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A CHE Center for Energy Technology and Environment

From the Director



Assoc Prof Dr
Bundit Fungtammasan

This issue of JGSEE Newsletter greets our readers at the time when the World Renewable Energy Congress 2009 – Asia (WREC2009 – Asia) is being held at the Bangkok International Trade & Exhibition Center (BITEC), 19 – 22 May. WREC2009 – Asia is a joint effort between JGSEE (and its Consortium partners of the Center for Energy Technology and Environment) and CMP Media (Thailand) – recently renamed UMB, in partnership with Kyoto University, the UNESCO-affiliated World Renewable Energy Network (WREN), and the Islamic Education, Scientific and Cultural Organization (ISESCO). The Congress is expected to bring together a large number of distinguished local and international speakers and contributors of technical papers to address both the technology and policy aspects of sustainable energy and environment, including renewable energy, energy efficiency, and climate change. It incorporates three other events organized regularly by JGSEE and partners, namely, the biennial JGSEE – Kyoto Joint International Conference on Sustainable Energy and Environment (SEE), the annual Renewable Energy Asia Regional Conference and Exhibition, and the SEE Forum. The holding of this congress demonstrates yet again JGSEE's commitment to facilitating knowledge transfer, idea exchange and networking, on issues of critical importance to Thailand and the region in the field of energy and the environment.

JGSEE commemorated its 10th Anniversary in July last year with the publication of a report: "A Decade of Achievements: 1998 – 2008", documenting the formation and development efforts of JGSEE and the Center for Energy Technology and Environment. A gala dinner was also held, featuring two distinguished speakers: Dr Piyasvasti Amranand, former Thai Minister of Energy, and Mr Steven Nadel, Executive Director of the American Council for an Energy-Efficient Economy (ACEEE).

In just about two months' time, JGSEE will mark its 11th anniversary. It is an opportune time to take stock again on what has been accomplished over the years. Looking back, JGSEE can take pride in having produced 63 PhD graduates who have embarked on interesting and rewarding career paths in universities, research establishments, industry and government. A number of them have also been offered post-doctoral research fellowships overseas. Some of these outstanding graduates are highlighted in this Newsletter. About 100 research-oriented master graduates have entered the workforce in industry and government. As a matter of fact, JGSEE graduates are in high demand in industry, not only because of their knowledge, but also because of their technical communication skills and English language proficiency – the two skills that are much emphasized in our curriculum. The core faculty of JGSEE and affiliates (from partner institutions), and their students, have published over 270 papers in international journals, 60 in recognized national journals, and more than 500 in international conference proceedings. Because of their commitment to teaching and research, JGSEE's core faculty and affiliates continue to receive accolades at home, and be increasingly recognized internationally, through invitations to give lectures and presentations, and to join international collaborative projects.

These and other contributions by JGSEE and partners have been well appreciated by the Technical Advisors who were commissioned by the Commission on Higher Education to conduct a performance review of the Center in September last year. While praising the management and academic performance of the Center to date, the review report pin pointed critical areas for further improvement, and challenged JGSEE "to take the Center further up the road of international visibility" and to foster and make the best use of "a synergetic network of a cross-boundary, multi-disciplinary research structures with researchers and resources spread across the consortium".

JGSEE is supported by



By the end of this year, the funding provided by the Thai Budget Bureau for the Center's operation in Phase II (2006 – 2009) is to expire. JGSEE has already submitted its proposal for funding in Phase III to the Postgraduate Education and Research Development Office (PERDO), who in turn has come up with a consolidated proposal of 9 COE's for the Commission on Higher Education to consider. Eventually a cabinet resolution is required for funding in Phase III. In times of such gloomy economic outlook when short-term solutions for quick recovery are more likely to prevail over those that would pave way for longer term competitiveness in the government's list of priorities, we believe in the good judgment and far-sightedness of our decision makers in adopting a well balanced approach so that the COE's may be given a chance to grow and contribute to rebuilding our economy.

Bundit Fungtammasan

May 2009

JGSEE PRAISED BY EXTERNAL REVIEWERS

The Commission on Higher Education last year commissioned a team of local and international experts called "Technical Advisors" to conduct a performance review of the Center of Excellence on Energy and Environmental Technology, of which JGSEE serves as the implementing unit and the focal point. The 3-member advisory was led by Dr Wison Luangdilok, a senior expert on nuclear safety engineering at Fauske & Associates, USA, and comprising Prof S K Chou, Executive Director of the Energy Studies Institute, National University of Singapore, and Assoc Prof Apichat Wongsumlee, Vice President Physical Systems and the Environment, Mahidol University, Thailand. The team conducted a field review at JGSEE during 8 – 12 September 2008 and submitted their review report in October.



