



The Joint Graduate School of Energy and Environment



KMUTT



KMUTNB



PSU



CMU



SIIT-TU

Consortium involving five leading institutions

CENTER OF EXCELLENCE ON ENERGY TECHNOLOGY AND ENVIRONMENT



JGSEE Newsletter

Vol. 18, January - April 2014



Message from Director

With the arrival of AEC (ASEAN Economic Community) in 2015, JGSEE-CEE is getting ready to integrate this new regional landscape and continue to contribute addressing the many energy and environmental challenges coming ahead.

Understanding ASEAN means understanding the context and needs of ASEAN neighbors so as to ensure harmonious and efficient collaboration. JGSEE-CEE is actively pursuing this direction with particular emphasis on promoting collaborative research work and joint international capacity building activities.

With regard to research collaboration, several ASEAN related projects have been launched over the past years, including (1) a project on "Effective Energy Efficiency Policy Implementation Targeting New Modern Energy Consumers in the Greater Mekong Sub-region". This project is supported by the United Kingdom Research Council (UKRC) in collaboration with the University College London (UCL). It focuses on medium income energy consumers in ASEAN countries and aims at designing energy policies and raising awareness to consumers on energy efficient products. This project accommodates five ASEAN countries including Cambodia, Laos PDR, Myanmar, Thailand and Vietnam; (2) another project is "Driving Biomass STI Policy for Thailand in the Context of AEC". The project partners include the National Science Technology and Innovation Policy Office (STI) and JGSEE-CEE. The aim of this work is to provide an assessment of the biomass resource potential and technology status in the ASEAN region. The project is to be completed in 2014 and should lead to policy recommendations aiming at driving biomass technology, especially RD&D in biomass technology for the ASEAN region; (3) another project is on "Forest Carbon Change in Thailand and Myanmar (FCC)". This project is supported by the United States Agency for International Development (USAID) and the National Science Foundation (NSF) under the Partnership to Enhance Engagement Research (PEER) program. The project aims at establishing a long-term forest carbon baseline database for Myanmar and Thailand as well as investigating forest related risk impact zones based on vulnerability to climate extremes.

In terms of capacity building, JGSEE-CEE is increasingly focusing on promoting joint laboratory activities and ASEAN mobility. In terms of joint laboratory activities, this has already been initiated through the Regional EU-ASEAN Dialogue Instrument (READI) established under the project "ASEAN Network of Excellence in Green Energy Research (ANEGER)", which provides a platform for EU and ASEAN energy experts to exchange their knowledge and experiences. The ANEGER activities are particularly focused on biomass resources assessment and yields improvement as well as biomass upgrading, conversion and combustion to support the implementation of the ASEAN Plan of Action on Science, Technology and Innovation to initiate policy dialogues for suitable regional research cooperation schemes in ASEAN.

JGSEE-CEE has also opened the path towards increased mobility in the ASEAN region notably via the Joint International Postgraduate Program on ASEAN Energy and Environment. This joint international program, aside from JGSEE, involves the Hanoi University of Science and Technology (Vietnam), the University of Malaya (Malaysia), the Bandung Institute of Technology (Indonesia), and the University of the Philippines (Philippines). This postgraduate program should offer students in member universities with an opportunity to perform their research work in any of the universities of the network. This is to provide them with a broader understanding of renewable energy and energy efficiency in ASEAN and so widen their professional opportunities as skilled human resource at the level of the region.

Another important mandate of JGSEE-CEE is to enhance collaboration with the Industry. In this regards, a joint research project with PTT, the Japan International Cooperation Agency (JICA) and the Japan Science and Technology Agency (JST) on "Development of Clean and Efficient Utilization of Low Rank Coals and Biomass by Solvent Treatment" was launched end of last year under the Science and Technology Research Partnership for Sustainable Development (SATREPS). Another coming industrial collaboration is that with SCG focusing on Sustainable Municipal Solid Waste (MSW) utilization via bio-physical treatment and thermal treatment.

As shown through the above activities, it is the attempt of JGSEE-CEE to step firmly into AEC, contribute meeting societal development needs with regards to energy and environment, and be part of the mechanism leading Thailand to become a prominent partner and key driver for the sustainable development of the region.

