

# Annual International Training Courses 2014

**1. Course Title:** Towards Green Growth with Waste Utilisation

**2. Duration:** 11 Days (September 15-25, 2014)

**Closing Date for Applications:** June 30, 2014

### 3. Background and Rational

The “Green Growth” concept has been implemented in several parts of the world as there is the need to balance different aspects, i.e. economic, social, technological, development and environment, for sustainable growth. This is such a crucial strategy for both developed and, in particular, developing countries to seize opportunities that arise when environment is brought into consideration with economic progress.

Agriculture is one of the most important sectors for developing countries. In order to produce the marketable agricultural products, different kinds of waste have been generated. From raw material preparation and manufacturing steps when organic wastes are mostly produced to the end of product usage, in which packages material is involved, several forms of wastes are brought about. These wastes can cause serious problems to the environment or can be economical burden if they are not properly managed. It is very promising that there have been knowledge and technologies to transform these problematic wastes into different usable end products. Nevertheless, the dissemination of this knowledge by the established institute having pertinent expertise needs to be encouraged and supported.

The training course entitled “Towards Green Growth with Waste Utilisation” will be an important tool to bridge between knowledge and representatives from potential countries to learn how to transform wastes into some utilisable products. Technologies chosen are practical especially for developing countries and have successfully been implemented in several parts of the world. Participants will have a chance to both learn the principle of each technology and have a hands-on experience of how to put that principle into practice so that they will be able to apply this concept into the context of each country.

Faculty of Engineering, Chiang Mai University is one of the most renowned faculties in science and technology, concerning all aforementioned technologies and practice, in Thailand. The Environmental Engineering Department, Faculty of Engineering, has personnel with expertise in waste transformation and utilisation who also has experiences in organising the training course at the international level. This claim has been strongly supported by the fact that we were chosen by TICA to organise the international training course entitled “Environmental Engineering Management for Wastewater” in the year 2012 with remarkable success.

### 4. Objectives

1. To exchange the situation of waste problems and waste utilisation of different countries
2. To disseminate knowledge of the waste utilisation technologies as tools for waste management and enhance the opportunity for participating countries to achieve the Green Growth concept
3. To initiate a collaboration network across countries for waste utilisation awareness

### 5. Course Contents

Waste transformation and utilisation technologies, including biogas technology for agriculture and industrial wastes; biogas purification technology for electricity generation and vehicle and household gas production; composting technology; transformation of municipal solid waste into the refuse derived fuel (RDF); and gasification technology, will be discussed.

