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INOWASIA

WP2: Deliverable 2.4 and 2.6

Schedule and agreements: Plan for staff mobility (teacher training) – Report on teacher training and mobility

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The INOWASIA Consortium

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| Hanoi University of Science – Vietnam National University (HUS) | Vietnam |
| Can Tho University (CTU) | Vietnam |
| National University of Laos (NUOL) | Laos |
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Abstract

This document integrates Deliverables 2.4 and 2.6 of the INOWASIA project, covering the "Staff Mobility Plan (teacher training)" and the "Report on Teacher Training and Mobility", respectively. It provides an analysis of the planned and executed mobilities, highlighting adjustments in planning due to challenges imposed by the COVID-19 pandemic and describing the specific training conducted for staff. Key sections include:

PBL (Problem-Based Learning) Methodology Training: This section details the training sessions in PBL methodology, which were adapted to virtual and in-person formats to meet training needs during mobility restrictions. Dates, participant numbers, course content, and assessment outcomes are specified.

Advanced Water Resource Training: This segment outlines training activities on advanced water resources knowledge, combining technical visits, masterclasses, and practical workshops. It addresses how these essential knowledge areas were delivered through various modalities, including specific missions and in-person sessions once mobility restrictions were lifted.

The document also reflects the adaptability and commitment of the INOWASIA project to continuous staff training, underscoring how obstacles posed by the pandemic were overcome to ensure effective training delivery. Furthermore, it discusses additional on-demand training activities focused on specialized topics such as sensor technology, resource recovery, and nature-based solutions to responding to the needs of SEA partners.

Document History

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INOWASIA STAFF TRAINING mobilities planning and implementation

INOWASIA aims to train future young water professionals in basic and advanced knowledge in the field of water resources, providing contemporary skills. The idea is to combine master classes and seminars with practical training, targeted to academic staff and open to students and stakeholders.

The outbreak of the covid pandemic fully affected the scheduled mobility for teaching and training. The Steering Committee decided to combine virtual and face-to-face teaching & training sessions, advancing virtual training on problem-based learning (PBL) methodology during the most critical months of the pandemic, and concentrating as many face-to-face training sessions as possible during the consortium trips to Europe and SEA. In addition, a series of specific missions of European experts were scheduled to train professors and students from Southeast Asian universities in the most relevant and innovative aspects of the field of water resources and PBL learning methodology.

Finally, a week of virtual training has been scheduled for the beginning of 2023, provided by internationally recognized experts, on topics related to the teaching material developed for the implementation of PBL subjects in SEA HEIs MSc. This way, the cost (and risk) of mobilities have been significantly reduced, while continuing to train a large number of Southeast Asian professors and students.

In summary, the INOWASIA project's staff mobility training schedule and planning underwent significant adjustments due to the COVID-19 pandemic. Initially designed for primarily face-to-face interactions, the exigencies of the global health crisis necessitated a shift to online formats in the early stages of the project. With the easing of mobility restrictions, a blend of face-to-face sessions, specific missions, and continued online training was implemented, offering a flexible delivery of the curriculum during biannual meetings and extending beyond. This adaptive hybrid training model facilitated the effective execution of the training agenda amidst pandemic-induced challenges.

PBL Methodology Training

Virtual Training Sessions:

- **21/11/2021:** A 2-hour session for 15 teachers from INOWASIA partners on PBL methodology.
- **2/2/2022 and 11/3/2022:** Two sets of 4-hour sessions for 20 teachers from ITC and NUBB, inclusive of homework, an exam, and diploma issuance.
- **3/2/2022 and 11/3/2022:** Two sets of 4-hour sessions for 20 teachers from NUOL and SU, inclusive of homework, an exam, and diploma issuance.
- **11/2/2022 and 11/3/2022:** Two sets of 4-hour sessions for 20 teachers from CTU and VNU-HUS, inclusive of homework, an exam, and diploma issuance.

Face-to-Face Training Sessions:

- **6/5/2022:** A 2-hour practical session for 15 INOWASIA partners' teachers in Girona, Spain.
- **29/8/2022 and 2/9/2022:** 3.5 hours across 2 sessions for 19 ITC teachers in Phnom Penh, Cambodia, including a final exam and diploma.
- **1/9/2022:** 3 hours for 44 NUBB teachers and students in Battambang, Cambodia, including a final exam and diploma.
- **26/9/2022:** 2 hours for 8 UT3 teachers and IoT technicians in Toulouse, France, including a final exam and diploma.
- **2/11/2022:** 2 hours for 17 CTU teachers in Can Tho, Vietnam, including a final exam and diploma.

