



# 3<sup>rd</sup> SUMMIT

Siem Reap, Cambodia | 2-5 April 2018

ONE MEKONG ONE SPIRIT

## MRC INTERNATIONAL CONFERENCE

Enhancing Joint Efforts and Partnerships  
towards Achievement of the SDGs  
in the Mekong River Basin

2-3 April 2018 | Siem Reap, Cambodia



*The MRC is funded by contributions from its Member Countries and development partners including Australia, Belgium, European Union, Finland, France, Germany, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United States and the World Bank.*



The Mekong River Commission (MRC) is an intergovernmental organisation that works with the governments of Cambodia, Lao PDR, Thailand and Viet Nam to manage the shared water and related resources of the Mekong River for the sustainable development of the Mekong region. It is founded by the Mekong Agreement of 1995, building on previous cooperation through the Mekong Committee established in 1957.

Hence with more than 60 years of experience, the MRC serves today as a unique platform for water diplomacy and regional cooperation in which member countries share the benefits of common water resources. It also acts as a regional knowledge hub on water resources management that helps to inform decision-making processes based on scientific evidence. Overall, the MRC is an established organisation with a clear mandate, procedures, strategies, guidelines and knowledge products that help ensure the Mekong is utilised for the countries' benefits and the peoples' well-beings.

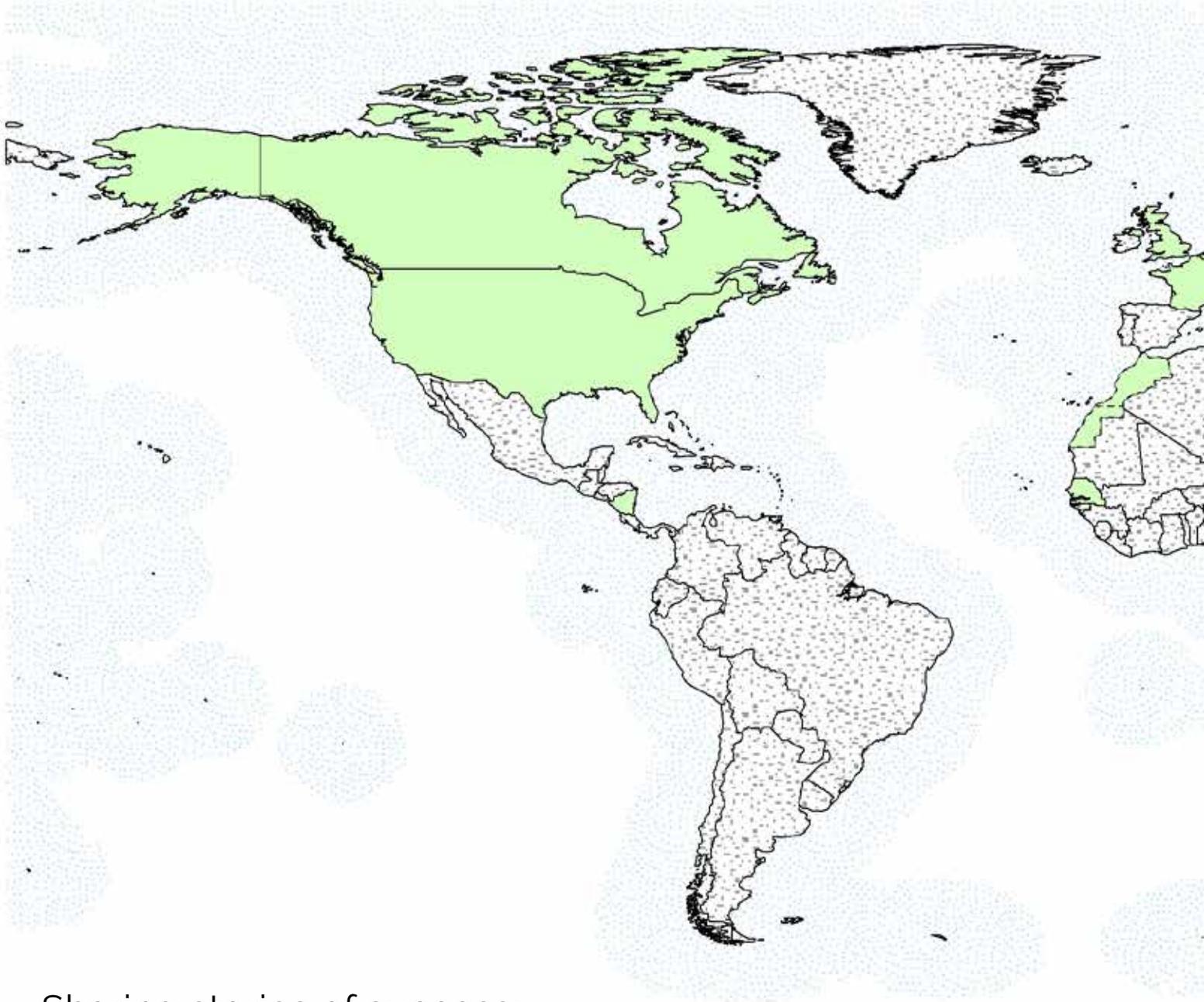
The MRC Summit is convened every four years, bringing together political leaders to address the prevailing challenges and opportunities facing the Mekong Basin.

This third Summit, which focuses on the theme 'Enhancing Joint Efforts and Partnerships towards Achievement of the Sustainable Development Goals in the Mekong River Basin', is hosted by the Kingdom of Cambodia and held on 5 April 2018 following a preparatory Ministerial Meeting on 4 April and an International Conference of stakeholders on 2-3 April 2018.

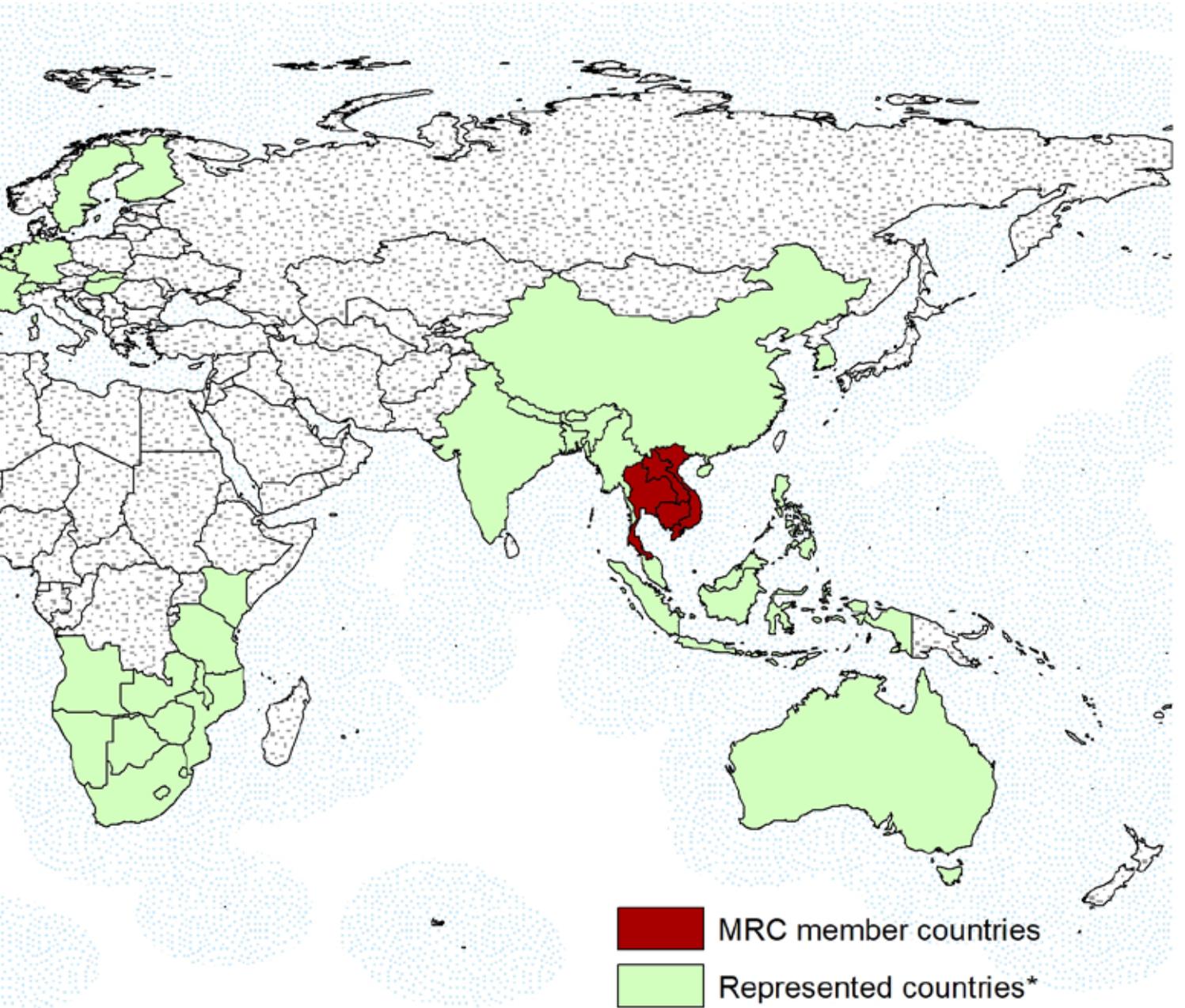
The International Conference provides an opportunity for the MRC and stakeholders from the riparian countries, NGOs, academia, regional/international organisations, the private sector, and other river basin organisations to exchange perspectives, best practices and cutting-edge ideas.

Leading towards the Summit, the International Conference addresses opportunities and challenges of the Mekong basin to enhance joint efforts and partnerships towards the achievement of the Sustainable Development Goals (SDGs) in the region. Through participatory process, the Conference ends with a set of key messages that will be delivered to the Ministerial Meeting and the Summit.

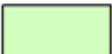
**Dr. Pham Tuan Phan,**  
*Chief Executive Officer*



Sharing stories of success:  
Experiences from around the world



 MRC member countries

 Represented countries\*

\*based on participant's residence and examples presented at the Conference

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# Conference agenda



## AGENDA (AS OF 27 MARCH 2018)

The MRC International Conference, 2-3 April 2018

### ‘Enhancing Joint Efforts and Partnerships towards Achievement of the SDGs in the Mekong River Basin’

**Conference master of ceremony and coordinator:** Dr. Anoulak Kittikhoun, Chief Strategy & Partnership Officer, Mekong River Commission Secretariat (MRCS), with support from Mr. Santi Baran, MRCS and Ms. Denise Staubli, MRCS/SDC

**Conference facilitator:** Prof. David Grey, Oxford & Tsinghua Universities and former Senior Water Advisor, World Bank

#### DAY 1 - APRIL 2

7.30 Registration

#### WELCOME SESSION

8.15 **Welcome remarks (5’)** by H.E. Mr. Khim Bun Song, Governor, Siem Reap  
**Message about the International Conference (5’)** by Dr. Pham Tuan Phan, Chief Executive Officer, MRC  
**Opening statement (10’)** by H.E. Mr. Lim Kean Hor, MRC Council Member for Cambodia and Minister of Water Resources and Meteorology

8.45 **Conference objectives and structure (5’)** by Conference coordinator and facilitator

8.50 **Significant achievements, developments, opportunities and challenges for the MRC and Mekong in the last four years (15’)** by Prof. David Grey, Oxford & Tsinghua Universities and former Senior Water Advisor, World Bank

9.10 **Coffee break** \***Brief tour of Conference Exhibition by Minister, Governor, JC Chair and CEO\***

#### OPENING SESSION: MEKONG DEVELOPMENTS, OPPORTUNITIES AND CHALLENGES

Chair: H.E. Mr. Te Navuth, Chair of the MRC Joint Committee

MRCS rapporteur: Ms. Duong Hai Nhu, MRCS

9.40 **Reflection from a panel of senior government officials of the Mekong River Basin countries (30’)**

- *H.E. Mr. Te Navuth, Secretary General of the Cambodia National Mekong Committee and Chair of the MRC Joint Committee, Cambodia*
- *Dr. Inthavy Akkharath, Director General, Department of Water Resources, Ministry of Natural Resources and Environment, Lao PDR*
- *Mr. Worasart Apaipong, Director General, Department of Water Resources, and Secretary General, Thai National Mekong Committee, Thailand*
- *Dr. Le Duc Trung, Director General of the Viet Nam National Mekong Committee, Ministry of Natural Resources and Environment, Viet Nam*
- *Mr. Li Hong, Permanent Representative of China to ESCAP and focal point for MRC, China*
- *Dr. Pham Tuan Phan, Chief Executive Officer, MRC*

10.20 **Keynote 1: A matter of survival – Vision for water cooperation from the Chairman of the Global High Level Panel on Water and Peace (15’)** by H.E. Dr. Danilo Türk, Chair of Global High Level Panel on Water and Peace and former President of Slovenia and former Assistant Secretary General, United Nations Department of Political Affairs

10.40 **Keynote 2: Achieving the SDGs in a transboundary river basin through joint efforts and partnerships – International experiences, and opportunities for the Mekong basin (15’)** by Mr. Takuya Kamata, Practice Manager, Global Water Practice, World Bank

11.00 **Keynote 3: Lancang-Mekong Cooperation and Mekong River Commission – Opportunities, synergies and collaboration for the sustainable development and management of the whole Lancang-Mekong Basin (15’)** by Dr. Zhong Yong, Secretary-General of the Lancang-Mekong Water Resources Cooperation Center

11.20 **Keynote 4: MRC’s achievements and efforts in addressing Mekong opportunities and challenges towards achieving the SDGs (15’)** by Dr. Anoulak Kittikhoun, Chief Strategy and Partnership Officer, Mekong River Commission Secretariat

11.40	Q&A and discussion (20')	
12.00	Introduction to Session 1 by Conference facilitator	
12.10	Lunch	
<b>SESSION 1: FROM ASSESSMENTS TO ACTIONS</b>		
	<p><b>Session 1a: Optimizing regional benefits and minimizing adverse impacts</b></p> <p>Chair: Dr. Naruepon Sukumasavin, Director of Administration, MRCS</p> <p>Session 1a facilitators: Ms. Thi Thanh Yen Ton Nu, Navigation Specialist, MRCS, and Dr. John Dore, Senior Water Expert, Australian Department of Foreign Affairs and Trade</p> <p>MRCS rapporteurs: Mr. Rattykone Sayasanem, MRCS, and Ms. Chamaporn Paiboonvorachat, MRCS</p>	<p><b>Session 1b: Addressing climate change, drought and flood</b></p> <p>Chair: Mr. Bountieng Sanaxonh, Director of Technical Support, MRCS</p> <p>Session 1b facilitators: Dr. Janejira Chuthong, Chief Hydrologist, MRCS, and, Ms. Maria Koenig, MRC-GIZ Advisor</p> <p>MRCS rapporteurs: Dr. Sothea Khem, MRCS, and Dr. Anne Chaponniere, MRC-GIZ Advisor</p>
13.15	Introduction by Session 1a chair	Introduction by Session 1b chair
13.20	<p><b>Latest Basin-wide impact assessments: the MRC Council Study and others</b></p> <p>Mekong sediments (10') by Ms. Sopheap Lim, Modeller, MRCS</p> <p>Environmental impacts of water resources development (10') by Dr. So Nam, Chief Environment Management Officer, MRCS</p> <p>Social, economic and cumulative impact assessment of water resources development (10') by Ms. Nguyen Thi Ngoc Minh, Socio-Economic Specialist, MRCS</p> <p><b>Questions and Answers (15')</b></p> <p>Lancang-Mekong Development Plan Environmental Study – Findings and conclusions (10') by Dr. Jeremy Carew-Reid, Director General, International Center for Environment Management (ICEM)</p> <p>Lancang-Mekong navigation plans – Perception and reality (10') by Mr. Jacques Dezeure, Waterway Expert</p> <p>Nam Kong – Forgotten river of Myanmar and future international navigation improvement (10') by Mr. Win Naing Tun, Director and Principal Consultant, Myanmar Environment Institute</p> <p><b>Questions and Answers (15')</b></p>	<p><b>Latest climate, flood and drought assessments and actions</b></p> <p>MRC assessments on floods, droughts and climate change (20') by Mr. Oudomsack Philavong, MRCS Advisor, and Dr. Cong Nguyen Dinh, Climate Change Adaptation Specialist, MRCS</p> <p>MRC Actions on flood, drought and climate change adaptation: Joint projects, strategies and action plans (20') by Dr. Thim Ly, Chief River Basin Planner, and Mr. Ix Hour, Drought Technical Coordinator, MRCS</p> <p>Where does the effort go? A review of the contribution from international and regional players to flood and drought adaptation in the Mekong River Basin (10') by Dr. Nguyen Huong Thuy Phan, Academic Coordinator and Head of SEA Region, Development Policies and Practices Executive Master Program, Graduate Institute Geneva</p> <p><b>Questions and Answers (30')</b></p>
15.00	<p>Coffee break</p> <p><b>*Poster presentations at the Conference Exhibition*</b></p> <p>Facilitators: Dr. Prayooth Yaowakhan, Ecosystem &amp; Wetland Specialist, MRCS, and Dr. Dao Thi Ngoc Hoang, Water Quality Officer, MRCS</p>	
16.00	<p><b>Reflection and implications of the MRC Council Study and others</b></p> <p>Reflection on MRC Council Study Reports (15') by Dr. Zhiliang Zhu, United States Geological Survey (USGS)</p>	<p><b>Good experiences and innovations from other partners/basins</b></p> <p>The ASEAN Specialised Meteorological Centre – A regional collaboration for improved weather and climate services in Southeast Asia (10') by Dr. Thea</p>

**Reflection on MRC Council Study: An assessment of the results and conclusions of selected reports (15')** by Dr. Chayanis Krittasudthacheewa, Deputy Director & SUMERNET Programme Manager, Stockholm Environment Institute (SEI) Asia Center, Bangkok, Thailand

**Uptaking the Council Study in the MRC work: High-level dissemination, State of Basin Report, Sustainable Hydropower Development Strategy (20')** by Mr. Suthy Heng, Regional Technical Advisor, MRCS, and Mr. Palakorn Chanbanyong, Sustainable Hydropower Specialist, MRCS

**Facilitated panel-participant discussion (50')**

- *H.E. Mr. Watt Botkosol, Deputy Secretary General, Cambodia National Mekong Committee, Cambodia*
- *Dr. Inthavy Akkharath, Director General, Department of Water Resources, Ministry of Natural Resources and Environment, Lao PDR*
- *Dr. Wenling Wang, Yunnan University, China*
- *Mr. Gary Lee, Partnerships and Policy Advisor, Mekong Regional Water Governance Program, Oxfam*
- *Dr. Michael Roy, Senior Technical Advisor, Smart Infrastructure Program, Department of the Interior, United States*
- *Dr. Dao Trong Tu, Deputy Director, Centre for Sustainable Water Resources Development and Adaptation to Climate Change (CEWAREC), Viet Nam*

Turkington, Research Scientist, Centre for Climate Research, Meteorological Service Singapore

**Robust adaptation strategies to address a +4C world (10')** by Mr. Niall O'Connor, Stockholm Environment Institute (SEI) Asia Center, Bangkok, Thailand

**Flood forecast of Han River Flood Control Office (10')** by Dr. Ji Youn Sung, Han River Flood Control Office, Ministry of Land, Infrastructure and Transport, Republic of Korea

**Using flood-based livelihoods to restore the flood retention ecosystem function of the Mekong Delta, Vietnam (10')** by Dr. Andrew Wyatt, Mekong Delta Program Manager, IUCN Vietnam

**Evaluation of water balance process in dry season for the rainfed areas in Thailand: Case study from 2016 to 2018 (10')** by Mr. Laonamsai Jeerapong, Civil Engineer, Practitioner Level, Water Crisis Prevention Center, Department of Water Resources, Thailand

**Facilitated panel-participant discussion (50')**

- *Dr. Lam Hung Son, Head of Regional Flood Management and Mitigation Center, MRCS*
- *H.E. Mr. Pohn Sachak, Director General of the Technical Affairs, Ministry of Water Resources and Meteorology, Cambodia*
- *Dr. Provas Mondal, Humanitarian and Resilience Manager, Oxfam Laos*
- *Dr. Muhibuddin Usamah, Project Manager, Strengthening Climate Information and Early Warning System in Cambodia, United Nations Development Programme*

17.50 **Closure of Session 1a** by Session 1a chair

**Closure of Session 1b** by Session 1b chair

**Special Session Day 1: Underlying data and information systems in the Mekong and other river basins**

Chair: Mr. Chanthanet Boualapha, Secretary General of the Lao National Mekong Committee

Special session facilitator: Dr. Henry Manguerra, Vice President, Atkins, a member of the SNC-Lavalin Group

MRCS rapporteur: Dr. Kritsana Kityuttachai, MRCS and Mr. Nuon Vanna, MRCS

16.00 **Introduction** by Special session chair

16.05 **Use of water monitoring information and data for Mekong Basin management and development (10')** by Mr. Vongthasone Vilaythong, Information System and Database Specialist, MRCS, and Dr. Paradis Someth, Water & Climate Monitoring Specialist, MRCS

**Improving data for water resources management (10')** by Mr. Suparerk Janprasart, Coordinator of the LMI Sustainable Infrastructure Partnership Program, and Ms. Christy Owen, Country Director, PACT Thailand

**Integrated water resources management in K-water: Example of a drought risk management by multi-purpose dam (10')** by Dr. Su-Hyung Jang, Principal Researcher, Water Resources Research Center, K-water Institute, Republic of Korea

**Water information systems – The art of the possible (10')** by Prof. Robert Vertessy, former Director, Australia's Bureau of Meteorology

**Using satellite data for land and water management – Digital Earth Australia and Open Data Cubes (10')** by Mr. Norman Mueller, Director of Product Development for Digital Earth Australia, Geosciences Australia

**Facilitated panel-participant discussion (50')**

- Prof. Fuqiang Tian, Department of Water Resources and Hydropower Engineering, Tsinghua University, China
- Dr. Paradis Someth, Water & Climate Monitoring Specialist, MRCS
- Dr. Winai Wangpimool, Civil Engineer, Senior Professional Level, Bureau of International River Basin Management, Department of Water Resources, Thailand
- Dr. Nguyen Anh Duc, Senior Officer, Viet Nam National Mekong Committee
- Ms. Siv Vatana, Editor-Researcher, Open Development Cambodia (ODC)

17.50 Closure of Special Session by Special session chair

**CLOSURE OF DAY 1**

18.00-19.00 Reception and cocktails hosted by the Chairman of the MRC Joint Committee for the participants of the International Conference

**DAY 2 - APRIL 3**

08.30 Opening of Day 2 with the expectations for Day 2 by Conference facilitator

8.40 Statement (10') by Ms. Tiziana Bonapace, Director, Information and Communications Technology and Disaster Risk Reduction Division, UN ESCAP

8.55 Statement (10') by Mr. Sanjay Mathur, Regional Director, UNOPS Asia

**Wrap-up of session 1**

9.10 Report from Session 1a (10') by Session 1a facilitator  
 Report from Session 1b (10') by Session 1b facilitator  
 Report from Special Session Day 1 (10') by Special session facilitator  
 Questions, additions, comments (15')

10.00 Coffee break **\*MoA Signing Ceremony with UN ESCAP\***

**SESSION 2: STRENGTHENING MANAGEMENT, DEVELOPMENT AND COOPERATION REGIMES**

**Session 2a: Monitoring and management of development projects in the Mekong and other basins**

Chair: Mr. Worasart Apaipong, Director General, Department of Water Resources, Thailand  
 Session 2a facilitators: Dr. So Nam, Chief Environment Management Officer, MRCS and Ms. Duong Hai Nhu, Stakeholder Specialist, MRCS  
 MRCS rapporteurs: Ms. Nguyen Thi Ngoc Minh, MRCS and Dr. Prayooth Yaowakhan, MRCS

**Session 2b: Strengthening Mekong cooperation and partnerships**

Chair: Ms. Nguyen Hong Phuong, Deputy Director General of the Viet Nam National Mekong Committee  
 Session 2b facilitators: Dr. Anoulak Kittikhoun, Chief Strategy & Partnership Officer, MRCS, Prof. Richard Paisley, University of British Columbia and UN Expert on transboundary water management, and Prof. David Grey, Oxford & Tsinghua Universities and former Senior Water Advisor, World Bank  
 MRCS rapporteurs: Dr. Thim Ly, MRCS and Dr. Piriya Uraiwong, MRCS

10.30 Introduction by Session 2a chair

Introduction by Session 2b chair

**10.35 Procedures, guidelines and standards**

The five MRC water utilisation procedures: A sound basis for water diplomacy and transboundary water management and cooperation (10') by Dr. An Pich Hatda, Director of Planning, MRCS  
 Sustainable development of multipurpose projects in the Mekong and Rhone Basins (10') by Mr. Jérôme Mentre, Project Manager, CNR representative in Viet Nam, CNR France

**Legal foundation of cooperation**

Strengthening the 1995 Mekong Agreement (10') by Dr. Pham Tuan Phan, CEO, MRC  
 Benefits and challenges for the Lower Mekong countries deriving from the 1997 UN Watercourses Convention (10') by Dr. Alejandro Iza, Director of the IUCN Environmental Law Centre, Bonn, Germany

Importance of trans-boundary impact assessment and joint monitoring in sustainable management of the Mekong River Basin (10') by Dr. Truong Hong Tien, Director of Environment Management, MRCS