Dr Wison Luangdilok



Prof S K Chou



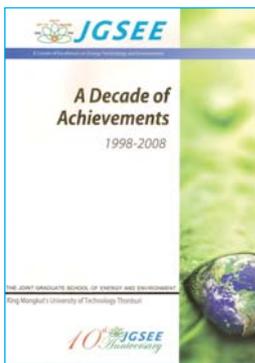
Assoc Prof Apichat Wongsumlee

Overall the TA was very impressed by the performance of the Center in both management and academic aspects. In its report, which contains 35 recommendations for further improvement, the TA opined that "The COE has risen to become a top research school in Thailand and has the potential to demonstrate that it is the partner of choice of industry. Publications of faculty in international journals have helped to put the COE on the world map and they contribute significantly to raising the profile of the COE in attracting talent. However, we contend that it would take a much greater effort to take the COE further up the road of international visibility where competition will be far greater in the next growth phase."

While recognizing that significant improvement in industrial linkage has been made by the Center recently, the TA also suggested that a mechanism be developed to enable greater involvement of industry on the Center's education and research, in addition to the existing industrial outreach activities.

The Report concluded that "JGSEE is a very unique organization with excellent management and productive faculty that leads to impressive publication records. JGSEE is the manager of the Center. JGSEE should look at itself as the manager of a vast synergetic network of a cross-boundary, multi-disciplinary research structures with researchers and resources spread across the consortium. The creation of this uniqueness should be the strategy for JGSEE in building the research structure of the consortium in the years to come. JGSEE potentially can make a big impact if it uses its uniqueness to promote flagship research that could never be done in traditional departments."

JGSEE CELEBRATED ITS 10th ANNIVERSARY



July 24, 2008, marked the 10th anniversary of the founding of JGSEE. On this occasion, a commemorative gala dinner was held on July 26, 2008 at Sofitel Centara Grand Hotel, featuring two distinguished speakers: Dr Piyasvasti Amranand, former Thai Minister of Energy, and Mr Steven Nadel, Executive Director of the American Council for an Energy-Efficient Economy (ACEEE).

Dr Piyasvasti Amranand gave a talk on “Thailand’s Long-term Energy Security and Climate Change Challenges”, while Mr Steven Nadel presented “US Energy and Climate Change Policy: the Good, the Bad, the Ugly and Implications for Thailand”. A report entitled “A Decade of Achievements: 1998 – 2008” was also published to put on record its development history and contributions to society.

JGSEE FACULTY AND AFFILIATES HONORED

PTIT Awards

Prof Tanongkiat Kiatsiriroat, an affiliated faculty of JGSEE at the Department of Mechanical Engineering, Chiang Mai University, and a member of JGSEE’s Professorial Board, recently won the 2009 PTIT Fellow Award from the Petroleum Institute of Thailand, while **Assoc Prof Dr Navadol Laosiripojana** of JGSEE’s Energy Division received the PTIT Scholar Award. The PTIT awards were established in 1996 to commemorate the 50th anniversary celebration of His Majesty King Bhumibol Adulyadej’s ascension to the throne. The awards are granted to professionals and lecturers to help support their work and research and recognize their contributions to the industry and the nation. The PTIT Fellowship is awarded every two years to a senior lecturer, who has had at least 10 years of teaching experience, with excellent teaching records and contribution to improvement of education in the fields of Petroleum, Petrochemical and/or Energy related fields; while The PTIT Scholarship is given to a lecturer with 4 - 10 years of teaching experience who has an excellent working record and is conducting research in the above fields that are of significant academic and economic value.



2009 PTIT Fellow Award:
Prof Tanongkiat Kiatsiriroat



2009 PTIT Scholar Award:
Assoc Prof Dr Navadol Laosiripojana

NRCT Honorable Mention Awards for Engineering and Industrial Research

The National Research Council of Thailand (NRCT) conferred two Honorable Mention Awards for 2009 to JGSEE's faculty and affiliates in the field of engineering and industrial research:

• Invention Award 2009 for a Prototype of Smoke-Haze Forecast System



NRCT Invention Award 2009:
Asst Prof Dr Kasemsan Manomaiphiboon

NRCT has recently granted an Invention Award to **Asst Prof Dr Kasemsan Manomaiphiboon** in recognition of his development of a prototype of Smoke-Haze Forecast System for Upper North Thailand. Dr. Kasemsan is an Assistant Professor in the Environment Division at JGSEE and is a member of the Atmospheric Science and Modeling Group. His invention won the award in the area of Science, Technology, and Industry (Physical Science and Mathematics category), and it is among a total of 23 inventions selected from 189 entries in all categories. His prototype deals with the commonly-known regional smoke-haze problem in Upper North Thailand (see related story below).

