



Training Workshop

Introduction to Groundwater Management Roles in Addressing Salinity Intrusion and Land Subsidence in the Mekong Delta, Vietnam

September 28-30, 2020

Can Tho City, Vietnam

Background

Research and studies¹ have found that over-extraction of groundwater is one of the main activities leading to land subsidence and salinity intrusion problems in the Mekong Delta. In addition, the emergence of climate-related disasters and change of weather patterns have also exacerbated drought conditions and accelerated the deterioration of environmental resources.² While many mitigation approaches have been introduced and adopted, there is still an urgent need to build better understanding of Mekong Delta ecosystems and sustainable use of resources, and to share and exchange lessons learned and best practices among stakeholders, resource users, and academic and expert communities in the Mekong Delta.

The Vietnam Water Resource Institute (WRI), Ministry of Natural Resources and Environment (MoNRE), the Sustainable Infrastructure Partnership (SIP), Pact Thailand, NexView, and United States Geological Survey (USGS), with the support of the US Department of State (DOS), are working in partnership to prepare the first training workshop on 'Introduction to Sustainable Groundwater Management in the Mekong Delta, Viet Nam,' to be held in Can Tho City, September 28-30, 2020. The training workshop will build fundamental capacity in groundwater management among key stakeholders in the Delta and has three key objectives.

Objectives

1. To build better understanding of issues and practices related to groundwater management, salinity intrusion, and land subsidence in the Mekong Delta.

¹ Minderhoud, Philip & Erkens, Gilles & Pham, Hung & Bui, V & Erban, L & Kooi, H & Stouthamer, E. (2017). Impacts of 25 years of groundwater extraction on subsidence in the Mekong delta, Vietnam. *Environmental Research Letters*. 12. 064006. 10.1088/1748-9326/aa7146.

² National Intelligence Council. (2009). Southeast Asia and Pacific Islands: The Impact of Climate Change to 2030. A Commissioned Research Report. NIC 2009-006D.

2. To enhance capacity in sustainable groundwater management for the Mekong Delta among key stakeholders from local communities, experts and project implementers to decision makers and policy makers; and
3. To promote stakeholder collaboration and identify potential opportunities for joint planning and participatory actions in sustainable groundwater management.

This first training workshop has been initiated and prepared at the direct request of WRI, MoNRE and key stakeholders from the Mekong Delta. A list of training topics was previously identified through a needs assessment and survey during the 1st Mekong Virtual Research Symposium held on July 15, 2020. The topics identified were:

- Existing institutional set-up, policies, and initiatives in groundwater management, salinity intrusion and land subsidence in the Mekong Delta
- Situational analysis of the Mekong Delta with regard to groundwater extraction, salinity intrusion, land subsidence, impacts, and views of stakeholder groups
- Introduction to groundwater management and tools for groundwater mapping, groundwater monitoring and modeling
- Exchange of experiences and good practices in infrastructure and non-infrastructure solutions, incentive policies and stakeholder engagement
- Field visits

This first training event will be facilitated through a variety of approaches, including lectures, dialogues, stakeholder interviews, role plays, games, group exercises, and field visits. The three-day course will take a blended learning approach in response to the current COVID-19 pandemic and international travel restrictions. US-based expert trainers will facilitate some online training sessions, while Vietnamese experts will facilitate face-to-face sessions. A maximum of 20-25 trainees representing government agencies from central to district level, academic, and local groups are expected to participate in this training event.

List of participating agencies

- Provincial and district level officials from WRI and MoNRE
- Provincial and district level officials from Ministry of Agriculture and Rural Development (MARD)
- National Center for Water Resources Planning and Investigation (NAWAPI)
- Vietnam Institute of Geosciences and Mineral Resources (VIGMR)
- Vietnam National Mekong Committee (VNMC)
- Salinity intrusion project implementers and developers in the Mekong Delta
- Experts from national and international universities and research institutes
- Experts from Thailand, Department of Groundwater Resources (DGR), MoNRE, Thailand

- Experts from NexView; US Geological Survey (USGS) and Arizona State University (ASU)
- Experts from International Water Management Institute (IWMI)
- Expert from German Technical Cooperation (GIZ)
- Experts from Global Challenge Research Fund (GCRF) Deltas Hub
- SIP, Pact Thailand

