : low in wetland environment
- Hot-spots exist, even in wetlands of conservation importance including Ramsar Sites
- Closer to urban areas, more POPs were found



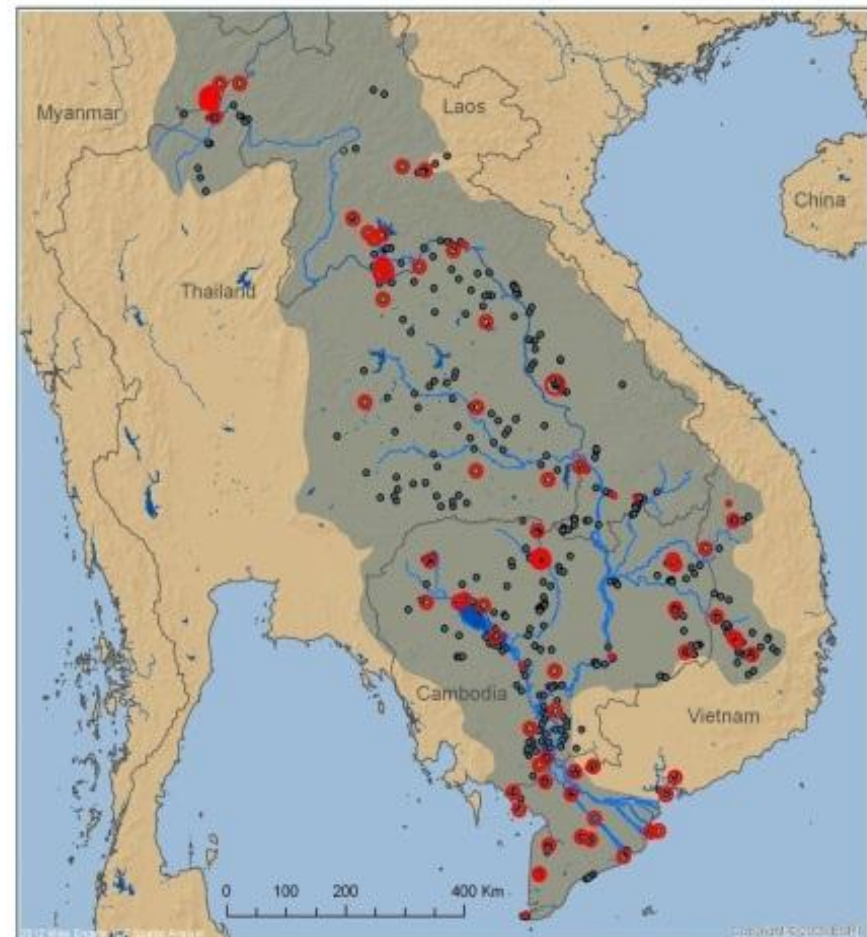


Amount of Chlordane Detected ($\mu\text{g/kg}$)

