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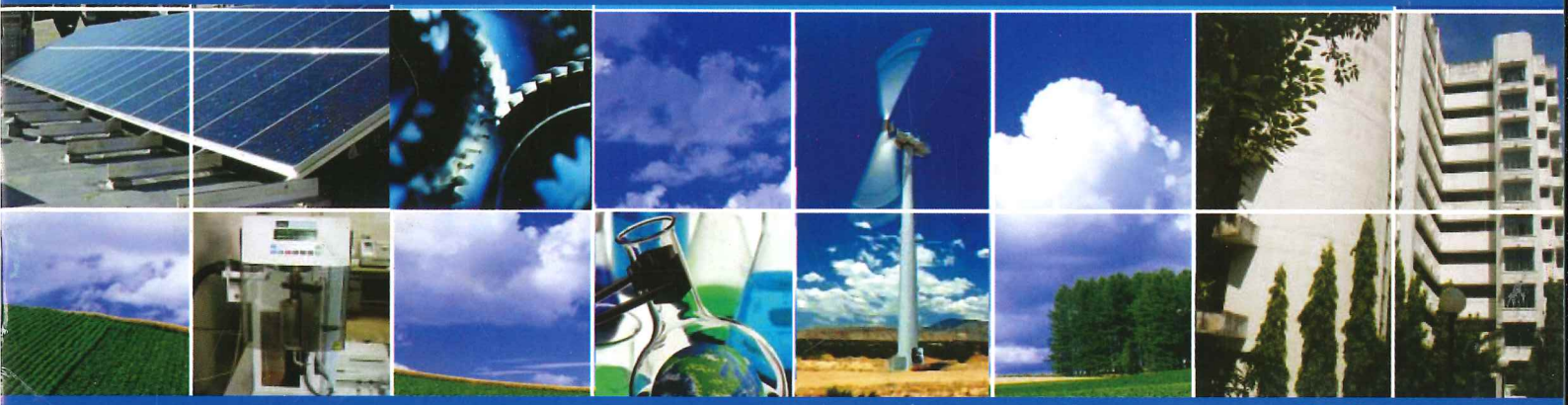
An international graduate education and research consortium of five institutions



JGSEE Newsletter

Vol. 10, January - April 2008

Center of Excellence on Energy Technology and Environment of Commission on Higher Education

From the Director

JGSEE registered a number of significant achievements recently, thanks to the dedication and commitment of our staff at JGSEE and partner institutions. The following are some of the highlights. On the basis of the performance of full-time core staff in 2006, JGSEE was rated level "5" in research excellence by Thailand Research Fund (TRF) in 2007, with 1.233 international journal papers published per full-time equivalent staff – the highest of all 78 faculties/schools that participated in the evaluation.

A number of individuals have been recognized for their excellence in research and innovation. For example: Prof Tanongkiat Kiatsiriroat, an affiliated faculty from Chiang Mai University, won the Outstanding Award on Science and Technology for 2007 from the Toray Foundation for the Promotion of Science on his research in the area of energy efficiency technology and thermal engineering;
Prof Sumrerng Jugjai, an affiliated staff from KMUTT received an Honorable Mention Award from the National Research Council of Thailand (NRCT) for successfully developing an innovative, high efficiency LPG industrial stove for small-scale food industry; a team comprising Mr Pramote Chamahathana, and Dr Rudklao Pan-aram of EGAT, Dr Udomkiat Nonthakaew of KMUTNB, and Dr Bundit Fungtammasan, and Dr Chumnong Sorapipatana of JGSEE received the same award for their innovation on small hydro-turbine design and construction;
and Dr Navadol Laosiripojana of JGSEE's Energy Division has been named one of the 6 Young Scientists of the Year 2007 by the Foundation for the Promotion of Science and Technology under the Royal Patronage.
While world oil prices registered new highs almost on a daily basis in recent weeks, the pressure of climate change is building up at an accelerated pace and receiving worldwide attention. Since the release in 2007 of the IPCC's Fourth Assessment Report (AR4) which warned that evidence for global warming was "unequivocal" and that man-made climate change was indeed a far more serious matter than one can imagine, a Nobel Peace Prize has been awarded to IPCC and Al Gore, and a UN Climate Change Conference or the Bali Summit was held, in which governments discussed how to reduce greenhouse gas emissions after the current Kyoto Protocol targets expire in 2012. The UNFCCC' also convened the Bangkok Climate Change Talks in early April, kicking off a new negotiating process designed to tackle climate change after Kyoto expires. All these events serve to signify the gravity of the matter and the urgency for agreement and action.