Advanced Knowledge in Water Resources Training

Face-to-Face Activities:

- **Visits:**

- **3/5/2022:** Barcelona Drinking Water facility for a 4-hour session on advanced water treatment.
- **5/5/2022:** Empuriabrava Wastewater Treatment Plant for a 4-hour session on wastewater treatment.
- **10/5/2022:** Various sites in Montpellier for sessions focusing on quality control, natural treatment systems, and sustainable production.
- **11/5/2022:** LGC – INP in Labège and the Renaturalisation project at Ramier Island for sessions on advanced oxidation and urban green infrastructures.
- **12/5/2022:** UT3 Campus Camille Gonthier for a session focusing on biodiversity effects in wastewater treatment.

- **Master Classes:**

- **9/5/2022:** Soil quality for 2 hours at SupAgro Campus, Montpellier.
- **25/2/2021 (Virtual):** Living labs for 2 hours.
- **3/11/2022:** Ecosystem services for 1 hour at Can Tho University.

- **Hands-on Activities:**

- **9/5/2022:** Biofunctool for 2 hours at SupAgro Campus, Montpellier.
- **12/5/2022:** IoT to monitor natural systems for 2 hours at UT3 Campus E-connect.

- **Seminars/Workshops:**

- **2/5/2022:** A hybrid seminar on R+D capabilities for 4 hours.
- **30/10/2022:** International forum on Sustainable Development of the Mekong Delta for 5 hours.
- **1/11/2022:** Water and Natural Resources in the Mekong Delta for 4 hours.

Additional On-Demand Training (Post-2023)

After the conclusion of the main training phase under Work Package 2 in 2023, the INOWASIA project continued to offer specialized training sessions tailored to the evolving needs of partner institutions. This included:

- **Sensor Technology Training in July 2023** by experts from the University of Toulouse III, focusing on IoT technologies for environmental monitoring. Two academics, Arnaud Elger and Rahim Kacimi, along with engineer Jean-Louis Druilhe from the University of Toulouse III - Paul Sabatier, conducted an IoT (Internet of Things) training in Laos and Cambodia. The training, aimed at introducing participants to IoT technologies, focused on mounting sensors and networking for data collection. The first session took place in Luang Prabang at Souphanouvong University on July 3-4, followed by a session in Phnom Penh at the Institute of Technology of Cambodia on July 6-7. A total of 17 individuals, comprising 4 students and 13 teachers/staff, participated in the training. The program included theoretical introductions to IoT, its environmental applications, and hands-on activities centered on sensor integration and data acquisition using Arduino platforms. Topics covered basic C++ programming, sensor data acquisition, and conductivity measurement with Atlas probes, leading to practical IoT applications for environmental monitoring. The use of Node-RED for data visualization and the distribution of development kits to each participating institution was intended to facilitate the continued exploration of IoT solutions for environmental challenges. The participants, unfamiliar with the innovative content, acknowledged the significance of IoT in addressing water quality and environmental research, valued the practical experience, and recognized the potential for applying these technologies in their projects.
- **PBL Methodology Training in December 2023** at NUOL and SU to deepen the application of PBL methodologies.
- **Resource Recovery Training in January 2024** at ITC, concentrating on sustainable resource management practices.
- **Nature-Based Solutions Training in December 2023 and January 2024** at NUOL and ITC to promote the integration of NBS in water management strategies.

- **Hands-on Water Monitoring Events in 2024** at various institutions, providing practical insights into water quality monitoring and management.

This strategy of integrating both virtual and face-to-face training modalities has been instrumental in navigating the constraints imposed by the COVID-19 pandemic, ensuring the delivery of essential training in PBL methodology and water resources knowledge across the partner institutions.

For detailed information on the training sessions conducted under the INOWASIA project, a comprehensive spreadsheet is available. This resource provides an exhaustive overview of each training session, including dates, durations, participant counts, and focal areas, facilitating a thorough understanding of the project's educational initiatives. Access to this document can be found in the excel file

https://docs.google.com/spreadsheets/d/1ZfURbEgQMtWx6QRAvCHV_-0JtNGN0z5g/edit#gid=2004465809

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