Trans Chlordane



CIS Chlordane



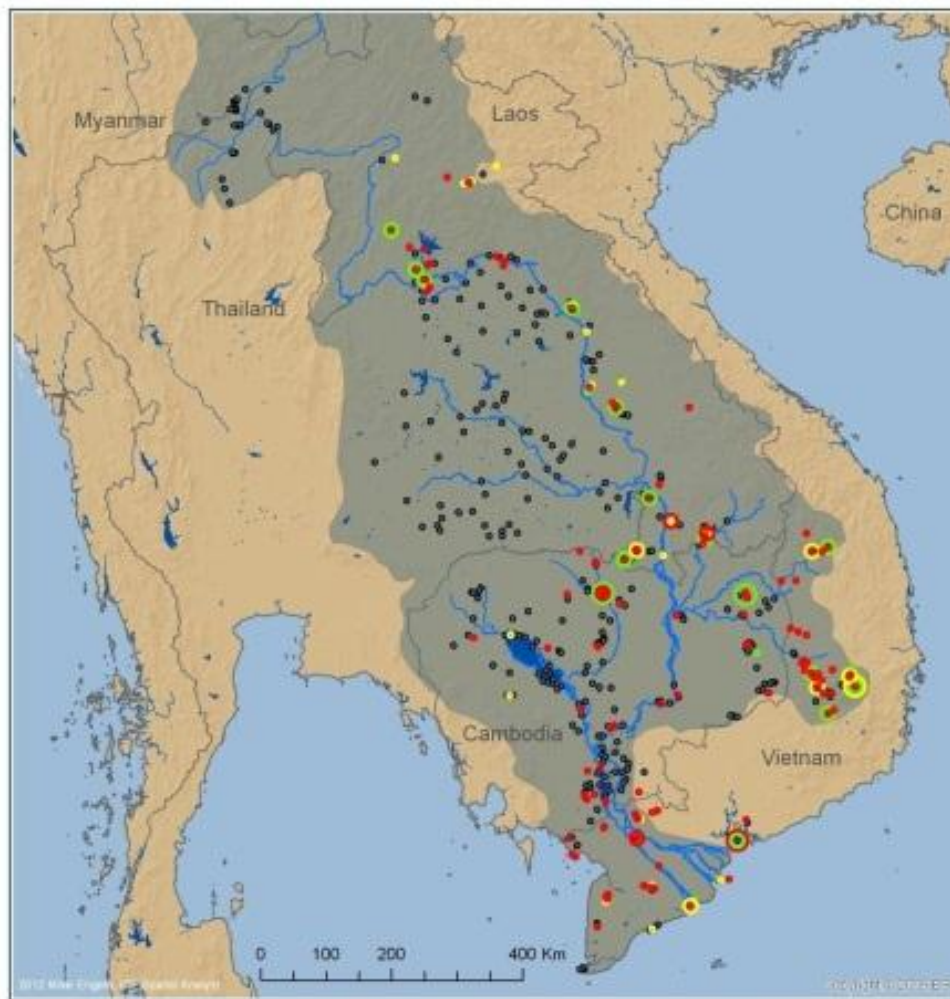
Amount of Hexachlorobenzene Detected ($\mu\text{g/kg}$)

