



**AI-Driven Smart Horticulture for Climate Sensitive Plant using Soil Analysis and Image Processing: A Tropical Perspective
Project Meeting and Field Deployment at National University of Laos (NUOL)
Report/Minutes Form**

I. Organizer:

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

II. Program:

Date: 10-13 February 2026

Venue: Faculty of Engineering, National University of Laos (NUOL).

Program Agenda:

Project Members will arrive at **Vientiane Capital on 10 February 2026 (Tuesday)**.

Day 1: 10 February 2026 (Wednesday)

Project Review Meeting, Technical Sharing Session, and Greenhouse Planning at Faculty of Engineering, National University of Laos (NUOL)

08:30am	Arrival of IVO Project Team at FEN, NUOL
09:00am	Welcome remarks by the Representative of FEN, NUOL
09:15am	Introduction of Partner Institutions and Project Overview
10:00am	Coffee break and networking
10:30am	Sharing session on Digital Agriculture and Smart Greenhouse Concepts by partner institutions
11:30am	Technical discussion on project objectives, scope of greenhouse development, and implementation roadmap
12:00pm	Lunch break
13:00pm	Site inspection and assessment of the proposed greenhouse location at FEN, NUOL
15:00pm	Coffee break
15:30pm	Technical session on greenhouse design options, crop selection, and environmental control requirements
16:30pm	Wrap-up discussion and preparation for system design and capacity-building activities
17:00pm	End of Day 1

Day 2: 11 February 2026 (Thursday)

Smart Greenhouse System Design, Training, and Curriculum Alignment at NUOL

08:30am	Briefing on smart greenhouse system architecture and digital agriculture components
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ICT Virtual Organization of ASEAN Institutes and NICT (ASEAN IVO)

9:00am	Technical session on sensor networks, automation concepts, and digital monitoring platform design
10:30	Coffee break
10:45am	Discussion on infrastructure requirements, equipment specifications, and implementation timeline
12:00pm	Lunch break
13:30pm	Hands-on training and demonstration on smart greenhouse management tools and digital agriculture systems
14:30pm	Curriculum review and alignment session on Digital Agriculture among partner institutions
15:30pm	Coffee break
16:00pm	Project coordination meeting, discussion on next implementation steps, and closing remarks
17:30pm	End of Program

The ASEAN IVO Academic Event held on 10-13 February 2026 at National University of Laos (NUOL) to strengthen regional technical collaboration, technology transfer, and academic alignment among partner institutions in Cambodia, Laos, Malaysia, and Brunei through a technical visit supporting the establishment of a Smart Greenhouse and the integration of digital agriculture into academic curricula.

Day 1 (11 February 2026), Following the arrival of project members, Asst. Prof. Dr. Khanthanou Luangxaysana, Program leader of the Faculty of Engineering (FEN), delivered a welcome address. The first session opened with Dr. Lee It Ee, Project Leader from MMU, Malaysia, who provided a comprehensive project overview. This was followed by Dr. Olivia Tan Swee Leng (MMU, Malaysia), who introduced the "Search-Us" platform—a tool designed to help students prepare for the workforce and apply for internships. After a networking coffee break, Dr. Phon Sovatna from NIA, Cambodia, led a sharing session on digital agriculture and smart greenhouse concepts. The morning concluded with a technical discussion on project objectives, the scope of greenhouse development, and the implementation roadmap.

The afternoon featured a site inspection and assessment of the proposed greenhouse location at FEN, NUOL. Following a networking coffee break. Continue Technical session on greenhouse design options, crop selection, and environmental control requirements and wrap-up discussion and preparation for system design and capacity-building activities.

Day 2 (12 February 2026) the second day was packed with technical insights, starting with workshops on smart greenhouse architecture and digital agriculture for both students and faculty. After diving into sensor networks and automation design, participants moved into a hands-on afternoon session to test digital management tools. A key highlight was the curriculum alignment session, ensuring all partner institutions are teaching consistent digital agriculture standards. We wrapped up the event with a strategic coordination meeting to map out our implementation steps and shared closing remarks.

