**Full Ph.D. Scholarships**

Program of Study: Doctor of Philosophy (Environmental Technology)
Department of Sanitary Engineering, Faculty of Public Health, Mahidol University

Two Ph.D. scholarship are available for ASEAN citizens to pursue their study at Mahidol University under the Royal Golden Jubilee Ph.D. Program: Scholarship for ASEAN students (RGI-ASEAN) year 2019. Students from ASEAN countries (Indonesia, Malaysia, Philippines, Singapore, Vietnam, Myanmar, Cambodia, Laos, and Brunei) can also apply for a full RGJ scholarship to pursue full-time doctoral study. Prospect students under this scholarship must fulfill the selection criteria listed as follows:

**Two types of scholarship are offered:**

1) A five year full scholarship program for candidate who is pursuing doctoral degree starting with Bachelor,
2) A three year full scholarship program for candidate who is pursuing doctoral degree starting with Master.

**Qualifications and duration of studies**

Applicants should have the following qualifications:

- Graduated in science or engineering in environment or relevant fields
- be under 40 years of age
- have bachelor's degree and graduate within the first 35% of class ranking (for those who will be pursuing Ph.D. with the Bachelor) or
- have bachelor's degree and graduate within the first 35% of class ranking and have master's degree with a GPA of ≥ 3.20 (from a total of 4.0)
- be fluent in writing and speaking English as courses are conducted in English (applicants must submit TOEFL or IELTS score)

**English competence standard: All applicants must provide:**

- an IELTS score with a minimum of 5.0 or
- a TOEFL Paper-based score with a minimum of 500; or
- a TOEFL Computer-based score with a minimum of 173; or
- a TOEFL Internet-based score with a minimum of 61; or
- a TOEFL-ITP score with a minimum of 500, attained from a test administered by the Language Center, Faculty of Graduate Studies, Mahidol University

**Associate Professor Dr. Sarawut Thepanondh**

**Research concept**

Solid waste is one of the critical environmental issues arisen in many developing countries including the ASEAN region. Poor management of the landfill not only cause the problem with waste management but will led to the contaminations of other environmental medias such as air, soil and water pollutions. The purpose research is aimed to evaluate the emission and dispersion of odorous gas emitted from the landfills. Emissions of VOCs and odorous compounds from landfill will be estimated by using the US.EPA Landfill Gas Emissions Model (LandGEM) version 3.02. These emission data will be validated through the direct measurements of ambient air VOCs concentrations in several locations in the vicinity of the landfill. Conversion of concentration to emission will be carried out based on the standard Gaussian dispersion equations solved by the matrix inversion methods. This step will assist in the identification of major odorous compounds released from the landfill. Data will then be used to prioritized for the target compounds which should be managed at and in the surrounding areas of the landfill sites. Emission rates of target compounds will then be used as surrogate for odor emissions to predict the temporal and spatial distributions of odor concentrations via the AERMOD dispersion modeling. Outcomes of this research include evaluation of extend and magnitude of existing odor problem in the landfill site. The odor buffer zone map around the landfill will be illustrate for further use to prevent and manage odor problem of the sources. This study can be served as a prototype for environmental managing of landfill in ASEAN community. One of the anticipated benefit of this study is not only local pollutants (odors) but also the global pollutants (methane; $CH_4$) which is one of the major greenhouses gases released from the landfill will be managed.

**Associate Professor Dr. Chongchin Polprasert**

**Research concept**

Sugarcane is one of the major crops popularly grown in ASEAN countries. Its cultivation has been increasing every year to yield a harvest that is used for production of food and fuel as end-user products consumed in the cities. Meanwhile, Phosphorus (P), which is an essential nutrient supporting life of all living things on earth, has been predicted to be dwindling in the near future. This may lead to severe issues on P shortage, which will adversely affect global food production and food security, especially in the countries with limited phosphate rock deposits, including ASEAN. Therefore, a research is proposed to examine and quantify P flows throughout the sugarcane industries, starting from cultivation in agricultural phase until end-user productions in industrial phase, using material flow analysis. Its purpose is to identify P losses occurring along the manufacturing lines and prioritize efforts for P recovery and recycling. Afterwards, appropriate P recovery technology will be researched and developed so as to be used to produce struvite, which is slow-release fertilizer suitable for plant uptake. Successful results may help

maintain food security in an era of non-renewable resource scarcity, especially P needed for food cultivation. Also, outcome of this research will find optimized techno-economical process technology for P recycling of wastes generated from sugarcane industrial complex. This effort will not only decrease the amount of waste to be disposed of and P fertilizer imports to ASEAN countries, but also help farmers access to cheaper and better-quality P fertilizer, while millers earn more from selling recovered P.

**Funding arrangement**

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| 1. Tuition fee and Research expenses | up to 130,000 THB/year |
| 2. Reserve fund | 200,000 THB |
| 3. Monthly allowance | up to 156,000 THB/year |

**Important dates:**
Application open until October 20, 2018
Announcement of selected candidates: December 15, 2018
Commencing of the study: January 2019 or August 2019 (as appropriate)

"All required documents must be submitted to the contact persons via e-mail by September 17, 2018."

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RGI-ASEAN 2019: https://rgj.trf.or.th/main/announcement/scholarships-for-asean-students-rgj-asean-2019/