Program Agenda

Time	Programs	Speaker/Facilitator	In-person/ Virtual
DAY 1, SEPTEMBER 28			
<i>Key moderator: Dr. Ngyen Huong Thuy Phan</i>			
7:30-8:00	Registration	WRI team	In-person
8:00-8:30	Opening remarks	Mr. Son Duong Hong, WRI, Mrs. Christy Owen, Pact, Mr. Matthew Andersen, NexView-USGS	In-person, and Virtual from Bangkok, Thailand and DC, USA
	Introduction to the workshop: Objectives of the training	Dr. Nguyen Huong Thuy Phan	
	Nexus between groundwater resources, management challenges, and scientific approaches	Mr. Matthew Andersen NexView-USGS	
	<i>Questions, translations</i>		
I. GROUNDWATER MANAGEMENT AND INSTITUTIONAL SET-UP			
8:30-9:00	Overview of the Hydrology of the Mekong Delta (climate, precipitation, surface water)	Dr. Nguyen Anh Duc, WRI	In-person <i>Vietnamese</i>
	<i>Questions, translations</i>		
9:00-9:30	Situational analysis: Groundwater resources of the Mekong Delta; problems, challenges, and opportunities	Dr. Bui Tran Vuong, NAWAPI	In-person <i>Vietnamese</i>
	<i>Questions, translations</i>		
9:30-10:00	Climate resilience of Mekong Delta water infrastructure: Policy informed by a climate risk assessment tool and best practices	Dr. Nguyen Thi Minh Ngoc, GIZ	In-person <i>Vietnamese</i>
	<i>Questions, translations</i>		
10:00-10:15	<i>Break</i>		
10:15-10:45	Surface water groundwater interactions in the Mekong Delta	Dr. John Sabo, ASU-NexView	Virtual from AZ, USA <i>English</i>
	<i>Questions, translations</i>		

Time	Programs	Speaker/Facilitator	In-person/ Virtual
10:45-11:15	Groundwater Availability and Management: Framework for Delivering Scientific Data and Modeling Analysis to Improve Decision-making <i>Questions, translations</i>	Mr. Sachin Shah, USGS-NexView	Virtual from TX, USA <i>English</i>
11:15-12:15	Small group exercise: Proposed discussion questions: - <i>What are the key socio-economic and environmental issues related to groundwater management in the Mekong Delta and where are the hot spots?</i> - <i>What are the current initiatives conducted by governmental agencies and other stakeholders (NGOs, IOs, universities) to address /solve the issues? (A sample table no. 1 will be provided to the group for their answers).</i> - <i>What are the needs for capacity building, collaboration and research to address groundwater management/salinity intrusion and land subsidence at national, institutional and lower administrative level? (A sample table no. 2 will be provided to the groups for their answers)</i>	Dr. Nguyen Huong Thuy Phan	In-person <i>Vietnamese</i>
12:15-13:30	<i>Lunch</i>		
13:30-14:00	Group presentation and plenary discussion	Dr. Nguyen Huong Thuy Phan	In-person <i>Vietnamese</i>
II. SCIENTIFIC MANAGEMENT APPROACHES			
14:00-14:45	Geophysical mapping of groundwater in Viet Nam	Dr. Anh Phuong Tran, WRI	In-person
14:45-15:30	Experience and lesson learnt sharing: Groundwater management and challenges in Thailand <i>Questions, translations</i>	Dr. Surin Worakijthamron, Thailand DGR, MoNRE	Virtual from Bangkok, Thailand <i>English</i>
15:30-15:45	<i>Break</i>		