• Research Award 2009 for the Study of Hydrogen Production

The award was given to JGSEE's Energy Division lecturer, **Assoc Prof Dr Navadol Laosiripojana** for his research on the development of a hydrogen production unit from available feedstock in Thailand. His research has been funded primarily by the Thailand Research Fund (TRF) and PTT Public Company Limited. The objective is to investigate reforming catalysts that are suitable for reforming several hydrocarbons, i.e. methane, natural gas, biogas, bioethanol, methanol, and LPG, into hydrogen with high efficiency, and to develop reactor designs for hydrogen production.



NRCT Invention Award 2009:
Assoc Prof Dr Navadol Laosiripojana

2008 TRF-CHE Outstanding Mid-Career Researcher Award



2008 TRF-CHE Outstanding Mid-Career
Researcher Award:
Assoc Prof Dr Navadol Laosiripojana

Assoc Prof Dr Navadol Laosiripojana of JGSEE's Energy Division has been named one of the 3 TRF-CHE Outstanding Mid-Career Researcher of the Year 2008. The award was conferred by the Thailand Research Fund (TRF) and the Commission on Higher Education (CHE) in recognition of his outstanding research achievement in the field of engineering and technology. The judgment was made on the basis of total number of publications, citation and H-Index. To date Dr Navadol has already published more than 40 refereed international journal papers, mainly in the area of hydrogen production and catalysis, with a total citation of 320 and an H-Index of 12.

The Ajinomoto Lecture and Taguchi Award



Assoc Prof Dr
Poonsuk Prasertsan

Assoc Prof Dr Poonsuk Prasertsan, a JGSEE affiliate at the Department of Industrial Biotechnology, Prince of Songkla University, was recently nominated by the Biotechnology Association of Thailand to present the prestigious Ajinomoto Lecture for 2008, in recognition of her research achievement related to bio-hydrogen production from palm-oil mill effluent via high-temperature fermentation. At the same time, her former JGSEE PhD student, Dr Sompong O-tong, was named the winner of the Taguchi Award for outstanding thesis at the Biotechnology for Global Care Conference. Dr Sompong's dissertation deals with the investigation of conditions and analysis of the structures of micro-organism groups for bio-hydrogen production from palm-oil mill effluent via high-temperature fermentation.

JGSEE STUDENT RECEIVES AWARD



Ms Usa Makmoon,
Ph.D candidate of JGSEE

Ms Usa Makmoon, a PhD candidate in Energy Technology, won the Award for the Best Oral Presentation at KMUTT's 4th Cycle Commemorative International Conference on Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050" (SDSE 2008), which was held on 7 – 9 April 2009, at the Millennium Hotel in Bangkok. Usa's paper was entitled "Thermal Performance Analysis of Domestic Cooking Burners by Laser Diagnostics". Her PhD thesis is supervised by Prof Sumroeng Jajjai, an affiliate of JGSEE at the Department of Mechanical Engineering, KMUTT.



STAFF PROMOTION



Asst Prof Dr
Suneerat Pipatmanomai



Asst Prof Dr
Kasemsan Manomaiphiboon

Dr Navadol Laosiripojana of JGSEE's Energy Division has been promoted to the post of Associate Professor, while Dr Suneerat Pipatmanomai of the same division and Dr Kasemsan Manomaiphiboon of the Environment Division have been promoted to Assistant Professor by the decision of JGSEE's Board of Trustees. Dr Navadol coordinates the Hydrogen and Fuel Cell research group at JGSEE and has been working primarily in the area of hydrogen production and fuel cell technologies. Dr Suneerat, who coordinates the Fuels, Combustion and

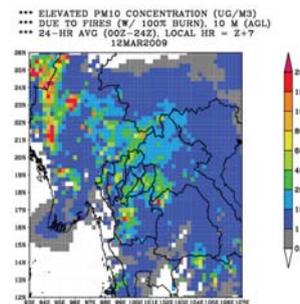
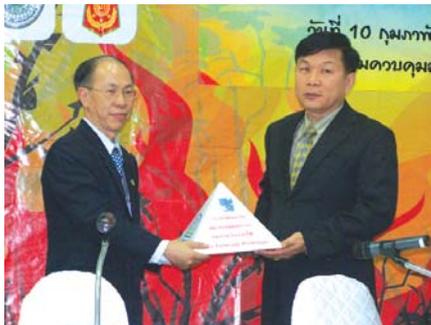
Emission Control research group, has been working in the area of effective energy conversion from biomass and clean technology for lignites; and Dr Kasemsan Manomaiphiboon, who is in the Atmospheric Science and Modeling research group, is working in the field of air quality modeling and its applications.