In this connection, I am proud to note that some of our staff members have been contributing quietly behind the scenes to this process. For example, Dr Amnat Chidthaisong was one of the Lead Authors of AR4, Dr Sirintornthep Towprayoon has been serving the UNFCCC review process on National GHG inventory of Annex I countries as a lead reviewer, etc. This has been made possible because of our focus in this area of research and study. In fact, JGSEE will be putting even more efforts into this subject in the near future. On a different note, the Postgraduate Education and Research Development Project of the Commission on Higher Education (CHE),

which for many years served as an ad hoc body overseeing the development of the seven (now increased to 9) centers of excellence, has recently been institutionalized as "the Postgraduate Education and Research Development Office (PERDO)". The implication of this move is that the COEs may in the future be supported on a continual basis, subject to satisfactory performance of each center, of course. This should be good news for JGSEE. The decision of CHE's top management and the leadership of the PERDO director, Dr Chaiyudh Khantaprab, ought to be lauded. Lastly, on the recommendation of JGSEE's Board of Trustees, the Council of KMUTT appointed me to the post of Director for another term of three years till January 2011. I am grateful for the trust given to me by the University and JGSEE's management, as well as to the support of all the consortium partners and staff members. I pledge to serve JGSEE to the best of my ability and continue to advance all our mission areas with the support of management and staff

Bundit Fungtammasan

JGSEE Rated Top Research Institution

JGSEE has been rated Thailand's top research institution yet again in 2007.This time around, the rating was conducted by the Thailand Research Fund (TRF), under the "Project to Evaluate the Quality of Research in Science and Technology in Higher Education Institutions in Thailand". The institutions were rated on the basis of the following indicators:

- The number of equivalent international journal paper per full-time academic staff
- The ratio of impact factor to the number of full-time academic staff
- The total number of equivalent international journal paper

JGSEE was given "excellent" rating (5 out of 5) for indicators (1) and (2) and "good" (4 out of 5) for indicator (3). The rating for indicator (1) is indeed the highest among all the 78 institutions volunteered for the evaluation, while that for indicator (2) being the top of the group of institutions in the disciplines of technology/energy/information technology.

JGSEE Faculty and Affiliates win Research Excellence & Innovation Awards

Toray Award on Science and Technology

Prof Tanongkiat Kiatsiriroat, an affiliated faculty of JGSEE at the Department of Mechanical Engineering, Chiang Mai University, recently won the Outstanding Award on Science and Technology for 2007 from the Toray Foundation for the Promotion of Science, Thailand. The Award was given in recognition of Prof Tanongkiat's research achievements in the areas of energy technology and thermal engineering, particularly in the application of solar thermal technology and development of energy efficiency improvement techniques, resulting in savings in energy usage.

NRCT Honorable Mention Award for Engineering & Industrial Research

The National Research Council of Thailand (NRCT) conferred two Honorable Mention Awards for 2008 to JGSEE's faculty and affiliates in the field of engineering and industrial research :

1. Innovation in Micro-hydro Turbine

This small hydro-turbine for electric power generation at Mae Jang Dam is an output of a joint R&D project between the Electricity Generating Authority of Thailand (EGAT), JGSEE and King Mongkut's University of Technology North Bangkok (KMUTNB). The EGAT team was led by Mr Pramote Chamahanthana, Assistant Governor in charge of the Dam Construction Department, Dr Rudklao Pan-aram and other staff members. The JGSEE investigators comprise Assoc Prof Dr Udomkiat Nonthakaew, Head of the Mechanical Engineering Department of KMUTNB, Assoc Prof Dr Bundit Fungtammasan, the Director of JGSEE, and Asst Prof Dr Chumnong Sorapipatana, the Chairman of Energy Division of JGSEE.

The team integrated turbo-machine engineering design principles with computational fluid dynamics (CFD) to achieve a new configuration of the turbine – a 160-kW axial-flow type, low-head turbine. This is a scaled up version of an earlier model of 25 kW, which has been in trial use at Lower Mae Ping of Bhumiphol Dam. The entire development entailing designing to manufacturing, site construction and installation was totally carried out by Thai researchers and local knowledge. The prototype turbine is currently in operation at a tail water canal in Mae Jang Dam which supplies water to the Mae Moh Power Plant in Lampang. The electricity generated is fed into the grid.