Time	Programs	Speaker/Facilitator	In-person/ Virtual
15:45-16:15	Research: Potential climate and land use scenarios for agricultural practices VS groundwater impacts in the south-central coastal, Viet Nam <i>Questions, translations</i>	Dr. Margaret Shanafield, Flinders University	Virtual from Adelaide, Australia <i>English</i>
16:15-17:00	Plenary discussion: Part 1 (30 minutes) – a round of comments or questions from participants regarding the presentations and group discussion during the day Part 2 (30 minutes) concentrating on the following questions’ <ul style="list-style-type: none"> - <i>What are the potential / joint actions needed for sustainable ground water management in the MKD?</i> - <i>What your organization could help and support these potential joint actions/collaborations identified / suggested above?</i> - <i>What assistance is needed to realize the joint actions?</i> 	Dr. Nguyen Huong Thuy Phan	In-person <i>Vietnamese</i>
17:00	<i>Adjourn Day 1</i>		
DAY 2, SEPTEMBER 29			
<i>Key moderator: Dr. Ngyen Huong Thuy Phan</i>			
7:30-8:00	<i>Arrival</i>		
8:00-8:30	Summary from Day 1 GW uses, needs, gaps, concerns, and questions <i>Questions, translations</i>	Dr. Nguyen Huong Thuy Phan and Dr. Van Pham Dang Tri	In-person <i>Vietnamese</i>
III. SCIENTIFIC MANAGEMENT APPROACHES – continued			
8:30-9:15	Causes of land subsidence and monitoring <i>Questions, translation</i>	Mr. Devin Galloway, USGS-NexView	Virtual from IN, USA <i>English</i>
9:15-9:45	Remote sensing technology <i>Questions, translations</i>	Dr. Saud Amer, USGS-NexView	Virtual from VA, USA <i>English</i>
9:45-10:15	ModFlow Model: An overview of case study of groundwater model development in southern Cambodia <i>Questions, translation</i>	Mr. Kyle Davis, USGS-NexView	Virtual from NV, USA <i>English</i>
10:15-10:30	<i>Break</i>		

Time	Programs	Speaker/Facilitator	In-person/ Virtual
10:30-11:15	Social and economic vulnerabilities <i>Questions, translation</i>	Ms. Nina Burkardt Ms. Saira Haider, USGS-NexView	Virtual from CO and FL, USA <i>English</i>
11:15-12:15	Plenary discussion: Key questions: - <i>What technologies are being applied in GW, saline intrusion and land subsidence management in the Mekong Delta?</i> - <i>What are further needs for the Mekong Delta in terms of technologies (and data) and how to fulfill the needs?</i>	Dr. Nguyen Huong Thuy Phan WRI team	In-person <i>Vietnamese</i>
12:00-13:30	<i>Lunch</i>		
IV. IMPACT MITIGATION APPROACHES			
13:30-14:00	Piloting managed aquifer recharge for resilience building of smallholder coffee farmers in Vietnam, a case study <i>Questions, translation</i>	Dr. Paul Pavelic, IWMI	Virtual from AD, Australia <i>English</i>
14:00-14:30	Responding to the sea level rise in the Mekong Delta; Implementation of hard and soft policies <i>Questions, translations</i>	Dr. Van Pham Dang Tri, Can Tho University	In-person <i>Vietnam</i>
14:30-15:00	Experience and lesson learnt sharing: Land subsidence mitigation plan for Bangkok City from over extraction of groundwater resource <i>Questions, translations</i>	Dr. Tussanee Nettasana, Thailand DGR, MoNRE	Virtual from Bangkok, Thailand <i>English</i>
15:00-15:45	Impacts of saline intrusion on Mekong Delta freshwater ponds <i>Questions, translations</i>	Dr. Lucy Roberts, Dr. Heather Moorhouse, and Dr. Phong Nguyen Thanh, UKRI GCRF Living Deltas Hub	Virtual from the UK <i>English</i>
15:45-16:00	<i>Break</i>		
16:00-17:00	Small group exercise: <i>Could you share important GW policies, measures, or projects that could address at the same time salinity intrusion and/or land subsidence issues? Please mention the GW technologies applied in those policies, measures, projects.</i> <i>Group presentation and plenary discussion</i>	Dr. Nguyen Huong Thuy Phan WRI team	In-person <i>Vietnam</i>