Strategic Environmental Assessment (SEA): Comparative analysis in the GMS countries and implications for SDGs (10') by Mr. Thy Try, Executive Director, and Mr. Aliaksei Patonia, Research Intern, Open Development Cambodia

Linkage of transboundary Mekong water governance and livelihood of community in 3S rivers in Cambodia (10') by Mr. Leang Bunleap, Executive Director, 3S Rivers Protection Network

Questions and Answers (30')

Beyond international water law – Successfully negotiating mutual gains agreements for international watercourses (10') by Prof. Richard Paisley, University of British Columbia and UN Expert on transboundary water management

Facilitated panel-participant discussion (50')

- Madame Do Hong Phan, Senior Institutional Expert, Viet Nam
- Mr. Kanya Khammoungkhoun, Deputy Director General, Department of International Organisation, Ministry of Foreign Affairs, Lao PDR
- Dr. Marko Keskinen, Lecturer, Aalto University, Finland
- Mr. Voradeth Phonekeo, MRCS Advisor

12.15 Lunch

13.15 Cases

Learning from the M-IWRM Communication Outreach between the Tonle Sap and Songkhla Lake basins (10') by H.E. Mr. Hell Tony, Secretary General, and Mr. Sen Viseth, Director of Exploitation Control and Conservation Department, Tonle Sap Authority, Cambodia

Emfuleni municipality partnership project on water conservation and demand management (10') by Mr. Lenka Thamae, Executive Secretary, Orange-Senqu River Commission (ORASECOM)

Facilitated panel-participant discussion (50')

- Dr. Truong Hong Tien, Director of Environment Management, MRCS
- Ms. Maureen Harris, Southeast Asia Program Director, International Rivers
- Dr. James Dalton, Coordinator Global Initiatives, IUCN Global Water Programme
- Ms. Thi Dieu My Pham, Director, the Centre for Social Research and Development (CSRSD)
- Mr. Senglong Youk, Deputy Executive Director, Fisheries Action Coalition Team (FACT, Cambodia)

Collaboration with other regional mechanisms and frameworks

Some bi- and multi-lateral institutions relating to the Mekong cooperation and recommendations to synergize, by Mr. Nguyen Nhan Quang, Former Director, Centre for Promotion of Integrated Water Resources Management

Views from ASEAN on ongoing and future cooperation with other regional mechanisms and the MRC (10') by Representative from ASEAN (tbc)

Views from the GMS/ADB on current and future alignment and cooperation with other regional mechanisms and the MRC (10') by Dr. Jiangfeng Zhang, Director of Agriculture and Natural Resources, Asian Development Bank, Manila

Facilitated panel-participant discussion (50')

- Dr. Pham Tuan Phan, CEO, MRC
- Dr. Aaron Salzberg, Bureau of Oceans, Environment and Science, Department of State, US
- Mr. Nguyen Nhan Quang, Former Director, Centre for Promotion of Integrated Water Resources Management
- Dr. Zhijian Wang, Associate Professor of School of Law, Hohai University and Adjunct Professor of Hopkins-Nanjing Center

14.50 Closure of Session 2a by Session 2a chair

Closure of Session 2b by Session 2b chair

### Special Session Day 2: Integrated water and energy planning – Pathways for sustainable hydropower and other renewables

Chair: H.E. Mr. Te Navuth, Secretary General of the Cambodia National Mekong Committee

Special session facilitator: Mr. Simon Krohn, MRCS Advisor

MRCS rapporteurs: Mr. Palakorn Chanbanyong, MRCS and Dr. Phattareeya Suanrattanachai, MRCS

13.15 Introduction by Special session chair

13.20 Changing dynamics of power trade in South Asia: Implications for hydropower development (10') by Dr. Sagar Prasai, Country Representative, the Asia Foundation, India

Repositioning hydro operations and electricity supply in a dynamic energy sector (10') by Mr. James E Mason, International Business Development Manager, Entura-Hydro Tasmania

Southern African power pool – Cross-border partnership in planning and operation (10') by Mr. William Derbyshire, Director for Asia, Economic Consulting Associates (ECA)

Enhancing regional water cooperation through clean energy transition (10') by Mr. Brian Eyler, Stimson Center and Mr. Jake Brunner, IUCN

#### Facilitated panel-participant discussion (50')

- Dr. An Pich Hatda, Director of Planning, MRCS
- Representative, Department of Energy Policy and Planning, Ministry of Energy and Mines, Lao PDR
- Mr. Pen Somony, Executive Director, Cambodian Volunteers for Society (CVS)
- Ms. Hyunjung Lee, Senior Energy Economist, Southeast Energy Division, Asian Development Bank (ADB), Hanoi, Viet Nam

14.50 Closure of Special Session by Special session chair

15.00 Coffee break **\*MoA Signing Ceremony with UNOPS\***

#### Wrap-up of session 2

15.30 Report from Parallel Session 2a (10') by Session 2a facilitator

Report from Parallel Session 2b (10') by Session 2b facilitator

Report from Special Session Day 2 (10') by Special session facilitator

Questions, additions, comments (15')

#### FINAL SESSION

Chair: Dr. Pham Tuan Phan, Chief Executive Officer, Mekong River Commission

Conference facilitator

MRCS Rapporteurs: Ms. Vu Thu Hong, MRCS, and Mr. Somsanith Ninthavong, MRCS

16.20 Key messages from the Conference to the Summit (45') by Conference facilitator

17.10 Final thoughts 1 (10') by Ms. Gisela Hammerschmidt, Director for Asia, Federal Ministry of Economic Cooperation and Development, Germany

Final thoughts 2 (10') by Dr. Pham Tuan Phan, Chief Executive Officer, Mekong River Commission

Closing remarks (10') by H.E. Mr. Te Navuth, Chair of the MRC Joint Committee

## CLOSURE OF DAY 2

18.00 Side event (for MRC only)

**The Mekong River Commission 20/20: Looking back into the last 20 years, and vision for the next 20 years: A side event of former MRC leaders**

Conference master of ceremony,  
coordinators, facilitators and chairs



## Conference coordinator, master of ceremony and facilitator

Dr. Anoulak Kittikhoun, *Chief Strategy & Partnership Officer, MRCS*

Dr. Anoulak Kittikhoun is the Chief Strategy and Partnership Officer of the MRCS, where he leads the organisation's work on strategic planning, international cooperation, communication and stakeholder engagement, monitoring and evaluation, decentralisation, gender, and organizational reform. He successfully led the formulation and adoption of the Mekong Basin Development Strategy 2016-2020, the MRC Strategic Plan 2016-2020 and the National Indicative Plans 2016-2020. He served as Team Leader of the MRC's Basin Development Plan Programme from 2012-2016.

Before joining MRC, he was an international staff of the United Nations Secretariat in New York, including the Department of Political Affairs (DPA) and the Department of Economic and Social Affairs (DESA). Earlier in his career, he had been a researcher at the Ralph Bunch Institute for International Studies, an adjunct professor of international relations at Brooklyn College of New York, and an advisor at the Permanent Mission of Laos to the United Nations.

A Lao national, he received his bachelor's degree, graduating as an International Valedictorian, from the Australian National University, and his Master and Doctor of Philosophy from the Graduate Center of the City University of New York, in consortium PhD Program with New York University and Columbia University.

A political scientist by training, he has published peer-reviewed articles and book chapters on the United Nations, conflict management, Laos, political geography, the Mekong and MRC. His article on the Lao revolution and geography won best award from the American Sociological Association.



## Conference assistant coordinator

Mr. Santi Baran, *M&E Specialist, MRCS*

Mr. Santi Baran is the Monitoring and Evaluation (M&E) Specialist and member of the Strategic Planning Team of the MRCS. In addition to M&E, he is an expert in organisational development (OD), planning, systems analysis, capacity development and information technology. Mr. Santi's OD experience ranges from the development of tools and consultancy in Project Cycle Management, Results-based M&E, Logical Framework, and Theory of Change development. He received his Bachelor in Management Information System from Monash University and Master in Organization Development from Assumption University.



## Conference assistant coordinator

Ms. Denise Staubli, *Seconded to MRCS by the Swiss Agency for Development and Cooperation (SDC)*

Ms. Denise Staubli has been working for the Office of the CEO at the MRCS, in Vientiane, Lao PDR since April 2017 – mainly on the MRC decentralisation process of river monitoring related activities and partnership issues. As part of her trainee programme at the Swiss Federal Department of Foreign Affairs, she was working for one year for the Global Programme Water at the SDC headquarters in Bern, Switzerland before being seconded to the MRCS. At the MRCS, Denise has developed knowledge on water resources planning and management and many aspects of MRC work including basin wide monitoring, flood forecasting, water diplomacy, prior consultation on major infrastructure projects, institutional development and coordination, etc. Denise received her Bachelor of Arts in Social Science – Social & Cultural Anthropology and Economics – from the University of Zurich, and her interdisciplinary Master of Science in Sustainable Development from the University of Basel.



## Conference facilitator

Prof. David Grey, *Oxford & Tsinghua Universities and former Senior Water Advisor, World Bank*

Professor David Grey has worked on water issues for over 45 years in many parts of the world, including 15 years of residency in Asia and Africa. As staff member, he was working for the World Bank for 27 years up to 2009. In his last position, he was serving as the Bank's Senior Water Advisor, leading the global water practice. He has a special interest in dispute resolution and cooperation on international waters. He is currently a Visiting Professor at the Universities of Oxford and Exeter in the United Kingdom and Tsinghua University, Beijing, China, building capacity and promoting water policy- and practice-relevant research. He has served on many committees and boards (including in a MRCS Independent Panel of Experts), and continued to do so, including on the IWMI Board, the IIASA Steering Committee and the Institute for Water Policy (Singapore) Advisory Panel.



## Session 1a facilitator

Ms. Thi Thanh Yen Ton Nu, *Navigation Specialist, MRCS*

Ms. Thi Thanh Yen Ton Nu was reassigned to work in MRCS as the Navigation Operation Specialist in 2016.

From 2013 to 2015, Ms. Yen was the Navigation Programme Manager at MRCS to implement the Navigation Programme based on the development objective of the Navigation Action Plan Strategy, i.e. “to promote freedom of navigation and increase the international trade opportunities for the MRC member countries’ mutual benefit, and to assist in coordination and cooperation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment”.

From 1998 to 2012, Ms. Yen worked for the Vietnam Inland Waterways Administration (VIWA) – an organisation that was given the mandate to supervise, manage and maintain the inland waterway system in Vietnam, keeping statistics of the inland waterway transport sector, attached to the Ministry of Transport of Vietnam.



## Session 1a facilitator

Dr. John Dore, *Senior Water Expert, Australian Department of Foreign Affairs and Trade*

Dr. John Dore is the Senior Water Resources Specialist for Australia’s Department of Foreign Affairs and Trade (DFAT), based in Bangkok, working primarily across East Asia and South Asia. Prior roles include leading the IUCN Asia Water Program and the M-POWER (Mekong Program on Water Environment and Resilience) governance network. John is also an Associate Professor – Visiting Fellow at Australian National University (ANU) Fenner School, an associate of University of Canberra’s Centre for Deliberative Democracy and Global Governance, and serves on the editorial board of Water Alternatives.



## Session 1b facilitator

Dr. Janejira Chuthong, *Chief Hydrologist, MRCS*

Janejira holds a Ph.D. in the course of water use system engineering from Japan and a Master's degree in irrigation engineering and a Bachelor's degree in irrigation/civil engineering from Thailand.

A Chief Hydrologist for the Technical Support Division at the MRCS, Dr. Janejira works as the lead technical staff for the Division. She supervises all activities and tasks related to hydrology and hydrological monitoring, work associated with modelling and flood forecasting activities as well as information/database system. She specializes in water resources management/development, hydrology, modelling, flood forecasting and monitoring, etc.

Before joining the MRCS, Dr. Janejira was working for a private company as a senior water resources specialist. She has extensive experience gained from a number of projects conducted in the Lower Mekong Region. She was also working as a lecturer for the Department of Agricultural Engineering, Faculty of Engineering, Khon Kaen University, Thailand.



## Session 1b facilitator

Ms. Maria Koenig, *GIZ Advisor to MRCS*

Ms. Maria Koenig has been working on transboundary water management at the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH since 2009. She currently works as an advisor to the MRC based at the Secretariat in Vientiane, Laos. In that capacity, she inter alia supports the development and uptake of MRC tools, guidelines and strategies for sustainable hydropower development including the Rapid Basin-wide Hydropower Sustainability Assessment Tool (RSAT) and supports the strengthening of MRC's water diplomacy function, e.g. during the prior consultation process for proposed hydropower projects. Before coming to Southeast Asia, she was working for five years in Central Asia as an advisor and team leader within GIZ's Transboundary Water Management in Central Asia Programme, an initiative by the German Federal Foreign Office. Maria holds a Master of Science in International Development from Bath University, England, and is a trained systemic organisational development advisor.



## Special session 1 facilitator

Dr. Henry Manguerra, *Vice President, Atkins, a member of the SNC-Lavalin Group*

Dr. Henry Manguerra is Vice President and Principal Technical Professional of Atkins (a member of the SNC-Lavalin Group) and has more than 25 years of consulting and research experiences in water resources management, environmental protection and closely related fields. He has performed senior management and technical leadership roles on various federal, state, and municipal projects in the U.S. and on international development projects including that with the MRC ranging from agricultural development, irrigation and drainage, watershed and water quality studies, flood risk assessment, ecosystem impact assessment, urban stormwater management, climate change studies, and river basin management. Throughout his career as demonstrated by his publications and presentations record, he has developed and applied many analytical techniques and numerical models integrated with information technology and GIS to support informed planning and decision making in the water and related sectors.



## Session 2a facilitator

Dr. So Nam, *Chief Environment Management Officer, MRCS*

Dr. So Nam holds a PhD in Biology from the Catholic University of Leuven, Belgium. Having nearly 25 years of experience in fisheries and environmental monitoring, assessment, planning and management in the Mekong River Basin, Dr. So Nam currently serves as Chief Environment Management Officer at the MRCS and was a former MRCS' Fisheries Programme Coordinator from 2012 to 2016.



## Session 2a facilitator

Ms. Duong Hai Nhu, *Stakeholder Specialist, MRCS*

Ms. Duong Hai Nhu has been working at the MRCS based in Vientiane, Lao PDR since late 2013. A postgraduate in development policy with a focus on project cycle management and participatory approaches, Duong Hai Nhu has been working in the development sector for more than ten years with International Non-governmental Organisations, United Nations and currently the MRCS, where she has gained practical experience in planning, coordination and management based on participatory planning methods in the areas of livelihood and income generation, public health, law enforcement, energy, and water related resources management.



## Session 2b facilitator

Dr. Anoulak Kittikhoun, *Chief Strategy & Partnership Officer, MRCS*

See Conference coordinator



## Session 2b facilitator

Prof. David Grey, *Oxford, Exeter & Tsinghua Universities and former Senior Water Advisor, World Bank*

See Conference facilitator



## Session 2b facilitator

Prof. Richard Paisley, *University of British Columbia and UN Expert on transboundary water management*

Richard Paisley is the Director of Global Transboundary International Waters Governance Initiative and Senior Research Associate of the Institute of Asian Research / Westwater Research Centre at the University of British Columbia, in Vancouver, Canada. He supported the first MRC Regional Workshop on Water Diplomacy in 2016 and is following up at this International Conference, with the support from the United Nations Department of Political Affairs.



## Special session 2 facilitator

Mr. Simon Krohn, *MRCs Advisor*

An independent consultant working in energy, hydropower and water resources, Mr. Simon Krohn has experience in hydropower and renewable energy strategy, project feasibility and operations.

Simon has worked both in Australia and in Southeast Asia, the Pacific and Southern Africa.

For over 20 years, Simon has played a leadership role in the development of strategy for hydropower management and operation of the complex Tasmanian hydropower system prior to and post connection to the Australian National Electricity Market (NEM) including integration of wind, gas and hydropower generation in an open market environment.

Most recently Simon was working at the MRCs as Advisor to the Initiative for Sustainable Hydropower. This programme is aimed at embedding Sustainable Hydropower practices in policy, planning and implementation of hydropower in the Mekong.



## Poster presentations facilitator

Dr. Prayooth Yaowakhan, *Ecosystem & Wetland Specialist, MRCS*

Dr. Prayooth Yaowakhan has been working as an Ecosystem and Wetland Specialist under MRCS' Environmental Management Division (ED) since November 2016. He is a project focal point of KfW's Sustainable Wetland Conservation and Management in the Lower Mekong Basin. He has more than 16 years of experience in the assessment, management and monitoring of watersheds and aquatic ecosystems as well as community development, capacity building and policy analysis and review in various stakeholder-engaged projects in Thailand and other Southeast Asian countries including Lao PDR, Cambodia, Viet Nam, Myanmar and Indonesia. These have included projects funded by the United Nations Development Program and the International Finance Corporation (IFC) of the World Bank.



## Poster presentations facilitator

Dr. Dao Thi Ngoc Hoang, *Water Quality Officer, MRCS*

Dr. Dao Thi Ngoc Hoang holds a Doctor of Engineering degree in energy and environmental systems from Nagaoka University of Technology, Japan and MSc in environmental science and policy from Clark University, USA. Before working for MRC, Dr. Hoang was a faculty member at Da Nang University in central Viet Nam where she taught and conducted research in the field of environmental science, focusing on water resources, water quality analysis and monitoring, wastewater treatment technology, natural resource management, and sustainable development assessment. She has been involved in many projects and research related to water resources management and technology both in Vietnam and abroad. Currently, she is managing the water quality monitoring program in the Lower Mekong Basin which comprises four countries Cambodia, Lao, Thailand, and Vietnam.



## Opening session chair

H.E. Mr. Te Navuth, *Chair of the MRC Joint Committee*

H.E. Mr. Navuth Te is Secretary General of Cambodia National Mekong Committee Secret. His early career began in 1992 and from 1998 he has been in various senior positions, including Department Director of Hydrology and River Works at the Ministry of Water Resources and Meteorology; Deputy Secretary General of CNMC; and Technical Support Division Director at the MRCS.

He is experienced in surface and groundwater quality monitoring, hydro-meteorological network management, flood forecasting and drought monitoring and integrated water resources management. Particular expertise in the Mekong region includes transboundary river basin development and planning, water diplomacy, and organizational strategic planning.

Academically, H.E. Mr. Navuth has a dual master's degree. He holds a Master of Science in Engineering, specializing in Hydrology, and a Master of Business Administration.



## Session 1a chair

Dr. Naruepon Sukumasavin, *Director of Administration, MRCS*

Dr. Naruepon Sukumasavin's fields of expertise are fisheries resource management and biodiversity conservation. He joined the Office of the Mekong River Commission Secretariat as director of the Operations Division in March 2014 from the Thai Department of Fisheries where he had been working for more than 30 years. During July 2014 to June 2016, he led the Planning Division to support the Member Countries' cooperation in Mekong Basin Development Plan, Initiative Sustainable Hydropower and Mekong-Integrated Water Resources. Since July 2017, he has led the Administration Division of the MRC Secretariat. He oversees the implementation of core functions of finance, human resource and administration, and plays a lead role in organisational reform and transition relating to finance and staffing.



## Session 1b chair

Mr. Bountieng Sanaxonh, *Director of Technical Support, MRCS*

Mr. Bountieng Sanaxonh currently is Director of Technical Support Division at the MRCS. He has more than 30 years of combined experience in leading administration and management work at the departmental level; strategic planning and policy formulation on land and natural resources management and utilization at the national level; and agricultural and rural development, natural resources and environment with the government of Lao PDR. Before joining the MRCS, Mr. Sanaxonh was Director General of Natural Resources and Environment Information Center at the Ministry of Natural Resources and Environment.

He holds a dual master's degree, one in Regional and Rural Development Planning for the Asian Institute of Technology, and another in Agricultural Economics from Ukraine's Crimean Agriculture Institute.



## Special session 1 chair

Mr. Chanthanet Boulapha, *Secretary General of the Lao National Mekong Committee*

Mr. Chanthanet Boulapha is Secretary General of Lao National Mekong Committee at the Ministry of Natural Resources and Environment. He was former Director General of the Department of Water Resources at the same ministry.

He is currently a doctoral candidate, focusing his dissertation on the area of integrated water resources management. He holds a dual master's degree, one in Science in Irrigation Management from Russia and another in Integrated Water Resources from Lao PDR.



## Session 2a chair

Mr. Worasart Apaipong, Director General, *Department of Water Resources, Thailand*

Mr. Worasart Apaipong has more than 20 years of water and related resources management experience. He currently is Director General of the Department of Water Resources at Thailand's Ministry of Natural Resources and Environment. He is an engineer by training, holding a Master of Engineering in Geotechnical and Transportation on Engineering from the Asian Institute of Technology, Thailand.



## Session 2b chair

Ms. Nguyen Hong Phuong, *Deputy Director General of the Viet Nam National Mekong Committee*

Ms. Nguyen Hong Phuong is a Deputy Director General of the Viet Nam National Mekong Committee Secretariat. Ms. Phuong has over 20 years of working experience in different agencies, programs and projects in water and environment. Prior to joining the Viet Nam National Mekong Committee Secretariat in 2007, she was a Viet Nam National Program Coordinator of the Mekong Biodiversity Conservation and Sustainable Use, a joint Program of UNDP, IUCN, and MRC. Ms. Phuong holds a Bachelor's degree in Irrigation Engineering from the Hanoi Water Resources University, Hanoi, Viet Nam, and a Master's degree in Water Resources Engineering and Management from the Asian Institute of Technology, Bangkok, Thailand.



## Special session 2 chair

H.E. Mr. Te Navuth, *Secretary General of the Cambodia National Mekong Committee*

See Opening session chair



## Final session chair

Dr. Pham Tuan Phan, *Chief Executive Officer, MRC*

Mr. Pham Tuan Phan of Viet Nam assumed the post of Chief Executive Officer (CEO) at MRCS from 18 January 2016.

This is the first time that the MRC has appointed a CEO from one of the four Member Countries. The move coincided with the MRC's efforts in structural reforms of decentralisation and "riparianisation" to make the organisation self-sufficient by 2030.

During the first year, Phan led the MRC's structural reforms and conducted massive recruitment of all positions at the MRCS. For the next 2 years, he continues leading a strong team of men and women to carry out the new five-year strategic development plan 2016-2020 for regional cooperation and sustainable development of the Mekong River Basin.

The first riparian CEO has extensive managerial experience running offices at international organisations as well as in the private sector. Prior to this appointment, Phan worked as Chief Executive Officer for Add-on Development in Hanoi, following his tenures at the United Nations in New York as Chief of Integrated Management Information Service and at the Comprehensive Nuclear-Test-Ban Treaty Organisation in Vienna as Chief of Global Communications Infrastructure Section.

The 62-year old native of Hanoi holds Master's and Doctor's degrees in Physics from the State University of Belarus, and has completed the core of Master of Business Administration from the Open University in the United Kingdom.

# Welcome Session



## Welcome remarks

H.E. Mr. Khim Bun Song, *Governor, Siem Reap*

H.E. Mr. Khim Bunsong is Governor of Siem Reap province of Cambodia, who has been in the office since 2013. He is no stranger to Siem Reap, having been born and raised in and served the province through different capacities since 1979. Prior to being appointed as Governor, H.E. Mr. Bunsong was Deputy Commander of Military Operations Region of Siem Reap between 1993 and 1999 before being promoted to the Commander in late 1999.

The Governor received his undergraduate and graduate degrees in Public Administration from Cambodia's Chamroeun University of Poly-technology. "



## Message about the International Conference

Dr. Pham Tuan Phan, *Chief Executive Officer, MRC*

See Final session chair



## Opening statement

H.E. Mr. Lim Kean Hor, *MRC Council Member for Cambodia and Minister of Water Resources and Meteorology*

His Excellency Lim Kean Hor has been appointed to the 4th consecutive rounds of the government water portfolio since 1998 as Minister for Water Resources and Meteorology. He has been awarded the Medal “Chea Topakar” the highest government Medal of National Merit Class.

Ministry of Water Resources and Meteorology: is mandated by the Royal Government of Cambodia to coordinate and manage water and water-related resources in the country, including policy and strategy development, water management infrastructure development including irrigation, flood and drought management as well as the meteorological sector.

Cambodia National Mekong Committee: the national institution operating under direct supervision of the Royal Government of Cambodia, for coordinating the management, preservation, conservation and development of water and other related resources in the Mekong River Basin. Together with other National Mekong Committee of Lao, Thailand and Vietnam, within the framework of the Mekong River Commission, an inter-governmental institution established by the 1995 Mekong Agreement, to promote and coordinate sustainable management and development of the Mekong river basin’s water and related resources for the countries’ mutual benefit and people’s well-being.

Tonle Sap Authority: is mandated by the Royal Government of Cambodia for coordinating the management, conservation and development of the Tonle Sap river basin aiming at addressing the emerging challenges and ensuring the sustainable management and development of the Tonle Sap area.

1980-1998: H.E Lim Kean Hor had been appointment by the Royal Government of Cambodia with various responsibilities in the water resources management, irrigation, meteorology and agricultural sectors with various positions ranging from Director of Hydrology Department, Director General of the General Directorate of Irrigation, Hydrology and Meteorology, Under-State Secretary of the Ministry of Agriculture, Forestry and Fisheries, Vice-Chairman of Cambodia National Mekong Committee and the Adviser to the Prime Minister.

