

Call for Participants for the Southeast Asia International Joint-Research and Training Program on Environmentally Green Technology and Sustainable Energy: Water-Energy Nexus

■ Introduction

The rapid economic development and serious environmental pollution of the Association of Southeast Asian Nations (ASEAN), India, and other Asian countries make their governments a great need on development of cutting-edge green technology for sustainable environment. In 2016, the United Nations Development Program (UNDP) has launched a new program named “Sustainable Development Goals (SDGs)” which are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity in 2030. Moreover, UDNP has proposed a strategic plan focuses on 17 key areas. Among these 17 goals, “Good health and well-being”, “Affordable and Clean Energy” and “Clean Water and Sanitation” are highly related to the Water-Energy Nexus for human health. Due to the high pressure on achieving the UN SDGs, ASEAN and other Asian countries gradually change the use of fossil fuel to sustainable energy, such as solar energy to reduce the emission of CO₂. Moreover, the utilization of cutting-edge green technology for environment protection, as well as the circular economy for recycling and re-utilizing the industrial and agricultural wastes are urgently needed. During the past forty years, Taiwan has successfully changed from an agricultural society into an industrial society and has developed good systems for energy management and environmental protection. This “Taiwan experience” will be a treasure for ASEAN and South Asian Countries during their transition stage.

The purpose of this joint-research and training program is to strengthen the academic and educational cooperation between Taiwan and Southeast/South Asian countries including Philippines, Indonesia, Malaysia, Thailand, Vietnam, India, Cambodia, Laos, Myanmar, Sri Lanka, Bangladesh, Bhutan, Nepal, Middle East and other developing countries in the fields of energy and environment. We encourage government officers, professors with administrative position to attend this training program. A 12-day course containing sustainable environment, environmental green technology, laboratory and field trip will be

offered to 25 – 30 participants. In addition, several partially supported participants will be offered. Through this training course, the participants will gain knowledge in cutting-edge technology for water-energy nexus. This would significantly reinforce the close academic and educational collaboration between Taiwan and Southeast/South Asian countries in the areas of energy and environment.

■ Curriculum Planning

This training program, funded by the **Ministry of Science and Technology (MOST), Taiwan**, will mainly address the impact of industrialization and utilization of fossil fuels on the environmental pollution and global climate change, as well as the development and application of low carbon green energy to environmental sustainability. The main concept for curriculum design is mainly based on the UN SDGs and would like to address the life cycle of pollutants and their impacts on environmental sustainability. Therefore, the introduction of energy-saving and low carbon technology to develop environmentally green technology and low carbon energy technology are thus needed urgently to achieve the environmental sustainability. Moreover, it is crucial to adapt the circular economy based concept on recycling and reuse the industrial and agricultural wastes. The program curriculum lies on the relationship among these three major fields, and focus on the application of environmental technology to the environmental sustainability.

Through the designed course, the participants will first learn the comprehensive knowledge in water-energy nexus, especially the water pollution, nutrient contamination, world energy sources and distribution, and current status of energy usage in the world. The release of toxic chemicals and CO₂ from the combustion of fossil fuels, and the impact of these toxic chemicals on global warming, as well as human health will be addressed and discussed in the curriculum. In addition, the concept and application of low carbon and renewable energies including solar energy, hydrogen energy, and energy storage will also be introduced. After 60 hours of course design, trainees can not only learn the comprehensive knowledge in water-energy-nexus for human health, but can also expand their professional network from the possibly mutual collaboration through lectures and seminars, laboratory tours, field trips, and visit to several prestigious universities in Taiwan such as National Tsing Hua University (NTHU), National Chiao Tung University (NCTU), National Central University (NCU), National Chung Hsing University (NCHU) and Chaoyang University of Technology (CYUT).