<b>Date</b>	<b>Activity</b>	<b>Duration</b>	<b>Coordinators/ Lecturers</b>
15 Sept 2014 (Mon)	• Registration, Orientation	09.00 - 09.30	• Staffs
	• Open Ceremony	09.30 - 10.00	• Dean of Faculty of Engineering, Chiang Mai University • Assoc.Prof.Dr. Suraphong Wattanachira • Staffs
	• Lecture: Solid Waste Management of Chiang Mai municipality	10.00 - 12.00	• Assoc.Prof.Dr. Suraphong Wattanachira
	• 1 <sup>st</sup> Field Trip: Chiang Mai Solid Waste Management Centre	13.00 - 16.00	• Assoc.Prof.Dr. Suraphong Wattanachira and staffs
16 Sept 2014 (Tue)	Lecture: • Principle of Biogas Technology and Application for Industry	09.00 - 12.00	• Asst.Prof.Dr. Patisroop Pholchan
	• Biogas Production from Animal Wastes	13.00 - 16.00	• Assoc.Prof.Dr. Seni Karnchanawong
17 Sept 2014 (Wed)	2 <sup>nd</sup> Field Trip: • Application of Biogas Technology in a Food Factory	09.00 - 12.00	• Asst.Prof.Dr. Patisroop Pholchan and Staffs
	• Biogas Production and Utilisation in a Poultry Farm	13.00 - 16.00	• Assoc.Prof.Dr. Seni Karnchanawong and Staffs
18 Sept 2014 (Thu)	Lecture: • Biogas Purification Technology and Utilisation for Compressed Biogas (CBG) Production	09.00 - 12.00	• Dr. Sirichai Koonaphapdeelert
	• Principle and Application of Composting Technology	13.00 - 16.00	• Assoc.Prof. Somjai Karnchanawong
19 Sept 2014 (Fri)	3 <sup>rd</sup> Field Trip: • CBG Production System for Vehicles	09.00 – 12.00	• Dr. Sirichai Koonaphapdeelert and staffs
	• Aerated Static Pile Composting System Demonstration center and Earthworm Research and Development Center, Maejo University	13.00 – 16.00	• Assoc.Prof. Somjai Karnchanawong and staffs
20 Sept 2014 (Sat)	4 <sup>th</sup> Field Trip: • ChiangMai Sightseeing at Wat Phrathat Doi Suthep (ChiangMai Main Temple)	09.00 – 12.00	• Staffs
	• ChiangMai Culture Learning at The ChiangMai City Arts and Culture Centre	13.00 – 16.00	• Staffs
	• Welcome Party (Dinner)	18.00 – 21.00	• Staffs
21 Sept 2014 (Sun)	Free day for participants		
22 Sept 2014 (Mon)	Lecture: • Transformation of Solid Waste into refuse derived fuel (RDF)	09.00 – 12.00	• Asst.Prof.Dr. Jitthep Prasityousil
	• Gasification Technology for Agricultural and Solid Wastes	13.00 – 16.00	• Asst.Prof.Dr.Chatchawan Chaichana
23 Sept 2014 (Tue)	5 <sup>th</sup> Field Trip: • A RDF Production System	09.00 – 12.00	• Asst.Prof.Dr. Jitthep Prasityousil and Staffs
	• Utilisation of Gasification Technology for Agricultural Waste	13.00 – 16.00	• Asst.Prof.Dr.Chatchawan Chaichana and staffs
24 Sept 2014 (Wed)	• Group Presentation Preparation	09.00 – 16.00	• Assoc.Prof.Dr. Seni Karnchanawong • Assoc.Prof. Somjai Karnchanawong • Asst.Prof.Dr. Patisroop Pholchan • Dr. Sirichai Koonaphapdeelert

25 Sept 2014 (Thu)	• Group Presentation: “Waste Management Situations in Your Countries and How to Improve Them Using Waste Utilisation Strategy”**	09.00 – 14.00	<ul style="list-style-type: none"> <li>• Assoc.Prof.Dr. Seni Karnchanawong</li> <li>• Assoc.Prof. Somjai Karnchanawong</li> <li>• Asst.Prof.Dr. Patiroop Pholchan</li> <li>• Dr. Sirichai Koonaphapdeelert</li> </ul>
	• Evaluation and Certification Ceremony	14.00 – 16.00	<ul style="list-style-type: none"> <li>• Assoc.Prof.Dr. Suraphong Wattanachira</li> </ul>

**\*\* Each participant is required to prepare his/her Country Report on “Waste Management and Utilisation Situation in Your Country” (Maximum 5 pages, A4, single column, single space, font size “Times New Roman 12”**

## 6. Number of Participants

20 Persons

## 7. Participants Criteria

All participants should have an understanding of an involvement in at least one of the following fields:

- Environmental Engineering or Environmental Science
- Environmental Engineering Technology Management
- Waste or Solid Waste Management

Participants’ age must be under 55 years.

## 8. Eligible Countries

**Asia & Middle East:** Bangladesh, Georgia, Indonesia, Iran, Jordan, Malaysia, Maldives, Oman, Philippines

**Oceania (Pacific Islands):** Fiji, Cook Island, Tonga, Vanuatu

**Africa:** Burundi, Ethiopia, Gambia, Zambia

**America (Latin America & others):** Belize, Chile, Costa Rica, Cuba, Ecuador, El Salvador, Jamaica, Mexico, Peru, Uruguay

## 9. Venue

Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand  
(<http://eng.cmu.ac.th>)

During the training, participants may stay in University Academic Service Center (Uniserv CMU: <http://www.uniserv.cmu.ac.th>) or other appropriate accommodation.