OUTREACH

Smoke Haze Forecasting Model Transferred to PCD

Asst Prof Dr Kasemsan Manomaiphiboon of JGSEE's Environment Division has successfully developed a prototype of Smoke-Haze Forecast System for Upper North Thailand. The prototype deals with the commonly-known regional smoke-haze problem in Upper North Thailand, which typically recurs in the drought season each year due to the increased presence of forest fires and agricultural-residue burning.

The haze problem negatively affects tourism, business, air and land transportation, and, most importantly, public health. There are several dimensions of the problem, raising a number of questions that need to be answered, e.g., causes, prevention, mitigation, impacts, and public warning. Dr. Kasemsan started to sketch the concept and design of the prototype and its essential components in April 2007 following the news of Upper North Thailand being very hard-hit by smoke haze during March 2007, and the development grew more sophisticated along its course, eventually with several thousands of computer code lines. The prototype is fundamentally to estimate how smoke haze is going to be elevated due to fires and burning, and this information can be useful to the public and authorities concerned. The work was mainly funded by an NRCT research grant. An experimental forecast operation of the prototype was also conducted during March-April 2008 and its results were broadcast through a website set by the Pollution Control Department (PCD).



Smoke-Haze Forecast System developed by Dr Kasemsan Manomaiphiboon

Industry Funded Research Projects

• Carbon Footprint Labeling



A project on "Capacity Building of Thai Food Industries on Carbon Footprint Labeling to Promote the Development of Low-carbon Trade between EU and Thailand for Climate Change Mitigation" was recently launched. This project, financed mainly

by the European Commission under the Thailand-EC Cooperation Facility program, is a collaborative effort between Kasetsart University, the Joint Graduate School of Energy and Environment, Institut National de la Recherche Agronomique (France), University of Santiago de Compostela (Spain), and University of Surrey (UK). The coordinator of the project from JGSEE is Assoc Prof Dr Shabbir H Gheewala, who is supported by his colleague, Dr Sébastien Bonnet. The project aims to transfer EU knowledge and practical experiences on carbon footprint measurement standards as well as their applications in food products to enhance the knowledge and practical experiences of local experts as well as to build up the capacity of Thai food industry on "Carbon Footprinting & Labelling". The industrial partners for this project are Cargill Meats (Thailand) Limited, Chareon Pokphand Foods Public Co., Ltd., and Thai Union Manufacturing Co., Ltd. The project duration is 1.5 years starting September 2008.

• Absorbents for Sulphur Removal from Natural Gas and Biogas

Assoc Prof Dr Navadol Laosiripojana of JGSEE's Energy Division has received a project grant from PTT Public Company Limited to study the development of absorbents for sulphur removal from natural gas and biogas. The objective is to determine the technical and economic feasibilities for PTT to develop absorbents for their own use. This 3-year project is co-funded by the Thailand Research Fund under the Royal Golden Jubilee PhD Program.

• Upgrading of Biomass by Torrefaction

Dr Nakorn Worasuwanarak of JGSEE's Energy Division has been granted a research contract from PTT Public Company Limited to conduct research into upgrading of biomass by torrefaction process – a low temperature oxidation process whereby the energy density of the fuel is increased and fuel property improved, making it more cost-effective for transportation. The objective of this project is to examine suitable conditions for applying such a process and to study the gasification behavior of the upgraded biomass. The total budget of this project is 900,000 baht with duration of 10 months (October 2008 to July 2009).

Consultancy

• Biofuel Development in Thailand

Dipl.-Ing. Werner Siemers and Asst Prof Dr Suneerat Pipatmanamai of JGSEE's Energy Division received a consultancy contract from the USAID supported ECO-Asia Clean Development Program to evaluate the potential of local biofuel production industries. The study is part of Eco Asia's project on "Biofuel Development in Asia". The contract is worth 303,880 baht with duration of 51 days (17 November 2008 to 28 February 2009).