Time	Programs	Speaker/Facilitator	In-person/ Virtual
17:00-17:15	Introduction to field trip on Day 3	Dr. Nguyen Huong Thuy Phan	In-person Vietnam
17:15	<i>Adjourn Day 2</i>		
Day 3, SEPTEMBER 30			
<i>Key moderator: Dr. Ngyen Huong Thuy Phan and WRI team</i>			
8:30-9:00	Summary from Day 2 – Field trip		
9:00-12:00	Travel to field trip Location: Thi Tu village, Nhon Nghia province, Phong Dien district, Can Tho - Meet and discuss with groundwater management agencies and staff, and community representatives about groundwater benefits, problems, other experiences and ideas, and other associated impacts.	Dr. Nguyen Huong Thuy Phan WRI team	
<i>12:00-13:30</i>	<i>Lunch</i>		
13:30-15:30	Field trip continues.	Dr. Nguyen Huong Thuy Phan WRI team	
15:30-15:45	Participants fill in a training assessment form	Dr. Nguyen Huong Thuy Phan WRI team	
15:45-16:15	Ways forwards from participants		
16:15-16:30	Closing remarks	Dr. Nguyen Anh Duc, WRI	
16:30	Travel back to hotel. The training concludes		

MODERATOR and PRESENTER BIBLIOGRAPHIES



Moderator: Nguyen Huong Thuy Phan, Ph. D.

Dr. Phan is the Academic Coordinator Development Policies and Practices (DPP) Program, Graduate Institute - Geneva (IHEID). Dr. Phan is a specialist in water and climate change. By training she has a Doctor of Engineering in Water Resource Development. Dr. 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, Dr. Phan worked for the MRC Secretariat as a Climate Change and Environment Team Leader in 2016 and a Programme Coordinator of the MRC Climate Change and Adaptation Initiative (CCAI) in 2011-2015. 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.



Speaker: Matthew E. Andersen

Topic: Nexus between groundwater resources, management challenges, and scientific approaches

Since April 2015, Mr. Andersen has been the Senior Scientist for Biology in the United States Geological Survey (USGS) Director's Office of International Programs (OIP). He is an ichthyologist and aquatic ecologist by training, the first or second author on a dozen peer-reviewed journal articles and book chapters. He has administered increasingly larger science programs for USGS. He has developed and leads a decision support program for natural resource management in the Lower Mekong River region of Cambodia, Lao PDR, Thailand, and Viet Nam for fiscal years 2020-22 funded by the US State Department. He is coordinating the efforts of USGS and the geological ministries of Australia, France, and New Zealand to more closely coordinate applied research on Pacific Islands. He works closely with the US State Department and multiple academic, government agency, and nongovernmental organization partners. He is a leadership program facilitator and volunteer mentor for USGS.



Speaker: Nguyen Anh Duc, Ph. D.

Topic: Overview of the Hydrology of the Mekong Delta

Dr. Nguyen Anh Duc received a Ph.D. in Hydrology and Water resources at IHE Delft Institute for Water Education, Netherlands (2008). He has taken a leading role of mathematical models being used in water resources and river basin management in Vietnam National Mekong Committee for 10 years. It is not to mention that he has

in-depth experience in salt intrusion, tides and mixing in multi-channel estuaries. Currently, he is the Deputy Director at Water Resources Institute (WRI). He otherwise has a special interest in policies, procedures and guidelines in integrated water resources management and climate change mitigation and adaptation.



Speaker: Bui Tran Vuong, Ph. D.

Topic: Situational analysis: Groundwater resources of the Mekong Delta; problems, challenges, and opportunities

Dr. Bui Tran Vuong is a former Deputy Director General of the Division of National Water Resources Planning and Investigation (NAWAPEE) for the South of Vietnam, Ministry of Natural Resources and Environment of Vietnam. Dr. Bui earned his MSc. in Hydrogeology and Water Resources from the International Institute for Infrastructure, Hydraulic and Environmental Engineering (IHE), Delft, the Netherlands, and Ph.D. in Utility and Protection of Natural Resources and Environment from the Institute of Natural Resources and Environment, Ho Chi Minh City, Viet Nam. He has long experience in hydrogeological mapping, assessment of groundwater quality and quantity, and groundwater flow and solute transportation modeling and assessment of impacts of groundwater abstraction and climate changes and sea level rises on groundwater resources for Mekong Delta, Vietnam.