## 10. Expected Results

- Participants gain awareness of the environmentally friendly waste management, focusing on the waste utilisation concept, which will be one of the crucial actions to achieve the Green Growth.
- Participants gain the engineering principle and application knowledge for utilising wastes as the raw material for usable products production.
- Initiation of a collaboration network across countries for the appropriate waste management in order to alleviate the global warming and climate change crisis.
- Constructive image for Thailand as a country that fully aware of the potential of waste utilisation and strengthening Thai’s university in a role of disseminating knowledge to the world society on this global issue.

## 11. Evaluation

Participants must attend at least 70% of the training, and pass the final writing exam.

## **Fellowship Arrangements:**

### **1. Application Procedures**

- Applicants interested in participating in the course must be nominated by their government and must submit three (3) completed nomination forms to the Royal Thai Embassy or Consulate in their respective countries before the closing date of application.
- In general, each country may nominate up to four (4) nominees for the course. However, nomination for certain courses may be limited to one or two nominees from each country due to limited seat available for participation.
- The Royal Thai Government will inform the nominating government (or relevant authority) whether or not nominee(s) have been accepted for the course, normally three weeks before the course starts.
- Further information about training courses held under AITC can be obtained from TICA's website: <http://www.tica.thaigov.net/main>

### **2. Allowances and Expenses**

The Royal Thai Government will be responsible for the following allowances and expenses:

- An economy class electronic ticket (e-ticket) will be issued to each participant via email. Each of the participants is not allowed to change the flights route and schedules. Participants should not buy air tickets by themselves and should be advised that if they do so, the cost cannot be reimbursed from the Royal Thai Government. The Royal Thai Government will also arrange the domestic flight in Thailand for participants, if any.
- Each participant will receive a living allowance of 500 Baht (US\$17) per day to cover meals, local transportation and other personal daily expenses. Accommodation will be arranged by the Royal Thai Government and all participants will stay at the same place. It is suggested that each participant should bring some pocket money approximately US\$100 to cover the expenses before the allowance is paid.
- Minor medical treatment will be provided for participants who become ill during their stay in Thailand.
- The Royal Thai Government will provide transportation for the authorized field trips undertaken as part of the course.

### **3. Regulations**

Participants are required to observe the following regulations:

- Participants must only stay at the places designated by the Royal Thai Government.
- Participants must strictly attend classes as scheduled and should not change their training subjects.
- Participants must not extend the training period.
- Participants must not bring any family members with them to Thailand.
- Participants must return to their home countries after the course completion (at the date as scheduled by the Royal Thai Government).
- Participants are required to travel only on the route designated by the Royal Thai Government and must not make any alterations. Please also be informed that the maximum allowable baggage that can be loaded on flights is 20 kilograms. Participants will be responsible for any cost incurred in exceeding this limit.
- Participants must observe rules and regulations of training institute(s).
- Participants must refrain from engaging in political activities, or any form of employment for profit or gain.

#### **4. Visa Procedures**

Prior to departure from their home country to Thailand, all participants must first obtain the appropriate visa from the Royal Thai Embassy or Consular representative in their countries. Presentation of the acceptance letter is required when applying for VISA. A maximum of 2,000 Baht VISA fee (approximately US\$ 60) must be paid by a participant to the Royal Thai Embassy or Consular representative. Participants must request for the original receipt which could be later on reimbursed from the Royal Thai Government upon presenting the original receipt.

**Further relevant information is available at the following addresses:**

##### **Human Resource Development Bureau (HRD Branch 2)**

Thailand International Development Cooperation Agency  
The Government Complex  
Building B (South Zone) 8th Floor,  
Chaengwattana Road, Lak Si, Bangkok 10210  
Tel (662)203-5000 ext 43305  
E-mail: [tica@mfa.go.th](mailto:tica@mfa.go.th)  
Website: <http://tica.thaigov.net/main/en/home>

##### **Institution**

##### **Executing/Implementing Agency**

Faculty of Engineering, Chiang Mai University, Thailand.