■ Tentative course timetable (November 19 ~ November 30, 2019)

Date	9:00~12:00	12:00-13:30	13:30-16:30	16:30~18:00
11/19 (Tue)	Arrival		Registration	Welcome Reception (6:30 – 8:30 pm)
11/20 (Wed)	Opening ceremony/ self-introduction	Lunch	Self-introduction/ poster session	Campus tours
11/21 (Thu)	Lectures	Lunch	Lectures	Poster session
11/22 (Fri)	Lectures	Lunch	Lectures	Laboratory Tour I
11/23 (Sat)	Technical Tour: Center for Space and Remote Sensing Research		Culture Tour: National Palace Museum	
11/24 (Sun)	Free Time			
11/25 (Mon)	Lectures	Lunch	Lectures	Laboratory Tour II
11/26 (Tue)	Visit: National Chung Hsing University	Lunch	Visit: Chao Yang University of Technology	
11/27 (Wed)	Lectures	Lunch	Lectures	Laboratory Tour III
11/28 (Thu)	Lectures	Lunch	Field trip	
11/29 (Fri)	Lectures	Lunch	Forum: Water-Energy Nexus	Closing remarks/ Banquet (6 – 8 pm)
11/30 (Sat)	Departure			

■ Training Venue

The training program will be held in the Department of Biomedical Engineering and Environmental Sciences (BMES), National Tsing Hua University (NTHU), Hsinchu, Taiwan.



Figure 1. Training program venue and accommodation place (NTHU Guest House)

■ How to Apply?

Applicants who are interested in this international workshop can fill-up the **google form** (<https://forms.gle/9k6Fr1j5VoiFpgBZA>), then send your CV and a scanned copy of your passport (PDF files are preferred) to Ms. Maggie Ching-Yu Tseng at ibp@my.nthu.edu.tw and cc to Prof. Hui Lin Ong at ong.huilin@gmail.com. The application deadline is August 15th, 2019. Following are the details of application:

➤ Qualification

1. Candidates should be, but not limited to, postgraduates, lecturers, faculties, or researchers who are highly interested in learning environmental science and low carbon green energy. Previous experience in environmental and/or energy science and technology is unnecessary.
2. Formal participants who have attended our SEA training program sponsored by MOST, Taiwan, are **NOT ALLOW** to apply.

➤ Number of Participants

The training program will provide a full-support to the selected 25 participants from ASEAN, India, Sri Lanka, Middle East and other developing countries. The selection criteria are based on the CV, statement of purpose and other additional documents provided by the applicants. Partial-support will be given to 5–7 additional participants. For those partially supported participants, airfares will NOT be reimbursed, and the organizer will provide local hospitality including accommodation, meals and transport during the period of training program.

➤ Award Details

The program will provide the round-trip air flight ticket (except for those partially supported participants), housing, food, and fees for field and cultural trips during the training period. Selected participants should confirm their attendance through email as soon as possible prior receiving acceptance letter.

➤ Reimbursement for Overseas Transportation Expenses

Roundtrip economy class air ticket from participant's home country to Taiwan will be reimbursed (except for those partially supported participants). The maximum reimbursable amount will be announced after the decision on the selection of participants. **Flight boarding**

pass and passport with Taiwan arrival stamp are required for the airfare reimbursement. Photo of the flight boarding pass and Taiwan departure stamp must be emailed upon arrival in participant's home country.

➤ Airport Pick-up

A batch schedule for airport pick-up will be arranged according to participant's flight schedule.

➤ Accommodation

All the participants will stay in the NTHU guest house which is located in the campus of NTHU. Two participants will share one room with two single beds. Each room is well equipped with TV and wireless internet. **IF YOU PREFER TO STAY IN A SINGLE ROOM, YOU NEED TO PAY THE EXTRA FEE UPON ARRIVAL.**

➤ Meals

Breakfast, lunch and dinner are all included in the meal. If you have any special dietary requirement, please inform us in advance.

■ Contact us

For further information or questions, please contact the Ms. Tseng from the International College, National Tsing Hua University, Hsinchu, Taiwan.

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