2. Innovation of a High Efficiency LPG Stove

The award was granted for the innovation of a high efficiency LPG industrial stove to JGSEE's affiliated faculty, Prof Dr Sumrerng Jugjai of the Department of Mechanical Engineering at King Mongkut's University of Technology Thonburi.

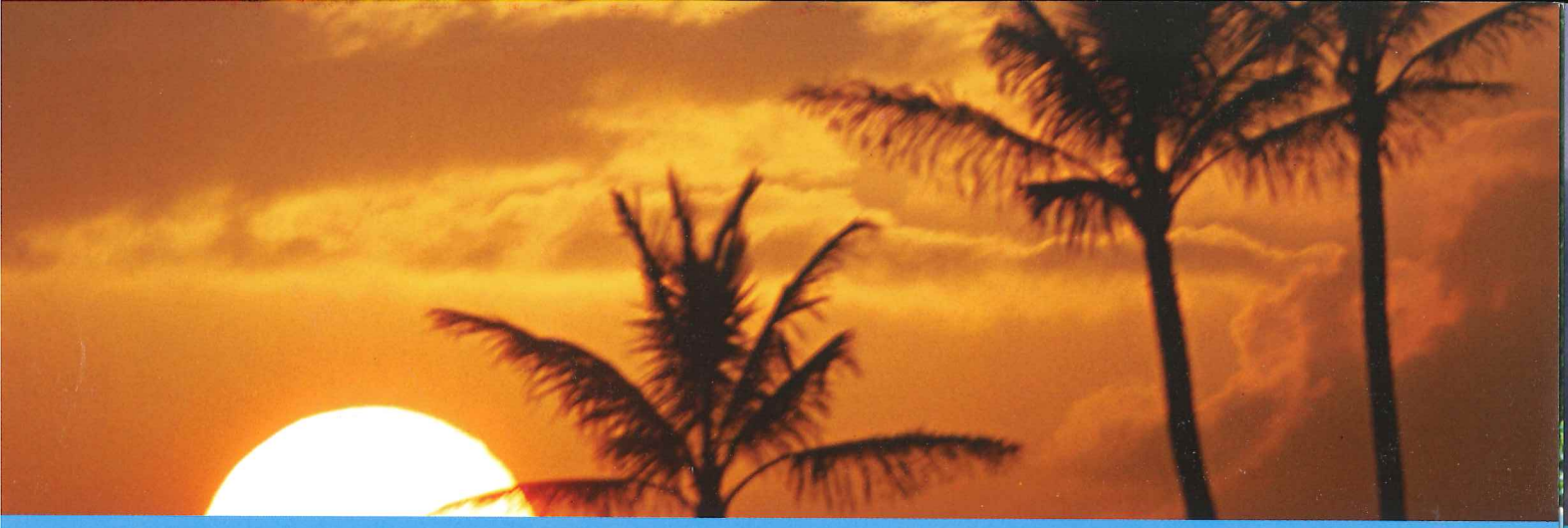
The stove has been developed for small-scale food industry which consumes a large amount of thermal energy. It was designed to utilize waste heat from the flue gas to preheat incoming combustion air to 300°C, causing the overall efficiency of the stove to rise to 40% compared to that of common stoves of only 10%. The capacity range of this new stove is 30-70 kW (thermal). It can save up to 25% of the LPG used, hence reducing the CO_2 emission considerably. The key to this success is based on the application of porous media augmented combustion, which has been the hallmark of Prof. Sumrerng's research for more than a decade.

Young Scientist of the Year

Asst Prof Dr Navadol Laosiripojana of JGSEE's Energy Division has been named one of the 6 Young Scientists of the Year 2007. The award, which applies to scientists aged below 35 only, was conferred by the Foundation for the Promotion of Science and Technology under the Royal Patronage in recognition of Dr Navadol's outstanding a chievement in the field of chemical engineering. At the age of 29, Dr Navadol has already published more than 30 refereed international journal papers, mainly in the area of hydrogen production and catalysis.

Staff Promotion

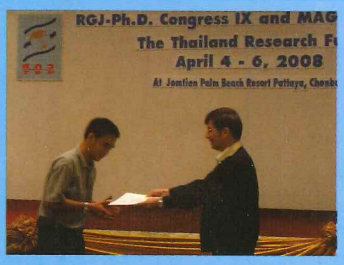
Dr Shabbir Gheewala of JGSEE's Environment Division has been promoted to the post of Associate Professor in Environmental Management by the decision of JGSEE's Board of Trustees. Dr Shabbir coordinates the Strategic Environmental Assessment research group at JGSEE and has more than 30 refereed international journal papers to his credit, primarily in the area of life cycle assessment (LCA) of energy systems. The promotion has been effective since March 2007.



