AI-Driven Smart Horticulture for Climate Sensitive Plant using Soil Analysis and Image Processing: A Tropical Perspective
Project Meeting and Site Visit at National University of Laos (NUOL), Pawan Farm and Phachaleun Farm
Report/Minutes Form

I. Organizer:

Name:	Asst. Prof. Dr. Khanthanou Luangxaysana
Position:	Project Member
Institution:	National University of Laos

II. Program:

Date: 16-17 October 2025

Venue:

(1) Project Meeting and Sharing Session at National University of Laos (NUOL)
(2) Site Visit to the Pawan Farm
(3) Site visit and Meeting at Phachaleun Farm

Program Agenda:

Project Members will arrive at Vientiane Capital on 15 October 2025 (Wednesday).

Day 1: 16 October 2025 (Thursday)
Project Review Meeting and Sharing Session at NUOL

08:30am	Arrival of IVO Project Team at NUOL
09:00am	Welcome remarks by the Dean of Faculty of Engineering
09:15am	Introduction of Faculty of Engineering by FEN NUOL Program Leader
10.00am	Coffee break and networking
10:30am	Sharing session on the IoT Project by Computer Engineering and Information Technology department
11:00am	Sharing session on the Smart Farm System by Electronic and Telecommunications Engineering department
12:00pm	Lunch break
13:00pm	Visit to Pawan Farm (URBAN Far, smart farming systems).
14:30pm	Coffee break
15:00pm	Discussion with Pawan Farm owner.
17:00pm	End of Day 1

Day 2: 17 October 2025 (Friday)
Site Visit to the Phachaleun Farm at Sangthong

08:30am	Visit to Phachaleun Farm, Sangthong, Vientiane

10:00am	Coffee Break
10:30pm	Melon, Watermelon and Tomato Greenhouse visit
11:30pm	Discussion with Phachaleun Farm owner.
12:00pm	Lunch break
13:30pm	Project Update and Discussion
15.00pm	Coffee break
15.30pm	Come back to city centre (Hotel)
17:30pm	End of Program

The ASEAN IVO Academic Event held on 16-17 October 2025 at National University of Laos (NUOL), the Pawan Farm, and Phachaleun Farm, FEN, NUOL, acted as a vital hub for assessing joint progress and exchanging interdisciplinary knowledge. It also provided a space to map out upcoming objectives for the “AI-driven smart horticulture for climate sensitive plant using soil analysis and image processing: a tropical perspective”.

On Day 1 (16 October 2025), Following the arrival of project members, Mr. Chankhachone Sonemanivong, Vice Dean of the Faculty of Engineering (FEN), delivered a welcome address. This opening set the stage for a productive day of technical discussions and strategic project reviews. The first is Introduction to FEN to overview about faculty and the research work by Asst. Prof. Dr. Khanthanou Luangxaysana, Program leader. Following a networking coffee break. Then sharing session was led by Assoc. Prof. Senglathsamy Chanthaminaving, Deputy Head of Computer Engineering and Information Technology department, who presented on the IoT Project by Computer Engineering and Information Technology department and Asssoc. Prof. Dr. Donekeo Lakanchanh, Head of Electronic and Telecommunication Engineering department, who presented on the Smart Farm System by Electronic and Telecommunications Engineering department. This session emphasized the deployment of real-time monitoring systems and adaptive control mechanisms within greenhouse environments, aligning the project’s key deliverables relevant to the development of IoT-enabled smart farm monitoring system in 2 departments.

The afternoon featured a site visit focused on IoT system deployments and their practical applications. This was followed by a trip to URBAN Farm in Vientiane, where the owner hosted the group and shared insights into regenerative agriculture. The farm currently cultivates a variety of produce, including tomatoes, melons, watermelons, and various vegetables.

Day 2 (17 October 2025) shifted to field-based learning with a visit to Phachaleun Farm in Sangthong, Vientiane Capital. The owner led a tour of the greenhouses, demonstrating the farm's operational systems and diverse crops, such as tomatoes and melons. Following a networking break, the group transitioned into the Project Review Meeting, where each institution presented progress updates. The event concluded with a strategic alignment session to clarify roles and deliverables, reinforcing the collaborative spirit essential for the next phase of the ASEAN IVO project.