Hexachlorobenzene

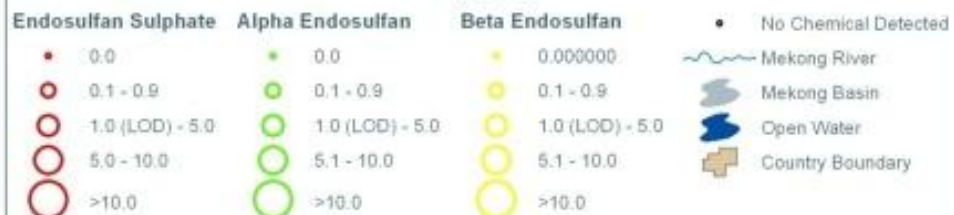


Chlordane

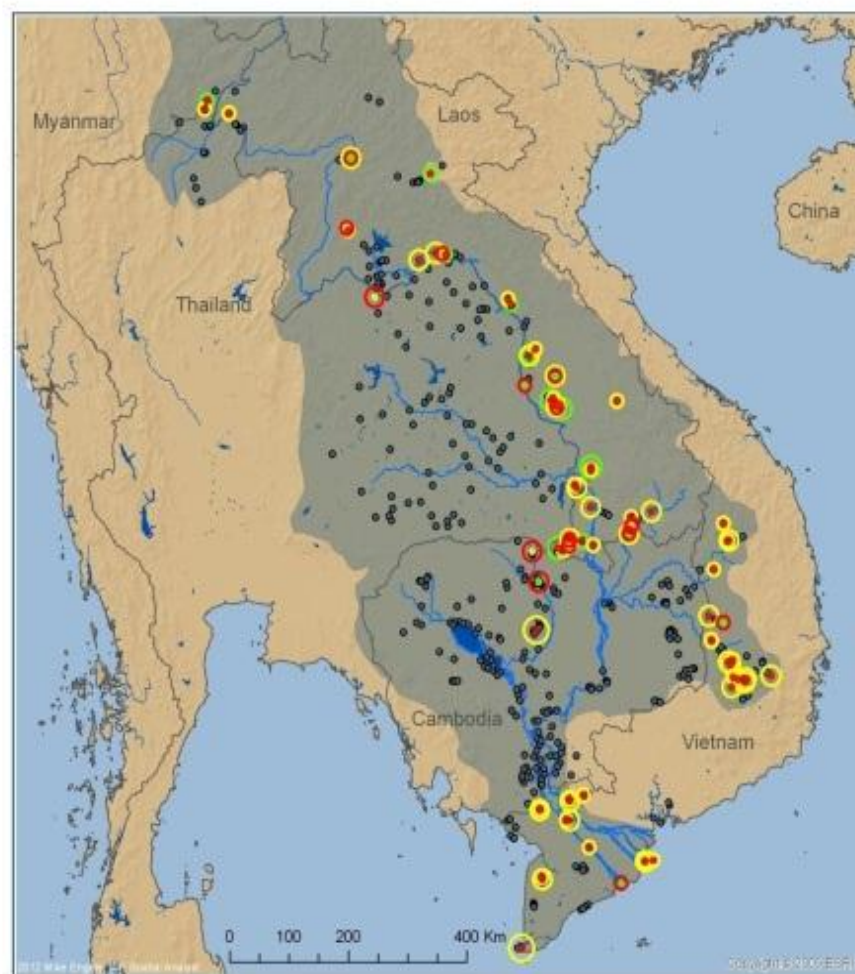
HCB



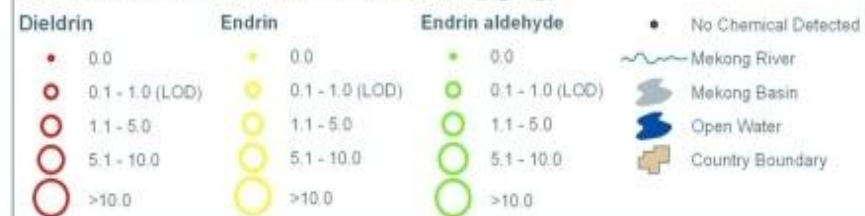
Amount of Endosulfan Detected ($\mu\text{g/kg}$)



Endosulfan



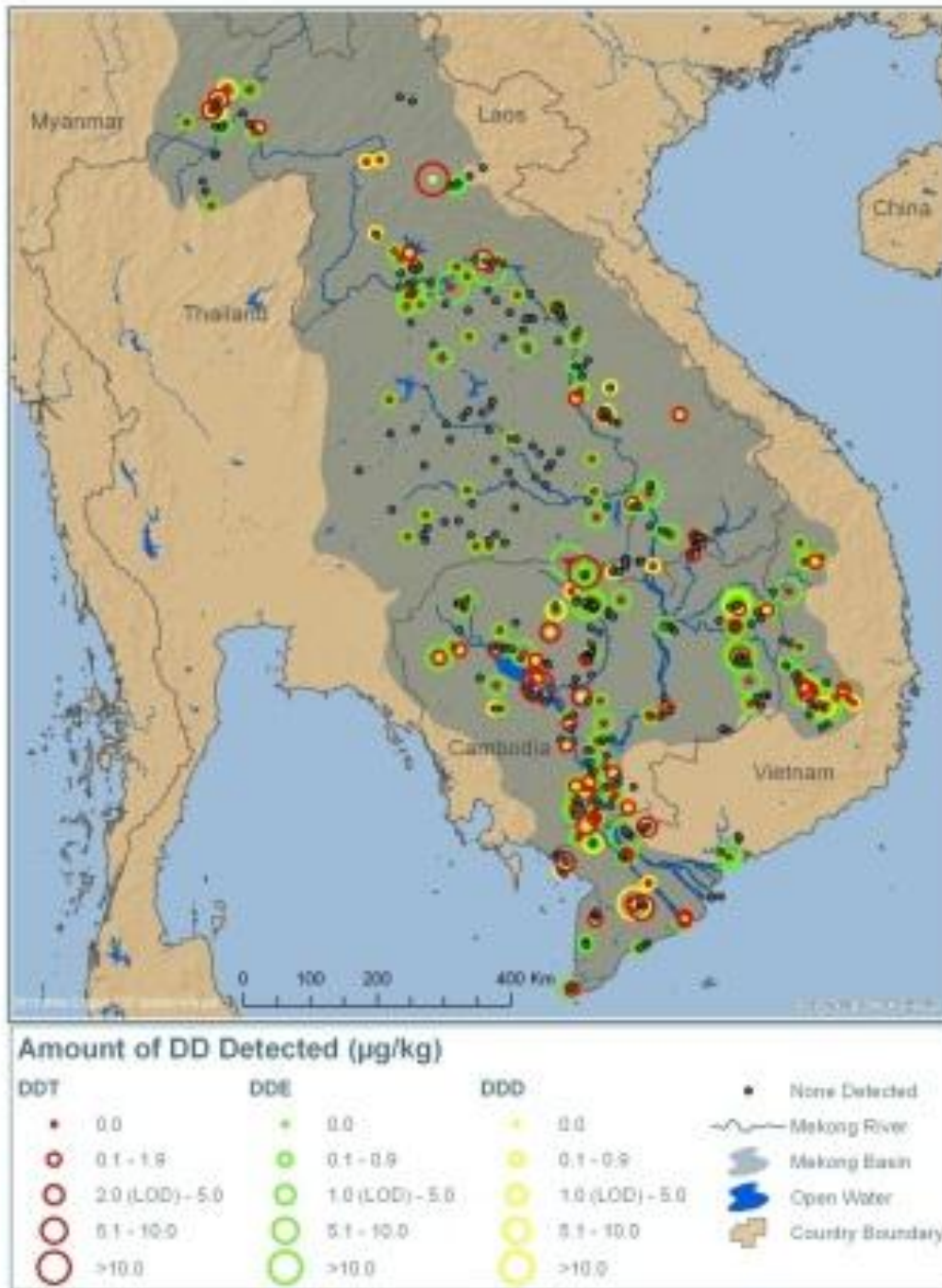
Amount of Endrin - Dieldrin Detected ($\mu\text{g/kg}$)