Supported by



Center of Excellence on
Energy Technology & Environment



Energy Policy
and Planning Office
MINISTRY OF ENERGY

Networking

Establishment of the CEE Executive Collaboration Committee



JGSEE-CEE organized a meeting on 24 April 2014 during which a CEE Executive Collaboration Committee was setup. All executives from JGSEE and key representatives of universities from the consortium were invited to form this committee. The mission of this Executive Collaboration Committee is to enhance collaboration between JGSEE and its consortium, notably for the co-development of academic curriculum and the joint organization of educational/training activities.

During this meeting, discussions were held concerning the organization of the International Conference on Sustainable Energy and Environment (SEE 2014), the improvement of the academic curriculum, the recruitment of new students and advertising policy, and the laboratory operations for phase III. The establishment of this committee is anticipated to contribute improving cooperation and collaboration between JGSEE's core staff and affiliates of the consortium universities.

Contribution to Research Arena

Kick-off Meeting of JST-JICA Supported R&D Project on Clean Coal and Biomass Technology

On 14 January 2014, JGSEE-CEE, together with PTT Research and Technology Institute (PTT RTI), Thailand, Kyoto University, Japan, and JICA, formally launched the JST-JICA supported project on "Development of Clean and Efficient Utilization of Low Rank Coals and Biomass by Solvent Treatment" in a kick-off meeting held at KMUTT. This 5 years project, which commenced on 20 December 2013, is a multi-party international collaborative R&D project funded by the Japan International Cooperation Agency (JICA) and the Japan Science and Technology Agency (JST), and implemented under the Science and Technology Research Partnership for Sustainable Development program (SATREPS). With a contribution of 178 million Yen (57 million Baht) from JST and 370 million Yen (118 million Baht) from JICA, and additional funding from PTT, extensive lab-scale and small pilot-scale experiments will be carried out both in Japan and in Thailand using novel techniques to upgrade low quality coals (such as lignite) and cellulosic biomass (such as rice straw and fast growing grass) into high quality solid and liquid fuels, as well as high value materials in the form of carbon fibre.

The research team is comprised of 13 Japanese scientists from Kyoto University, Akita University, Central Research Institute for Electric Power Industry (CRIEPI) and Kobe Steel and more than 10 Thai scientists from JGSEE/KMUTT, and PTT RTI. The team is led by Prof Kouichi Miura of Kyoto University as Research Director and by Assoc Prof Bundit Fungtammasan of JGSEE/KMUTT as Project Director.



THAI-GLOB helps Securing Climate Research Support



The Research Development and Co-ordination Center for Global Warming and Climate Change (THAI-GLOB), a TRF supported research co-ordination unit at JGSEE-CEE, helped facilitating negotiations enabling to secure climate research support for collaborations between TRF, Ramkhamhang University, KMUTT, Silpakorn University and the Department of the Royal Rainmaking and Agricultural Aviation. The Memorandum of Understanding (MoU) for this research collaboration was held on 20 March 2014 at TRF.

With this MoU, the Faculty of Science of KMUTT, JGSEE and TRF also commit to promote activities associated to the Climate Research Center on Seasonal Forecast System. These activities include the dissemination of basic knowledge, capacity building of human resources, and development of tools and climate information services answering the needs of target users.

JGSEE serves as Implementing Partner of the Private Financing Advisory Network – Asia (PFAN-Asia) Project



JGSEE-CEE has been invited to serve as the regional implementing partner of the Private Financing Advisory Network – Asia (PFAN-Asia) Project. PFAN-Asia is a project funded by USAID, designed to increase investment in clean energy in Asia's developing countries as part of comprehensive efforts to promote low carbon economic development.

PFAN-Asia is anticipated to support a private-sector driven process to mobilize no less than \$1 billion in clean energy investments for 12 Southeast and South Asian countries by helping clean energy project developers more effectively seek and access financing through training and mentoring, and by helping financial institutions work more effectively in the clean energy sector.

Under the MOU between PFAN-Asia and JGSEE, both parties will collaborate by contributing their respective strength, experiences, technologies, methodologies, and resources, in order to achieve the following two ultimate goals: to promote clean energy investment and/or GHG emission reduction activities (i.e. renewable energy, energy efficiency and clean transport) as well as to enhance the impact of postgraduate students in the area of clean energy by providing hands-on programs/projects for students.