Speaker: Nguyen Thi Minh Ngoc, Ph D.

Topic: Climate resilience of Mekong Delta water infrastructure: Policy informed by a climate risk assessment tool and best practices

Since 2010, Dr. Ngoc has been seconded by MoNRE as the Program Officer of Enhancing Climate Services for Infrastructure investments (CSI) Project, and the Vice-Chairperson of National Staff Representative Committee at Deutscher Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany. She is also a researcher at Vietnam Institute of Geosciences and Mineral Resources, MONRE, Vietnam.

Dr. Ngoc holds a PhD in Environmental Geoscience from Greifswald University - Germany in 2006 on tropical coastal processes under impact by mangrove biota and human activities. She has 19 years of experience in researching and coordinating cooperation on response to environmental hazards and climate change, mainstreaming into legal and policy framework. Before the role at the GIZ and MoNRE, Dr. Ngoc was a regional expert of the Coordinating Committee of Geoscience Programmes in East and Southeast Asia (CCOP) under UNESCAP from 2012-2016, and a lecturer at the Vietnam National University from 2001-2009.



Speaker: John Sabo, Ph. D.

Topic: Surface water and groundwater interactions in the Mekong Delta

Dr. Sabo is a Professor of River Ecology and Water Resources in the School of Life Sciences and Founding Director of “Future H2O” Project in the Office of Knowledge Enterprise Development at Arizona State University. He is also a Senior Sustainability Scientist in the Julie Ann Wrigley Global Institute of Sustainability, a Fellow in the Institute for the Future of Innovation in Society, an Honors Faculty in the Barrett Honors College, and serves on the Graduate Faculty in the Hydrosystems Engineering Graduate Program. Dr. Sabo is a river food web ecologist by training and has designed and implemented large scale field experiments to understand the role of aquatic-terrestrial energy flow on terrestrial food web dynamics as well as the dynamic effects of ground water on surface water food webs.

With degrees in Fisheries from University of Washington, and Ecology from UC Berkeley, Dr. Sabo has developed quantitative, data-driven methods to connect hydrology to freshwater fisheries and aspects of riverine biodiversity. His work in this realm is driven by a desire to understand how to better manage basin scale flows in rivers ranging from the Colorado in Arizona’s Grand Canyon, the Mekong River, and the Amazon River. In all of this work, Dr. Sabo leverages relationships with transboundary agencies and multilaterals to co-develop action-oriented science and tools.



Speaker: Sachin Shah

Topic: Linking groundwater availability, management and policy, and science and monitoring needs: Experience from the USA

Mr. Shah has over 20 years of groundwater hydrology, policy, and international development experience with the U.S. Geological Survey, World Bank Water Program, and Council of Energy-Environment-Water (CEEW). He serves as a hydrologist for the USGS Texas Water Science Center and Program Manager of the Social and Economic Drivers Program for the USGS Water Mission Area. Sachin was previously the Chief of Hydrologic Research for the USGS Gulf Coast Program in Houston, Texas.



Speaker: Anh Phuong Tran, Ph. D.

Topic: Geophysical mapping of groundwater in Viet Nam

Dr. Phuong Tran was born in Nam Dinh, Vietnam. He obtained his B.Sc. in Hydrology from Vietnam National University, Hanoi in 2005, Master in Civil Engineering from Sejong University in 2010, and Ph.D. degree from Catholique Université de Louvain, Belgium in 2014. After spending four years as a postdoc researcher at the Lawrence Berkeley National Lab, U.S., he returned to Vietnam and worked at the Water Resources Institute as a research scientist. His research interests include application of multiple geophysical and remote sensing techniques to water resources, interactions of surface – groundwater, real-time hydrological modelling prediction and model-data integration.



Surin Worakijthamron, Ph. D.

