[Cyber to Real World Integrated Testbed for Dam Safety Management and Water Governance System]
[Traveling to Field Test Sites]
Report Form

I. Proposer:

Name:	Mr. Kanokvate Tungpimolrut
Position:	Research fellow
Institution:	National Electronics and Computer Technology Center (NECTEC)

II. Objective:

1. To check, calibrate, maintain, and repair the sensors and Remote Terminal Units (RTUs) used to collect essential data for simulation and emulation in this project, at three targeted dams located in river basins in northeastern Thailand.
2. To inspect the actual sensors and RTUs installed in real environments, verify the correctness and availability of the collected datasets, and confirm the reasons for any missing or incorrect data.
3. To observe the overall real system, discuss with and reconfirm information from the responsible staffs who operate the hydropower dams daily—particularly regarding dam safety and water governance issues—in order to clarify the importance of using results from the developed model in future simulations and emulations.

III. Schedule:

Date	Location	Work	Person in charge
29 July 2025	Ubolratana dam	Tasks related to Objectives No.1, 2, and 3	All participants listed
30 July 2025	Huai Kum dam	Tasks related to Objectives No.1, 2, and 3	All participants listed
31 July 2025	Chulabhorn dam	Tasks related to Objectives No.1, 2, and 3	All participants listed

IV. Participants:

No.	Name	Organization
1	Mr. Kanokvate Tungpimolrut	NECTEC
2	Mr. Kumpee Suksomboon	NECTEC
3	Mr. Arnan Jomtarax	NECTEC
4	Mr. Manut Tanticharoen	NECTEC
5	Mr. Chirapot Vuthipraphan	NECTEC
6-10	The representatives of EGAT, who will guide	EGAT

	and work with the NECTEC team at the dam sites, will be present throughout the fieldwork.	

Remarks: *Mr. Manut had urgent family commitments and was therefore unable to participate in the field experiment this time.*

V. Summary of the activities corresponding to the objectives

The activities corresponding to each objective have been conducted and are summarized as follows:

1. To check, calibrate, maintain, and repair the sensors and Remote Terminal Units (RTUs) used to collect essential data for simulation and emulation in this project at three targeted dams located in river basins in northeastern Thailand.

- At Ubolratana Dam, a new surge protection circuit has been installed on some main sensors that were severely affected by lightning and heavy storms during the last rainy season.
- At Huai Kum Dam, the communication between the dam server and the backup disk was checked, as the collected data could not be properly accessed. It was found that the backup disk was broken, so we have contacted the supplier to arrange for a replacement.
- At Chulabhorn Dam, rainfall data could not be collected properly due to damage caused by a wild elephant that entered the dam area. A new rain gauge has been installed and checked for accuracy. Additionally, sensor data from some devices remained constant over several days, indicating the need for calibration and verification. It was found that some sensors were affected by turbid water and required cleaning.

2. To inspect the actual sensors and RTUs installed in real environments, verify the correctness and availability of the collected datasets, and confirm the reasons for any missing or incorrect data.

- The correctness and availability of datasets stored on the main servers at all three targeted dams have been verified following the calibration, maintenance, and repairs described above.

3. To observe the overall real system, discuss with, and reconfirm information from the responsible staff who operate the hydropower dams daily—particularly regarding dam safety and water governance issues—in order to clarify the importance of using the developed model in future simulations and emulations.

- These three dams are located in different cities but are primarily used for water governance within the river basins of this region. The outflow from Chulabhorn Dam, which is situated at the highest elevation, flows into Huai Kum Dam, and subsequently into Ubolratana Dam. Therefore, the cascading effects of each dam

must be carefully considered in relation to dam safety and water management.

- The inflow into each reservoir is influenced by various factors—not just local rainfall collected via a weather station at each dam site. Accurate forecasts for the next 5, 10, or 15 days, based on simulations or emulations developed in this project, are crucial for effective water resource management and dam safety planning.

VI. Others


DS-RMS
CLB-RTU.2