# Opening session



## Reflection from a panel of senior government officials of the Mekong River Basin countries

H.E. Mr. Te Navuth, *Secretary General of the Cambodia National Mekong Committee and Chair of the MRC Joint Committee, Cambodia*

See Opening session chair



## Reflection from a panel of senior government officials of the Mekong River Basin countries

Dr. Inthavy Akkharath, *Director General, Department of Water Resources, Ministry of Natural Resources and Environment, Lao PDR*

Dr. Inthavy Akkharath is Director General of the Department of Water Resources of Laos' Ministry of Natural Resources and Environment. Before that he was former Secretary General of Lao National Mekong Committee and Member of the MRC Joint Committee for Lao PDR.

He holds a PhD in Forest Hydrology and Watershed Management and a Master of Science in Forest Management and Economics from the University Putra Malaysia.

## Reflection from a panel of senior government officials of the Mekong River Basin countries

Mr. Worasart Apaipong, *Director General, Department of Water Resources, and Secretary General, Thai National Mekong Committee, Thailand*

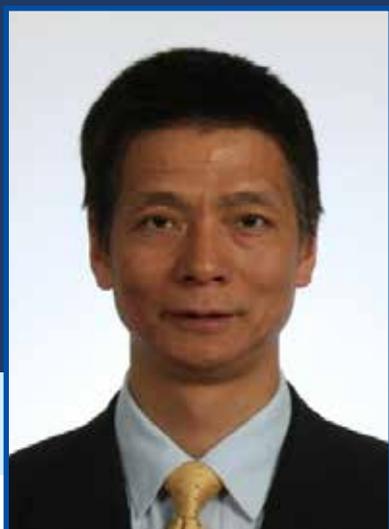
See Session 2a chair



## Reflection from a panel of senior government officials of the Mekong River Basin countries

Dr. Le Duc Trung, *Director General of the Viet Nam National Mekong Committee, Ministry of Natural Resources and Environment, Viet Nam*

Dr. Le Duc Trung has more than 30 years of experience in project management, modelling, and water resources management. Currently, he serves as Director General of the Viet Nam National Mekong Committee. He is also a member of the MRC Joint Committee for Viet Nam and a member of the Viet Nam Water Resource Association. He holds a PhD in Water Resources Management from the Institute of Meteorology and Environment in Viet Nam.



Reflection from a panel of senior government officials of the Mekong River Basin countries

Mr. Li Hong, *Permanent Representative of China to ESCAP and focal point for MRC, China*



Reflection from a panel of senior government officials of the Mekong River Basin countries

Dr. Pham Tuan Phan, *Chief Executive Officer, MRC*

See Final session chair



## Keynote 1: A matter of survival – Vision for water cooperation from the Chairman of the Global High Level Panel on Water and Peace

H.E. Dr. Danilo Türk, *Chair of Global High Level Panel on Water and Peace and former President of Slovenia and former Assistant Secretary General, United Nations Department of Political Affairs*

H.E. Dr. Danilo Türk was serving as third President of the Republic of Slovenia from 2007 to 2012.

Emeritus Professor of International Law, diplomat and politician, Chairman of the Global High level Panel on Water and Peace (2015-2017), H.E. Dr. Danilo Türk in 2016 was one of the candidates for the post of Secretary General of the United Nations.

Prior to his term as the third President of the Republic of Slovenia (2007-2012), he was teaching international law at the faculty of Law, University in Ljubljana (2005-2007 and earlier, 1982-1992). He was serving as UN Assistant Secretary-General for Political Affairs (2000-2005), Ambassador and Permanent Representative of Slovenia to the UN (1992-2000). He was Slovenia's representative on the UN Security Council (1998-1999). He had also worked as human rights expert (1975-1998).

### Abstract

Water is, without doubt, one of the major challenges of the 21st century. The world needs to fundamentally rethink its global approach to water – as a matter of survival. This is the key message of the report of the Global High Level Panel on Water and Peace – and the title of its report.

The Panel has studied the main aspects of the nexus between water and peace. They include, but are not limited to the situations of armed conflict where water is sometimes used as a weapon of war – including through attack over water infrastructure undermining the potential for peace building. Specific recommendations are made to the UN Security Council.

However, the Panel considers that the existing forms of water cooperation are significant instruments of peace and they have to be treated as such. The trade-offs necessary between the various uses of water such as agriculture, energy generation, mining, human consumption, and others, have to be carefully taken into account when approaching the issue of water governance. This provides an opportunity for deepening cooperation among states and, importantly, for the involvement of all stakeholders and their participation in decision making of water management issues the so-called People's diplomacy. The application and further development of water quality standards is moreover vital for the protection of the environment. Investment opportunities for transboundary infrastructure exist and additional financial instruments are contemplated.

It is necessary to fully appreciate and take advantage of the existing forms of international water cooperation. Many of them provide valuable opportunities for joint exchange of information on water, for cooperation on management of water quantity and quality, on investment and management of water infrastructure (including the shared ones) etc. Many of them cover large shared water basins like the Mekong Basins. Water cooperation in the Mekong River Basin constitutes one of the most valuable examples of inclusiveness of actors in its governance structure. It is encouraging to see that water cooperation is also

at the heart of other initiatives like the Lancang Mekong Cooperation Mechanism.

It is important to develop transboundary water cooperation, and in particular water basins cooperation further and to give these forms of cooperation the high level political attention they deserve. In addition to the valuable cooperation among water specialists and the relevant governmental departments, our era calls for the attention at the highest political levels of the riparian states and for intensified exchange of experience and cooperation among the water basin organisations at the global level.



## Keynote 2: Achieving the SDGs in a transboundary river basin through joint efforts and partnerships – International experiences, and opportunities for the Mekong basin

Mr. Takuya Kamata, *Practice Manager, Global Water Practice, World Bank*

Mr. Takuya (Taku) Kamata is a Practice Manager for the Water Global Practice in the World Bank. He oversees a portfolio of over \$1.5 billion in lending, including the World Bank support to the Mekong Integrated Water Resource Management Program, which funds regional and national activities at the MRC, and in Cambodia, Laos, Thailand and Vietnam; as well as the national lending program in Myanmar. Taku has broad work experiences in infrastructure sectors, country management and corporate assignments at the World Bank, as well as in strategic consulting and financial markets. Prior to assuming his role as Practice Manager earlier this year, Taku served as World Bank Country Manager for Uzbekistan and Nepal. Taku has also led water and urban operations in the Africa and East Asia and Pacific Regions. Taku also worked at the Corporate Strategy Group of the World Bank, supporting strategy implementation for the offices of the Managing Directors and the President of the World Bank. Outside the Bank, he had stints at a management consultancy, McKinsey and Company, and a specialized foreign exchange bank, the Bank of Tokyo. Taku has MBA degree from the University of Chicago Booth School of Business and an undergraduate degree from Waseda University.

### Abstract

With the agreement of the SDGs, world leaders took a notable step forward from past efforts, by including targets specific to water resources and transboundary water management. The success of the Mekong countries in reaching many of the SDGs, beyond SDG 6 on clean water and sanitation, is reliant on effective water resources management. The SDGs on Zero Poverty, No Hunger, and Affordable and Clean Energy involve use of water resources, and will require countries to manage trade-offs in water use, and the ability to harness opportunities in joint water management. In order to reach the SDG's, countries will need institutional mechanisms and processes through which they can engage to jointly plan their development, and to optimize the management of their shared water resources.

In this talk, Mr. Takuya Kamata, Practice Manager in the World Bank Global Practice for Water, will briefly present global lessons on institutional mechanisms and processes that can help countries manage trade-offs in water management, including examples from other river basins and findings from the High-Level Panel on Water, which was created by the UN Secretary General and the World Bank Group President in 2016. By taking a strategic focus on challenges facing the basin, Mr. Kamata will encourage participants to think broadly about the future of water resources management in the Mekong Basin in the coming decade.



### Keynote 3: Lancang-Mekong Cooperation and Mekong River Commission – Opportunities, synergies and collaboration for the sustainable development and management of the whole Lancang-Mekong Basin

Dr. Zhong Yong, *Secretary-General of the Lancang-Mekong Water Resources Cooperation Center*



### Keynote 4: MRC's achievements and efforts in addressing Mekong opportunities and challenges towards achieving the SDGs

Dr. Anoulak Kittikhoun, *Chief Strategy and Partnership Officer, MRCS*

See Conference coordinator

#### Abstract

The presentation will highlight key efforts and achievements of the MRC in addressing Mekong basin-wide challenges and opportunities and at the same time contributing to the SDGs. It will set the stage for the various presentations by staff of the MRCS and member countries.



# Chapter 1: FROM ASSESSMENTS TO ACTIONS

Session 1a: Optimizing regional benefits and minimizing adverse impacts

Session 1b: Addressing climate change, drought and flood

Special Session 1: Underlying data and information systems in the  
Mekong and other river basins



## Mekong sediments

Ms. Sopheap Lim, *Modeller, MRCS*

Ms. Sopheap Lim has been working with the MRC since 2011 as water resource modeller. She also instructs member countries and relevant line agencies in the use of MRC Decision Support Framework (DSF)/Toolbox, its models and associated tools for water resource management and planning. Sopheap also assists in a number of studies at MRC and various national pilot studies implementation on water resources. During the transition period at MRC, Sopheap was assigned as Officer in Charge of the Modelling Team (OIC-MT). She has considerable experience managing, leading and contributing all modelling work in the Council Study phase 1 and 2.

### **Abstract**

The Mekong River flows through China, Myanmar, Lao PDR, Thailand, Cambodia and Viet Nam. The assessment of various water resources development impacts on the water quality and quantity is currently a main concern for environmental, social and economic policy analysts in the Mekong Region. However, the quantitative assessment of such impacts is a complex task, requiring more in-depth analysis and study. The four Mekong Prime Ministers thus commissioned a study to assess the positive and negative impacts of water resources developments on the people, the economy and the environment. The study implements a range of alternative development scenarios, including historical conditions and future development situations.

This presentation provides the results of modelling changes in sediment loads in the Mekong basin by employing water resource modelling to support the impact assessment, which is part of the study. The MRC Decision Support Framework (DSF) was integrated with the eWater Source model to formulate different scenarios. The results discussed herein indicate that existing and proposed dams in the Mekong basin are expected cumulatively to have significant impacts on sediment loads entering the Mekong delta. Sediment reduction has been estimated at 67% and 97% in the 2020 and 2040 development scenarios, respectively. The loss of sediment is expected to have damaging consequences on the productivity of the river, geomorphology and persistence of the Delta landform itself. Mitigation measures to pass sediment through dams on the mainstream could reduce the consequences of downstream sediment starvation, though proposed tributary dams and those in the Upper Lancang area would still have significant impact.



## Environmental impacts of water resources development

Dr. So Nam, *Chief Environment Management Officer, MRCS*

See Session 2a faciitator

### Abstract

Since its establishment in 1995, the MRC has been involved in the collection of data and development of models, both conceptual and mathematical, aimed at demonstrating and improving the understanding of the functioning of the LMB aquatic ecosystems, and the links between the people and the river. The MRC has used these data and models to aid decision-making in the region concerning the LMB through the analysis of possible changes to river resources, and knock-on effects on the people that depend on them, in response to actual and proposed water-resource developments in the basin at large.

The objective of basin-wide environmental assessment is to provide clear and comparable information on the impacts of proposed key sector developments on the aquatic ecosystems and their resources of Mekong River downstream of the China border, inclusive of the Tonle Sap Great Lake and the Mekong Delta. The DRIFT Flows process and Decision Support System (DSS), referred to in the MRC Council Study as the BioRA-DSS, were used to organise existing MRC data, information in the international scientific literature and expert opinions from a highly-qualified and experienced team of river scientists. This provides a systemic picture for the LMB, Tonle Sap River, Tonle Sap Great Lake and the Mekong Delta ecosystems in terms of (1) their ecological condition; (2) possible future changes in condition as a result of development-driven changes in the water flow, sediment supply and transport, water quality, and lateral and longitudinal connectivity as described through the evaluation of the water-resource development scenarios; and (3) predictions of change in abundance/area/concentration (relative to baseline) for a range of ecosystem indicators.



## Social, economic and cumulative impact assessment of water resources development

Ms. Nguyen Thi Ngoc Minh, *Socio-Economic Specialist, MRCS*

Holding a Master's in Development Economics from the University of Sussex, UK, Ms. Nguyen Thi Ngoc Minh is the Socio-Economic Specialist at Planning Division of the MRCS. She coordinates the MRCS work on socio-economic assessments, covering community livelihoods and well-beings along the Mekong River mainstream, the Tonle Sap lake and the Delta, and economic development of the Lower Mekong Basin. Before joining the MRCS in 2016, she was an Economic Advisor for the UK Department for International Development (DFID) in Vietnam, leading economic and poverty analysis, and DFID support to Vietnam in economic reform and business development.

### **Abstract**

The Council Study, implemented by the MRCS at the request of the MRC Council from 2011 to 2017, examined the impacts on sustainable development in the Lower Mekong Basin of water resource development plans up to 2040. Sectoral modelling and assessments provided inputs to the Socio-Economic, Macro-Economic and Cumulative Impact Assessments. The main findings of these assessments show that hydropower development plans increase energy security and contribute to economic growth, but result in substantial losses in ecosystem services, many of which are transboundary. The developments included in the 2020 and 2040 scenarios are likely to reduce resilience and increase vulnerability of communities in the LMB, particularly in Lao PDR and Cambodia. Poor households along the Mekong River are likely to be most disadvantaged, but the urban poor are also likely to face considerable challenges as fish prices are expected to increase. Climatic variability, particularly that associated with a drier climate, is likely to exacerbate the expected impacts on poor people. The trade-offs between hydropower development and fisheries are substantial. In the absence of successful cross-sector benefit sharing, the sustainability index (design is based on the SDGs) would drop substantially by 6 points from ca 30 points to ca 24 if the 2040 development plans were implemented (Cambodia: minus 30%; Lao PDR: minus 28%; Vietnam: minus 23%; and Thailand: minus 17%). The positive and negative impacts of development will be unevenly distributed, with most benefits going to energy companies and most negative impacts inflicted on fishing households. Effective benefit sharing needs to be designed as a cross-sector mechanism and not a compensation scheme between countries because beneficiaries (e.g. energy companies) and disadvantaged groups (e.g. fishing households) alike are located in all four countries.



## Lancang-Mekong Development Plan Environmental Study – Findings and conclusions

Dr. Jeremy Carew-Reid, *Director General, International Center for Environment Management (ICEM)*

ICEM's Director General, Dr. Carew-Reid, has more than 35 years' experience working in over 30 countries, including extensive experience in the Mekong region. He has a BSc Honours in freshwater ecology and a PhD in Environmental Impact Assessment. He specializes in integrated environmental assessments and in climate change vulnerability assessment and adaptation. Before establishing ICEM, he was the Director of IUCN's

Global Conservation Services, Director of SPREP and IUCN Country Representative in Nepal.

He has been Team Leader in more than 35 ICEM projects in Asia, including the award winning Strategic Environmental Assessment (SEA) of hydropower development on the mainstream Mekong River, and the Urban Resilience in Mekong Towns projects, as well as the seminal study of climate change impacts on natural and agricultural systems in the Mekong region as part of the USAID-supported Adaptation and Resilience to Climate Change (ARCC) project.

Currently he is Team Leader on the SEA of the Hydropower Sector in Myanmar and the CEPF and MRC Rapid SEA of the Lancang-Mekong Development Plan.

### Abstract

In February 2016, the Joint Committee on Coordination of Commercial Navigation (JCCCN) on the Lancang-Mekong River (JCCCN) gave conditional approval for the 'Development Plan of International Navigation on the Lancang-Mekong River (LMDP) 2015-2025'. The JCCCN comprises representatives from Lao PDR, Thailand, PR China and Myanmar and is covered by a quadripartite agreement for commercial navigation between Simao in PR China and Luang Prabang in Lao PDR.

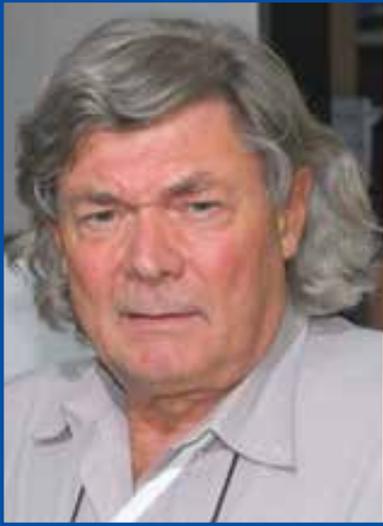
### Phase 1 (2016-2020) of the LMDP plan includes:

- Development of three cargo ports at Xiengkok, Pak Beng and Luang Prabang in Lao PDR;
- The improvement and maintenance of 146 rapids and shoals to allow navigation for up to 500DWT vessels; and
- The construction of four emergency response and rescue ships and 1199 aids to navigation.

The project will involve partially removing 146 rapids and shoals to improve navigation and port construction, leading to increased waterway use. This could potentially impact critical habitats for fish and aquatic species, and livelihoods. The environmental and social impacts of the LMDP need to be fully assessed to ensure its potential for causing environmental degradation between the Golden Triangle and Luang Prabang are understood and appropriate avoidance or mitigation measures can be put in place.

As the LMDP does not currently include an environmental management plan, the Critical Ecosystems Partnership Fund (CEPF) allocated grant funding to ICEM to conduct an environmental study (ES) of the LMDP from the Golden Triangle to Luang Prabang. The ES will lead to an environmental management plan to be integrated with the LMDP and enhanced capacities for environmental assessment in relevant Thai and Lao agencies.

The objectives, key results and findings of the ES will be presented covering impacts on and mitigation strategies for aquatic biodiversity and wetlands, amphibians and reptiles, birds, fish, hydrology and sediments, turtles, socio-economics and livelihoods, and waterways and navigation, will be presented.



## Lancang-Mekong navigation plans – Perception and reality

Mr. Jacques Dezeure, *Waterway Expert*

Eng. Jacques Dezeure graduated from the State University of Ghent in 1968 (specialized in hydraulics and structural civil engineering) and has been civil servant under the Ministry of Public Work's Waterway Department in Belgium from 1968 until 1982. He planned, designed and supervised the entire river calibration program of the River Leie and the Upper Scheldt, including the connection canal between River Leie en River Scheldt, for ships of 1,350 – 2,000 tons.

From 1982 to 1985 he was Port Structural Engineer under the APEC consultancy team in its 3-years consultancy contract with the Saudi Ports Authority, duty station Riyadh.

From 1986 to 1990, he was "Conseiller Technique Régional de l'Office des Routes" first with duty station Kisangani and later Kinshasa, in charge of road and ferry maintenance of the road network of the former Zaire (now DRC).

From 1991 to 1998 he was working for the Interim Mekong Committee in Bangkok as chief of the River Works and Transport Unit. Since April 1995 the Interim Mekong Committee has changed its name into MRC with Cambodia becoming full member of the intergovernmental organization again.

From 1998 to 2008 he was Flanders Technical Representative for Environment and Infrastructure in SE Asia and after his retirement in October 2008, he became until today freelance consultant for various Regional waterway projects under international sponsoring (World Bank, MRC, EU, etc.).

### **Abstract**

The Mekong River is the tenth biggest river in the world. It is one of the least developed and least spoiled/least polluted rivers in the world. For centuries, the Mekong has been used for fish resources and transport of cargo and people, the latter immensely dense in the stretches of the Delta. However, upstream navigability remains challenging, tricky and difficult. The upper Mekong (starting from upstream of Vientiane) is full of rocks, reefs and shoals that make navigation difficult, often dangerous. But it has a potential that has not been properly addressed yet, not only in hydropower development but also in navigation!

Big commercial boats cannot safely navigate in the natural condition in some parts of the river, even though these sections are rather few in percentage of the total length. Channel improvement including deepening shoals and removing rocks out of the navigation channel, building dikes or river training works and dredging is direly needed to improve safety of navigation. Water transport is besides being the most economical way of transport also a most environmental friendly transport. For this reason, Government should invest more in, and create incentives for waterborne transport to actively participate in the fight against global warming and to create a better livelihood for future generations.

What are the challenges and opportunities/economical and environmental benefits of the Lancang-Mekong river navigation in the light of the three important regional agreements that regulate the Mekong River Navigation: (i) "Article 9 of the Mekong Agreement: "Freedom of Navigation" (Cambodia, Laos, Thailand and Viet Nam (MRC Agreement 1995); (ii) "Agreement on Commercial Navigation on the Lancang-Mekong river among the Governments of China, Laos, Myanmar and Thailand", signed in 2000, and followed by a "Joint Committee on Coordination for Commercial Navigation (JCCCN)" and finally: (iii) "Agreement between Government of Vietnam and Cambodia on Waterborne Transportation", signed in 2009. Development plans were established under each mechanism of cooperation; amongst others the Development Plan of International Navigation on the Lancang-Mekong River under the JCCCN and the MRC Master Plan on Waterborne transportation development in the Mekong Lower Basin. However the main question is: How to implement these agreements without causing significant impacts to the environment?

The potential and technical feasibility to develop this river into an international regional waterway has been demonstrated in a number of important studies and the speaker will attempt to demonstrate this technical feasibility in realizing this ultimate goal of reducing green gas emissions with maximum respect of the environment and the livelihood of the riparian in the best possible way. This presentation is an effort to indicate and explain the reality of channel improvement beyond alarming media news of the so-called destructive blasting of reefs and rock outcrops.



## Nam Kong – Forgotten river of Myanmar and future international navigation improvement

Mr. Win Naing Tun, *Director and Principal Consultant, Myanmar Environment Institute*

Mr. Win Naing Tun is a Myanmar Environmental Consultant and involved in more than twenty Environmental Impact Assessment (EIA) studies including Hydropower Development in Myanmar since 2006. Receiving his first degree in 1992 majoring in Geology, Win Naing Tun also earned a Diploma in Business Law, a Diploma in International Relations, a Diploma in GIS, a Diploma and two Master's in Archaeology and in Business Law from the University of Yangon. He also got his Master's of Public Administration from Aldersgate College from the Philippines. He is one of the co-founders of Myanmar Environment Institute, where he works as the director. He is also a network member of the Network for Sustainable Hydropower Development in Mekong (NSHD-M) and trained RSAT facilitator. Currently, he is studying the Mekong River (Myanmar) for impacts on Future Navigation Improvement.

### Abstract

The Mekong River links China, Lao PDR, Myanmar, Thailand, Cambodia and Vietnam. Mekong's estimated length is 4,350 km and its basin area of 795,000 km<sup>2</sup>, discharging 475 km<sup>3</sup> of water annually. Myanmar shares 24,000 km<sup>2</sup> of the basin area which is 3% of the total catchment and contributes 2% flow of Mekong river basin. Lahu, Arkar and Shan ethnic groups live along the Mekong and its tributaries of territory of Myanmar. Local people call the Mekong "Nam Kong" and most of the Myanmar people forget that the Mekong (Nam Kong) is part of Myanmar. The Mekong of Myanmar starts from BP243 of China-Myanmar border and stretches to the golden triangle area, where the Mae Saing and Mekong meet. The coastal strip of Nam Kong belongs to Eastern Shan State and part of Tachileik, Kenglat, Mong Yu townships and Mongla special region no. (4). Mongla is Non-Government Controlled Area (NGCA), said a center for the production and traffic of narcotics and illegal wildlife trade. International navigation of Mekong River officially opened in 2001 and was under the common efforts of China, Lao PDR, Myanmar and Thailand. The international navigation has promoted and created favorable benefits on economic and social development of coastal areas in these four countries, and is also becoming an important bond to promote mutual benefits in the economy, trade and cultural exchanges among these countries. The international navigation development of the Mekong River is in a very early stage and requires upgrading of the navigation. China, Lao PDR, Myanmar and Thailand are required to establish an agreement and a common data sharing platform in order to manage the Mekong river in terms of Environmental, Social and Economic sustainability. These are required to strengthen cooperation between these countries and the MRC.



## Reflection on MRC Council Study Reports

Dr. Zhiliang Zhu, *United States Geological Survey (USGS)*

Co-author: *Dr. Matthew Andersen, United States Geological Survey (USGS)*

Dr. Zhiliang Zhu is a senior physical scientist and program chief for biologic carbon sequestration at USGS. His responsibilities and science interests include leading assessment and research of greenhouse gas fluxes and carbon sequestration capacities, and conducting research on remote sensing applications in land use change, wildfire and vegetation ecology. He has a PhD degree from the University of Michigan in Ann Arbor of Michigan, and Bachelor degree from China.

### **Abstract**

Environmental impact assessments have been conducted by the MRC to examine a range of potential outcomes of both existing and future-planned hydropower developments along the Mekong River. U.S. Geological Survey (USGS), an Earth science agency of the United States Department of the Interior, conducted preliminary reviews of selected discipline and thematic reports: Changes in river flow, sediment supply and water quality, biological resources, climate, coastal modeling, and agriculture and land use. The assessment reports were part of the MRC Council Study, and selection of the reports for review by USGS was based on technical expertise available at the organisation. In the time-limited review, we considered methods, information delivery, implications of main findings, and future technical and policy needs in the review, and offered recommendations in the scientific context. Results of the brief review will be presented at the MRC International Conference in Siem Reap of Cambodia.