III. Participants:

No.	Name	Organization
1	Asst. Prof. Dr. Khanthanou Luangxaysana (Event host)	NUOL, Laos
2	Mr. Phutsavanh Thongphanh	NUOL, Laos
3	Assoc. Prof. Dr. Khampaseuth Thepvongsa	NUOL, Laos
4	Assoc. Prof. Tha Bounthanh	NUOL, Laos
5	Assoc. Prof. Manolom Chanthavong	NUOL, Laos
6	Assoc. Prof. Keokanlaya Sihalath	NUOL, Laos
7	Dr. Phosy Panthongsy	NUOL, Laos
8	Mr. Xaysamone Dittaphong	NUOL, Laos
9	Ms. Thavisone Mounlasan	NUOL, Laos
10	Dr. Lee It Ee	MMU, Malaysia
11	Dr. Olivia Tan Swee Leng	MMU, Malaysia
12	Dr. Lim Tiong Hoo	UTB, Brunei (Online)
13	Hj Ismit bin Hj Mohamad	UTB, Brunei (Online)
14	Dr. Phon Sovatna	NIA, Cambodia
15	Mr. Long Touch	NIA, Cambodia (Online)
16	Dr. Somphone Kanthavong	NUOL, Laos
17	Ms. Tick Sengthippany	NUOL, Laos
18	Ms. Souvanhny Vilachit	NUOL, Laos
19	Ms. Nion Pathoummalath	NUOL, Laos
20	Mr. Soukxaysana Vonglomdeng	NUOL, Laos
21	Ms. Southida Xayyadeth	NUOL, Laos
22	Ms. Chindala Luangkeo	NUOL, Laos
23	Mr. Vayu Khaowphaivanh	NUOL, Laos
24	Mr. Tula Khemkrorphamee	NUOL, Laos
25	Ms. Nitathong Panthongchan	NUOL, Laos
26	Mr. Somkham Sengthavy	NUOL, Laos
27	Mr. Phoumsakda Kasol	NUOL, Laos
28	Ms. Sounee Swangpaserd	NUOL, Laos
29	Ms. Soudaly lewvanno	NUOL, Laos
30	Mr. Boutdee Syhalath	NUOL, Laos
31	Ms. Kabiw Chanleunsin	NUOL, Laos
32	Mr. Xaiyaphone Chansamone	NUOL, Laos
33	Mr. Viengthep Thammavongsa	NUOL, Laos
34	Mr. Xaisana Luangaphai	NUOL, Laos
35	Novice Aoud Xaigalath	NUOL, Laos
36	Monk Anisa Kanhalikham	NUOL, Laos
37	Mr. Latthafaim Phomphakdy	NUOL, Laos
38	Monk Bounseua Bounma	NUOL, Laos
39	Mr. Vartsana Phommachan	NUOL, Laos

40	Ms. Namfon Chanthanakhone	NUOL, Laos
41	Mr. Kitsana Chanthavong	NUOL, Laos
42	Mr. Anouvanh Soulivong	NUOL, Laos
43	Mr. Binly Bounyakhet	NUOL, Laos
44	Mr. Thavyxok Keosouphom	NUOL, Laos
45	Mr. Settha Xaiyasouk	NUOL, Laos

IV. Summary of the activities corresponding to the objectives.

Objectives:

1. To jointly design and build a greenhouse equipped with digital agriculture tools in Lao PDR.

The technical visit aims to support the planning, design, and construction of a modern greenhouse equipped with digital agriculture technologies in Lao PDR. Through joint site inspections and technical discussions among partner institutions from Cambodia, Laos, Malaysia, and Brunei, project members will define greenhouse layout, crop selection, and system requirements adapted to local climatic and production conditions. This objective seeks to facilitate technology transfer, promote climate-resilient crop production, and create a demonstration site for future research, training, and regional knowledge dissemination.

2. To deploy digital monitoring and automation systems for smart greenhouse crop production

The visit will focus on installing, configuring, and testing key digital tools, including environmental sensors, automated irrigation and fertigation systems, and digital data-logging and monitoring platforms. Participants will observe real-time measurement of temperature, humidity, soil moisture, EC, pH, and light intensity, as well as automated control of irrigation, ventilation, and shading systems. This objective aims to evaluate system performance, improve resource-use efficiency, and support data-driven decision-making for sustainable greenhouse management.

3. To strengthen technical capacity and practical skills in smart greenhouse operation and digital agriculture technologies

Hands-on training sessions and technical demonstrations will be organized for researchers, technicians, lecturers, and farm staff from partner institutions in Laos and participating countries. This objective seeks to enhance capacity in operating, maintaining, and interpreting data from digital greenhouse systems, promote effective adoption of smart farming technologies, and support long-term sustainability through continuous knowledge exchange and regional technical cooperation.

4. To review and align curricula to ensure effective integration of Digital Agriculture among partner institutions in line with regional and institutional academic frameworks

The visit will include joint curriculum review and alignment sessions among partner institutions from Cambodia, Laos, Malaysia, and Brunei to assess existing programs and

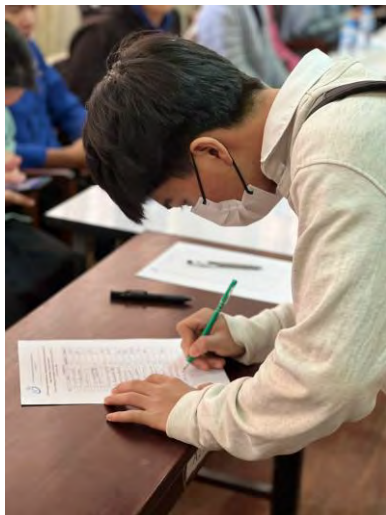
identify opportunities to integrate Digital Agriculture components. The activity will harmonize learning outcomes, course structures, and competency standards with Outcome-Based Education (OBE) and digital agriculture frameworks adopted by partner institutions, while promoting joint program development and regional academic cooperation.

V. Others.

Project meeting, sharing session and Workshop for Lecturers and students of 11-12 February 2026 at Faculty of Engineering, National University of Laos (Sokpaluang campus).











Site inspection and assessment of the proposed greenhouse location for the greenhouse installation at Electronic and Telecommunication Department, Faculty of Engineering, NUOL (Sokpaluang campus)