Endrin - Dieldrin

Recommendations for future research

- Impacts of POPs on wildlife & human
- Identification & Analysis of POPs at 'Hotspots' and impacts on ecosystem services
- POP residues and their links with land uses, hydrology



DDT & its derivatives
- the biggest problem

Basin-wide Research Collaboration

*** (2010 - present) ***

Surface Elevation Table (SET)

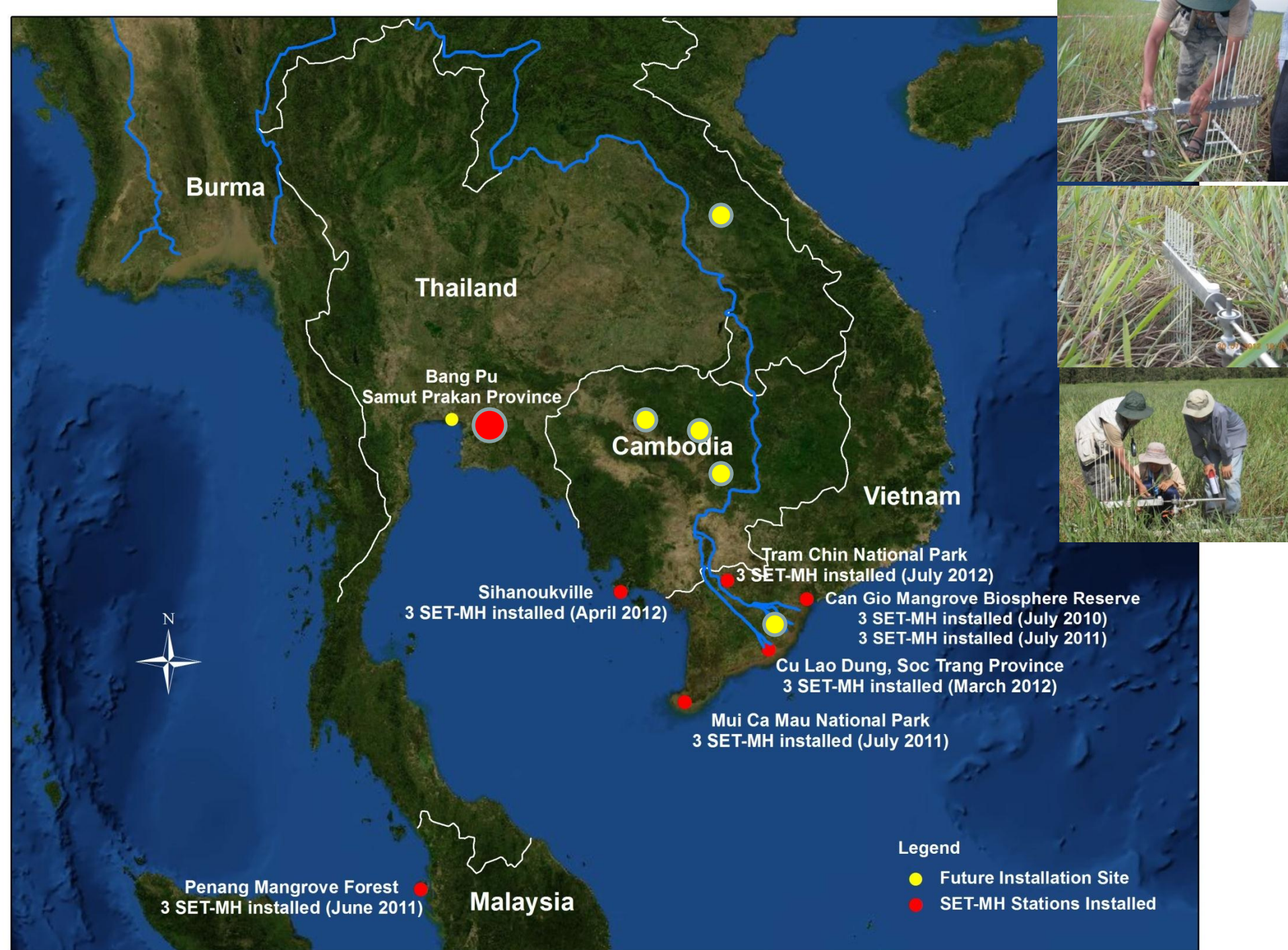
Instrument Installation, Data Collection, and
Surface Elevation Change Monitoring
in the Mekong River Basin and Southeast Asia