JGSEE Students Win Awards

Mr Jakapong Pongthanaisawan, a PhD candidate at the Energy Division of JGSEE under the supervision of Asst Prof Dr Chumnong Sorapipatana, presented a paper on "Technology Options for Energy Demands Reduction and CO_2 Emissions Mitigation in Thailand's Road Transport Sector" at the 13th International Student Seminar on Transport Research Symposium or ISSOT 2007 held at the Chiba Prefecture in Japan, during 20-22 November 2007. Out of 18 students and young researchers from various Asian countries, Mr Jakapong was selected as 1 of the 3 most outstanding presenters for this symposium.

Mr Jakapong's PhD research involves assessment of various vehicle technologies and policy instruments aimed at reducing energy demand as well as mitigating energy-related emissions in road transport sector. The results of the assessment will be used as important information to analyze and propose appropriate energy policy in this sector.



Mr Sira Saisorn, an MPhil student in Energy Technology, also won the outstanding oral presentation award at the Royal Golden Jubilee (RGJ) Ph.D. Congress IX, which took place in Pattaya during 4 – 6 April 2008. His presentation topic was titled "Flow pattern, void fraction and pressure drop of two-phase air-water flow in horizontal circular micro-channels". His thesis is supervised by Prof Somchai Wongwises of the Department of Mechanical Engineering, KMUTT.

Contributions to International and Local Efforts on Climate Change Mitigation

Lead author for IPCC's Fourth Assessment Report

The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) in 1988 to assess the scientific, technical and socio-economic information relevant for the understanding of human induced climate change, its potential impacts and options for mitigation and adaptation.

The IPCC has completed three full assessment reports, guidelines and methodologies, special reports and technical papers. The IPCC has three working groups (WGs): WG I: The Science of Climate Change; WG II: Impacts, adaptation and vulnerability; WG III: Mitigation of climate change; and a Task Force on Greenhouse Gas Inventories. In December 2007, the IPCC and former US Vice President Al Gore were awarded the Nobel Peace Prize "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change". JGSEE is pleased to note these achievements and is also proud that some of its own staff have had contributions to these successes. For example, Asst Prof Dr Amnat Chidthaisong has been working as the Lead Author for 4th Assessment Report in Working group I (among about 450 leading scientists worldwide). Specifically, he evaluated the current state-of-the-art and advances in the understanding of CH_4 biogeochemistry and interaction with climate, synthesized the findings, and reported the findings and updates in the main Report, Technical Summary and Summary for Policy Makers (available at http://www.ipcc.ch/ipccreports/ar4-wg1.html

COP13: Bali Summit

During 3-15 December 2007, as a Thai delegate supported by the Thailand Research Fund, Asst Prof Dr Amnat Chidthaisong attended the 13th Conferences of the Parties (COP13), in Bali,Indonesia. This is an annual meeting of all member countries under United Nations Framework Convention on Climate Change (UNFCCC). His role was to assist Thai officials in negotiations to reach agreements within the Framework of UNFCCC and Kyoto Protocol, such as conditions for reporting greenhouse gas inventory, CDM, Adaptation Program, etc. This was a very interesting involvement as he had an opportunity to witness efforts towards climate change mitigationin practice and how it is interpreted from basic science when he worked in Working Group I as Lead Author to the COP meeting where such scientific information is used as a basis for negotiation.

TRF Coordinator on Climate Change

Since July 2006, Dr Amnat Chidthaisong has been coordinating The Thailand Research Fund's "Climate Change and Its Impacts on Thailand Program". The program provides funding to qualified researchers in Thailand for evaluating the impacts of climate change in Thailand based on sound scientific information, and for finding appropriate climate change adaptive measures. To date, this program has supported 11 research projects, organized meetings and seminars, and plans to expand to cover more diverse research issues related to climate change in Thailand. Readers who are interested in this Program may contact Dr Amnat directly.