Faculty of engineering at Chiang Mai University creates and shares interdisciplinary knowledge about complex engineering systems through initiatives in education, research, and industry partnerships. Faculty of engineering consists of 7 departments (<http://www.eng.cmu.ac.th>). The training materials and equipment availability are also ready for this 20-participants training. All of the course coordinators and lecturers have very strong knowledge in their fields. They also have research interests and have strongly involved in waste management and utilisation technology.

##### **Course Coordinators:**

- Environmental Engineering Department;  
Faculty of Engineering, Chiang Mai University
- 1) Assoc.Prof.Dr. Suraphong Wattanachira  
e-mail: [suraphong@eng.cmu.ac.th](mailto:suraphong@eng.cmu.ac.th)
  - 2) Assoc.Prof.Dr.Seni Karnchanawong  
e-mail: [seni@eng.cmu.ac.th](mailto:seni@eng.cmu.ac.th)
  - 3) Assoc.Prof.Somjai Karnchanawong  
e-mail: [somjai@eng.cmu.ac.th](mailto:somjai@eng.cmu.ac.th)
  - 4) Asst.Prof.Dr. Jitthep Prasityousil  
e-mail: [jitthep@eng.cmu.ac.th](mailto:jitthep@eng.cmu.ac.th)
  - 5) Asst.Prof.Dr.Patiroop Pholchan  
e-mail: [patiroop@eng.cmu.ac.th](mailto:patiroop@eng.cmu.ac.th)
  - 6) Dr.Sirichai Koonaphapdeelert  
e-mail: [sirichai@eng.cmu.ac.th](mailto:sirichai@eng.cmu.ac.th)

##### **Participants' Accommodation**

Participants may stay at Uniserv Hostel, Chiang Mai University, 600 Baht/night (<http://www.uniserv.cmu.ac.th>).

##### **Contact Person:**

Asst.Prof.Dr.Patiroop Pholchan  
Environmental Engineering Department, Faculty of Engineering,  
Chiang Mai University  
Phone: +66 53-944192 Ext. 108, Fax: +66 53 210328  
Email: [patiroop@eng.cmu.ac.th](mailto:patiroop@eng.cmu.ac.th)

## Country Report Format

Country report should be submitted together with the Application Form in complying the following items.

### **I. Introduction**

1. Name of the Training Course: .....
2. Name of applicant: .....  
Home Address: .....  
Phone No. (Home & Office): .....  
Fax: .....  
E-mail: .....
3. Name of Country: .....
4. Name of Organization: .....
5. Main Tasks of the Organization & Organization Chart  
(Please draw an organization chart, starting from “ section” as the lowest level and circling the section to which applicant belongs)
6. Applications’ Position: Roles and Responsibilities

### **II. General Information of the country (1-2 pages of A4 size paper):**

Geographical status of the country, climate, population, official language, social, educational and economic conditions, gross National Products (GNP), Per- capita Income, major import and export goods, natural resources and environmental situation, etc.

### **III. Historical Background of the Subject Related to the Training Course**

(Within 1 page of A4 size paper)

### **IV. Existing Laws and Regulations concerning the subject (if any)**

### **V. Existing Problems in the Applicants’ section (1-2 pages of A4 size paper)**

1. Current problems and/or constraints you are facing (Please describe concrete details)
2. Obstacles in the process of solving those problems
3. Countermeasures of questions for those problems or any idea which you would like to study or solve through the course

### **VI. Future Program/Project on the Related Subject**

1. What is the future policy/program/or project concerning with the subject.
2. How the training course is related with those future.

### **VII. Expectations for the Training Course (up to 1 page of A4 size paper)**

1. Main interesting subject areas or topics in this training course and reasons why do you pick up them.
2. How do you expect to apply the knowledge and skills received from this training course after you return to your home country
3. Other matters you are expecting for this course (if any) ( Basically this training program is fixed and cannot be changed upon your request)