III. Participants:

No.	Name	Organization
1	Asst. Prof. Dr. Khanthanou Luangxaysana (Event host)	NUOL, Laos
2	Mr. Phutsavanh Thongphanh	NUOL, Laos
3	Mr. Chankhachone Sonemanivong	NUOL, Laos
4	Assoc. Prof. Senglathsamy Chanthamenavong	NUOL, Laos
5	Asssoc. Prof. Dr. Donekeo Lakanchanh	NUOL, Laos
6	Dr. Phosy Panthongsy	NUOL, Laos
7	Dr. Lee It Ee	MMU, Malaysia
8	Dr. Olivia Tan Swee Leng	MMU, Malaysia
9	Dr. Lim Tiong Hoo	UTB, Brunei
10	Dr. Phon Sovatna	NIA, Cambodia
11	Mr. Long Touch	NIA, Cambodia

IV. Summary of the activities corresponding to the objectives.

Objectives:

1. **To understand the greenhouse implementation**

   The Project Meeting at NUOL serves as a critical checkpoint for project members to present updates on their respective contributions, understand the current of the real Smart Greenhouse in Vientiane, Lao PDR and identify key challenges/drawbacks that may hinder the physical progress of the project in their respective countries. Project members will also visit the smart farming systems (URBAN Farm) and the farming without smart system (Phachaleun Farm). The farm grows melon, watermelon and tomato in this temperature and water controller Greenhouse. This session aims to strengthen project coordination among project members, and ensure that all collaborative efforts are effectively aligned with the overall research objectives and timeline.

2. **To facilitate interdisciplinary knowledge sharing on cutting-edge smart agriculture solutions**

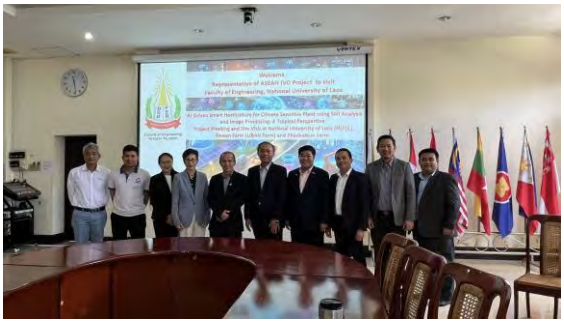
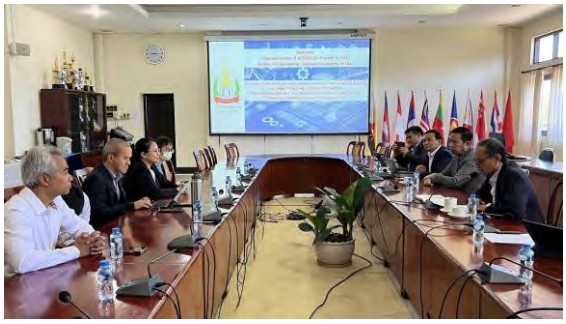
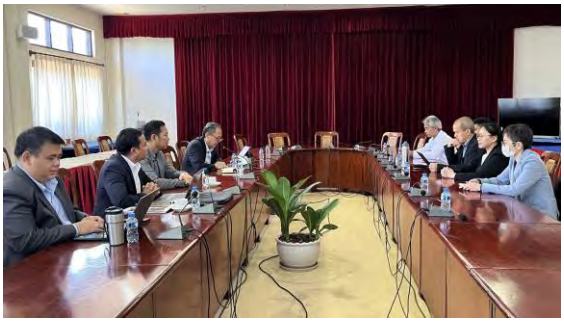
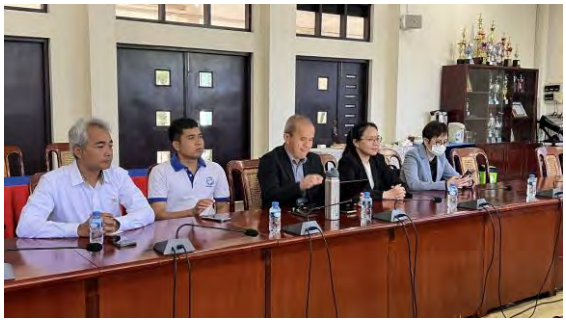
   The sharing sessions led by the Faculty of Engineering aim to promote a cross-disciplinary dialogue on sustainable agriculture. These sessions will explore the integration of automation, AI, and legal-technological frameworks in modern farming practices, with a special focus on high-value crops like melon, watermelon and tomato. By bringing together expertise from engineering and agrotech, the event encourages holistic thinking, supports innovation, and inspires the co-creation of scalable, sustainable farming models tailored to tropical environments.

3. **To enrich research understanding through immersive field exposure and practical engagement**
   The site visit to Greenhouse and smart farm at Vientiane capital offers participants direct exposure to real-world applications of the smart farming systems (URBAN Farm) and the farming without smart system (Phachaleun Farm). The farm grows melon, watermelon and tomato in this temperature and water controller Greenhouse. These hands-on visits are designed to deepen participants' understanding of how theoretical concepts are translated into functional, context-specific solutions. Interacting with field experts and observing ongoing practices will enable researchers to gather practical insights, validate research assumptions, and explore potential areas for further collaboration, pilot testing, or technology refinement.