• Greenhouse Gas Inventory

Assoc Prof Dr Sirintornthep Towprayoon of JGSEE's Environment Division has been assigned by the Office of Environmental Policy and Planning, Ministry of Natural Resources and Environment to be the accountant of the Thailand Greenhouse Gas Inventory. The duration of the project is 18 months (July 2008 - January 2009) with a total budget of approximately 2.2 million Baht. Asst Prof Dr Chumnong Sorapipatana of JGSEE's Energy Division, Asst Prof Dr Savitri Garivait and Asst Prof Dr Amnat Chidthaisong of JGSEE's Environment Division are the project co-investigators. The result of the project will serve as Thailand's second national communication on greenhouse gas emissions to be approved by Thai government and submit to the UNFCCC (United Nations Framework Convention on Climate Change).

• Technology Partnership Program for Asia



Fluidized bed paddy dryer

JGSEE was contracted by United Nations Industrial Development Organization (UNIDO) under Technology Partnership Programme for Asia (TPPA) Thailand Chapter to identify a number of basic and appropriate local technologies in Food and Energy sectors with a total fund of 300,000 baht over the period of 3 months (June-August 2008). The aim of this program is to make available a pool of appropriate technologies, developed in developing countries, which are suitable to be transferred to other communities in developing countries through the so-called South-South Cooperation. Examples of the appropriate technologies proposed by JGSEE are high-efficiency cook stoves, heat pumps, and fluidized bed paddy dryers. The project was coordinated by Dr Athikom Bangviwat, and was assisted by KMUTT's Prototype Development and Training Institute and the Technical Information Services (TIS).

GOVERNMENT FUNDED RESEARCH

Biofuel Production Integrating By-Product Utilization

The Thailand Research Fund (TRF) has granted a 3-year Advanced Research Scholar Award to Assoc Prof Dr Navadol Laosiripojana for research on “Development of biofuel production processes from local feedstock by integrating the production with by-product utilization processes”. The total fund of this project is 2 million baht and the project aims to develop clean alternative and renewable fuels i.e. biomass-to-liquid (BTL), bioethanol and biodiesel from local feedstock e.g. lignocellulosic biomass, agro-industrial by-products and waste palm fatty acid distilled by applying some new concepts to reactor design e.g. catalytic hot compressed water reactor and biocatalytic transesterification reactor. Various types of chemical reactions (e.g. hydrolysis, dehydration, hydrogenation, thermocatalytic and biocatalytic esterification, reforming) and reactors under several types of operation are considered with a view to improving the performance of alternative fuel production. Furthermore, by-product utilization will also be integrated into the main reaction unit, the ultimate target being to improve the overall system performance so that it becomes a “zero-waste” process.

Thermochemical Properties of Biomass for Effective Energy Conversion

Dr Nakorn Worasuwanarak has received a research grant from the Thailand Research Fund (TRF) to study the thermochemical properties of biomass materials available in Thailand for effective energy conversion. The project aims to examine the thermochemical properties of biomass materials suitable for use as a fuel and to determine the suitable condition for pre-treating the biomass prior to its utilization as fuel. The total fund of this 2-year project is 360,000 baht.

Windows with Internal Multiple Slats for Daylighting

Dr Pipat Chaiwiwatworakul of JGSEE’s Energy Division has received a 2-year postdoctoral research grant (April 2009 to March 2011) with a budget of 360,000 baht from the Thailand Research Fund (TRF) for conducting research on “Application of Windows with Internal Multiple Slats for Daylighting, and Providing Human Comfort”. The objective of the project is to investigate application of multiple slats installed between two glass panes of window for buildings in Thailand. The scope of the study include: determination of visual and thermal performance of double-glazing systems with internal slats through its light transmittance, overall heat transfer coefficient and solar heat gain coefficient. It is expected that the investigation will lead to the identification of installation configurations that will achieve maximum energy saving in both lighting and air-conditioning, while providing a comfort condition for the occupants in the buildings.

CONSORTIUM PARTNERSHIP DEVELOPMENT

Enhancing Biodiesel Research at PSU

Biofuel research, particularly biodiesel, is one of the strategic areas of research of the Center for Energy Technology and Environment (CEE) implemented by JGSEE. Because of its long history of involvement in R&D for palm oil processing and biodiesel production, JGSEE has opted to support **the Specialized R&D Center for Alternative Energy from Palm Oil and Oil Crops at Prince of Songkla University** as the focal point of the consortium in this area of research. In addition to equipment support provided in the past to the biodiesel research group at the Faculty of Engineering, JGSEE has recently contributed an Agilent 7890A Gas Chromatograph for the analysis of biodiesel fuel properties. The state-of-the-art equipment comes with 3 kinds of detectors: Flame Ionization (FID), Flame Photometric (FPD), and Thermal Conductivity (TCD). The 2-million-baht instrument will enable the R&D Center to analyze the fatty acid methyl ester, methanol, glycerol and glycerides, and a number of gaseous components.