CENTER OF EXCELLENCE ON ENERGY TECHNOLOGY & ENVIRONMENT

PHD DEGREE
MASTER OF SCIENCE AND ENGINEERING DEGREE



www.jgsee.kmutt.ac.th

academic@jgsee.kmutt.ac.th

02-872-9014 #4121



Top University in Thailand

Times Higher Education World University Rankings (2013-2014)

Ranked 1st of Thailand, 3rd of ASEAN, 55th of Asia



Center of Excellence on
Energy Technology & Environment



Contribution to Industry

JGSEE and SCG Initiate Plans for New Research Collaboration

Plans for new research collaboration between JGSEE-CEE and SCG (the Siam Cement Public Company Limited) were discussed at the occasion of a seminar organized on 7 November 2013 at JGSEE. Participants from JGSEE included Assoc Prof Dr Sirintornthep Towprayoon, Assoc Prof Dr Savitri Garivait, Assoc Prof Dr Suneerat Pipatmanomai, Asst Prof Dr Suthum Patumsawad, Dr Komsilp Wangyao and Dr Awassada Phongphiphat. SCG representatives included Mr Chanwut Limpichai, Mr Jetapon Emmanee and Mr Dusit Suthakit. During this seminar, JGSEE and SCG shared with each other the many experiences and knowledge they have gained from the research activities they have been involved in over the years. Both organizations agreed to work on developing collaborative research projects that should contribute answering the current need of the Thai industry and which should be practical for business development.

Following this first meeting, a second seminar was held on 27 March 2014 at the SCG head office in Bangkok, and which looked further into the details of the research topics and responsible working groups that should be involved from both organizations. Two research topics were identified, including:

- (1) Sustainable Municipal Solid Waste (MWS) utilization with focus on Mechanical Biological treatment (MBT) and Landfill mining. This research activity should lead to the improvement of the quality and quantity of RDF (Refuse derived fuel) use for the industry.
- (2) RDF gasification. RDF gasification has received increasing attention from large industries, particularly the cement industry. The team is interested in investigating the effects of gasifying RDF on the environment and human safety, improvement of syngas quality as well as conversion efficiency.

Updates related to the progress of these collaborative research activities will be reported in next issues of the JGSEE newsletter.

Contribution to ASEAN Community

Technical Visit at Hanoi University of Science and Technology, Vietnam



During 27-28 February 2014, Assoc Prof Dr Bundit Fungtammasan, Assoc Prof Dr Sirintornthep Towprayoon, Assoc Prof Dr Suneerat Fukuda and Ms Supatchaya Konsomboon, visited the Hanoi University of Science and Technology (HUST) in Vietnam. This technical visit is part of the project "Biomass STI Policy for Thailand in the Context of AEC", which aims to explore the status of biomass energy utilization and research as well as to strengthen the bioenergy network in the region.



During this visit, JGSEE-CEE and HUST also discussed future possible bi-lateral/regional collaborations for technical research and human resource development. They focused notably on the Joint International Postgraduate Program on ASEAN Energy and Environment, the progress of the ANEGER project and the collaborative research on biomass gasification.

Contribution to Knowledge Platform

Special talk by Prof Sugawara from Akita University on Sulfur in Coal

JGSEE-CEE successfully organized the special talk of Prof Katsuyasu Sugawara from Akita University, Japan, on the topic of "Sulfur in Coal - Behavior in Pyrolysis and Advanced Desulfurization" on 5 March 2014 at KMUTT. Prof Sugawara presented advanced desulfurization techniques using metal oxides and ionic liquids. The talk was a success gathering 30 participants from the academic sector, as well as representatives from the private and government sectors.



Awards



Dr Thapat Silalertruksa receives the KMUTT Young Researcher Awards 2013

JGSEE is proud to congratulate Dr Thapat Silalertruksa, a researcher under LCSAL, for receiving the KMUTT Young Researcher Awards 2013 for New Academic Knowledge.