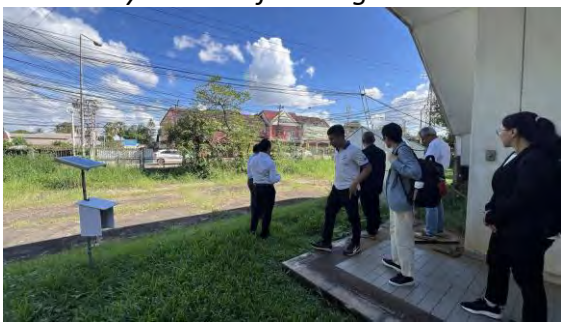
4. **To review and finalize project workplan**
   Outline and finalize the project's workplan, including the allocation of roles, responsibilities, and milestones, ensuring all team members have a clear understanding of their tasks.

V. Others.

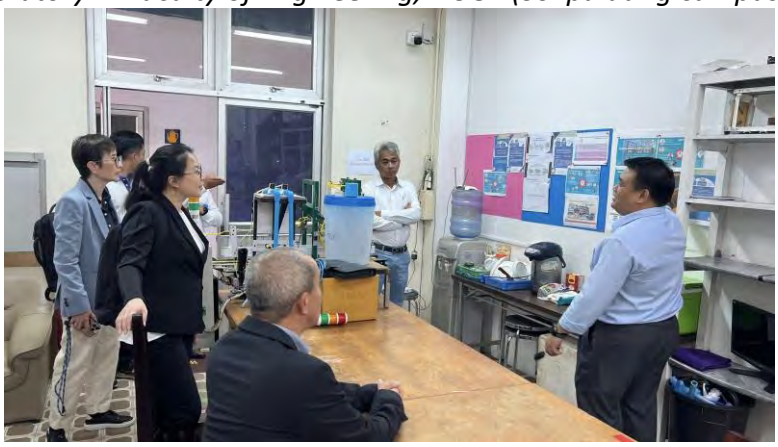
Project meeting and Sharing session by Assoc. Prof. Senglathsamy Chanthaminaving, deputy head of Computer Engineering and Information Technology department, who presented on the IoT Project by Computer Engineering and Information Technology department and Assoc. Prof. Dr. Donekeo Lakenchanh, Head of Electronic and Telecommunication Engineering department, who presented on the Smart Farm System by Electronic and Telecommunications Engineering department.

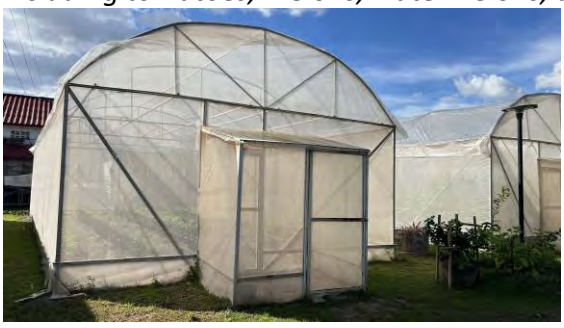
Site survey location for the greenhouse installation at Faculty of Engineering, NUOL

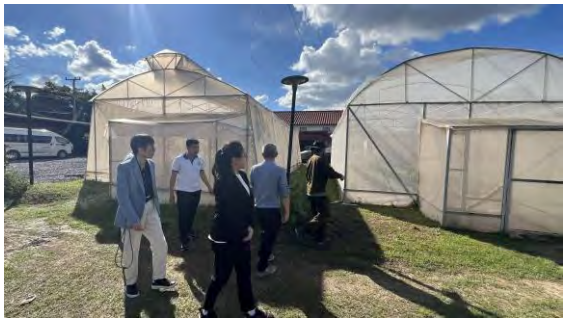



Visit APC Laboratory in Faculty of Engineering, NUOL (Sokpaluang campus)

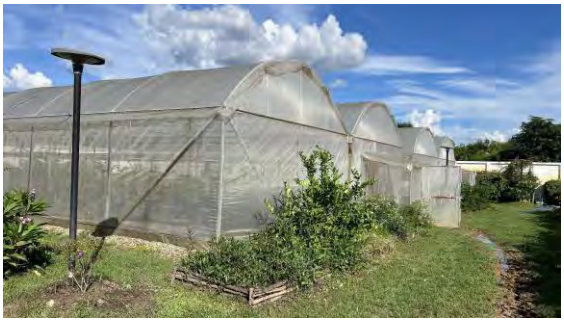


site visit to URBAN Farm in Vientiane, where the owner hosted the group and shared insights into regenerative agriculture. The farm currently cultivates a variety of produce, including tomatoes, melons, watermelons, and various vegetables.








site visit to Phachaleun Farm in Sangthong, Vientiane Capital. The owner led a tour of the greenhouses, demonstrating the farm's operational systems and diverse crops, such as tomatoes and melons.