Agilent 7890A Gas Chromatograph

INTERNATIONAL RECOGNITION

JGSEE in IPCC Bureau



Assoc Prof Dr
Sirintornthep Towprayoon

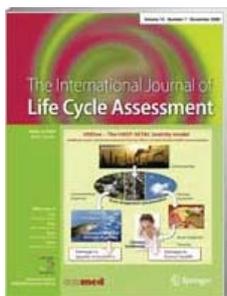
Elected in the 29th session of Intergovernmental Panel on Climate Change (IPCC) meeting in Geneva Switzerland on 31 August - 4 September 2008, Assoc Prof Dr Sirintornthep Towprayoon, JGSEE's Deputy Director, now serves as a member in the Task Force Bureau (TFB) on National Greenhouse Gas Inventories Program (NGGIP) - one of the fourth technical support units of IPCC. Dr Sirintornthep was elected as the representative of Region II as classified by the World Meteorological Organization (WMO). With a 5-year term, TFB's role is to provide guidance to the IPCC-NGGIP (based in Hayama Japan) and develop it as required.

Apart from her outstanding role in the international arena, Dr Sirintornthep has also been appointed a member of the Technical Sub-committee on Climate Change in Thailand by the Prime Minister, in his capacity as the Chairman of the National Policy Committee on Climate Change.

JGSEE's Lecturer Assigned as Editor of The International Journal of Life Cycle Assessment



Assoc Prof Dr
Shabbir H Gheewala



Assoc Prof Dr Shabbir H Gheewala of the Environment Division at JGSEE has been well recognized, nationally and internationally, for his research in the areas of strategic environmental assessment of biofuel and waste-to-energy systems. He has recently been invited as subject editor of the International Journal of Life Cycle Assessment. Right now, the journal is with Springer publisher and has an impact factor of 1.607 (the journal ranks 8 out of 37 in the environmental engineering field).

Invited lectures

• Assoc Prof Dr Bundit Fungtammasan

Because of his overall perspective on Thailand's sustainable energy development, and familiarity with the deployment and policy issues of bioenergy and biofuels, Dr Bundit, the Director of JGSEE, has often been invited to deliver lectures by energy related institutions and conference organizers. Recent examples include: invited lectures at the Center for Environmental Policy, Imperial College London; Ecole des Mines d'Albi; France; the International Energy Agency (IEA), Paris; Renewable Energy Asia 2008 international conference in Delhi, India; the Association of Academy of Sciences in Asia (AASA) Beijing Workshop on Sustainable Energy Development in Asia 2008, Beijing; and High Temperature Air Combustion and Gasification Conference 2008, Phuket.

• Assoc Prof Dr Shabbir H Gheewala

Assoc Prof Dr Shabbir H Gheewala of the Environment Division at JGSEE has been invited to deliver lectures at several forums, for example: biofuels at the Better Air Quality (BAQ 2008) in Bangkok, the 8th Ecobalance Conference in Tokyo and the Sustainable Development to Save the Earth: Technologies and Strategies Vision 2050 (SDSE) in Bangkok; and waste-to-energy at the 5th i-CIPEC 2008 in Chiang Mai and the World Alternative Energy Sciences Expo 2009 (WAESE 2009) in Bangkok.

CONFERENCES AND SEMINARS

The 5th i-CIPEC



Prof Ralph Sims of the IEA

The 5th International Conference on “Combustion, Incineration/Pyrolysis and Emission Control” was successfully organized by JGSEE and King Mongkut’s University of Technology North Bangkok (KMUTNB), in collaboration with Phranakhon Rajabhat University and Chiang Mai University, during 16 - 19 December 2008 in Chiang Mai. The conference, coordinated by **Asst Prof Dr Suneerat Pipatmanomai**, was focused on eco-conversion of biomass and waste. Its aim was to provide a forum for the exchange of knowledge and experiences among international and local experts, in improving state-of-the-art facilities, so as to contribute to enhancing technical capabilities and environmental protection. As part of this conference, a pre-conference workshop on Biomass and Waste Conversion into Eco-friendly Energy and an exhibition were also staged. Despite political uncertainties days before the conference, a total of 148 papers were presented in oral and poster sessions; and the conference attracted 179 participants from 18 countries.