## Reflection on MRC Council Study: An assessment of the results and conclusions of selected reports

Dr. Chayanis Krittasudthacheewa, *Deputy Director, Stockholm Environment Institute (SEI) Asia Center, Bangkok, Thailand*

*Authors: Stockholm Environment Institute (SEI) and Sustainable Mekong Research Network (SUMERNET)*

Dr. Krittasudthacheewa is the Asia Centre Deputy Director of SEI based in Bangkok, Thailand. She has been working in the Mekong Countries for about 20 years with extensive experience in leading multi-country projects with multi-disciplinary experts. She is strong in research project management and coordination and engagement with multi-stakeholders across sectors and levels, monitoring and evaluation, and specializes in the fields of hydrology, integrated water resources management, climate change adaptation, and water resources modeling. Since 2011 she has been leading the Sustainable Mekong Research Network (SUMERNET, [www.sumernet.org](http://www.sumernet.org)), a regional research network of 68-member institutes delivering credible research to influence sustainable development policy in the Mekong Region. In Myanmar, she has been leading the Ayeyarwady Futures (2013-2014) and Chindwin Futures (2015-present), the programs that collaborated with state and non-state agencies to support evidence based multi-stakeholder engagement in water resources management and development in the Chindwin River Basin and Ayeyarwady River Basin. She previously worked as a Programme Officer and Hydrologist at the MRC to manage the hydro-meteorological database, conduct the hydrological studies and build relevant capacities of national line agencies in the MRC countries in collaboration with MRC dialogue countries and as a water resources engineer for three consulting firms in Thailand. She holds a Ph.D. in Hydrology and Water Resources Engineering from the University of Tokyo, Japan with two distinguished prizes.

### **Abstract**

The waters of the Mekong basin are of critical importance to people of the Lower Mekong Basin (LMB) in ensuring that this resource is shared in an equitable and sustainable manner that results in sustainable socio-economic development. The MRC Council Study represents a compendium of recommendations, insights and state of knowledge across sectorial boundaries to support future planning and decision-making. It is a substantial achievement noting there are gaps. The studies account for the different types of development (across sectors) in the basin – this is a much more complicated approach than in the past which is welcomed. Public engagement and consultation was extensive and sets a precedent for future studies.

Managing what you don't know' has traditionally been the principle challenge of river basin organizations. The changes that the LMB will likely undergo over the coming two decades will be profound, including uncertainties in the development and sequencing of large infrastructure; the impacts of future climates; changes in demographics and the role of women due to mobility and diverse livelihood portfolios; restructuring of the industrial and agricultural base of countries; dramatic declines in sediment delivery to the delta; and the changing political landscape of a diverse region. The Study assessed what is planned in terms of growth and development of the basin. Based on incomplete data sets for various reasons

(i.e. different age sets of data by countries, the absence of reliable gender indicators, DEM data etc.) that is of relevance to the exercise, the study provides a snapshot of development across sectors within a confined area of the basin with concrete recommendations for the Council.

Whilst the mandate of the MRCS is recognized, restricting the analysis to a confined geographical area of the basin, needs to be further addressed. The analysis is based on a narrative that the development of hydropower will continue along the same trajectory in isolation of significant advances in other renewable energy; and that water quality and demand will remain unchanged whilst improvements in management and processing are continuing to occur. These are selected key transformations that should drive future analysis. There are opportunities for the Council to engage with research communities in the region to assist in filling the gaps that have been recognized in the present study.



## Uptaking the Council Study in the MRC work: High-level dissemination, State of Basin Report, Sustainable Hydropower Development Strategy

Mr. Suthy Heng, *Regional Technical Advisor, MRCS*, and Mr. Palakorn Chanbanyong, *Sustainable Hydropower Specialist, MRCS*

Mr. Suthy Heng is currently working as regional technical advisor/coordinator attached to the Environmental Management Division of the MRCS in Vientiane, Lao PDR. During 2016-2017, he was working as Regional Coordinator for the Council Study Project leading this project into a successful completion by December 2017. Mr. Suthy has more than 17 years of working experience with various international organizations such as MRC, DANIDA, DFAT, UNDP, EU, FAO and AIT.

Mr. Suthy Heng holds a Master's degree of Science in Remote Sensing and Geographic Information System from Asian Institute of Technology, Thailand and a Bachelor's degree in Fishery and Aquaculture from the Royal University of Agriculture, Phnom Penh, Cambodia.

Mr. Palakorn is currently working as Sustainable Hydropower specialist at the MRCS. He holds a M.Sc. in Hydraulic Engineering and river basin development and has experience in Mekong River Basin development especially in the field of hydropower through several years of work. He has also experience in large hydropower project development covering 3 phases: preconstruction, construction as well as operation and maintenance.

### **Abstract**

To address the challenges of not having sound understanding and knowledge gap of the overall impacts caused by the developments in the Lower Mekong Basin, the Prime Ministers of the four member countries decided during the Third Mekong-Japan Summit on 18 November 2011 in Bali to conduct a "Study on Sustainable Management and Development of the Mekong River, including the impacts of Mainstream Hydropower projects". The study aims to enhance the Commission's ability to advise the member countries on positive and negative impacts of water resources development on the people, economies, and environment of the basin. The Study was carried by the Commission in December 2011 and has recently completed in December 2017.

According to the study findings, the sustainable water resource development in the Lower Mekong Basin requires supranational policies with an objective science-based approach to ensure mutually shared benefits and costs – including the involvement of key stakeholders. The study has also revealed that the MRC could support national and regional planning including managing the trade-offs between hydropower development and other sectors and potential adverse transboundary cumulative impacts to be mainly induced by hydropower development on both the mainstream and the tributaries.

After the completion of the Study, the MRCS has developed short and long-term up-take plans by taking into account the findings and recommendations resulted from the Study for a number of strategic activities such as: 1) High-level dissemination, 2) State of Basin Report, and 3) the Review and Update of the Sustainable Hydropower Development Strategy (SHDS) and other strategies.

The immediate and strategic uptake of the Council Study's recommendations is the review and update of the SHDS. Now, the MRCS is commencing this exercise and expects to finish in early 2019. As part of the MRC Strategic Plan 2016-2020, the update of SHDS is aimed at: "Optimal and sustainable hydropower development alternative pathways are explored, proposed and discussed with the member countries – taking into consideration opportunities to enhance benefits beyond national borders and minimise adverse transboundary impacts, while supporting water, food and energy security".



## Session 1a: Panelist

H.E. Mr. Watt Botkosol, *Deputy Secretary General, Cambodia National Mekong Committee, Cambodia*

H.E. Mr. Watt Botkosol is Deputy Secretary General of the Cambodian National Mekong Committee (CNMC). He has experiences in natural resources management and planning and capacity building. He has coordinated and managed the MRC program mainly BDP, National and Transboundary Mekong-IWRM Project funded by World Bank (2014-2021) and other projects funded by the Global Water Partnership (GWP) and ADB. For the MRC Council Study, he is a national focal point for Cambodia.

With the mandate of IWRM, he has been involved in national and international association communities such as Chair of Cambodia Water Partnership for 2009-2015 and recent Regional Chair of GWP Southeast Asia for 2016-2018. He published research/consultation papers related to gender mainstreaming issues, integrated river basin management and integrated water resources management.

He received an Executive Master of Business Administration in Human Resources Management from the Asian Institute of Technology, Bangkok, Thailand in 2002; and a Master of Science on Forestry Science from the Technical University of Wood Technology and Forestry in Zvolen, Slovak Republic in 1994.

## Session 1a: Panelist

Dr. Inthavy Akkharath, *Director General, Department of Water Resources, Ministry of Natural Resources and Environment, Lao PDR*

See Opening session panel



## Session 1a: Panelist

Dr. Wenling Wang, *Yunnan University, China*

Dr. Wenling Wang is an Assistant Professor at the Asian International Rivers Center at Yunnan University in Kunming, China. She received her PhD in Ecology from Yunnan University in 2013 and was a postdoctoral scholar at North Carolina State University, USA in 2013-14. Dr. Wang is an expert on Asian International Rivers. Her research and teaching are in the fields of water governance, transboundary water issues, international cooperation, and how environmental and social policies affect water resources, especially at the water-energy-food nexus. Recent work also included how policies affect water quality with a focus on exposure to chemicals. She has worked on over 20 international river projects and is currently PI/co-PI on four projects funded by the National Natural Science Foundation China and Ministry of Water Resources China. Dr. Wang has 15 peer-reviewed publications and has given dozens of invited presentations at international conferences and workshops.



## Session 1a: Panelist

Mr. Gary Lee, *Partnerships and Policy Advisor, Mekong Regional Water Governance Program, Oxfam*

Gary is the Mekong Water Governance Partnerships and Policy Advisor for Oxfam based in Laos. Since joining Oxfam in late 2011, Gary has worked closely with Oxfam's partners and allies in the Mekong region on projects and policies relating to water governance and natural resource management.

Gary has over 15 years of experience working with NGOs and civil society organisations in the Mekong region, Australia and the Pacific.



## Session 1a: Panelist

Dr. Michael Roy, *Senior Technical Advisor, Smart Infrastructure Program, Department of the Interior, United States*

Michael Roy has served as the Senior Technical Advisor for the Smart Infrastructure for the Mekong Program since 2014. This program, funded by the U.S. Agency for International Development and implemented by the U.S. Department of the Interior, International Technical Assistance Program, provides technical assistance to lower Mekong nations in developing social and environmental safeguards for infrastructure development. For 20 years prior to this assignment, Mike supervised endangered species recovery, aquatic and terrestrial habitat restoration, and conservation planning activities for the U.S. Fish and Wildlife Service in the western United States and Alaska. He received a Ph.D. in Forest Resources from the University of Montana and served 6 years as a U.S. Coast Guard aviator. He resides in Oregon, USA.



## Session 1a: Panelist

Dr. Dao Trong Tu, *Deputy Director, Centre for Sustainable Water Resources Development and Adaptation to Climate Change (CEWAREC), Viet Nam*

Dr. Dao Trong Tu began his career in 1974 in various fields, including climate change, hydrology, and water resources management. Today, he is Deputy Director for Vietnam's Centre for Sustainable Water Resources Development and Adaptation to Climate Change. He has a PhD in Agriculture and a Master of Engineering in Hydraulic Work from the IHE Delft Institute for Water Education, formerly known as the UNESCO-IHE Institute for Water Education, in the Netherlands.



## MRC assessments on floods, droughts and climate change

Mr. Oudomsack Philavong,  
*MRCs Advisor, and*

Dr. Cong Nguyen Dinh, *Climate Change Adaptation Specialist, MRCs*

Oudomsack Philavong has been appointed as Technical Coordination Specialist of the Initial Studies Project in March 2017. Prior to his current appointment, he was coordinator of the Flood Management & Mitigation Programme, where operational flood forecast, water level monitoring and Initial Studies Project (ISP) were part of it. With an academic background in engineering, he is interested in multidisciplinary flood studies especially related to application of GIS and simulation models to assess impacts from upstream development, climate change and floodplain development on downstream areas. He was also the manager of the flood thematic team under MRC Council Study.

Nguyen Dinh Cong, PhD graduated in Agricultural Science from University of Hohenheim, Germany. He works in a broad range of topics such as land evaluation, climate change impact assessment and water resources management. He currently serves MRCS as a Climate Change Adaptation Specialist.

### **Abstract**

The Mekong basin has been identified as one among the most vulnerable basins in the world. A wide range of potential future changes are projected to occur, with overall significant warming, but substantial variations in changes in rainfall across the basin are projected, depending on the scenario used.

Regarding future flood risk in the basin, future floodplain development combined with upstream developments, and climate change are considered as driving forces. MRC is implementing stage 2 of a study called "Initial Study" since mid-2017. The study objective is to assess existing, future and residual flood risks in the Xe Bang Fai sub-basin, Nam Mae Kok basin and the transboundary border area of the Cambodia floodplains and Vietnam Mekong Delta, which include (1) assessment of possible future flood behavior under climate change, future upstream development and future floodplain developments, (2) assessment of future flood damage estimation relationships, (3) assessment of future flood damage and risk, and (4) demonstration of the formulation of strategic directions to manage existing, future and residual flood risks in flood focal areas. The first two tasks are completed, while the third and the fourth tasks are being finalized.

The MRC's suite of basin-wide studies includes an assessment of climate change impacts on hydrology, flood, drought, hydropower, ecosystems and biodiversity, food security and socio-economic vulnerability. The main objective of these basin-wide assessments is to provide information on the impacts of potential future climate change on water and water related natural resources and economic sectors in a way which supports decision-making on climate change adaptation measures at regional and national levels within the MRC member countries. Projected future climate change and the resulting impacts are in some scenarios extreme. The implications for socio-economic systems may be profound with vulnerable communities.



## MRC actions on flood, drought and climate change adaptation: Joint projects, strategies and action plans

Dr. Thim Ly, *Chief River Basin Planner, MRCS and*

Mr. Ix Hour, *Drought Technical Coordinator, MRCS*

Dr. Thim Ly is the Chief River Basin Planner of the MRCS. He has over 20 years of working experience with various international organizations in a variety of fields of development including more than 15 years working in water resources management in the Mekong Region. He holds a PhD degree in development studies from the University of Bonn, Germany. His field of interest lies in water resources planning and management.

Mr. Ix Hour is currently a regional drought management expert of the MRCS. He was the Regional Coordinator of the Drought Management Programme under the MRC Strategic Plan 2011-2015 when the programme first started its operation. He completed his graduate study from the Kyushu University, Japan, in 2007 in the field of Bio-production Environmental Sciences.

### **Abstract**

In January 2016, the Council of the MRC endorsed an IWRM-based Basin Development Strategy for 2016-2020. The strategy provides regional and transboundary perspectives for the management of the Mekong Basin, as well as development opportunities and strategic priorities for basin development and management.

The MRC implements the Basin Development Strategy 2016-2020 at the regional level through the MRC Strategic Plan 2016-2020 and at the national level through the National Indicative Plans 2016-2020. Approved in 2016, both plans outline various actions to address strategic priorities identified in the Basin Development Strategy. This includes actions to address basin-wide issues on flood, drought, and climate change and adaptation through joint planning.

This joint planning includes (1) the identification and development of five Joint Projects (two of which are directly related to flood and drought) identified under the National Indicative Plans, (2) the development of Mekong Climate Change Adaptation Strategy and Action Plan (MASAP), and (3) the formulation of Drought Management Strategy.

The developments of the two earlier documents have been completed and approved by the member countries

in 2017; and are currently being implemented. The formulation of the Drought Management Strategy is currently being prepared and expected to be approved by the member countries by end of 2018 and will be implemented from 2019 onward.

The implementation of the above joint projects and cross-cutting sectoral strategies is expected to contribute to the global SDGs, especially for goal numbers 6 and 13 on water and sanitation, and climate actions, respectively.



## Where does the effort go? A review of the contribution from international and regional players to flood and drought adaptation in the Mekong River Basin

Dr. Nguyen Huong Thuy Phan, *Academic Coordinator and Head of SEA Region, Development Policies and Practices Executive Master Program, Graduate Institute Geneva*

Co-author: *Minh Nguyen, Commonwealth Scientific & Industrial Research Organisation (CSIRO), Land and Water, Melbourne, Australia*

Dr. Phan Nguyen is a specialist in water and environmental management. Phan holds a position as Academic Coordinator and Head of SEA Region, Development Policies and Practices Executive Master Program, Graduate Institute Geneva.

By training she has a Doctor of Engineering in Water Resource Development. Phan has more than 25 years of combined experiences in hydropower development projects in the South of Vietnam, coastal engineering projects in the Gulf of Thailand, climate change risk assessment programmes in the Vietnam's Red River Delta and the Lower Mekong Basin (Cambodia, Lao PDR, Thailand and Vietnam), and higher education programmes in development studies in South East Asia.

Prior to joining the Graduate Institute Geneva, Phan worked for the MRCS as a Programme Coordinator in charge of the MRC Climate Change and Adaptation Initiative in 2011-2016 and the MRC Environment Programme in 2016. She was the Head of Environment and Development Section at Asian Institute of Technology in Vietnam during 2002-2011; a research scientist at the University of Twente, the Netherlands during 2000-2002; a research engineer at the Asian Institute of Technology in 1994-2000; a water resource engineer at Vietnam Ministry of Energy in 1986-1992; and Board of Construction – Vietnam Institute of Hygiene, in 1984-1986.

### Abstract

To ensure sustainable development multiple players in the Mekong River Basin have made tremendous effort to strengthen the capacity of the region to adapt to flood and drought. Side by side with the riparian governments and local communities, international and regional institutions have played their roles and thus contributed to enhancing resilience of the basin population and economies. The areas of contribution are financing, technical assistance, capacity building and other. The questions as where all their effort goes to in the past many years and where it should be focused on in the future are frequently raised in various development cooperation platforms.

Under the framework of an international collaborative R&D between the CSIRO Australia and Chinese Academy of Sciences, and Can Tho University Vietnam, attempt has been made to seek a preliminary answer for the above questions. The authors have reviewed related reports and conducted a number of interviews to map out the activities that key international and regional institutions in the basin are doing to support Mekong's drought and flood adaptation. The focuses are on gaining better understanding of their areas of works, priorities and approaches. The authors, from the findings of the review, also identify what research or action that further international and regional effort could contribute to.

It is expected that the review is helpful for all stakeholders in the basin not only to recognize the contribution of international and regional institutions in the field of flood and drought adaptation but also to realize where the adaptation needs are and where further effort should be focused on. Concerned international and regional players, development partners, riparian governments, research consortiums and NGOs will find the answer particularly relevant for their strategic development in the context that more climate finance is being made available that provide resources for flood and drought adaptation in the Mekong basin.



## The ASEAN Specialised Meteorological Centre – A regional collaboration for improved weather and climate services in Southeast Asia

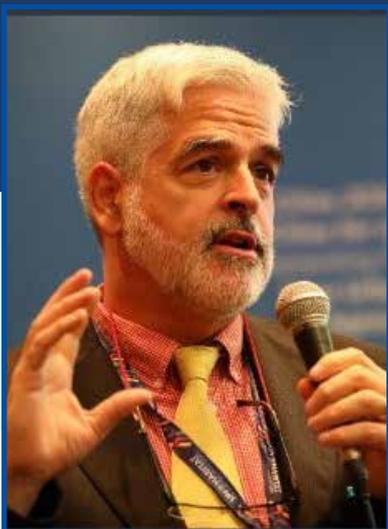
Dr. Thea Turkington, *Research Scientist, Centre for Climate Research, Meteorological Service Singapore*

Co-author: *Mr. Raizan Rahmat, Meteorological Service Singapore*

Dr. Thea Turkington is a Research Scientist in the Subseasonal to Seasonal Prediction Branch of MSS, Singapore. She has a background in various weather and climate timescales. She worked as a weather forecaster at Met Service, New Zealand, before shifting her focus to long term climate change, obtaining a PhD in 2016 with a thesis title: “Changing flood and landslide hazard, a meteorological perspective”. At MSS, Thea works on the subseasonal and seasonal timescales, contributing to the S2S Workshop and Southeast Asia Regional Climate Centre. Her research interests include subseasonal and seasonal predictions, tropical weather and climate processes, and rainfall extremes.

### Abstract

The ASEAN Specialised Meteorological Centre (ASMC) is a regional collaboration programme among national meteorological services (NMSs) in Southeast Asia, hosted under Meteorological Service Singapore. There are two main ASMC aims: firstly, to provide weather and climate related services to NMSs and end users; and secondly, to build capacity in the region. Weather and climate information and related-activities are delivered for a variety of temporal scales, from daily updates about the regional haze situation and hotspot count, to monthly seasonal climate outlooks, and long term climate change. Three examples will be highlighted to show good practices and innovation in the region. ASMC recently hosted the “Best Practice” Workshop on Climate Change Projections and Their Applications in ASEAN Countries”. Many ASEAN countries have developed climate change projections, and this workshop marks the first attempt to compare and contrast the various studies in the region and to develop a list of best practices for the region. Users of climate change projections were also invited, to enhance regional networking and to provide feedback on the usefulness of the products. Another example of regional networking at the seasonal timescale is the ASEAN Climate Outlook Forum (ASEANCOF). Twice a year during ASEANCOF, NMSs, and international experts discuss the upcoming seasonal outlook. While the primary ASEANCOF audience is NMSs, end users are also invited to attend based on the theme of forum. Past themes have included agriculture, water, and disaster risk management. A new innovation from ASMC is the development of subseasonal predictions (2 weeks to 2 months timescale). Substantial progress has been made in recent years by the international research community in predictions at this timescale. As Southeast Asia is a ‘hotspot’ for subseasonal prediction skill, ASMC currently hosts a series of workshops to better understand the predictability at this timescale and develop relevant products for the region. The talk welcomes discussion on how ASMC can further improve services provided to the region.



## Robust adaptation strategies to address a +4C world

Mr. Niall O'Connor, *Stockholm Environment Institute (SEI) Asia Center, Bangkok, Thailand*

Co-authors: *Thanapon Piman, Chayanis Krittasudthacheewa, Chusit Apirumanekul, Manish Shrestha, Babette P Resurrección, and Andrew Noble*

Mr. Niall brings along a wealth of experience, having worked in NGOs, governments and in academia. He took over as Asia Director, for the Stockholm Environment Institute, in March this year, where he brings over 20 years of senior leadership, programme management and academic capacity.

Previously working for WWF International, he has worked in Western, Eastern and Southern Africa in various senior management positions where from 2008, he served first as the Regional Representative of WWF Madagascar & West Indian Ocean until 2010, before taking the role as Director, Performance and Development Africa. Later, in August 2011 Niall started as the Regional Director for WWF Eastern and Southern Africa, demonstrating his strong leadership and management skills for this challenging position in WWF's biggest Programme Office. Previous to this, Niall worked for six years as Country Director in Gambia, Ghana and Senegal for Concern Universal, a UK based International development NGO.

In the world of academia, back in 1998, Niall oversaw the establishment and development of the Agroforestry Research Unit for the Government of The Gambia, developing research programmes for agroforestry systems in sub Saharan Africa's agro-ecological zones.

Niall holds a M.Sc. in Biodiversity Conservation from Imperial College London (specialised in developing community managed nature park conservation plans), a M.Sc. in Forestry from University College Dublin (with ICRAF, specialising in agro-forestry), and a BSc in Forestry, also from University College Dublin.

Niall enjoys the outdoor life, time with his wife and three kids and is passionate about what he does.

### **Abstract**

There is a growing body of evidence that in certain regions of the world, temperatures will reach or exceed 4°C by the turn of the century. This holds significant risks for the Mekong region, resulting in increases in the number of hot days, severe drought, major floods and sea level rise. These events will have serious implications for human health, infrastructure, ecosystems, and associated services. SEI and its Mekong Region partners have launched a 'Robust Decision Support' (RDS) framework that works as a modeling tool to assist decision makers and planners to develop robust policies and strategies for water resources management. A Viet Nam case study demonstrated that RDS helped local decision-makers

and key stakeholders make policy recommendations to improve urban water management practices to address rapid urbanization and climate change in Can Tho City. Actions generated through the RDS framework included increasing investments in domestic waste water treatment, recommending the installation of large storage areas to harvest rain water during storms that can be used to replace ground water pumping during increasingly long dry seasons, and a range of options for increasing public awareness on clean water scarcity. In Thailand, RDS was applied to develop a robust strategy for drought management in Huay Sai Bat watershed in the Northeast region. The Thai study found that among a range of strategies identified through the RDS framework, the use of groundwater as an alternative source of water for both domestic and agricultural use was the most appropriate option to address scarcity due to a wide range of changes in land-use and climate. This has resulted in the local government investing more than 200-million-baht in groundwater development. The RDS framework has additionally integrated gender issues, which has increased awareness and enhanced gender equality in the decision-making process.

## Flood forecast of Han River Flood Control Office

Dr. Ji Youn Sung, *Han River Flood Control Office, Ministry of Land, Infrastructure and Transport, Republic of Korea*

SUNG, Ji Youn is currently a researcher at the Water Resources Information Center, Han River Flood Control Office. She studied civil engineering for her undergraduate at Yonsei University, the biggest university in Republic of Korea. She narrowed down her academic interest to hydrology and continued with a master's. After attaining the master's degree, she started her career at KISTEC, as an officer. Her main duty was conducting safety inspection of hydro facilities. After a year, she moved her career to working at the Han River Flood Control Office as a researcher doing flood forecasting and international cooperation. While working at the Han River Flood Control Office, she obtained a PhD in hydrology from Yonsei University. She has been pursuing her career as a leading expert in the field of hydrology, especially for the flood forecast & management in Korea.

### **Abstract**

HRFCO was established in 1974. This was very meaningful as it was the first national organization specializing in flood control and introducing an automated forecasting and warning system in the Republic of Korea. HRFCO uses advanced techniques and has great experience in water resources management, which includes flood control.

Flood forecasts include the forecast of water level, discharge, time, duration of flood, which is directly relevant to people's lives and properties. The purpose of flood forecasting is to warn the local people in case of any danger related to floods.

The flood forecast system of HRFCO comprises a series of processes to carry out hydrological measurements, data collection, simulations, which influences decision making and determines the dissemination about flooding situation. Multiple issues exist when forecasting flood, as many criteria can influence the model such as the physical makeup of the riverbank. In the whole country, 50 flood forecast points have been installed so far and the number increases year by year. Currently, HRFCO aims to expand the criteria a fourth level. Publishing the floodcast is now done through multiple ways, including an online platform, social media, electronic displays, a smart phone application and even by text message in addition to telephone and fax.