Topic: Experience and lessons learnt sharing: Groundwater management and challenges in Thailand

Dr. Surin is the Director of Groundwater Engineering Bureau, Department of Groundwater Resources, Ministry of Natural Resources and Environment, Thailand. He has 22 years of experience in water and groundwater resources management. He has also been a co-instructor with USGS on Applied Groundwater Modelling and a lecturer on Water Resources Management. Dr. Surin earned his Ph. D. in Water Resources and Civil Engineering from Britol Uuniversity, UK, and Masters in Water Resouces, Civil Engineering and Environmental Science from the Univeristy of New South Wales, Australia. Dr. Surin has been part of and managing more than 50 water resource development projects in Thailand and in more than other 15 different countries. He has also been an invited lecturer for many national and international organizations, agencies, institutions, and private companies, and universities in Thailand and internationally.



Speaker: Margaret Shanafield, Ph. D.

Topic: Research on potential climate and land use scenarios for agricultural practices VS groundwater impacts in the south-central coastal, Viet Nam

Dr. Shanfield completed her PhD in hydrogeology at the University of Nevada (USA) before moving to Adelaide, Australia, where her research has focussed on surface water groundwater interactions and streambed processes, especially in arid climates. She is passionate about understanding how water flows in natural systems, how we use water, and how we can get clean water to those who need it - in Australia and across the globe. She is a Senior Researcher/Lecturer at Flinders University and the National Centre for Groundwater Research and Training with over 15 years of experience in water resources. She routinely conducts both fieldwork and computer modelling and enjoys developing novel field tools.



Speaker: Devin Galloway,

Topic: Causes of land subsidence and monitoring

Mr. Devin L. Galloway is a Scientist Emeritus, Research Hydrologist with the U.S. Geological Survey (USGS). During his 42 years with the USGS he has published more than 100 authored or co-authored research papers focusing on hydrogeologic aspects of groundwater availability, land subsidence, and volcanic hazards. He is a former Associate Editor of the Hydrogeology journal, and a past Chair of both the UNESCO-IHP Working Group on Land Subsidence and the American Society of Civil Engineers–Committee on Land Subsidence. He resides with his wife (Sharon), grandson (Zion) and the family dog (Max) in rural Indiana (USA).



Speaker: Dr. Saud Amer,
Topic: Remote sensing technology



Speaker: Kyle Davis
Topic: ModFlow Model: An overview of case study of groundwater model development in southern Cambodia

Mr. Davis has been working for the U.S. Geological Survey for 7 years, beginning his career as a master's student. Currently, Mr. Davis is the modeling specialist for the Dakota Water Science Center in Rapid City, South Dakota. Davis's primary roles and responsibilities include the application of numerical models in the assessment of groundwater availability and use. Mr. Davis holds B.S. and M.S. degrees in geological engineering from the South Dakota School of Mines and Technology. His research interest involves developing and using new and improved analytical techniques to model complex groundwater systems.



Speaker: Nina Burkardt
Topic: Social and economic vulnerabilities

Mrs. Burkardt is a Research Social Scientist with the USGS in Fort Collins, CO. Her educational background is Political Science with a focus on Environmental Policy and Public Administration (Colorado State University). Current research focuses on institutional and governance responses to environmental change, conflict resolution in environmental decision making, and network analysis for understanding how organizations share scientific and technical information. She is one of the USGS members of the NexView Mekong project team.



Speaker: Saira Haider
Topic: Social and economic vulnerabilities

Ms. Haider is an ecologist for the USGS and primarily works to develop ecological models and provide science-based decision support tools for restoration managers in Florida's Everglades. Prior to joining the USGS, she worked in central Mexico on payments for ecosystem services projects and grassroots conservation efforts. Ms. Haider has a Masters in Environmental Management from Duke University, where her research focused on the impact of climate change on the livelihoods of small holder coffee producers in Latin America.



Speaker: Katie Powlen

Topic: Social and economic vulnerabilities

Ms. Powlen is a doctoral candidate in the Department of Human Dimensions of Natural Resources at Colorado State University. As a human-environment geographer, she draws from land system science and social science to critically examine environmental governance and social justice in conservation interventions. She currently is working as a Research Assistant on the NexView Mekong project at the Fort Collins Science Center.



Speaker: Paul Pavelic, Ph. D.

Topic: Piloting managed aquifer recharge for resilience building of smallholder coffee farmers in Vietnam, a case study

Dr. Pavelic is a groundwater specialist with the International Water Management Institute (IWMI) based in Australia and was until recently based in Vientiane for six years. He has over two decades of research and consulting experience globally and has led or participated in numerous research for development projects in the Mekong region over the past decade.