Franco-Thai Seminar on Climate Change



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The Franco-Thai Seminar on “Climate Change: Impacts and Mitigation Options” was held during 3 – 5 September 2008 at the Dusit Thani Hotel, Bangkok. It was co-organized by the Thailand Research Fund (TRF) and JGSEE with the support of the French Embassy in Thailand and TRF. The two-day event was attended by over 200 participants and 22 invited speakers from France and Thailand. The speakers were distinguished experts in the major fields that are likely to be impacted by or have an influence on climate change. These are: energy policy and technology, urban development, health, land-use, and climate and environmental sciences. The French speakers were from: Centre de l’Energie Atomique (CEA), Laboratoire des Sciences du Climat et de l’Environnement (LSCE), Institut National de la Recherche Agronomique (INRA), Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Centre Scientifique et Technique du Bâtiment (CSTB), Communauté Urbaine de Bordeaux (CUB), Institute for Sustainable Development and International Relations (IDDRI), University of Bordeaux III and Institut Pasteur. The Thai experts included those from the Ministry of Energy, the Geo-Informatics and Space Technology Development Agency (GISTDA), the Nuclear Power Plant Project Development Office (NPPDO), Mahidol University, and JGSEE. International organizations included the International Energy Agency (IEA), and START South-East Asia, and the Asian Institute of Technology (AIT).

Carbon Footprint

As part of the EU-funded Carbon Footprint and Labeling project, a special seminar on Carbon Footprint and Labeling was organized by Kasetsart University and JGSEE with the support of EU partners from France (INRA), Spain (University of Santiago de Compostela) and UK (University of Surrey) at Siam City Hotel, in Bangkok on 19 February 2009. The aim of the seminar was to introduce the principles and EU practical experiences in the carbon footprint and labelling system to Thai food industries, governmental organisations, NGOs, universities, students, as well as other interested parties. The seminar was a grand success with over 400 participants. Assoc Prof Dr Shabbir H Gheewala, who coordinates the project, delivered a presentation on carbon footprinting methodology. A press conference was also held where JGSEE was represented by Assoc Prof Dr Bundit Fungtammasan, the Director of JGSEE.



INTERNATIONAL COLLABORATION

Thai – French Research Cooperation

Assoc Prof Dr Bundit Fungtammasan, the Director of JGSEE, has been granted a Thai-French Cooperation Project from the Commission on Higher Education (CHE) and the French Embassy in Thailand for the topic of “Characterization of Combustion Processes of Thermal Systems and Forest Fires in Thailand”. The project fund is approximately 2.4 million baht, which will be used for the exchange of academic staff and students from both Thai and French sides, for the next two years. The Thai side includes: Asst Prof Dr Savitri Garivait, Asst Prof Dr Suneerat Pipatmanamai and Dr Sébastien Bonnet of JGSEE, Prof Dr Sumrerng Jugjai and Asst Prof Dr Suthum Patumsawad, affiliated faculties of JGSEE at the Department of Mechanical Engineering, King Mongkut’s University of Technology Thonburi and King Mongkut’s University of Technology North Bangkok, respectively. The French partners are: (i) Laboratory of Thermal Studies, Laboratory of Combustion and Detonation under CNRS (French National Research Agency) and National Advanced School of Mechanics and Aerothermics, all in Poitiers; and (ii) University Institute of Industrial Thermal Systems of CNRS and Polytechnique Marseille.

Collaboration with AIST of Japan

Assoc Prof Dr Shabbir H Gheewala of JGSEE has a long-standing collaboration with the National Institute of Advanced Industrial Science & Technology (AIST), Japan. The most recent on-going project is on the development of sustainability indicators for biomass. This research is funded by the Japan External Trade Organization (JETRO) under the Economic Research Institute of ASEAN and East Asia (ERIA) project. The working group comprises experts from several Asian countries including India, Indonesia, Japan, Malaysia, the Philippines, Singapore and Thailand. The research outputs from this working group feed information to policy makers in the energy sector for the East Asian region.

Student exchange with University of North Carolina at Chapel Hill



In 2007, JGSEE and the University of North Carolina at Chapel Hill (UNC), USA, signed a Memorandum of Understanding (MOU) to establish collaborative relations between both institutions in order to promote friendship/co-operation in a mutually beneficial association. Within the context of this MOU, a student exchange program has been implemented annually. For example in 2008, 9 students from UNC joined the program and came to JGSEE to study in energy and environmental technology courses and to carry out a capstone project for one semester.