Another important factor is the role of dams. HRFCO has restricted the dam water level during the flood season, in order to use the reservoir for additional flood control. If water needs to be released, the power companies, such as K-Water have to get the approval from the HRFCO. Through this process, HRFCO can minimize the damage from floods and use the water efficiently.



## Using flood-based livelihoods to restore the flood retention ecosystem function of the Mekong Delta, Vietnam

Dr. Andrew Wyatt, *Mekong Delta Program Manager, IUCN Vietnam*

Co-author: *Jake Brunner, IUCN, Head of Indo-Burma Group*

Dr. Andrew Wyatt is the Mekong Delta Program Manager for IUCN Vietnam where he has been overseeing implementation of IUCN's projects in the Mekong Delta since 2013. He has a multi-disciplinary academic background in natural resource management with a Ph.D. from the School of Geosciences, University of Sydney. Over the last 15 years, he has been based in Vietnam where he has held academic and project management positions.

### Abstract

Since reunification in 1975 and particularly since 2000, the two major floodplains of the Mekong Delta, the Plain of Reeds and the Long Xuyen Quadrangle, have undergone substantial modification. To grow three crops of rice a year, initially in response to national food shortages and more recently to increase rice exports, high dikes were built to displace floodwaters. Between 2000 and 2011, the total flood storage volume in the upper delta almost halved. Reduced flood storage has caused a decline in the delta's ecosystem functions and resilience to climate change.

There is now high level government commitment to reverse this situation in order to restore the resilience of the delta by conserving the remaining floodplain area and possibly restoring lost floodplain area. Because land-use policies and water control infrastructure are geared toward rice intensification, restoring the ecosystem functions of the upper delta will require a major expansion of flood-based livelihoods.

Farmer acceptance of flood retention livelihoods depends largely on their profitability. Preliminary research of flood-based farming systems shows higher profits compared to triple rice cropping. By using flood water as the basis of profitable livelihoods, farms can absorb and store flood waters as would a natural flood plain. 1 m-high dykes that are over-topped can be used to temporarily hold back early onset floods and to control flood recession to ensure that the flood season crop can mature. Farming systems based on lotus can store 1,500 m<sup>3</sup> of flood water per 1,000 m<sup>2</sup>, which is more than double that of intensive rice cropping. To upscale these models, IUCN and Coca Cola, and other development partners such as GIZ are addressing barriers including: farmer extension; markets and supply chains; dike modifications; and drought and flood early-warning so that farmers are able to decide on alternatives if low floods are expected.



## Evaluation of water balance process in dry season for the rainfed areas in Thailand: Case study from 2016 to 2018

Mr. Laonamsai Jeerapong, *Civil Engineer, Practitioner Level, Water Crisis Prevention Center, Department of Water Resources, Thailand*

*Co-authors: Supapap Patsinghasanee, Civil Engineer, Senior Professional Level, Water Crisis Prevention Center, Department of Water Resources, Thailand; Kalayanee Suwanprasert, Policy and Planning Analyst, Professional Level, Water Crisis Prevention Center, Department of Water Resources, Thailand; Jirawat Pracheepchai, Civil Engineer, Practitioner Level, Water Crisis Prevention Center, Department of Water Resources, Thailand; Winai Wangpimool, Civil Engineer, Senior Professional Level, Bureau of International River Basin Management, Department of Water Resources, Thailand*

Mr. Laonamsai Jeerapong is an experienced engineer. He received his Master in Engineering and Water Resources Engineering from Chulalongkorn University and a Bachelor of Engineering from King's Mongkut University of Technology in Bangkok, Thailand. Currently, he works for Thailand's Department of Water Resources, serving as a civil engineer at the practitioner level.

### **Abstract**

The annual rainfall uncertainty affects the available water volume for water storage in reservoirs and other various waterbodies. In addition, in Thailand the water available during the dry season is dependent on effective water management and currently experiences rough challenges due to a gradual increase in water demand every year due to the economic growth. The most affected areas are the rainfed areas since there is a lack of water distribution systems and water management plans. Therefore, the water balance process is necessary to predict the water deficit areas and prepare a mitigation plan for equal water distribution. For this reason, the water balance process was used to determine the water deficit areas at district level in Thailand from 2016 to 2018. The available water was evaluated by measuring all the existing water in small reservoirs, waterbodies and watercourses. To estimate water demanded by agriculture satellite images were used to classify paddy- and eco-plant fields. Furthermore, the water demand of domestic households was estimated by using the number of population in the urban and rural areas. Finally, the number and type of factories present in the area was calculated to incorporate industrial water demand. The results from this study on water balance were in good agreement with drought areas as identified by the disaster management agency from 2015 to 2017. Consequently, we can conclude that the methodology used for this study is a powerful tool for the prediction of areas with water deficit at a district level in Thailand.



## Session 1b: Panelist

*Dr. Lam Hung Son, Head of Regional Flood Management and Mitigation Center, MRCS*

Dr. Lam Hung Son has 30 years of experience working in Civil/Water Resources Planning and Management; flood control and protection; environment planning. He has worked for the Institute for Water Resources Planning (IWARP) for 21 years as: Chief of Water Resources and Environment Planning Division; Chief of Water Quality Analytical Laboratory; Chief of

Northern Water Resources Planning Division; and Chief of Representative IWARP Office in Central Vietnam.

In 2008 he has worked for the Viet Nam National Mekong Committee (VNMC) as the National Coordinator for the Initiative on Sustainable Hydropower and Integrated Water Resources Management Project. From 2009 to 2013, he has worked for the MRCS as the Coordinator of the Flood Management and Mitigation Programme (FMMP).

Currently, he is the Head of the MRC Regional Flood Management and Mitigation Center (RFMMC). The center provides river flood forecast on the mainstream of the Lower Mekong Basin (LMB) during the flood season and river flow monitoring during the dry season, and Flash Flood Guidance in the highland of the LMB to the MRC member countries.



## Session 1b: Panelist

*H.E. Mr. Ponh Sachak, Director General of the Technical Affairs, Ministry of Water Resources and Meteorology, Cambodia*

H.E Mr. Ponh Sachak has been working for the Ministry of Water Resources and Meteorology since 1991. As Director General of the Technical Affairs, H.E Mr. Ponh Sachak manages Rural Development and Irrigation

Rehabilitation and Construction Projects and technical affairs of Departments of Hydrology and River Works, Irrigated Agriculture, Meteorology, Famer Water User Community, Engineering, Water Supply and Sanitation and Water Resources Management and Conservation. H.E Mr. Ponh Sachak previously worked as Irrigation Engineer for the UNDP-ILO for four years and was Co-manager of EU-PRASAC for eight years.



## Session 1b: Panelist

Dr. Provash Mondal, *Humanitarian and Resilience Manager, Oxfam Laos*

Dr. Provash Mondal works as a Humanitarian and Resilience Manager of OXFAM in Laos. He specializes in project and program cycle management, managing emergency preparedness, developing contingency plans, emergency relief and rehabilitation, disaster risk reduction, climate change adaptation, livelihoods and WASH sectors.

He joined Oxfam in 2000, and has worked in Bangladesh, India, the Philippines, Viet Nam and Laos. Provash has worked initially with GUP, a national NGO in Bangladesh and worked for ActionAid UK, MSF-Holland, EU and Bangladesh government bilateral projects.

Provash graduated in Economics, awarded MA in Rural Development, and has a PhD degree in Disaster Management, dissertation on “Climate Change Adaptation and Local Action Planning in Ben Tre province in Vietnam”. He obtained a bachelor’s Degree in law, with a concentration in International Humanitarian Law, Human Rights.



## Session 1b: Panelist

Dr. Muhibuddin Usamah, *Project Manager, Strengthening Climate Information and Early Warning System in Cambodia, United Nations Development Programme, Cambodia*

Dr. Usamah has over 12 years of experience in various dimensions of disaster management, with focus on multi-hazard risk assessment and disaster risk reduction project formulation and implementation in Europe, Asia, Australia, South America and Africa. He works as a project Manager of Strengthening Climate Information and Early Warning System in Cambodia.

Earlier, he worked in Sierra Leone on Hydro-Meteorological Risk Mitigation as well as in Pakistan, Bosnia Herzegovina and Ecuador in managing various Climate Change Adaptation and Disaster Risk Reduction initiatives. In his earlier career, he was involved in the Program for Hydro-meteorological Disaster Mitigation implemented in few countries in East and South-east Asia.

He holds PhD degree in Disaster Management from Royal Melbourne Institute of Technology, Melbourne, Australia; and MSc in Natural Hazard Studies from International Institute for Geo-Information Science and Earth Observation (ITC), the Netherlands.



## Use of water monitoring information and data for Mekong Basin management and development

Mr. Vongthasone Vilaythong, *Information System and Database Specialist, MRCS*, and  
Dr. Paradis Someth, *Water & Climate Monitoring Specialist, MRCS*

Mr. Vongthasone Vilaythong holds a Master of Computer Science from L'Institut de la Francophonie pour l'Innovation (IFI) and Hanoi University of Science and Technology, Vietnam and a Bachelor of Computer Engineering from the Institute of Technology of Cambodia, Cambodia. Prior to joining MRC, he worked for IBM as project manager and program manager for more than four years. He joined MRCS as Management of Information System Officer for the IT Unit attached to the Finance and Administration Section.

Dr. Paradis Someth specialises in Hydrology and Water Resources Engineering, joined the MRC in 2012 as Hydrology Specialist and then Water Utilisation Specialist, having been a Lecturer and Researcher in Hydrology at Institute of Technology of Cambodia since 2002. His studies cover water balance analysis from plot-scale to basin-scale, irrigation and hydropower development, hydrological analysis and modelling of the Tonle Sap Lake and Mekong Basin. He holds an Engineer Diploma in Rural Engineering from Cambodia/Belgium, Master's degree and PhD in International Environmental and Agricultural Engineering from Japan.

### Abstract

Data is the fact that provides information for supporting the operation and planning of an organisation - these analysed data and information will be stored as knowledge base. Water monitoring data is critical for scientists to assess and advise how best to manage, protect and develop the water resources.

River monitoring and observation take place at various levels, including global, regional, sub-regional, national, and local level. This includes: hydrology, meteorology, sediment, water quality, fishery, diversity and environment.

Establishing and maintaining monitoring systems is costly and requires long-term planning. It is important that monitoring systems have a stable institutional base and carry out their activities according to proper technical and scientific standards. Monitoring systems, however, need to also evolve over time to address new environmental issues and make use of new technical capabilities.

The MRC Procedures for Data and Information Exchange and Sharing (PDIES) are the set of rules to support the coordination of intergovernmental technical cooperation between the four member countries. Under the PDIES, the member countries established the MRC Information System, which receives and stores data and information from the member countries and makes it available for public use. Additionally, the PDIES have enabled the MRC to accumulate and synchronise data from the member countries, providing transboundary perspectives on a range of issues along the Mekong River Basin.

The MRC Information System allows the member countries to access to near real-time data and information and quality controlled data. Additionally, they can also access to results and findings of the MRC works and studies of both positive and negative impacts of different water development scenarios on the Mekong basin. Furthermore, the MRC assists in technical capacity building at the national level and regional level.



## Improving data for water resources management

Mr. Suparerk Janprasart, *Coordinator of the LMI Sustainable Infrastructure Partnership Program, and*

Ms. Christy Owen, *Country Director, PACT Thailand*

Mr. Suparerk Janprasart, has been the Lower Mekong Initiative (LMI) Sustainable Infrastructure Partnership (SIP) Coordinator at Pact since September 2016. Sup brings extensive professional experience working in the Lower Mekong region on a number of interrelated disciplinary areas including water resources management, environmental and socioeconomic planning, climate change adaptation, urbanization, agriculture, stakeholder engagement, and youth leadership. He possesses nearly 20 years of working experience internationally and particularly in the Mekong region on development initiatives implemented from grassroots to national levels, and has served in various senior management and technical roles for organizations that include ADB, Australian Aid, MRCS, USAID, IUCN, WWF, ISET, UNDP, GIZ and YMCA. Sup is currently based in Bangkok, but maintains professional networks with a wide range of key water stakeholders in the Mekong region in Thailand, Lao PDR, Cambodia, Viet Nam, and Myanmar. Sup received his Master's degree in International Environmental Science from Lund University, Sweden in 2005, and is a PhD candidate at Mahidol University International Program, Thailand. His PhD research focuses on water and flood management, and climate resilience building in the Lower Mekong region through adoption of non-traditional approaches.

Ms. Christy Owen is an accomplished manager of international development programs, with 17 years of experience in developing and managing programs in the areas of natural resources management, climate change adaptation and mitigation, social development, governance, and partnership building. As Country Director for Pact in Thailand, Ms. Owen currently oversees the US Department of State-funded Sustainable Infrastructure Partnership (SIP), focused on strengthening capacities of Mekong governments to plan, design and operate largescale infrastructure projects in a sustainable manner. She also serves as the Chief of Party (COP) for the regional USAID-funded Green Invest Asia project, and was previously COP on the Mekong Partnership for the Environment project, both managed out of Bangkok. Previous to these projects, Ms. Owen managed multiple largescale development projects in a number of regions from Latin America to Asia. Ms. Owen has extensive experience forging partnerships with diverse stakeholders from governments, private sector, and civil society, to address complex issues with a solutions-based focus. She is happy to contribute to this important conversation about coordination and collaboration among regional frameworks in the Mekong region. Originally from the United States, Ms. Owen has been primarily based in Thailand for the past six years.

## Abstract

Diverse capacity challenges and cooperative opportunities have often arisen in the long history of integrated water resources management (IWRM) in the Lower Mekong region. In recent years, and with the rapid pace of technology growth, improving access to, management of, and effective use of hydro-meteorological and water-related data has become a priority for IWRM. Although some progress has been made, technical and political barriers persist and the pace of modernization of data management practices has varied among lower Mekong countries. These barriers can limit sharing and exchange of essential water data and related information among different stakeholder groups, including regional and national water related agencies and institutions, private sector and industry, academia, and local water users. However, the prospects to close IWRM capacity gaps and to improve science-based decision for the lower Mekong are emerging at various scales and levels, from regional to local, and across a variety of working relationships. Indeed, we are at a critical juncture for interested actors engaged across the region to coordinate efforts to improve IWRM and water data management capacities for the Lower Mekong region.

Drawing from two key regional stakeholder consultation events conducted in late 2017, and interim results from a rapid needs assessment study to inform the development of the Mekong Water Data Initiative (MWDI), there is consensus from most key stakeholders that there is a real need for a dedicated initiative that will work to improve water data management systems and processes in the Mekong Basin. It is also agreed that active representation from key institutions and organizations will be necessary to ensure that the initiative is responsive to both national and regional developmental needs and visions.

This presentation will present key findings from the previously held consultations and will establish a space for open discussion and information exchange with participants at the 3rd MRC Summit. Inputs received from the session will directly inform the on-going needs assessment study for the development of the MWDI.



## Integrated water resources management in K-water: Example of a drought risk management by multi-purpose dam

Dr. Su-Hyung Jang, *Principal Researcher, Water Resources Research Center, K-water Institute, Republic of Korea*

Co-authors: *Kyongsik Ryoo, Shinuk Kang, and Jinhyeog Park (Strategic Research Group for Korea Water Grid, K-water Institute, South Korea)*

Dr. Su-Hyung Jang is a principal researcher in the Water Resources Research Center of K-water. He attained a Master's degree and a Ph.D. in Civil and Environmental Engineering from Korea University. He has started his career as water resources engineer at Korea Engineering Consultants Corp. After completing his PhD, he worked as a research professor at the Research Center for Disaster Prevention Science and Technology at the Korea University. Furthermore, he worked as a postdoctoral researcher and assistant project scientist at the Department of Civil & Environmental Engineering at UC Davis. In 2016, his paper on "Downscaling Global Climate Change Simulations to Regional Scales: Statistical Downscaling versus Dynamical Downscaling" was nominated for the Best Technical Paper Award on ASCE-EWRI's in the Journal of Hydrologic Engineering. Additionally, his paper on "Physically Based Estimation of Maximum Precipitation over Three Watersheds in Northern California: Atmospheric Boundary Condition Shifting" was assigned with the ASCE Society Award and a J. James R. Croes Medal. Dr. Su-Hyung Jang is a leading expert in hydrologic engineering.

### **Abstract**

K-water is a water-specialized public company and was established in 1967. The company has adopted integrated water resource management (IWRM) principles taking into account changes in water management conditions such as climate change. Furthermore, K-water aims to increase and diversify the value of water and thereby supporting nature and humankind. Currently, K-water is responsible for 95% of Korea's flood control system, 65% of the overall water supply and finally, it manages 63% of Korea's hydro power generation and supply. In this study, the IWRM strategy that was developed by K-water is briefly introduced in addition to a method of drought risk management using multi-purpose dams. Multi-purpose dams have successfully been used for flood prevention but remain unsuccessful to sustainably store water and contribute to the essential water supply, especially during drought periods. Two-thirds of the annual precipitation occurs during the wet season from June to September, but the spatial and temporal precipitation patterns differ over the regions and seasons. In the end, it is very difficult to recognize when drought starts and ends. For this reason, K-water has developed a drought contingency plan and reservoir operation rules to minimize the drought risks and to maximize the water supply.



## Water information systems – The art of the possible

Prof. Robert Vertessy, *former Director, Australia's Bureau of Meteorology*

Rob graduated with a PhD from the Australian National University (1990). He joined CSIRO as a research scientist in 1987, and is widely published in the field of hydrology.

Rob served as Chief Executive of the Cooperative Research Centre for Catchment Hydrology (2002–2004) and Chief of CSIRO's Land and Water Division (2004–2007). In late 2006 he was seconded to the Department of Prime Minister and Cabinet to design a national water information strategy. He then joined the Bureau of Meteorology in 2007 to oversee its implementation as a new Bureau service.

Rob served as CEO of the Bureau of Meteorology from 2011 to 2016. During this time he was Australia's Permanent Representative to the World Meteorological Organization (WMO). In 2013 Rob was elected a Fellow of the Australian Academy of Technological Sciences and Engineering.

Rob retired from the Australian Public Service in April 2016. In January 2017, he took up a part-time role with the University of Melbourne School of Engineering as an Enterprise Professor, conducting research on climate change and water security. Rob is the Principal of Global Change Advisory, a consulting company he established focused on environmental intelligence.

### Abstract

Experience from around the world demonstrates that effective water management can only be realized with rigorous evidence-based decision making, informed by reliable water information. Investments in water information have been shown to yield very positive financial returns, via significant mitigation of disaster risk, improvements in water use efficiency and cost-effective design of water infrastructure. However, around the world, water sector participants are expressing frustration that they lack access to reliable water information, despite the urgency to tackle profound and worsening water management problems. Put simply, in many countries, water data is not being used to improve public understanding of the water situation and to support decision making.

Over the last decade the Australian government invested heavily in the development of a new national water information service, operated by the Bureau of Meteorology. We learnt that getting water information “right” is a major challenge, requiring careful planning, judicious investment and diligent execution of strategy. At the request of the UN/World Bank High Level Panel on Water, the Australian experience and the wisdom of other practitioners has been distilled into the Good Practice Guidelines for Water Data Management Policy. These guidelines are intended for officers responsible for formulating and implementing government strategy to improve water information, with the aim of improving water policy, planning, management and operations. These officers may be drawn from a variety of fields, including hydrology, information technology, business process improvement and central government. Their collaborators, drawn from the private sector and the research sector, as well as donor agencies, are also an important audience for these guidelines.

This presentation will argue the merits of investing strategically in water information, highlighting innovations pioneered in Australia. It will also introduce the good practice guidelines, highlighting the seven elements of good practice.



## Using satellite data for land and water management – Digital Earth Australia and Open Data Cubes

Mr. Norman Mueller, *Director of Product Development for Digital Earth Australia, Geosciences Australia*

Mr. Norman Mueller is a Director of Product Development for Digital Earth Australia, a geoscience data storage and analysis facility of Geoscience Australia. Norman has a background in physics, industrial chemistry and remote sensing science, with experience in both private environmental consultancy and public geoscience. Norman is a specialist in the analysis of optical satellite imagery for land cover and inland water and has been a senior earth observation scientist and science project manager for several years. He has led or contributed to several continental earth observation products including the Dynamic Land Cover Map of Australia and Water Observations from Space.

### **Abstract**

The recent increase in the availability of free and open satellite data has led to the creation of technologies that allow the exploitation of these data for environmental analysis and management over country, continent and regional areas such as the Mekong River catchment. Digital Earth Australia (DEA) is an open-source satellite data storage and analysis system that has been providing environmental management information for all of Australia. DEA has openly provided technology to the international community through Open Data Cubes in dozens of countries. To date Open Data Cubes have provided monitoring information for surface water, vegetation and the coastal zone, with applications in environments such as the arid parts of Africa and the tropical regions of South America. We demonstrate the applications of Digital Earth Australia and preview the Open Data Cube being developed in Cambodia.



## Special session 1: Panelist

Prof. Fuqiang Tian, *Department of Water Resources and Hydropower Engineering, Tsinghua University, China*

Dr. Fuqiang Tian is a tenured associate professor in the Department of Hydraulic Engineering, Tsinghua University. He received his bachelor degree, master degree, and PhD degree from Tsinghua University and started his career from 2000 in Tsinghua University. He visited the University of Illinois at Urbana-Champaign during 2007-2008.

Dr. Fuqiang Tian's research domain covers hydrological processes and modelling, streamflow forecasting, agricultural water management, and so on. He conducts hydrological experiments in a mountainous watershed and field experiments in an oasis farmland. He aims to develop a new generation of hydrological model by incorporating scale adaptable hydrological constitutive relations and feedback mechanisms of ecohydrology, sociohydrology, and hydrometeorology in basins with varied climates and landscapes. Recently his research focuses on the hydrological forecasting and water resources management in the transboundary river basins. The usually ungauged and mountainous areas of transboundary river basins pose new challenges for hydrological studies, and the political dimension poses additional challenges for integrated water resources management. The innovative methods and holistic views are required for the solution of transboundary water issues. Welcome to join us and any kind of collaboration and communication is extremely welcome also.

Dr. Fuqiang Tian has authored more than 130 articles, of which over 60 were SCI indexed with 800 citations. He published three monographs and one teaching material. He got the prize of special award of the Lecture Competition of Young Teachers of National Water Conservancy Subject. He convened several sessions of AGU and EGU meetings, and serves as an editor of EGU journal <Hydrology and Earth System Sciences>.



## Special session 1: Panelist

Dr. Paradis Someth, *Water & Climate Monitoring Specialist, MRCS*

*See presentation in Special session 1*

## Special session 1: Panelist

Dr. Winai Wangpimool, *Civil Engineer, Senior Professional Level, Bureau of International River Basin Management, Department of Water Resources, Thailand*

## Special session 1: Panelist

Dr. Nguyen Anh Duc, *Senior Officer, Viet Nam National Mekong Committee*



## Special session 1: Panelist

Ms. Siv Vatana, *Editor-Researcher, Open Development Cambodia (ODC)*

Vatana is an Editor-Researcher at Open Development Cambodia (ODC). She holds Engineering's Degree of Water Resources Engineering and Rural Infrastructure from Institute of Technology of Cambodia (ITC) from 2014. In the function as an Editor-Researcher, she works closely with other ODC teams in developing online resources and maintaining its quality to meet the organization's required standards. Ahead of performing at ODC, Vatana has worked as a Research assistant under the framework project (LWR-ID/2009/046) of the Australian Centre for International Agricultural Research (ACIAR), and also other research projects at ITC.

# Chapter 2: STRENGTHENING MANAGEMENT, DEVELOPMENT AND COOPERATION REGIMES

Partnerships with UN ESCAP and UNOPS

Session 2a: Monitoring and management of development projects in the Mekong and other basins

Session 2b: Strengthening Mekong cooperation and partnerships

Special Session 2: Integrated water and energy planning – Pathways for sustainable hydropower and other renewables



## Partnership MoA with UN ESCAP

Ms. Tiziana Bonapace, *Director, Information and Communications Technology and Disaster Risk Reduction Division, UN ESCAP*

Ms. Tiziana Bonapace is Director of Information and Communications Technology and Disaster Risk Reduction Division of the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP). Prior to this, Ms. Bonapace was Head of the Subregional Office for North and Central Asia, UN ESCAP.

Ms. Bonapace is an international development economist, who joined the UN in 1990 as a UNIDO associate expert. In 1992 she joined ESCAP's trade and investment programme, where she specialized in the developmental impact of WTO and regional trade agreements, as well as the implications of WTO accession for countries with special needs.

From 2008-2010, Ms. Bonapace led the preparation of ESCAP's flagship publication, the Economic and Social Survey of Asia and the Pacific, on regional macroeconomic performance.

Since 2011, Ms. Bonapace has worked on regional connectivity issues, and the opportunities that seamless infrastructure and market integration offer for economic diversification and competitiveness. Since 2016, Ms. Bonapace has led ESCAP's ICT and Disaster Risk Reduction programme which seeks to build resilience to disasters through improved connectivity and technological innovation.

Throughout her UN career, Ms. Bonapace has led the preparation of studies, research and analytical papers and has participated as a panelist and resource person in many meetings of senior government officials and business leaders.

Ms. Bonapace has lived in Italy, Kazakhstan, Thailand and South Africa, where she obtained her Master's degree in Economics and Commerce, and worked as University lecturer.

