CO-ORGANIZING REGIONAL TRAINING OF MRCS-PACT-DGR THAILAND ON THE GROUNDWATER MODELLING USING THE GROUNDWATER VISTAS SOFTWARE, *26TH – 28TH April 2023, Cross Pattaya Pratamnak, Pattaya City, Thailand*

INTRODUCTION

The MRC Strategic Plan 2021-2025 contains plans to implement a set of activities to identify practical knowledge on surface and groundwater capacity and to evaluate the potential of agricultural water use in the Lower Mekong Basin (LMB).

One of these activities is Activity 3.2.1.1 "Coordinate development of guidance on sustainable transboundary groundwater management and support implementation through country-to-country capacity building". The Project on Sustainable Groundwater Use and Management for Agriculture (SGUMA) has been implemented under Activity 3.2.1.1 and is supported by the Ministry of Agriculture, Forestry and Fisheries of Japan. The Project was divided into three phases. The SGUMA project phases 1 and 2 were completed in November 2020 and in December 2021, respectively. In order to achieve the overall goal of Activity 3.2.1.1, the SGUMA – Phase 3 is divided into three stages: Stage 1 focuses on the data collection, formatted data, and conceptualization of two transboundary aquifers for developing a numerical model of groundwater flow. The Stage 1 focused on the conceptual model development for the two transboundary aquifers and was completed in November 2022. Stage 2 (SGUMA – Phase 3.2) focuses on the development of numerical models of groundwater flow and the prediction of groundwater demand and availability until 2040 in the two transboundary aquifers. Stage 2 will be conducted from March to November 2023; and Stage 3 (SGUMA – Phase 3.3) will focus on the development of guidelines for sustainable groundwater management in the Lower Mekong Basin and disseminate and promote the guidelines to the Member Countries. The Stage 3 will be conducted from February to November 2024.

Groundwater is one of the important sources of water supply for agricultural and industrial activities. Therefore, sustainable and effective groundwater management is among the focus areas of each country's water resources management plan. To this end, in 2022, the Mekong River Commission ("the MRC") conducted the Groundwater Project in collaboration with the United States Geological Survey ("the USGS") to develop the Conceptual Model for the two transboundary aquifers.

In order to continue building capacity on sustainable groundwater management in the LMB, MRCS is purchasing five licenses of the Groundwater Vistas Software for developing the numerical groundwater model in 2023. And, to apply this software correctly and smoothly, a technical training is essential for some member countries (Cambodia, Laos, and Viet Nam). The training will focus on how to use the Groundwater Vistas Software for developing the numerical groundwater model for two transboundary aquifers. However, the training is out of the MRC work plan from January to June 2023 and the Agriculture and Irrigation (AI) Activity does not have enough budget to organize this training.

Regarding the issues mentioned above, The AI team of PD, MRCS requested and received funding support from the Sustainable Infrastructure Partnership (SIP), PACT of Thailand to organize this training workshop.

OBJECTIVES OF TRAINING

The main objectives of this regional technical training are to:

- Improve the capacity of the national teams on the groundwater model development by using the Groundwater Vistas Software.
- Assist all national teams in preparing and processing the data at the same stage in order to make sure all teams can finish the assignment on time.

LIST OF PARTICIPANTS

- Five MRCS staff, including four participants (2 AI, 1 admin, Dir. Or Chief) from PD and one IT staff from AD
- 12 participants from Cambodia, Laos, and Viet Nam, including four participants from each country: 1 NMCS, 1 National consultant, and 2 representatives from the most relevant line agencies. The representatives from the most relevant line agencies would be the technical staff who are working on and responsible for the groundwater data collection and groundwater modeling.
- Five or six participants from Thailand, including one or two representative(s) from TNMCS, and four participants from the Thai national consultant team. Note: The Thai national consultant team from the Department of Groundwater Resources of Thailand will be invited as the trainers for this training.
- Three representatives from Pact of Thailand.

TENTATIVE AGENDA: 26 – 28 April 2023

Day 1: 26 April 2023

Time	Items	Responsibilities
8:30 – 9:00	Register	
9:00 – 9:15	Welcome and opening remark	Chairperson
9:15 – 9:30	Objective and agenda of the training	AIS
9:30 – 10:00	Self-introduction and expectation and group photo	All
10:00 – 10:15	**Coffee Break (15')**	**All**
10:15 – 10:45	Session 1: Lecture – Review of fundamental principles (Q&A)	Trainer
10:45 – 12:00	An introduction to Groundwater Vistas (Q&A)	Trainer
12:00 – 13:00	**Lunch**	**All**
13:00 – 14:30	Session 2: Demonstration – Review of modeling software tools (Q&A)	Trainer
14:45 – 15:15	Session 3: Hands-on practice – Model construction (Q&A)	Trainers and All
15:15 – 15:30	**Coffee Break (15')**	All
15:30 – 16:00	Session 3: Hands-on practice – Model construction (Cont.) (Q&A)	Trainers and All
16:00 – 17:00	Session 4: Hands-on practice – Model calibration (Q&A)	Trainers and All
17:00 – 17:15	Summary and Closing Day 1	Trainers and AIS

Day 2: 27 April 2023

Time	Items	Responsibilities
8:30 – 8:45	Day 1 reflection and discussion	Trainers and All
8:45 – 10:15	Session 1: Lecture – Introduction of available geologic, hydrologic, and hydrogeologic data in each transboundary aquifer (Q&A)	Trainers
10:15 – 10:30	**Coffee Break (15')**	**All**
10:30 – 12:00	Session 2: Demonstration and Exercises – Development of conceptual site model using TBA-1 and TBA-2 data (Q&A)	Trainers and All
12:00 – 13:00	**Lunch**	**All**
13:00 – 14:15	Session 3: Demonstration and Exercises – Preparation for numerical TBA model construction (Q&A)	Trainer
14:15 – 14:30	**Coffee Break (15')**	All
14:30 – 16:30	Session 4: Demonstration and Exercises – Construction of numerical TBA model (Q&A)	Trainers and All
16:30 – 17:00	TBA-1 and TBA-2 presentations on exercises from Days 1 & 2 (Q&A)	NCs
17:00 – 17:15	Summary and Closing Day 2	Trainers and AIS

Day 3: 28 April 2023

Time	Items	Responsibilities
8:30 – 9:00	Day 2 reflection and discussion	Trainers and All
9:00 – 10:00	Session 1: Lecture – Parameter estimation / inverse modeling (Q&A)	Trainers
10:00 – 10:30	Session 2: Demonstration and Exercises – Manual calibration of TBA model (Q&A)	Trainers and All
10:30 – 10:45	**Coffee Break (15')**	**All**
10:45 – 12:00	Session 2: Demonstration and Exercises – Manual calibration of TBA model (Q&A) (Cont.)	Trainers and All
12:00 – 13:00	**Lunch**	**All**
13:00 – 14:30	Session 3: Demonstration and Exercises – Automated calibration of TBA model using PEST	Trainer
14:30 – 14:45	**Coffee Break (15')**	All
14:45 – 16:00	Session 4: Demonstration and Exercises – Applications of TBA model	Trainers and All
16:00 – 17:00	TBA-1 and TBA-2 presentations on exercises (Q&A)	NCs
17:00 – 17:15	Summary and Closing Remarks	Trainers and AIS