Partnership : 6 universities (UNS, CTU, MU, MSU, RUA, USM) + ICF;
USGS Patuxent Wildlife Research Center; U.S. Dept. of State; others

Goal : Create a baseline for long-term monitoring of surface elevation
change in the Mekong River Basin and coastal areas of SE Asia

Activities : (a) Special lectures; (b) Practical trainings - research/field
methods of SET installation and data collection; (c) Survey & selection
of monitoring sites; (d) SET installation in Vietnam, Cambodia, Malaysia
and Thailand; (e) Data collection; (f) Development of database and data
sharing; (g) Long-term monitoring of surface elevation change in SE Asia

Data sharing : SET data from the 1st station in Thailand (Ban Khun Samut
Chin, Samut Sakhon, Chao Phraya Delta) - available online at
<http://www.en.mahidol.ac.th/wetland/wmrct.html#activities>



Regional research projects



- » EU-Asialink Project on **Urban Ecosystem Management** : UNS (Vietnam), MU (Thailand), University of Salzburg (Austria) and University of Helsinki (Finland)
- » Establishing several **research groups** e.g. Mimosa Group, Mekong Fish Group, Hydrology Group (on-going)
- » **Botanical study** of the family Zingiberaceae : UNS, NUOL, RUPP
- » Bamboos of Cambodia, Laos, Vietnam : UNS, RUPP, NUOL
- » Establishment of **a network of botanists** : Cambodia, Laos, Malaysia, Myanmar, Thailand, Vietnam
- » Distribution and ecological impacts of the **invasive alien species** e.g. *Mimosa pigra* in the lower Mekong basin
- » Inventory & assessment of wetlands for Sarus Crane re-introduction in Thailand : UNS, ICF, MU, MSU
- » Many others

Academic Collaboration

- At the PhD level, Mahidol - An Giang - Can Tho Universities since academic year 2013 : a **PhD research** on 'Vulnerability to Saline Intrusion and Adaptation Options for Rice and Fish Farming Households in the Mekong Delta of Vietnam'
- Exchange/Visits of lecturers, researchers at the Faculty & University levels
- Regional scientific conferences and consultations

1st Alumni Conference
19-21 June 2009
Siem Reap,
Cambodia



Network's CEO, Office & Contact Address



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Thank You