### Abstract

Disaster impacts have been outpacing the region's economic growth – rising as a proportion of GDP, from around 0.1 per cent in the 1970s to about 0.4 per cent on average, more recently. The impacts disproportionately affect the poorest. In the Mekong River basin, increases in transboundary flood losses could increase by 1.1 to 2 times, while drought is also an increasingly frequent phenomenon. In this context, the MRC and ESCAP, working in close partnership can integrate the disaster risk reduction and resilience agenda into the overall goal of optimal, well-balanced, and sustainable development in the Mekong River Basin.

ESCAP under the “Roadmap for Implementing the 2030 Agenda for Sustainable Development” places high priority on disaster risk reduction. In the case of the El Nino phenomenon in 2014-2016 that resulted in the worst drought in decades in most ASEAN countries, for instance, ESCAP leveraged its Regional Drought Mechanism to better utilize integrated space-derived and in-season ground data and information for drought early warning. Currently, an ESCAP/ASEAN joint study on Drought and Poverty Alleviation underway, aims to promote risk-sensitive policies based on drought monitoring and assessments. The challenges and opportunities of ex-ante drought risk assessment for financing and mitigating its impacts on poor farmers is also being examined.

The emerging collaboration between ESCAP and MRC to promote disaster resilience for sustainable development is poised, among others, to improve the identification, assessment and mitigation of disaster risks. It opens the scope for developing and optimizing innovations on DRR including the use of space technology applications and geospatial data sharing for floods and drought monitoring and provides a broader regional platform to share experiences, information and data on disaster risks and resilience.



## Partnership MoA with UNOPS

Mr. Sanjay Mathur, *Regional Director, UNOPS Asia*

Mr. Sanjay Mathur is the Regional Director of UNOPS Asia Region. He assumed his duties in September 2015.

Prior to taking up his current appointment, Mr. Mathur, in the role of Director & Representative of UNOPS in Myanmar (2009-2015), set up a full-fledged programme (exceeding USD 1 billion) from scratch. This programme is delivering efficiently and meets stringent UN/UNOPS corporate requirements.

In the position of Deputy Regional Director (APO) from 2007-2009, he took over critical projects and successfully turned around managerial situations where risks were significantly reduced for the organisation and partners. He also started the decentralisation efforts which increased UNOPS' presence at the country level.

As Senior Portfolio Manager & Regional IFAD Cluster Coordinator (2003-2007), Mr. Mathur oversaw the effective supervision and loan administration of IFAD loans and grants in the Asia Pacific Region (exceeding USD 150 million annually). Mr. Mathur strengthened the IFAD Cluster by promoting learning and knowledge management thus strengthening, quality and performance.

Along with the achievements mentioned above, Mr. Mathur was instrumental in diversifying UNOPS' services by using the supervision model used by the IFAD Cluster to build the Local Fund Agent (funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria) operations of UNOPS.

Prior to joining the United Nations, he worked as a business consultant and a project management officer in New York.

Mr. Mathur graduated with an MBA, majoring in Finance, from University of Michigan, Ann Arbor, USA. He completed his BA in International Business at American University of Paris, Paris, France.

Mr. Mathur is married with two children. He is fluent in English, French and Hindi.

### **Abstract**

The MRC plays a vital role supporting management and sustainable development of water resources.

The United Nations Office for Project Services' (UNOPS) mission is to help build better lives and achieve peace and sustainable development. We look forward to partnering with MRC, Governments and public/private stakeholders to support their efforts achieving the 2030 Agenda.

Ecological integrity and natural resource wealth is key for sustained livelihoods. In Asia, population growth and urbanization continue to increase water resource demands (1% yearly). Climate change also impacts water resources, making vital freshwater a variable resource.

Water management tends to focus on traditional infrastructure design often unable to meet demand or protect against shortages, flooding and biodiversity loss.

Our mandate as an UN organization is to support Member States and partners to achieve their development

goals and the SDGs. Addressing the challenges of too much, too little, or too polluted water is critical for achieving the goals.

Besides sustainability being key in all our mandates, the SDGs, and the Paris Agreement, are all catalysts for change benefiting vital water resources.

With a specific global mandate in infrastructure, UNOPS is well positioned to advise and support governments, using evidence-based approaches. This enables governments to select infrastructure investments that are effective, sustainable and efficient, factoring in future uncertainties and considering growing population needs.

UNOPS can advise on innovative water infrastructure which improve water availability and quality, and provide advanced approaches for resilience to climate change impacts.

UNOPS with the MRC, is committed to support sustainable development. We bring global experience to strengthen integrated, resilience-focused planning and solutions into development strategies.

The signing of a Memorandum of Agreement between UNOPS and MRC is an important first step in this support.



## The five MRC water utilisation procedures: A sound basis for water diplomacy and transboundary water management and cooperation

Dr. An Pich Hatda, *Director of Planning, MRCS*

Dr. Hatda is Director of Planning Division of the MRCS. Before joining the MRCS, he was serving as Deputy Secretary General of the Cambodia National Mekong Committee (CNMC). He was also a former Operations Manager of the Regional Flood Management and Mitigation Centre (RFFMC) of the MRC.

### Abstract

The signing of the 1995 Mekong Agreement was the beginning of a new era of cooperation led by the MRC's member countries. The five MRC Procedures have cemented that commitment, laying the foundation for water diplomacy, and lie at the heart of how the MRC cooperates.

The work on the development of the Procedures started in 2000. All of them were approved by 2006, except for the Procedure for Water Quality (PWQ), which were approved in 2011. The substantive part of using the Procedures to support water diplomacy lies in their Technical Guidelines. The Technical Guidelines for the "Procedural Rules": namely, Procedure for Data and Information Exchange and Sharing (PDIES), Procedure for Water Use Monitoring (PWUM), and Procedure for Notification, Prior Consultation and Agreement (PNPCA) were approved shortly after their Procedures. The Technical Guidelines for the "Physical Rules": namely, Procedures for Maintenance of Flows on the Mainstream (PMFM) and PWQ took more time as they included commitments to thresholds.

The PDIES ensures that we have common data and tools to evaluate potential impacts. The PWUM ensures that these tools and models are supported by up to date information on water use and operating rules. The PNPCA provides a framework for using these tools to identify measures to avoid or minimise potential impacts. Agreement on the PMFM means that new developments on either tributaries or mainstream must maintain downstream flows. The PWQ sets a common basis for monitoring and reporting on the water quality status of the basin.

The MRC has conducted three prior consultation processes to date: the Xayaburi process starting on 10 September 2010, the Don Sahong process starting on 30 June 2014, and the Pak Beng process starting on 4 November 2016. The first two processes did not reach a clear end-point or decision by the MRC Joint Committee. The Pak Beng process, for the first time, concluded with a Statement agreed by the member countries. The Statement is being followed up by a Joint Action Plan (JAP) that will share the data, tools and expertise in the MRC and member countries.

Further improvement on the uptake and use of the Procedures will now focus on how they support water diplomacy in the MRC. The Commentaries will work towards a common understanding of the provisions of the PNPCA, understanding the 1995 Mekong Agreement, and linking the five Procedures. This will help the MRC member countries, new staff of the MRCS, and external stakeholders to understand how the MRC works, and will place the MRC in a better position to further improve the implementation of all Procedures.



## Sustainable development of multipurpose projects in the Mekong and Rhone Basins

Mr. Jérôme Mentre, *Project Manager, CNR representative in Viet Nam, CNR, France*

Co-author: *Dr. Benjamin Graff, Business Developer, CNR, France*

Mr. Jerome Mentre graduated from Polytech Grenoble (FRANCE) specializing in Civil Engineering and geotechnics. He has 35 years of experience in design and supervision of public infrastructure projects. He started his carrier in SOGREAH (ARTELIA) and was mainly involved in river engineering, hydropower and environmental facilities. He joined CNR in 2013 as Civil Engineering Expert in the field of dams, hydropower and river environmental projects. He has worked in France, Senegal, USA, Morocco, Algeria, Cameroun, Ethiopia, Liberia, India, Myanmar, Laos, China, Indonesia, Poland, Ukraine, Bulgaria and Vietnam where he is resident for CNR since 2015.

### Abstract

CNR designed, built and operates 19 HPPs along the Rhone River. CNR was constituted by the French Government in 1933 in order to develop irrigation, navigation and hydropower along the Rhone River. Most of the equipment was built from 1948 to 1986 and CNR is now operating these multipurpose facilities giving irrigation, navigation, hydropower, flood risk management, environmental protection and sustainable development of the territories the same importance.

In 1994, CNR did the master plan of the Mekong River for the Mekong Secretariat. This study allowed identifying the projects that are now under construction or development in Laos. Benefiting of its experience as operator of the Rhone cascade, CNR applied to the Mekong River development the same strategy: cascades of run-of-river projects, multipurpose projects, mitigation of environmental and social issues, and O&M coordination at the level of the whole river. This Master Plan is still the reference study regarding Mekong River development.

From 2009 onwards, on behalf of the Government of Laos (GoL), CNR conducted several major studies regarding cascades optimization, projects feasibility study reviews, sediment transportation upstream Vientiane, and O&M including hydrometeorological monitoring and power forecasting. CNR is now GoL Contract Engineer for Don Sahong and is also working on the feasibility study of a Coordination and Monitoring Center dedicated to the coordination of all the multipurpose HPPs in Laos.

The GoL has the will to develop sustainable hydropower in Lao PDR. CNR, as designer, developer and operator of the multipurpose Rhone River cascade in France, has been supporting Lao PDR as GoL Engineer for 25 years. CNR shares with the GoL its experience and expertise according to international standards and best practices. After a parallel introduction of both Rhone and Mekong catchment areas, the presentation will elaborate on how CNR experience helps in supporting the development of the Mekong River.



## Importance of trans-boundary impact assessment and joint monitoring in sustainable management of the Mekong River Basin

Dr. Truong Hong Tien, *Director of Environment Management, MRCS*

Dr. Truong Hong Tien obtained his Bachelor's degree in irrigation and drainage engineering from Moscow Water Resources University in 1989; Master's degree in water resources development from Asian Institute of Technology in 1996; Doctoral degree in civil engineering and environment from the Nagoya University in 2000; and from 2001-2003, he conducted a postdoctoral study in Nagoya University in the field of soil and groundwater contamination and remediation.

Dr. Tien is currently working as Director of the Environmental Management Division of the MRCS. Before joining the MRCS, he worked as a Deputy Director General of the Viet Nam National Mekong Committee. The experiences of Dr. Tien include integrated water resources management, basin development planning, trans-boundary impact assessment, flood risk management, and climate change adaptation.

### Abstract

Over the past decades, the Mekong region has experienced high rates of economic growth which requires development of water resources for different purposes, including power, agriculture, fisheries production and navigation. This requires at the same time the management of the river and its life- and livelihood-giving ecosystems, for long-term sustainability. To meet these purposes and requirement, the MRC adopted the integrated water resources management based Basin Development Strategy for the period 2011-2015 and updated it for the period 2016-2020, which sets out the shared understandings of the opportunities and risks of the national plans for water resources development in the Lower Mekong Basin.

In order to keep tabs on the development projects using the basin's water, the MRC established Procedures for Notification, Prior Consultation and Agreement (PNPCA), which provide opportunities for countries to jointly review any development project proposed for the mainstream with an aim to reach a consensus on whether or not it should proceed, and if so, under what conditions. To support the prior consultation process, information on the transboundary impacts of the proposed water uses is extremely important and required.

Furthermore, past experiences showed that magnitudes of the transboundary impacts estimated during the planning stages are often different from those that occur during the operation period. Thus, to address this issue, in addition to the joint monitoring of the basin for planning and design purposes, there is also a need to monitor the adverse impacts of the projects during construction and operation periods.

This presentation therefore will outline the importance of the Transboundary Environment Impact Assessment (TbEIA) and joint environmental monitoring in supporting the planning, construction and operation of proposed Mekong mainstream projects, which in turn contribute to the sustainable management of the Mekong River Basin.



## Strategic Environmental Assessment (SEA): Comparative analysis in the GMS countries and implications for SDGs

Mr. Thy Try, *Executive Director, Open Development Cambodia and*

Mr. Aliaksei Patonia, *Research Intern, Open Development Cambodia*

Mr. THY Try is executive director/editor-in-chief of Open Development Cambodia (ODC). He joined ODC as an advisory board member in 2011 and has progressed to become chairman of the board. As executive director/editor-in-chief, he plays important roles in ODC as it increases public access to current and historical information about Cambodia's development trends in an online 'open data' platform, compiling freely-available data from a wide range of public sources. The site strengthens public knowledge and analysis of development issues to enable constructive dialogue between public, private, civil society, and international sectors in support of good governance. Try is helping building the library collection, providing cataloguing support, and maintaining the online digital library of ODC.

Before joining ODC, he worked for the National Network on Extractive Industry Social and Environmental Impact (EISEI) as coordinator at Development and Partnership in Action (DPA) for four years. In his role, Try worked with indigenous communities, community base organizations and national NGOs to build their capacity to monitor issues regarding natural resource management, especially around databases for the mining, oil and gas sectors in Cambodia. He has experience working with companies and government ministries in the extractive industries sector, as well as leadership and management at board of director level. He had two years' experience working for the human right organization ADHOC as human rights investigator and another two years' experience working with a private company in social and commercial research, Indochina Research Limited (IRL). He holds multiple education and training-related certificates.

Mr. PATONIA joined ODC as a research intern after graduating from the University of St Andrews, Scotland. While obtaining his Master's degree in Sustainable Development in Great Britain, Alex focused on renewable energy and environmental impact assessment. Before going to the UK, Alex worked as an energy advisor at the Council of Ministers of the Republic of Belarus supervising foreign investments into the energy sector of his country. Having mastered several Nordic languages, Alex conducted research at various institutions in Scandinavia bringing a number of renewable energy companies from Sweden and Finland to Belarus.

Alex did his undergraduate at Belarus State University and also received an MSc in International Management of Oil and Gas from the University of Liverpool (UK). At ODC Alex is currently dealing with the issues of strategic environmental assessment.

**Abstract**

Environmental impact assessment is a popular process for evaluating environmental consequences of project development. Being well-known in the world, it usually takes place at the end of the decision-making cycle. In contrast, strategic environmental assessment (SEA) coming into place from the very beginning of the decision-making and delivering broader sustainability perspective to its strategic level, represents a more advanced tool in this respect. Although more and more countries in the world are currently implementing SEA, not all the nations in the Greater Mekong Subregion (GMS) take full advantage of this toolset. This presentation thus represents a comparative analysis of the current progress of GMS countries in terms of their incorporation of the SEA in legislative procedures and actual policies, plans, and programs (PPP). Using the ‘traffic light’ color code, it first highlights the most successful SEA champions. Then, it represents their runners-up with respect to the SEA implementation progress. Later, the presentation identifies the least enthusiastic SEA incorporators in the Greater Mekong Subregion. As SEA is commonly believed to be an important contributor towards achieving the UN SDGs, the presentation concludes by representing how SEA implementation in GMS countries can help the nations to reach specific SDGs.



## Linkage of transboundary Mekong water governance and livelihood of community in 3S rivers in Cambodia

Mr. Leang Bunleap, *Executive Director, 3S Rivers Protection Network*

Mr. Bunleap started working as Executive Director of the 3SPN in late 2016. He received a Master of educational management science, Master of Development Study from royal University of Phnom Penh, and a Master of Public policy and Management from combined University of Brunei Darussalam in Brunei and University of Maryland College Park (UMD) in USA. He has more than twenty years of experience working with government and NGOs in Cambodia having served several positions such as school principal, Executive Director of the Children for Better Future (CBF), and Project Manager with Wathnakpheap NGO. As executive director of the 3SPN he is involved with general management, fund raising, capacity building institution, strategic planning, policy reform, and building cooperation with donors and partners from all levels.

Since December 2016 until now, Bunleap has worked with the 3SPN project that aims “to empower local communities to exercises their rights to manage community resources through community-based advocacy and conserving biodiversity along the Sesan, Srepok, and Sekong rivers, in order to ensure sustainable livelihoods and food security”. 3SPN works with the women, men and youth, especially of indigenous communities, living around the 3S rivers to build their capacity, increase awareness of their fundamental rights, engage in research and documentation, and disseminate information about the impacts of hydropower dams on society and the environment. 3SPN cooperates with partners at all levels to define approaches to development and ‘best practices’ that respect and empower local communities regarding their rights, their conservation and management of their natural resources, and their livelihood security.

### Abstract

This topic intends to share with the participants of the MRC International Conference the importance of transboundary water governance to secure community livelihoods in the 3S Rivers. The communities are dependent on water sources for their livelihoods. They believe that “Our river is our life”, which is the meaningful slogan of people living along the 3S Rivers (Sesan, Srepok, and Sekong).

The presentation will share key information related to livelihood and culture of indigenous living in 3S rivers basin. The transboundary water system is critical to the livelihood of people in the rivers. Hence, it’s important to develop mechanism and joint action plans to enhance stakeholder engagement and awareness on water management. One example is MRC’s project on Integrated Water Resources Management (IWRM) for water governance in 2S (Sesan and Srepok) rivers. Further emphasis is put on the role of the two agencies, CNMC and VNMC, to strengthen cooperation and dialogue between Cambodia and Viet Nam to improve sustainable management and development of the 2S water resources and minimise impacts. The construction of the Yali Fall hydropower dam on Sesan river in Vietnam that has caused serious flooding in downstream in Cambodia and upstream in Vietnam, showed how crucial the roles of CNMC and VNMC actors are to engage in transboundary water governance issues. At community level, 3SPN formed the network along this river, then expanded the network to Srepok, and sekong rivers to help dam affected communities. In 2003, 3SPN, NGOF and CEPA created the Rivers Coalition in Cambodia to support dam-affected communities on the Sesan River. The presentation highlights the importance to explore the social and environmental impacts of the Lower Sesan 2 dam project and discusses the newly proposed dam project in the 3S area and Mekong mainstream. Finally, the presenter will provide recommendations to MRC and relevant stakeholders.



## Learning from the M-IWRM Communication Outreach between the Tonle Sap and Songkhla Lake basins

by H.E. Mr. Hell Tony, *Secretary General, Tonle Sap Authority and*

*Mr. Sen Viseth, Director of Exploitation Control and Conservation Department, Tonle Sap Authority, Cambodia*

2013. The Tonle Sap Authority sits under the Ministry of Water Resources and Meteorology and is tasked to coordinate the management, conservation, and development of the Tonle Sap River basin aiming at addressing the emerging challenges and ensuring the sustainable management and development of the basin.

H.E. Mr. Tony has held a number of senior positions within the Cambodian government over the past 15 years. This includes positions as Deputy Chief of Investment Planning Department and Deputy Director of Economics Planning Department at the Ministry of Planning, and Director of Administration, Planning and Cooperation Department of the Tonle Sap Authority. He is an experienced manager in managing and disseminating national and sub-national socio-economic development plans and public investment plans.

He received his graduate degree in Public Policy from Tokyo's National Graduate Institute for Policy Studies, Japan.

Mr. Sin Viseth has more than 20 years of experience in the field of fisheries, including fisheries research, monitoring and management, and reservoir control. Currently, he is Director of Exploitation Control and Conservation Department at the Tonle Sap Authority. He holds a Master of Political Sciences from the University of Chamreaun Pehuvichea, Cambodia.

### **Abstract**

The "M-IWRMP communication outreach project: Learning from the lakes" is a regional project between Cambodia and Thailand. IWRM principles have been implemented in the Tonle Sap Lake of Cambodia and Songkhla Lake Basin of Thailand from 2014 to 2017. The project was funded by the World Bank through MRC M-IWRMP. The project aimed for good resource governance to ensure the ongoing health of both the Tonle Sap and the Songkhla Lake, for the benefit of sustainable livelihoods, and serving as an example for inspiration elsewhere. Pilot areas were selected in both lakes: in Tonle Sap Lake of Cambodia, Rohal Sourng -Sdei Krom Community Fisheries were selected.

Both lakes use communication outreach demonstration, including exchange visits (4 joint sessions), public awareness raising (4 session in TSL) and shadow plays (one session in Songkhla Lake). Furthermore, a VDO exchange workshop (one joint session) was organized in addition to video clips (one joint session) and Line group (one joint session). Social media such as Facebook and YouTube (video clips) have also been used to increase stakeholders' awareness of the joint work between the Tonle Sap and Songkhla lakes. The M-IWRM communication unit uses the members of each working group as a communication channel to reach both locals and external audiences to increase awareness on topics such as climate change adaptation, fisheries management and women empowerment as well as environmental protection within the lake.



## Emfuleni municipality partnership project on water conservation and demand management

Mr. Lenka Thamae, *Executive Secretary, Orange-Senqu River Commission (ORASECOM)*

Thamae is Executive Secretary for the Orange Senqu River Commission, a position held since 2007. He leads a team that manages and implements the Commission programme to generate advise for the four basin States of Botswana, Lesotho, Namibia and South Africa on development, management and conservation of water resources. He holds an MSc Degree in Water Resources Engineering (University of Guelph, Canada). Thamae has previously worked on policy and institutional development in water resources and environmental management at the regional level at SADC (the Southern African Development Community) and IUCN ROSA (The World Conservation Union Regional Office for Southern Africa). In addition, in his career, he made contributions in negotiation of the SADC Protocol on Shared Watercourses, the SADC Regional Environmental Policy and Strategy and other instruments that promote sustainable use of natural resources in Southern Africa.

### **Abstract**

The presentation is aimed at sharing experiences on an innovative partnership between the Emfuleni Local Municipality (ELM) in South Africa, Sasol (a petro-chemical company) and GIZ, with additional participation of *ORASECOM* (the Orange-Senqu River Commission). The project aimed to reduce Sasol's water risks by enabling it to invest in water-loss reduction in an 'upstream' municipality, simultaneously reducing the municipality's costs and its residents' water insecurity. Through ring-fencing of cumulative savings realised by the Municipality it was then also able to reinvest in further water conservation activities in the ELM. The project also included extensive water conservation awareness in the community, and active participation of the youth including in identification of main leakages in the Municipality. The overall impact realised also included reduction of the stress on the integrated Orange-Senqu River System, as a key supplier of fresh water, and potentially on other ecosystems through replication.



## Session 2a: Panelist

Dr. Truong Hong Tien, *Director of Environment Management, MRCS*

See presentation Session 2a



## Session 2a: Panelist

Ms. Maureen Harris, *Southeast Asia Program Director, International Rivers*

Ms. Harris works with people's movements and civil society partners in Southeast Asia in efforts to protect the region's vital transboundary rivers and to safeguard ecosystems, natural resources, rights and livelihoods. Prior to joining International Rivers, Ms. Harris worked with EarthRights International, coordinating regional legal advocacy initiatives in support of local communities in the Mekong affected by hydropower dams, land concessions and mining projects. She has also worked with the Australian Human Rights Commission on human rights and judicial reform projects in China and Vietnam, and on human rights documentation and research in India and Australia. Ms. Harris holds Bachelors' degrees in Arts and Law from the University of Sydney and a Master of Laws (Human Rights and Social Justice) from the University of New South Wales in Australia.



## Session 2a: Panelist

Dr. James Dalton, *Coordinator Global Initiatives, IUCN  
Global Water Programme*

Dr. James Dalton joined IUCN in 2009. Before IUCN he was based in Fiji at the Pacific Islands Applied Geoscience Commission (SPC-GSD) working as the Integrated Water Resource Management Adviser. He worked across the Pacific Island Countries supporting them on water resource development, sanitation and hygiene, and ridge to reef watershed management. In a prior life he was a development consultant for ITAD-Water, a specialised monitoring and evaluation and programme design consultancy based in the U.K. For over three years he provided advisory support to consecutive Department for International Development (DFID) Senior Water Advisers and water teams. He is an irrigation engineer and holds degrees in rural development, science and politics, irrigation engineering, and a PhD in Civil and Environmental Engineering focussing on groundwater management in the Aral Sea Basin. He has worked on water management for 20 years in over 25 countries worldwide, with extended periods working in the Pacific, Central Asia, East Africa, Eastern Europe and the Middle East. He sits on the governance committee of the Hydropower Sustainability Assessment Protocol. He is currently based at IUCN Headquarters in Switzerland, and Coordinator of Global Initiatives in the Water Programme.



## Session 2a: Panelist

Ms. Thi Dieu My Pham, *Director, the Centre for Social  
Research and Development (CSR)*

Ms. Thi Dieu My Pham has a MA in Natural Hazards and Disasters from the Australian National University, Australia (2011).

She has over 15 year experience in doing research and development projects in natural resource management, natural disaster mitigation and climate change response, with a background in international and national scale projects. Skilful in managing projects and research activities at a local level and with disadvantaged people.



## Session 2a: Panelist

Mr. Senglong Youk, *Deputy Executive Director, Fisheries Action Coalition Team (FACT, Cambodia)*

Mr. Senglong YOUK is Deputy Executive Director (DED) of the Fisheries Action Coalition Team (FACT) and Coordinator/Spokesperson for the Tonle Sap Lake Water keeper (TWK) based in Phnom Penh. Currently, he is also a Steering Committee member of Rivers Coalition in Cambodia; coordination committee member of Save the Mekong Coalition; and member of advisory group for the 3S Nexus project hosted by IUCN.

Senglong has been working on environment and water issues, especially fisheries and natural resources and hydropower development in the Mekong region and its major tributaries as Tonle Sap Great Lake since 2000. Senglong is now doing his thesis for Master Degree in Natural Resources Management (NRM) at Royal University of Phnom Penh (RUPP) in Phnom Penh.