JGSEE GRADUATES EXCEL

Recent Graduates Embark on Bright Career Paths

• Dr Taro Sonobe Appointed GCOE Assistant Professor at Kyoto University

Taro came to JGSEE with an MSc degree in Materials Science from the world renowned Kyoto University, Japan, in 2004, to pursue a PhD degree in Energy Technology. He started working on a thesis related to biomass pyrolysis and gasification under the supervision of Drs Nakorn Worasuwanarak and Suneerat Pipatmanamai. Three years later, he was awarded the degree. After a short stint as a post-doctoral research fellow in Kyoto University, he was recently appointed an assistant professor of the Global Center of Excellence (GCOE) on Sustainable Development, the Graduate School of Energy Science, Kyoto University.

• Dr Pisit Yongyingsakthavorn Appointed a Lecturer at KMUTNB

Pisit graduated with a PhD degree in Energy Technology from JGSEE late 2006. He was recruited in early 2007 by the CNRS supported Inter-professional Research Center on Aero-thermochemistry (CORIA) of INSA (National Institute of Applied Sciences) Rouen, France, where he spent two years as a post-doctoral research fellow. He was recently appointed a lecturer at the Department of Mechanical Engineering, King Mongkut’s University of Technology North Bangkok. For his PhD thesis, Pisit worked under the supervision of Drs Bundit Fungtammasan, Pomyos Vallikul (KMUTNB), and Christophe Dumouchel (CORIA), on development of novel methods for the characterization of liquid fuel sprays.

• **Dr Attapol Golaka Promoted to Assistant Director of R & D at SCG**

Attapol obtained a PhD in Energy Technology from JGSEE in 2007. He was recruited by the Siam Cement Group (SCG) – one of Thailand's largest industrial conglomerates, and promoted to the post of Assistant Director of R & D. Attapol's thesis was on the use of night sky radiation for energy saving in cooling, supervised by Prof Robert Exell.

• **Loi Dinh Chinh Elevated to Senior Expert in Vietnam**

Loi, a Vietnamese national, obtained an MPhil degree from JGSEE in Environmental Technology in 2005. He studied life cycle analysis (LCA) methods with Dr Shabbir Gheewala. He is now a Senior Expert at the Department of Science, Technology and Environment of the Vietnamese Ministry of Construction.

Post Doctoral Research

A number of recent JGSEE PhD graduates have been offered post-doctoral research positions overseas because of their excellent performance and research skills. These include:

• **Dr Nuki Agya Utama (Indonesian) (Environmental Technology, 2009)**

Graduate School of Energy Science, Kyoto University, Japan

Research Area: Global Center of Excellence (GCOE) research fellow on energy scenarios

• **Dr Nguyen Thi Thu Lan (Vietnamese) (Environmental Technology, 2008)**

Department of Agroecology and Environment, Aarhus University, Denmark

Research Area: Environmental impact assessment of agricultural and food products

• **Dr Oyeshola Kofoworola (Nigerian) (Environmental Technology, 2008)**

Environmental Engineering, University of Toronto, Canada

Research Area: Life cycle assessment of emerging oil sands technologies

JGSEE STUDENTS UNDERGO TRAINING ABROAD

• **Thapat Silalertruksa at AIST**

One of the PhD candidates from JGSEE, Mr Thapat Silalertruksa, was a researcher at the National Institute of Advanced Industrial Science & Technology (AIST) in Tsukuba, Japan, for a period of 6 months where he worked on the impacts of Thai bio-ethanol policy target on land use and greenhouse gas emissions. Thapat is co-supervised by Assoc Prof Dr Shabbir H Gheewala of JGSEE and Dr Masayuki Sagisaka of the Material & Energy Sustainability Assessment Group, Institute of Science for Safety & Sustainability, AIST. The research was funded by the New Energy Foundation (NEF) of Japan and resulted in a publication in a reputed international journal, Applied Energy.

• **Pannipha Dokmaingam Going to Scotland**

Ms Pannipha Dokmaingam, JGSEE's PhD student under the supervision of Assoc Prof Dr Navadol Laosiripojana, is going to University of St Andrew, Scotland, for a 6-months research training (May to October 2009) with funding provided by the Thailand Graduate Institute of Science and Technology (TGIST), National Science and Technology Development Agency (NSTDA). Pannipha will work at Prof John Irvine's laboratory on ethanol steam reforming over CGO-based catalysts for hydrogen-rich gas production.

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