Speaker: Van Pham Dang Tri, Ph. D.

Topic: Responding to the sea level rise in the Mekong Delta; Implementation of hard and soft policies

Dr. Tri (Assoc. Prof.) is currently a Vice Dean of the College of Environment and Natural Resources, Can Tho University, Vietnam. With a wide range of scientific background, his expertise focuses on integrated research with great attention to understanding water resources management, irrigation and hydrodynamics modelling and possible impacts of climate change on behaviours of the different river networks and agriculture and aquaculture in the Vietnamese Mekong Delta. He has invested great efforts to create science-based linkages between the hydrological cycle, agro-ecosystems, and society in order to promote sustainable management of water resources.

Dr. Tri is presently participating in different national and international projects as either a project manager or a technical advisor. Currently, he is also working with scientists from the University of Southampton on the NERC funded STELAR project to understand impacts of the full-dyke system development in the flooded areas of the Vietnamese Mekong Delta on livelihood of local residents and developing another research proposal on sediment dynamics along the Mekong River in the Delta.



Speaker: Tussanee Nettasana, Ph D.

Topic: Thailand DGR, MoNRE Experience and lessons learnt sharing: Land subsidence mitigation plan for Bangkok City from over extraction of groundwater resource

Dr. Tussanee is the Director of Groundwater Conservation and Restoration Research and Development Group at Department of Groundwater Resources, Ministry of Natural Resources and Environment, Thailand. She is a senior hydrologist with more than 30 years of experience.



Speaker: Heather Moorhouse, Ph. D.

Topic: Impacts of saline intrusion on Mekong Delta freshwater ponds

Dr. Moorhouse is a Senior Research Associate for the UKRI GCRF Living Deltas Hub based at Lancaster University, UK. Her background is in using biological indicators to understand long to short-term changes in water quality. Dr. Moorhouse is based in Work Package 3 of the Living Deltas Hub and primarily tasked with helping establish a basin wide water quality and biomonitoring programme (Work Plan 3.2; 3.3). She is also involved in reconstructing past environmental conditions using delta lake sediments to examine historical rates and extents of environmental extremes (e.g. flooding, drought) (Work Plan 3.4). This work will ultimately be used to develop a Delta Health Index to track ecosystem vitality, service and governance over time (Work Plan 3.8), and build a pan-delta consortia to share knowledge of environmental quality/change and contemporary processes and build this into decision-making (3.10).



Speaker: Lucy Roberts, Ph. D.

Topic: Impacts of saline intrusion on Mekong Delta freshwater ponds

Dr. Roberts is a post-doctoral research associate on the UKRI GCRF Living Deltas Hub, based at the University of Nottingham, UK. Her research focuses on monitoring and reconstructing water quality of, primarily, coastal lakes using a combination of approaches, including documentary evidence, palaeolimnology, and bio-monitoring. She is based in Work Package 3 and her research within the Hub focuses on establishing basin-wide water quality monitoring (3.3) with a particular focus on the management of undervalued but culturally important water sources, such as ponds, to achieve the UN Sustainable Development Goals. This work will feed into the Delta Health Index to track ecosystem vitality, service and governance over time (3.7, 3.9) and building pan-delta consortia to share knowledge of environmental quality/change and contemporary processes and build this into decision-making (3.10).



Speaker: Dr. Nguyen Thanh Phong

Topic: Impacts of saline intrusion on Mekong Delta freshwater ponds

Dr. Nguyen Thanh Phong is a lecturer and researcher at Hoa Sen university, Ho Chi Minh City, Vietnam. His research focuses are in the fields of climate change, greenhouse gas emissions and renewable energy. He is also a research associate on the UKRI GCRF Living Delta Hub and based in Work Package 3. His research within the Living Delta Hub involved in (1) evaluating land-use change and river channel dynamics in the Mekong Delta (2) determining ecosystem services provided for the Mekong Delta (3) building pan-delta consortia to share knowledge of environmental quality/change and contemporary processes and build this into decision-making.