The award is granted each year under the KMUTT Young Researcher Awards project. The objectives are to give recognition to young researchers in KMUTT for their outstanding research performance and inspire new researchers to develop and produce high quality research work.



Dr Surawut Chuangchote receives the 2013 NRCT Award

Dr Surawut Chuangchote, a researcher at JGSEE-CEE, was awarded the 2013 NRCT Award for outstanding PhD Thesis (Engineering and Industrial Research) from the National Research Council of Thailand (NRCT). The thesis entitled "Studies on Organic/Inorganic One-Dimensional Nanofibers for Photovoltaic Applications" was completed at Kyoto University (Japan) in 2009 under the supervision of Prof Susumu Yoshikawa.

The press conference was held on 9 January 2014 at the National Research Council of Thailand. The 2013 NRCT award ceremony will take place during the NRCT Innovators' Day 2014 which is scheduled to be held during 23 - 26 June 2014 at Muang Thong Thani (Hall 9) under the theme "Innovation for Mankind".

Welcome new comers



JGSEE is pleased to welcome Dr Patrick Rousset from CIRAD

JGSEE-CEE is pleased to welcome Dr Patrick Rousset, a researcher from CIRAD, France, as adjunct senior researcher under the accredited TICA project "Development of biomass utilization for sustainable energy security in Thailand" in cooperation with Kasetsart University. His period of stay is for 3 years starting since January 2014. Prior to this, Dr Rousset had been working for over 10 years as assistant professor/senior researcher at the University of Brasilia and the Brazilian Forest Council. Dr Rousset's expertise concerns biomass-to-energy conversion processes.

At JGSEE, as part of the Franco-Thai Network of Excellence Framework, his research activities will focus on torrefaction, pyrolysis and gasification. He will also work on developing an international network of bioenergy laboratories aiming at linking recognized laboratories in Europe, Africa, Latin America and Asia to facilitate and stimulate international collaborations, capacity building, and technology transfer.

THE 10th RENEWABLE ENERGY ASIA CONFERENCE 2014



Smart Energy for Smart ASEAN

4 JUNE 2014

BITEC, Bangkok, Thailand

- Smart design for zero energy buildings
- PV and wind power
- Smart technologies and management for community based energy systems
- Sustainable bioenergy



In conjunction with:



www.renewableenergy-asia.com

Co-organised by:



Officially Supported by:





2014

International Conference on Sustainable Energy and Environment



"Science, Technology and Innovation
for ASEAN Green Growth"

19-21 November 2014

Anantara Bangkok Riverside Resort & Spa
Bangkok, Thailand

Conference Topics:

- A. Energy systems and policy
- B. Bioenergy and biofuel
- C. Renewable energy
- D. Energy efficiency
- E. Energy conversion technology
- F. Climate policy
- G. Environmental and climate science and mitigation technology



Important Dates:

Extended abstract submission deadline: 30 June 2014
Abstract acceptance notification: 31 July 2014
Full paper submission deadline: 30 September 2014
Early registration deadline: 30 September 2014

*Organized by the Joint Graduate School of Energy and Environment,
King Mongkut's University of Technology Thonburi and its consortium partners,
in collaboration with Kyoto University*



SEE 2014 Secretariat

The Joint Graduate School of Energy and Environment,
King Mongkut's University of Technology Thonburi,
126 Prachauthit Road, Bangmod, Tungkr, Bangkok 10140 Thailand
Tel.: (66) 024708309-10 ext 4130 Fax: (66) 028729805
E-mail: see.jgsee@gmail.com ; www.see2014.com



Contact and Information

The Joint Graduate School of Energy and Environment
King Mongkut's University of Technology Thonburi,
126 Prachauthit Rd. Bangmod, Tungkr, Bangkok, Thailand 10140
Tel. (662) 470 8309-10 Ext 4130, Fax. (662) 470 8355
E-mail : pro@jgsee.kmutt.ac.th

Advisors:

Assoc Prof Dr Sirintornthep Towprayoon
Assoc Prof Dr Bundit Fungtammasan
Assoc Prof Dr Savitri Garivait

Editor:

Asst Prof Dr Sebastien Bonnet

Assistant to Editor:

Ms Siriya Seneewongse Na Ayudthaya

www.jgsee.kmutt.ac.th