## Strengthening the 1995 Mekong Agreement

Dr. Pham Tuan Phan, *Chief Executive Officer, Mekong River Commission*

See Final session chair

### **Abstract**

The MRC CEO offers reflections on the needs to strengthen the 1995 Agreement, including with elements from the UN watercourses convention and the experiences of Israel, Singapore and Australia.



## Benefits and challenges for the Lower Mekong countries deriving from the 1997 UN Watercourses Convention

Dr. Alejandro Iza, *Director of the IUCN Environmental Law Centre, Bonn, Germany*

Co-author: *Diego Jara, Legal Research and Technical Assistant, IUCN Environmental Law Centre*

Dr. Alejandro Iza is Head of the IUCN Environmental Law Programme and Director of the IUCN Environmental Law Centre since January 2005. From a combined academic and practical background, his expertise includes a broad range of issues in international environmental law and diplomacy, with special focus on water resources and marine and oceans law, environmental protection and regional integration. In his academic career, he has taught public international law, international environmental law, and regional integration. He holds a Master of Laws from the University of London, and a Ph.D. in International Law from the University of Buenos Aires, where he was also a lecturer and research fellow.

### **Abstract**

Since its adoption in 1995, the Mekong River Agreement (MRA) has constituted the basis for INTERNATIONAL COOPERATION on the sustainable development of the Mekong. Originally held up as the most progressive institutional framework for the governance of international watercourses, there is growing interest in supplementing the MRA to reflect significant changes in regional demand for water, food, and energy over the last 20 years.

Taking into account these changes and the recent entry into force of the Convention on the Law of Non-Navigational Uses of International Watercourses (UNWC), a path to strengthen the MRA has emerged. The potential accession of the MRA member states to the UNWC would provide much needed clarity and specificity to the provisions of the MRA, particularly relating to substantive norms, procedural rules, and disputes settlement.

The potential accession to the UNWC could facilitate resolution of conflicts, as shown by the International Court of Justice case *Gabčíkovo-Nagymaros* between Hungary and Slovakia, which set a precedent for the equitable and reasonable use of transboundary water resources. While the UNWC has helped resolve conflicts, it has also shown its value in preventing disputes and enhancing cooperation beyond water to other fields such as trade and economic integration.

To determine the benefits derived from a potential accession and implementation of the UNWC by the MRA member states, it is necessary to raise understanding at multiple levels of government and civil society. To this end, the MRC could serve as a platform for member and non-member states to discuss the content and added value of the UNWC.



Beyond international water law – Successfully negotiating mutual gains agreements for international watercourses

Prof. Richard Paisley, *University of British Columbia and UN Expert on transboundary water management*

See Session 2b facilitator

## Session 2b: Panelist (I)

Madame Do Hong Phan, *Senior Institutional Expert, Viet Nam*



## Session 2b: Panelist (I)

Mr. Kanya Khammoungkhoun, *Deputy Director General, Department of International Organisation, Ministry of Foreign Affairs, Lao PDR*

Mr. Kanya Khammoungkhoun is a career diplomatic with wealth experience in multilateralism. He was appointed as Deputy-Director General of the International Organization Department of the Ministry of Foreign Affairs of the Lao People's Democratic Republic in May 2017. He directs economic and social issue, especially on the cooperation between the Lao Government and the specialized agencies of the United Nations as well as the intergovernmental organization cooperation.

Prior to this appointment, Mr. Kanya served as the Counselor and Deputy Permanent Representative to the Permanent Mission of the Lao People's Democratic Republic to ASEAN in Jakarta, Indonesia from 2015 to 2017. In Jakarta he was sitting as the Chair of the Working Group of the Committee of the Permanent Representatives to ASEAN (CPRWG) during the Laos's ASEAN Chairmanship 2016.

From 2010 to 2014 he was appointed to serve as a Second Secretary to the Permanent Mission of the Lao People's Democratic Republic to the United Nations in New York, whereby he had gained a lot of experiences on international relations.

Mr. Kanya graduated from Flinders University of South Australia in 2008, with a Master Degree on International Relations. He entered public service in 2000, as a desk officer in charge of personnel management and training within the Ministry of Foreign Affairs of the Lao PDR.

Mr. Kanya was born in 1977 in Vientiane Province. He is married to Mrs. Phonemaly Inthaphome who is also serving as a public servant in the Lao PDR. They have one daughter.



## Session 2b: Panelist (I)

Dr. Marko Keskinen, *Lecturer, Aalto University, Finland*

Dr. Marko Keskinen works as University Lecturer at Aalto University, Finland. He has long experience on international water issues, having worked e.g. for the MRC, the Asian Development Bank and the World Bank. He has also worked as International Water Adviser at the Finnish Ministry for Foreign Affairs. Marko has published over 50 scientific articles, and his research interests include science-policy interactions, integrated water resources management, resilience as well as transboundary cooperation. His research career started in 2002 with a Master's Thesis looking at Cambodia's Tonle Sap Lake and its water-related livelihoods.



## Session 2b: Panelist (I)

Mr. Voradeth Phonekeo, *MRCS Advisor*

Mr. Voradeth Phonekeo joined the MRC on 28 April 2008. He holds a Master of Science in Hydropower Engineering from Moscow. He served the Government of Lao PDR in the field of hydropower for more than 20 years and prior to joining the MRCS, he worked as IWRM National Planning Expert for the Nam Ngum River Basin Development Project.

In the beginning of his carrier he has been involved extensively in assembly and maintenance of hydro generators and hydro turbines for hydropower plants. He has joined feasibility studies of large hydropower projects such as Theun Hinboun, Nam Theun 2, and Nam Ngiep1. He has also been actively involved in the preparation of important documents in all stages of hydropower development among which include the power purchase agreement, concession agreement. He has also taken part in various public consultations at all levels for many hydropower projects in Lao PDR. His other involvement includes collaborating in the preparation of the EIA and EMP guidelines for Hydropower in Lao PDR and contributing to the preparation of Civil Standard for Hydropower dams in Lao PDR.

With the MRCS, he has worked as Programme coordinator for the Initiative for sustainable Hydropower from 2008 to 2015 and then continued as Regional Technical Advisor for 2016 and 2017. During the assignment in MRCS, he helped to promote sustainable practice for hydropower planning and operation in an international basin wide context. This year he is working for the MRCS as consultant to support the implementation of Outputs and activities to promote the "Increased common understanding and application of evidence-based knowledge by policy makers and project planners" in the LMB.



## Some bi- and multi-lateral institutions relating to the Mekong cooperation and recommendations to synergize

Mr. Nguyen Nhan Quang, *Former Director, Centre for Promotion of Integrated Water Resources Management*

Mr. Nguyen Nhan Quang is an expert in the field of water resources. Since 1978 he has worked for the Vietnam National Mekong Committee in various positions, in his last as the Deputy Secretary General. He was one of the members of the Working Group who joined the negotiations of the 1995 Mekong Agreement and development of a set of Rules/Procedures of Water Utilization thereafter. He is also specialized in legal and institutional issues, especially those in the Mekong River Basin. Since 2008, after leaving the VNMC, he worked as consultant for many diversified projects in the Mekong region such as the Mekong IWRM Project, Environment Programme and joined the NGO network in Viet Nam, participating in appraising and counter-justifying several projects that potentially cause social and/or environmental impacts. He published also a number of papers/articles in several magazines/reviews.

### Abstract

Originated from Tibet in China, the Mekong river runs with the length of over 4,800 km through territories of six riparian countries namely China, Myanmar, Laos, Thailand, Cambodia and Vietnam. With the basin area of 795,000 km<sup>2</sup>, the water and related resources in the basin have been used by riparian peoples for thousand years with different purposes, either economical, cultural or social spirit. From single activities in small groups of peoples in village level, many multi-purpose water use projects, at regional, country or international scale call for cooperation to that appropriate institutions/mechanisms have been established.

Subject to the given purposes and contexts, many regional or international organizations, programmes, initiatives relating to the Mekong region have been set up, through the signed legal documents or statements/announcements of which some following mechanisms should be highlighted: the Committee for Coordination of the Investigation of the Lower Mekong Basin (now the MRC), The Greater Mekong Sub-region Cooperation InitiativeS (GMS), the Strategic Organization for Economic Cooperation of Ayeyarwady - Chao Phraya - Mekong (ACMECS), and the Lancang Mekong Cooperation (LMC) among others. In addition, many bilateral cooperation mechanisms between a pair of the related countries have also been formed.

This paper will present in a systematic manner, several bilateral and multilateral agreements, institutions relating to social-economical cooperation taken place in the Mekong region with analysis/observations/remarks on impacts to aquatic ecosystems, lives of the riparians in the region as well as how to synergize the advantages of possible mechanisms for sustainable development in the region.

## Views from ASEAN on ongoing and future cooperation with other regional mechanisms and the MRC

Representative from ASEAN (tbc)



## Views from the GMS/ADB on current and future alignment and cooperation with other regional mechanisms and the MRC

Dr. Jiangfeng Zhang, *Director of Agriculture and Natural Resources, Asian Development Bank, Manila*

Dr. Jiangfeng Zhang is currently the Director of Environment, Natural Resources, and Agriculture Division, Southeast Asia Department, concurrently Co-Chair, Environment Thematic Group, of Asian Development Bank (ADB). Since joining ADB in 2002, he has been working on the development, design, and implementation of agriculture, natural resources and environment sector projects in Southeast Asia, South Asia, and Central and West Asia countries. His current focus is on policy, institutional, financing and technological supports to inclusive, climate resilient and environmentally sustainable agriculture and rural development for enhanced agriculture competitiveness and food security in Southeast Asia countries. He holds a Doctorate in Agricultural and Resource Economics and a Master's degree in Statistics from the University of California, Berkeley, USA.

### Abstract

ADB through the Core Environment Program (CEP) has been working to address concerns within the Greater Mekong Subregion (GMS) Economic Cooperation Program about the worsening state of natural resources and the environment in the sub-region. CEP has worked extensively in the identification and protection of biodiversity areas under threat from economic development along GMS economic corridors, which led to the GMS Biodiversity Conservation Corridors Project. Other key CEP thrusts are environmental impact assessment (EIA), strategic environmental assessment (SEA), environmental performance assessment, land-use modeling, and other tools and approaches for environmentally sustainable economic development.

To support the governments of Cambodia, Lao PDR, and Viet Nam to undertake structural and non-structural measures to prepare for and manage disaster risks linked to floods and droughts, ADB is working with the governments on a GMS Flood and Drought Risk Management and Mitigation Project. The project will (i) enhance the regional data, information, and knowledge base for the management of floods and droughts; (ii) upgrade or develop water management infrastructure; and (iii) prepare communities to manage disasters such as floods and droughts and adapt to climate change.

ADB is now looking ahead to address the issues and challenges that will confront the sub-region in the coming years. The next phase of CEP will promote a green growth pathway, focusing on three priority thematic areas from 2018-2022 as part of its new Strategic Framework endorsed at the Fifth GMS Environment Ministers Meeting held in February 2018: (i) green technologies and sustainable infrastructure, (ii) natural resources and ecosystem services, and (iii) climate resilience and disaster risk management. These thematic area interventions are well aligned with GMS countries' global and regional priorities to enable them to achieve their SDGs and deliver on nationally determined contributions.

Partnerships have been critical to the success of ADB operations. ADB has collaborated and coordinated with government ministries, non-government organizations, United Nations agencies, universities and research institutes, and other regional organizations such as the MRC. Regarding collaboration with MRC, we see considerable scope for expanded engagement in our respective work in the GMS. Some indicative

activities are: (i) supporting adoption of transboundary EIA guidelines as part of country safeguard systems, (ii) further support to countries in conduct of SEA and cumulative impact assessment in river basin planning, and (iii) application of spatial analytical tools in basin development planning.



## Session 2b: Panelist (II)

Dr. Pham Tuan Phan, *Chief Executive Officer, Mekong River Commission*

See Final session chair



## Session 2b: Panelist (II)

Dr. Aaron Salzberg, *Bureau of Oceans, Environment and Science, Department of State, US*

Aaron Salzberg is responsible for managing the development and implementation of U.S. foreign policies on drinking water and sanitation, water resources management, and transboundary water. Aaron has been the lead representative or the lead water advisor for the United States at several major international events on water including the G8, the World Summit on Sustainable Development, the UN Commission on Sustainable Development and the World Water Forums. He also leads the Department of State's engagement on transboundary water issues in many regions throughout the world where water is, or may become a source of tension or conflict.

Aaron has a Ph.D. in Genetic Toxicology and a Master's degree in Technology and Policy from the Massachusetts Institute of Technology. He also holds a Master's degree in Aerospace Engineering from the University of Maryland.



## Session 2b: Panelist (II)

Mr. Nguyen Nhan Quang, *Former Director, Centre for Promotion of Integrated Water Resources Management*

See Presentation session 2b



## Session 2b: Panelist (II)

Dr. Zhijian Wang, *Associate Professor of School of Law, Hohai University and Adjunct Professor of Hopkins-Nanjing Center*

Dr. Zhijian Wang is an associate professor of International Law at Hohai University. He has an M.S. in Law (2001, emphasizing Jurisprudence) and a Ph.D. in International Relations (2010, emphasizing Regional Security) from Hohai University and Nanjing University of International Relations respectively. He received his Post-Doc certificate in hydraulic engineering (2013, emphasizing Water Rights of International Rivers). His research focuses on issues relevant to international rivers' environmental protection and regional basin development, as well as hydro-politics and international river law.

Wang has authored three books: *International River and Regional Security* (Hohai University Press, 2011); *International River Law* (Law Press, 2012), *Hydro-hegemony, Security Order and Institution Construction: On International Rivers Political Complex* (Social Sciences Academic Press, 2015). He has published nearly thirty journal articles, book chapters, and meeting proceedings on political and legal aspects of international rivers.

He directs the International River Law Network (IRLN, <http://capacity4dev.ec.europa.eu/hhlawaid/>) under the Capacity for Development program of the European Commission website, through which he uses E-meetings, surveys, and feedback to discuss how to improve international water cooperation throughout the world. He developed the Basin Rights of International Rivers Database, which includes 276 international river basins nature rights; basin/country human rights to water and basin/country water rights. He strives to give substantial indication of reasonable and equitable utilization of international rivers, aiming at promoting international basin development without damage to water environment and local human rights.

Wang has received a special financial grant from the Chinese Postdoctoral Science Foundation (2013); three grants from the Chinese National Social Science Foundation (2011, 2013 & 2016); and several Teaching/Research advance awards at the national and province level.

As an Adjunct Professor in the Institute for International Research at the Johns Hopkins University-Nanjing University Center for Chinese and American Studies, he teaches "Water Resources and Water Environment" to international graduate students every fall term. His former experience includes local government judicial assistant, TV news reporter and practicing lawyer.



## Changing dynamics of power trade in South Asia: Implications for hydropower development

Dr. Sagar Prasai, *Country Representative, the Asia Foundation, India*

Co-author: *Aditya Pillai, Program Officer, the Asia Foundation, India*

Dr. Sagar Prasai is The Asia Foundation's country representative in India. Previously he was the deputy representative for Nepal. Prior to joining The Asia Foundation, he was with the UNDP and, briefly, with the National Planning Commission in Nepal. His current work revolves around South Asian regional integration issues with a focus on transboundary water, trade, and energy.

### **Abstract**

For countries with high hydropower development potential such as Bhutan, India and Nepal in South Asia or Laos in the Mekong region, two factors become the end-determinants of eventual hydropower development prospects: first, are the regional energy trading markets functional enough to emit reliable, long-term supply signals? Second, are the energy-mix commitments of individual countries pragmatic and attainable in the long-run? Both factors are hard to achieve and riddled with deep institutional histories and economic constraints. Incentives for reform as well get muddied by entrenched political economy interests that require significant political commitments to remove. This presentation synthesizes a series of political economy analyses conducted in South Asia, in the Ganga-Brahmaputra-Meghna basin, which includes India, Nepal, Bhutan and Bangladesh to argue that in the absence of a committed reform effort long-term prospects of hydropower development in the region looks bleak. The South Asian case may have some semblance to how hydropower development in the Mekong region might unfold.



## Repositioning hydro operations and electricity supply in a dynamic energy sector

Mr. James E Mason, *International Business Development Manager, Entura-Hydro Tasmania*

James is the International Business Development Manager for Entura-Hydro Tasmania and holds a Bachelor of Engineering degree and an Advanced Diploma in Project Management.

James was intimately involved in the entry of Tasmania into the National Electricity Market in Australia and with the inception of the Basslink sub sea interconnector project.

He has strong skills in overall hydropower planning, renewable energy generation and Hydro Tasmania's Battery of the Nation Initiative for the Australian power market.

James has extensive experience working with clients throughout South-East Asia and the Pacific and brings over 25 years of experience in engineering and consulting, across many industries and countries, to successfully develop and implement clients' business strategies through projects and programs.

### **Abstract**

How hydropower can play a part in providing both base load and peaking supply to enable the optimisation of existing water resources and enable the development of other blended renewable energy technologies to increase the overall renewable energy mix, whilst ensuring system security and reliability of supply. This discussion will touch on how can we make variable renewable resources dispatchable and what is the future for energy storage. This topic presents and argues for the increase in dispatchable renewable energy and is supported by recent experience-based conclusions from our Battery of the Nation initiative in Australia.



## Southern African power pool – Cross-border partnership in planning and operation

Mr. William Derbyshire, *Director for Asia, Economic Consulting Associates (ECA)*

William is a Director with Economic Consulting Associates (ECA), a boutique economics and energy consultancy headquartered in London. He has over 20 years of experience in energy economics, the last 14 of which have been with ECA based in Bangkok.

William was the deputy team leader and energy economist for the team that prepared an overall Strategic Environmental Assessment for the GMS in 2013-14, looking at the costs and impacts of alternative pathways for regional power development based. He has worked extensively in Cambodia, Vietnam, Lao PDR, Thailand and Myanmar including an ongoing assignment evaluating the impacts of introducing utility-scale solar power onto the Cambodian grid and a recently-completed assessment of options and impacts of introducing LNG imports into Myanmar. His experience also includes studies on energy master plans in Indonesia, where he led the economics team for a major gas master plan study, Sri Lanka, Mongolia and in sub-Saharan Africa.

William holds an MSc in Development Economics from the School of Oriental and African Studies, University of London.

### Abstract

The Southern African Power Pool (SAPP) was originally founded in 1995 by member governments of the Southern African Development Community. There are 16 members representing 12 participating countries. The remit of SAPP is to coordinate the planning and operation of the regional power system.

Starting in 2001, SAPP began to facilitate short-term opportunity electricity trades between its members under standard terms and conditions. In 2009, SAPP started to offer a competitive day-ahead market and, in 2015, forward contracting and within-day markets. In 2016/17, total traded volumes were 9,015 GWh or around 3.5% of regional demand, with 7,992 GWh being traded through bilateral contracts and the remainder through the competitive markets operated by SAPP. This compares to just 720 GWh in short-term trades within SAPP in 2002/03.

However, the focus of this presentation is on SAPP's broader work to improve the coordination of planning across its member utilities. The SAPP member utilities have ambitious expansion plans, with around 30.6 GW of new capacity planned to 2022 compared to a current installed capacity of 59.5 GW. Optimising planning across the region offers obvious potential to reduce investment needs. Increased interconnection is also required. Expansion of the competitive regional market has been greatly hindered by transmission constraints — of the total volumes of matched sell and buy bids in 2016/17, 63% could not physically be traded due to transmission constraints.

ECA has recently completed the preparation of a new regional expansion plan for SAPP members. The presentation explains the approach taken to develop this and, in particular, how the potentially conflicting concerns of ensuring national supply security and minimising costs through cross-border trade were managed. The presentation also explains how SAPP member utilities work in partnership to develop such regional plans, using the institutions and mechanisms established under the SAPP framework. The plan itself is not public at this time, pending final approval from all members but key messages that emerge from it are provided.



## Enhancing regional water cooperation through clean energy transition

**Mr. Brian Eyler**, *Stimson Center* and **Mr. Jake Brunner**, *IUCN*

Brian Eyler is director of the Stimson Center's Southeast Asia Program and its Energy, Water, and Sustainability Program. He is co-lead for the Stimson/IUCN Mekong Basin Connect Initiative and co-chair of the US-China GMS Development Dialogue. Prior to coming to Stimson in 2015, he worked in China and Southeast Asia managing environment and international relations curricular programs. He served as consultant to the UNDP Lancang-Mekong Economic Cooperation office in Kunming, China (2008-2014). He has a BA from Bucknell University and an MA from University of California, San Diego. He is a regular contributor to Stimson's Letters from the Mekong series, and his first book *The Last Days of the Mighty Mekong* will be published in 2018.

Based in Hanoi, Jake Brunner is Head of IUCN's Indo-Burma Group covering Vietnam, Cambodia, Lao PDR, Thailand, and Myanmar. He is co-lead for the Stimson/IUCN Mekong Basin Connect Initiative. Before joining IUCN in 2008, Jake spent eight years running Conservation International's Indo-Burma Program from Washington, DC, Hanoi, and Phnom Penh. Previously, Jake spent eight years at World Resources Institute, an environmental policy research center in Washington, DC. He holds a BA in Geography from Oxford University and a MS in Remote Sensing/GIS from London University.

### Abstract

Water management in the Mekong region is, in practice, dominated by energy objectives. Experts have produced volumes of peer-reviewed economic and environmental studies showing how much Cambodia and Vietnam will lose from reduced capture fisheries and sediment delivery to the delta as a result of dam building upstream but these arguments have not yet influenced hydropower development policy.

Recent work by the Stimson Center, IUCN, the University of California-Berkeley, and The Nature Conservancy, however, shows if Lower Mekong countries pursue a basin-scale approach to water and energy planning, they can take advantage of recent advances in renewable power generation and transmission technologies to achieve energy security at significantly lower social, environmental, and political risks.

Basin-scale water-energy planning is possible because the prices of solar and wind power have collapsed globally, making them financially competitive at the utility scale. Moreover, solar and wind plants can be built in less than a year compared to ten years for large dams, so they can be quickly deployed to relieve electricity supply shortages and accelerate rural electrification. Advances in transmission technology make completion of a regional grid a reality. Regional power trading would allow the Mekong countries to meet occasional peak demand and power reserve needs through energy trade instead of building excess capacity.

Brian Eyler and Jake Brunner led fourteen workshops with high level stakeholders in Vietnam and Cambodia in 2017 which were purposed to build political will for taking action on the rationale above. At the MRC International Conference on April 2-3, Brian Eyler and Jake Brunner will further discuss this rationale and the benefits of system-scale water energy planning as well as observations from stakeholder engagement on this topic.



## Special Session 2: Panelist

Dr. An Pich Hatda, *Director of Planning, MRCS*

*See presentation session 2a*

## Special Session 2: Panelist

*Representative, Department of Energy Policy and Planning, Ministry of Energy and Mines, Lao PDR*



## Special Session 2: Panelist

Mr. Pen Somony, *Executive Director, Cambodian Volunteers for Society (CVS)*

Mr. Pen Somony is the Executive Director of Cambodian Volunteers for Society (CVS). Mr. Somony graduated from Royal University of Agriculture with a BSc in agriculture in 2004 and a Master degree in Development Studies at Royal University of Phnom Penh in 2012. In 2004-2005, Mr. Somony was a volunteer doing research and organizing program activities

on fisheries with fishery communities around Tonle Sap lake with the Fishery Action Coalition Team. He also worked with American Friends Service Committee (AFSC) from 2005-2006 in the field of coastal fishery resource management by doing research and organizing program activities in Koh Kong and Kampong Som provinces. From 2017-2009, he worked with Cambodian Volunteers for Society (CVS) as the Program Coordinator to engage youth in natural resource management. Since late 2009, he is the Executive Director of CVS. Mr. Somony has over ten years of experience in the field of water and fisheries resource management and empowering youth to engage and participate in Mekong Water governance and fisheries. CVS is a member of River Coalition in Cambodia (RCC) and engages the youth in Mekong water governance. Moreover, Mr. Somony has international experience at the regional level within ASEAN, African Union and European Union, working on various issues related to youth development and the protection of natural resources, Mekong water governance and fisheries. Mr. Somony has been an active committee member in coordinating youth groups and networks, Cambodian civil society at national level to organize the ASEAN Civil Society Conference (ACSC)/ASEAN People Forum (APF) and ASEAN Youth Forum (AYF) to bring the youth's voices on the issues of environments, fisheries and Mekong Water governance to ASEAN Leaders since 2009 until present.



## Special Session 2: Panelist

*Ms. Hyunjung Lee, Senior Energy Economist, Southeast Energy Division, Asian Development Bank (ADB), Hanoi, Viet Nam*

Hyunjung Lee is Senior Energy Economist in Southeast Energy Division of the Asian Development Bank (ADB) and based in Hanoi, Viet Nam. She is mainly working for Viet Nam as a sector coordinator and preparing and implementing various investment and technical assistance projects in support for power sector reforms and sustainable energy development. She joined ADB as Young Economist in 2003 and since then, served various positions as economist in the areas of regional cooperation, information and communication technology (ICT), and energy. During her 3-year leave from ADB during 2011-2014, she joined the College of Engineering of the Seoul National University as visiting professor and the International Energy Policy Program as a full-time contract professor where she taught energy economics and policy courses and supervising research for master students.

Prior to joining ADB, she obtained her bachelor degree in electronics and electrical engineering in Korea Advanced Institute of Science and Technology and her master and Ph.D. degrees in economics in Seoul National University in Korea. She wrote several book chapters and papers in the areas of energy, ICT, innovation, productivity, and real options.

## Final session



## Final thoughts 1

Ms. Gisela Hammerschmidt, *Director for Asia, Federal Ministry of Economic Cooperation and Development, Germany*

Mrs. Hammerschmidt is the current Director for Asia within the German Federal Ministry for Economic Cooperation and Development (BMZ). She holds an engineering degree from the Humboldt University in Berlin and since then has had a long standing professional career in the field of development cooperation within BMZ.

She worked in the sector division of women's, family and youth issues, after which she was seconded to the Permanent Mission of Germany to the United Nations, New York. Afterwards she worked in the regional development policy division for South-East Asia; the division for OECD/DAC, G7/G8 and bilateral cooperation. She was then appointed as Head of Division for technical and administrative support and later as Director for policy issues of bilateral development cooperation, development effectiveness and evaluation before assuming her current position.



## Final thoughts 2

Dr. Pham Tuan Phan, *Chief Executive Officer, Mekong River Commission*

See Final session chair



## Closing remarks

H.E. Mr. Te Navuth, *Chair of the MRC Joint Committee*

See Opening session chair

## Poster presentations



## Modelling and mapping floods to influence planning: UK experience and application for the Mekong Basin

Dr. Anthony Green, *Director Mekong Modelling Phnom Penh*

Co-authors: *Jeremy Benn, Chairman JBA, Group UK; Rob Lamb, Director, JBA Trust and Honorary Professor, Lancaster Environment Centre*

Dr. Anthony Green is a professional engineer and modeller based in Phnom Penh Cambodia.

He has over 35 years' specialist experience in the UK and Asia and specifically the Mekong region since 2001. He has worked on major rivers, drainage, water supply and water resource projects in Argentina, Bangladesh, Cambodia, Laos, India, Pakistan, Philippines and Vietnam. In the UK he has managed and been project manager and modeller on numerous flood risk management projects, catchment planning and hydraulic analysis for project design. He has skills and interests including flood resilience, disaster risk planning, urban/rural development, modelling and understanding how the changing climate will affect people and ecosystems.

From 2009-2012, he worked for the Mekong River Commission as Senior Modelling Advisor, in 2013 as CTA for the Climate Change & Adaptation Initiative and subsequently as consultant for flood issues and planning.

### Abstract

In recent years the recording and mapping of flood has become an essential part of flood risk management that is translated into:

- Building Control and strategic planning
- Disaster Risk Management
- Insurance, reinsurance and Federal/National Insurance Programmes
- Emergency planning and humanitarian assistance

The European directive 2007/60/EC required member states to identify basins at risk of flooding and draw up risk maps focussed on prevention protection and preparedness, not undertake measures that would increase the flood risk in neighbouring countries and required coordination of flood risk management in shared river basins. Similar legislations elsewhere in US, Canada and other developed nations are about bringing change. The mapping needed is not just about flood extents or water depths but frequently measures of hazard, damages, community vulnerability and impact and effects of climate change.

For the planning authorities defining a 'functional floodplain where development is restricted to 'essential infrastructure', floodways, areas that are behind defence and areas at risk in extreme catastrophic floods is becoming part of the normal vocabulary.

This flood risk approach also opens up many other requirements such as mapping of essential infrastructure, escape routes and improving community awareness, flood warning and response. Open source systems, high quality remotely sensed data and community engagement techniques have evolved rapidly in recent years. Damaging floods may not be totally avoidable but knowing where they may occur and how frequently enables better management and community response. Beneficial effects of flood should also not be forgotten and are very apparent in the Mekong floodplains.

JBA has been involved in providing comprehensive basin and country-scale mapping that enables planning policy to be set consistently, river, sea, surface water and dam failure are all mapped and catastrophe modelling for insurers and asset operators allows decisions to be made. Progress and developing trends for steadily improving technical quality of flood risk management and mapping applications in different countries can be discussed and for the Mekong some of the challenges and possible next steps highlighted.



## Future flood risk from climate change and dam construction in the Lancang-Mekong River Basin

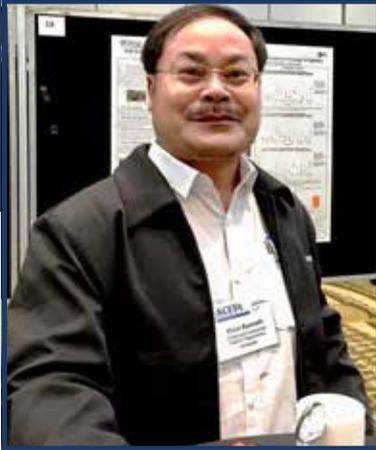
Prof. Fuqiang Tian, *Department of Water Resources and Hydropower Engineering, Tsinghua University, China*

Co-authors: *Hui Lu, Wei Wang, and others*

See Special Session 1 panel

### **Abstract**

Climate change and dam construction will impact the flood risk in the Lancang-Mekong River Basin. A physically based hydrological model is utilized to evaluate the future flood risk driven by a climate change projection dataset. Results show that the warming climate will intensify flood magnitude and frequency at varying degree upstream and downstream. Dam operation, however, will reduce the flood risk consistently throughout this century. The attenuation effect is projected to be more obvious in the upstream basin.



## Commune land use planning in Cambodia: Methodologies and approaches

Mr. Khun Bunnath, *Team Leader of CLUP*

Co-author: *Ms. Houth Morokoth, Royal University of Phnom Penh*

Mr. Khun Bunnath is a senior professional in forestry, water and land governance. On top of his Master's in Business Administration, he holds various certificates and international diplomas from globally acknowledged institutes and universities from the US, the Netherlands, Indonesia and Sweden. Prior to his current position as the deputy team leader for the Commune Land Use Project (CLUP), he has worked for multiple for international institutes such as the Worldbank and Concern Worldwide. From 2007-2011, he served under Oxfam as a Program Manager, overseeing the European Forestry and Livelihood Program. Following a steep career path, he started his next position as Forestry Program Manager under the US Aid Programm. In 2017, he was appointed by the Government as the permanent Participatory Land Use Planning (PLUP) Trainer, in addition to the Team Leader of the CLUP Project with the Asian Development Bank.

### Abstract

The commune land use planning (CLUP) refers to the planning of land use for all the land in a Commune, which includes the land owned by the states and private individuals. The purpose of CLUP is: (i) To provide competency to the communal councils in developing effective land and natural resources use and management strategies; (ii) to support equitable and sustainable socio-economic development; (iii) to reduce local people's poverty; (iv) to increase productivity of the commune's land, always considering the natural potential of the land; (v) to respond to the land's needs, in addition to the needs of the local residents; (vi) to prevent degradation and inappropriate use of the land and the natural resources; (vii) to strengthen the capacity of the communal council as state representative when defining and managing state own land in the commune; (viii) And to receive technical support from various institutions as well as from the private sector to prepare a development plan and investment program for the commune.

In general, the commune land use planning is an important tool for the commune council and other stakeholders at sub-national level as it strengthens management and encourages the use of natural resources in a sustainable and equitable manner. Truly, sustainable land use is the foundation for economic development and secured livelihood. Thus, if land use plans existed, local authorities at all levels would gain a better understanding and integrate land use planning into their socio-economic development plans at local, district and provincial level. Starting from a local level and getting approval from the higher regional councils ensures that all relevant stakeholders are involved in decision making. Finally, to ease the implementation of CLUP at local levels a project plan over five years has been developed. This Plan (Manual) has been developed to support the communal development planning (5-year plans) and investment planning (1 year program). The manual can be used as a guideline how to incorporate CLUP into their plans. The successful implementation of the manual and CLUP's vision will result in a "Commune Land Use Plan".



## Water retention strategy as one of the climate change adaptation solutions for Vietnamese Mekong River Delta

*Dr. Le Anh Tuan, Assoc. Prof. Dr. in Earth Sciences, Deputy Director, Research Institute for Climate Change (DRAGON institute - Mekong), Can Tho University*

Dr. Le Anh Tuan has been working at Can Tho University since 1982 and currently holds the position of senior lecturer at the College of Environment and Natural Resources. He also is the vice director of the Research Institute for Climate Change – Can Tho University, Vietnam.

Dr. Tuan completed his Bachelor of Engineering in Water Management and Land Improvement at Can Tho University, Vietnam in 1982 and Master of Engineering in Water Resources Engineering at Asian Institute of Technology, Bangkok, Thailand in 1990. He finished a PhD in Applied BioSciences and Engineering and specialized in Environmental Hydrology at Catholic University of Leuven, Belgium. In 2012, Dr. Tuan was officially recognized as an Associate Professor in Earth Sciences of Can Tho University. Dr. Tuan has many years of experience in teaching and research in the fields of Water Resources Planning and Management, Environmental Engineering, Natural Disaster Prevention and Preparation, Hydrology and Meteorology.

### **Abstract**

Water is not only a source of life but also an important factor for the Mekong delta building processes. As the biggest wetland area of the region, the Vietnamese Mekong River Delta has annually received a great amount of flooding water in the wet seasons from the upstream Mekong River. The over-riverbank flooding water flows are mostly stored in the deep flood areas in the Plain of Reeds and the Long Xuyen Quadrangle, playing a key role in hydrological, ecological and environmental balance in the Delta system. In the early 2000s, in order to triple rice production and to protect human settlements from flooding, many closed dykes and flooding drainage canals have been built. As a consequence, flood water retention capacity was significantly reduced. During the flood in 2011, a higher and longer downstream flood inundation occurred compared to the flood in 2000. In the dry seasons of 2015 and 2016, the historical droughts hit the Delta as an impact of climate change and an El Nino phenomenon leading to increased risks of a significant fresh water shortage and deeper saline intrusion damages.

This presentation provides evidence on the reduced water retention volume in the Mekong River Delta due to both human water-infrastructure activities and climate change impacts. It also discusses and advices on future steps that might be taken towards the formulation of short-medium-and long term solutions as part of a climate change adaptation strategy regarding increased water retention potential in the upper and middle zones to diverse flood water to the coastal zones and to partly reduce saline intrusion, which limits groundwater uses.



## Extreme drought and flood adaptation pathways for integrated Lancang-Mekong Basin

Dr. Minh Nguyen, *Senior Research Scientist, Sustainable Development & Climate Adaptation, CSIRO Land & Water*

Dr. Minh Nguyen is a Senior Research Scientist of the CSIRO Land & Water, Australia. His expertise is on climate adaptation and sustainability design and management of infrastructure systems (water, energy, building), with a focus on infrastructure performance and service-lives in different environments and climatic conditions. In the recent years, Minh has been focusing in building pathways to impacts for scientific research outputs. These include the use of integration and inclusive engagement principles, and science/evidence-based approach to support planning and investment decisions. He is leading a couple of projects on natural disaster risk management and climate adaptation, in particular for the Lancang-Mekong Basin region and the Vietnamese Mekong Delta.

### Abstract

The Lancang-Mekong River is a trans-boundary river with estimated length of 5,000km and basin area of 800,000km<sup>2</sup>. The current population is about 70 million people, most of whom are rural poor with livelihood directly dependent on the river water. This is one of the most dynamic, productive and diverse river basins in the world, and also one of the most vulnerable to the changing climate. In recent years, extreme drought and flood events have become a climate 'new normal' with stronger intensity, higher frequency, and longer duration. The 2009 drought and recent floods in the Upper Mekong Basin, and the 2016 drought in the Lower Mekong Basin caused widespread damages to regional economy and disruptions to livelihoods of millions of people.

This poster presents a collaborative R&D between the Commonwealth Scientific & Industrial Research Organisation (CSIRO) of Australia, the Chinese Academy of Sciences, and Can Tho University of Vietnam. The focuses are on understanding this climate 'new normal' of extreme drought & flood events and their impacts; and promoting appropriate adaptation pathways to enhance the local resilience. Latest concepts and methodologies have been using to explore the climate new normal and adaptation pathways, including practical uses of Theory of Change for development of shared visions and collaborative opportunities, and an interactive Value-Rule-Knowledge context for stepwise decision-making processes. The approach is demonstrated through the results from regional reviews and exploration in project case studies, one in Yunnan Province of China, and one in the Vietnamese Mekong Delta.

The collaboration allows an integrated and legitimate approach for the whole basin, aiming at fostering much-needed regional collaboration. This collaborative project is also a timely response to the new initiative of the Lancang-Mekong River Cooperation, which aims to facilitate collaboration from all six riparian countries for a regional sustainable development.



## Governance of water scarcity and its impacts on agriculture in coastal areas of the Vietnamese Mekong Delta

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Co-author: *Nguyen Thi Bich Phuong, Van Pham Dang Tri, Pham Thanh Vu, Phan Hoang Vu, Nguyen Hieu Trung, and Minh Nguyen*

Dr. Nguyen Thanh Binh is currently working as a researcher and lecturer at the Mekong Delta Development Research Institute, Can Tho University, Vietnam. He has experience in applying both qualitative and quantitative research approaches to study agricultural extension, farming systems, rural livelihoods, water resource management and vulnerability assessment since 2000. His educational background includes a Bachelor in Agronomy from the Faculty of Agriculture, Can Tho University, Vietnam (2000); an International Master in Rural Development (IMRD)- a joint academic degree from Ghent University in Belgium, Agrocampus Rennes in France, Humboldt University of Berlin in Germany and the University of Cordoba in Spain (2008); and a PhD in Agricultural Sciences from Faculty of Agriculture, Bonn University, Germany (2015).

### **Abstract**

Water scarcity is a major challenge globally and is caused by seasonal changes and year-to-year variation. Different previous studies focused on institutional responses to water scarcity in different political contexts, however, the institutional arrangement and stakeholder analysis in the Vietnamese Mekong Delta, one of the greatest deltas to maintain the food security globally, are still largely unknown. This paper focuses on the two major aspects of water scarcity (drought and saline intrusion) in the context of freshwater-based agriculture development during annual dry seasons in coastal areas of the delta. Through qualitative and quantitative empirical research methods carried out at three coastal areas of the Vietnamese Mekong Delta, we sought to understand perceptions and roles of local farmers, local and regional government and researchers in such a hierarchical management system on water scarcity leading to an understanding of a “new normal” and identify a suitable governance framework for a better management of the water scarcity.



## Applying the Freshwater Health Index to the lower Mekong's transboundary 3S river basin

Ms. Srabani Roy, *Regional Director, Greater Mekong Program, Conservation International*

Co-author: *Dr. Nicholas J Souter*

Ms. Roy is the Regional Director of Conservation International's Greater Mekong Program. She has worked on transboundary water resources and Natural Resources Management for the past 15 years.

### **Abstract**

The 3S river basin comprises the Sesan, Srepok and Sekong rivers and is one of the Mekong's most important tributary basins. The 3S rivers rise in Lao PDR and Vietnam and flow through Cambodia before joining the Mekong. The 3S basin is an important source of water and sediment to the Mekong and provides important migratory fish habitat. However, the 3S basin is changing rapidly due to land clearance for industrial agriculture, climate change and hydropower dam development. We assessed the status of the 3S river basin using the Freshwater Health Index (FHI), which measures a range of ecological health, ecosystem service delivery and resource governance metrics. Assessed as of December 2016 we used a combination of real and modeled data and stakeholder surveys to measure the basin's capacity to sustainably provide ecosystem services. Ecosystem Vitality and Ecosystem Services achieved scores of 66 and 80 respectively out of a possible 100, whilst Governance & Stakeholders scored 43. This means that the 3S has been providing the desired ecosystem services, but there are signs of ecological and hydrological stress. Furthermore, the management capacity to cope with rapid change is limited. Stakeholder engagement is an important component of completing an FHI assessment. We engaged with the IUCN's 3S Bridge stakeholders group which comprises government officials, academics and NGO representatives from the three countries. By focusing on a common indicator framework this multinational stakeholder group has gained an appreciation of the 3S's current health and future management challenges. The FHI assisted the group identify data deficiencies and made the 3S's ecosystem-human-water dynamics more understandable. By establishing a common indicator framework, we will use the results to engage stakeholders to explore how the FHI metrics may be used to develop water resource management targets and thresholds in the 3S.



Research model of community based media in the area saltwater intrusion affecting agricultural production in Mekong Delta, Vietnam: Case study in Binh Thanh Commune, Thoai Son District, An Giang Province

**Mr. Phu Pham Xuan**, *Department of Rural Development and Natural Resources, Faculty of Agriculture and Natural Resources, An Giang University, Vietnam*

Mr. Pham-Xuan Phu is currently lecturer and researcher of Rural Development and Natural Resources Management Department, Faculty of Agriculture and Natural Resources, An Giang University, Vietnam. He has received his MSc. specializing in livelihood and natural resources management in the Swedish University of Agricultural Sciences (SLU) in 2008. Besides, he is currently a fourth year PhD candidate at Can Tho University in the Mekong Delta, Vietnam. Mr Pham Xuan Phu has a strong network with local and international workers on the ground. He performs as livelihood and climate change policy advisor for Vietnam River Network, Oxfam, Green IDEA, RDViet and WARECOD to undertake research and development activities in the fields of livelihood, flood, natural resources management, water, energy and climate resilience. He has strong background in integrated rural development and agriculture. He has done a number of studies in such related fields and the results have been published in international scientific journals.

**Abstract**

The study was done in Binh Thanh Commune of Thoai Son District, An Giang Province with the aim to investigate possible factors which affect the access of communication media towards the risk management saltwater intrusion and climate change in agricultural production. The method was based on in depth interviews, focus group discussions, and household interviews for quantitative and qualitative data. The study results show that the access to communication media depends on many factors such as: age, gender, education level, occupation, objects and human resources, content of information and communication media. The accessibility to information of saltwater intrusion and climate change in agricultural production from communication media is different between age and the nature of profession. Besides, the study also indicates that the propagation of saltwater intrusion and climate change in agricultural production in the study side was limited and did not affect the local people.



## Application of Open Data for flood information system

**Mr. Punwath Prum**, *Data researcher and geographic information system officer, Open Development Cambodia*

PRUM Punwath is a data researcher and geographic information system officer at Open Development Cambodia. He undertakes activities such as data collection, cleaning and geovisualizaion. Punwath is interested in open data, GIS web-based information system, and natural disaster management and land management.

### Abstract

Cambodia is ranked one of the most vulnerable countries in the world to climate change. Many of its people rely on agriculture, and the changes to the country's climate, leading to more droughts or more floods, makes them particularly vulnerable<sup>1</sup>. Cambodia is prone to flood and drought with 14 % of Cambodia's Gross Domestic Product (GDP) and 12.2 % of its inhabitants being subject to potential losses from floods<sup>2</sup>. Based on the disaster risk index in 2017, Cambodia is highly exposed to flooding<sup>3</sup>. Flooding is one of the major causes of death and property damage from natural disasters in Cambodia.

There are both government institutes and NGOs working on disaster risk reduction. However, the information related to their work was not put in one place. The user needs to go different places to collect the information, and most of the information is only available in English rather than in local language.

Open Data can help achieve combating climate change and its impacts by providing critical information. Thus, ODC has created an online portal and web map gathering information on flood vulnerability as a central resource accessible to the public and thereby increase ocerall disaster resilience. We provide diverse information related to flood in regards to local knowledge and map to show the impacts of flood disaster. Moreover, the platform includes existing mechanisms, institutional capacity and NGO partners' intervention to innovate pre-event mitigation measures to assist the poor and most vulnerable communities from floods.

Open Development Cambodia (ODC) believes that by increasing availability of disaster risk information would allow local people to earn more knowledge and information which helps them better cope with flood.

<sup>1</sup><https://www.voanews.com/a/changing-climate-has-major-impacts-for-under-prepared-cambodia/3075404.html>

<sup>2</sup>[http://nidm.gov.in/easindia2014/err/pdf/country\\_profile/cambodia.pdf](http://nidm.gov.in/easindia2014/err/pdf/country_profile/cambodia.pdf)

<sup>3</sup>[https://reliefweb.int/sites/reliefweb.int/files/resources/CP\\_Cambodia\\_230617.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/CP_Cambodia_230617.pdf)



## Evaluation of MRC Flash Flood Guidance System for the Southern Thailand: Case study from 28th November to 4th December 2017

**Dr. Supapap Patsinghasanee**, *Civil Engineer, Senior Professional Level, Water Crisis Prevention Center, Department of Water Resources, Thailand*

Dr. Supapap Patsinghasanee is a Senior Professional Civil Engineering of Department of Water Resources, Ministry of Natural Resources and Environment, Thailand from 2005 to present. He obtained a PhD from the Faculty of Engineering, Hokkaido University, Japan in 2016. Moreover, he has published 8 articles in peer-reviewed papers and participated in 10 international conferences in field of hydraulic engineering. His work is mainly related to the development and operation of flood and drought forecasting systems in Thailand by applying the techniques of hydrology, water resources management and hydraulic engineering. He also installed telemetry systems in the floodplain area in addition to early warning systems in the mountainous areas. One of his major research goals is to use the fundamental techniques of fluid mechanics, sediment transport, and applied mathematics to treat challenging river engineering problems. Related research includes mechanics of bank failure, river morphology, and sediment transport in alluvial channels.

### **Abstract**

In the end of November and the first week of December 2017, the heavy rainfall in southern Thailand was influenced by the low-pressure system from Borneo, Malaysia moving north westward towards Thailand. As a result of this event, many areas in southern Thailand were inundated by the flash flood in the steep slope areas and the river flooded in the floodplain area. Therefore, a flash flood guidance system was installed to provide real-time information on small catchments affected by flash floods throughout the region. The system products consist of satellite-based precipitation estimation, merged mean areal precipitation, and estimation of the time of channel flow at bank full. Furthermore, the system results consist of the estimation of flash flood guidance for a given catchment and duration. Flash flood guidance is the amount of rainfall of a given catchment and duration, which is enough to cause flooding at the outlet of a given catchment. Additionally, the system was reproduced of the forecast 24-h flash flood occurrence products based on rainfall forecast. Moreover, the assessment of the observed rainfall, average soil moisture, forecasted rainfall, and flash flood risk areas are in good agreement with the observed hydrological data. Finally, the system highlights the uncertainty characterization of forecast products, which are related to uncertainties in the quantitative rainfall forecast on the hydrological and climatological systems.



## Livelihood depend on Mekong resources: Living style of the community in the RAMSAR area of Stung Treng Province, Cambodia and regional development trend

**Mr. Tek Vannara**, *Executive Director of the NGO Forum on Cambodia (NGOF)*

Mr. Vannara has approximately 18-year experiences with non-governmental organization in particular on the natural resources management, leadership and management skills. In addition, he has great experience in diplomacy and networking with NGOs, governmental ministries, development partners, the UN, the private sector and CBOs. Since 2012 until present, he holds the position as Executive Director of the NGO FORUM in Cambodia, which coordinates and facilitates 450 National and International NGOs of the NGO FORUM in Cambodia. Since 2007 to August 2012, Vannara was very active as part time lecturer for the master program on the subject of natural resource management and eco-tourism at Royal University of Agriculture and he has supervised and advised at least 45 master students, who wrote their thesis on the field of natural resource management, water resource management, forestry management, land management, indigenous people, environment, hydropower dam development and climate change. From 2007 to 2009, Vannara became a Chairperson of the board of directors of Cambodia Community Based Eco-Tourism Network, which consists of 35 members (35 NGOs, academies, private companies and government institutes). In April 2003-2009, Vannara became a representative of River Watch East and South East Asia (RWESA) in Cambodia. Till now, Vannara has published 16 books related to hydropower, renewable energy, fishery resource management, river basin management, forestry management, indigenous people and watersheds. They were published nationally, regionally and internationally. In 2012, Vannara got an excellence award on environment and peace in Asia from Eco-Peace Leadership Center and UNEP at the Kangwon National University in South Korea.

Vannara got two Master degrees in Development Studies from The University of Geneva (IUED), Switzerland and Agricultural Economic Development from Royal University of Agriculture. Furthermore, he also participated in various advanced national and international training courses.

### **Abstract**

The RAMSAR area in Stung Treng of Cambodia is the main source of fisheries, biodiversity, dolphin and sustainable livelihood of Cambodian people as well as the Mekong. People who live along the RAMSAR area directly and indirectly benefit from that in the form of fish for food, fire-wood for cooking, wood for house construction, secure water accessibility for daily consumption, animal raising, agriculture and cheap transportation measures, islands for agriculture production, traditional medicine for health care and socio-cultural links between humans and natural resources. The people in Stung Treng give high value to RAMSAR sites being a strong social safety net and ensuring food supply, which supports the community development and their daily livelihood. Sustainable and effective natural resources management of RAMSAR areas is the main factor to ensure and contribute to sustainable development of Stung Treng Province in Cambodia and the Mekong Region. The current development of water infrastructure and land use changes in forestry (natural forest to big agroforestry) in the Mekong Region results in the increased risk of natural resources, biodiversity and overall environmental system in the RAMSAR site. Every development program should clearly and deeply study and provide appropriate feasible strategies for mitigating risk and enhance environmental protection and biodiversity measures. Especially, the awareness and active participation of the wider public is of great importance before making the decision to start a program as well as the monitoring and evaluation stage. We believe that the most important factor for the long term use of the natural resources along the Mekong, is a balance of conservation and development plans of the Mekong Region, which needs to be considered in advance to ensure equal benefits among the relevant countries.

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