Lead Reviewer of UNFCCC on National GHG Inventories

Since 2002, Assoc Prof Dr Sirintornthep Towprayoon has served the UNFCCC review process on National GHG inventory of Annex I countries as a lead reviewer with special review on the waste sector. The crucial review process was in 2007 where the GHG assigned amount unit (AAU) on the mandatory emission reduction of Kyoto Protocol first commitment period was reviewed and approved by the UNFCCC secretariat. She also participated in annual meetings of inventory lead reviewers to consider methodological and procedural issues relating to inventory reviews, with a view to developing a common approach to these issues by expert review teams and to making recommendations to the secretariat on ways to improve the effectiveness and efficiency of the technical review of inventories. The meeting is recommended by the Subsidiary Body for Scientific and Technological Advise (SBSTA) and COP decision 12/CP.9.

Contribution to Thailand's Greenhouse Gases Management

In recognition of her expertise in the area of GHG emission andthe development of sustainability indicators for Clean Development Mechanism (CDM) under the Kyoto Protocol, the recently founded Thailand Greenhouse Gases Management Organization (TGO) – the Thai Designated National Authority (DNA), has appointed Assoc Prof Dr Sirintornthep Towprayoon the Chair of the Working Groupon CDM Project Screening. The mandate of this working group is to preliminarily assess the benefits to sustainable development of the CDM projects submitted to the government of Thailand before recommending them for the approval of the TGO Executive Board.

JGSEE Wins Support for Energy Policy Research Phase II

Having completed the first phase of the Energy Policy Research Program, JGSEE has recently won the approval of the Energy Policy and Planning Office (EPPO) and the Thailand Research Fund (TRF) to pursue another phase of the Program with a grant of 28 million baht. This 11-month duration Program aims to further assess the potentials of renewable energy resources and energy efficiency improvement opportunities, and to analyze and synthesize policy measures for their promotion. The Director of JGSEE, Dr Bundit Fungtammasan is the Program Coordinator and Principal Investigator, with the assistance of Drs Chumnong Sorapipattana, Athikom Bangviwat, Sirintornthep Towprayoon, Suvit Tia (PDTI – KMUTT) and Bundit Limmeechokchai (SIIT – TU). More than ten research projects are being supported, involving more than twenty investigators from both within and outside the JGSEE Consortium, such as Thammasat University and National Biotechnology and Genetic Engineering Center (BIOTEC) of the National Science and Technology Development Agency (NSTDA).

Establishment of SEE Forum

SEE Forum is an Asia Pacific network of academic and science and technology communities working in the area of sustainable energy and environment.
The forum was conceived during a side meeting of the 2nd Joint International Conference on Sustainable Energy and Environment (SEE 2006) co-organized by JGSEE and Kyoto University in Bangkok in November 2006. On that occasion, delegates from 6 Asia Pacific Countries including, Thailand, Japan, Indonesia, Cambodia, Vietnam and India signed the SEE 2006 Expression of Intent on New Energy Initiatives.

The primary aim of the Forum, which was initiated by Kyoto University under the leadership of Prof. Susumu Yoshikawa, is to promote "New Energy Initiatives" that will contribute to mitigating climate change and improving energy security. The Forum focuses its activities on education, research, and networking activities.

Since its establishment, the membership of SEE Forum has grown substantially to include more than 30 institutions from over 12 countries, including (in addition to those listed above): Brunei, Lao, Myanmar, Singapore, Philippines and Malaysia, thanks notably to the addition of the Asia University Network of more than 20 members.

As a founding member of the SEE Forum, JGSEE has been actively involved in charting the direction of the Forum and will unveil the details on the cooperation platform and funding support when they are available.

Dr Pierre Joulain

Dr Pierre Joulain, an Emeritus Researcher of CNRS (National Agency for Scientific Research) of France visited JGSEE during 28 January – 24 February 2008. Recently retired from CNRS, Dr Joulain has had a truly distinguished career in Combustion and Fire safety research. He has visited JGSEE several times as an advisor of JGSEE's Fuel and Combustion Research Group. On this occasion, he focused his energy on advising staff and students on optical/laser diagnostics of combustion and strategies for biomass gasification research at the pilot scale with an industrial partner.

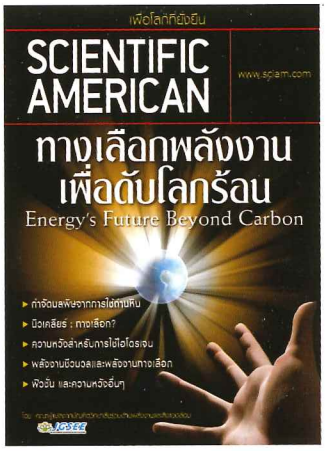
Visiting Professors

Prof Prabir Basu

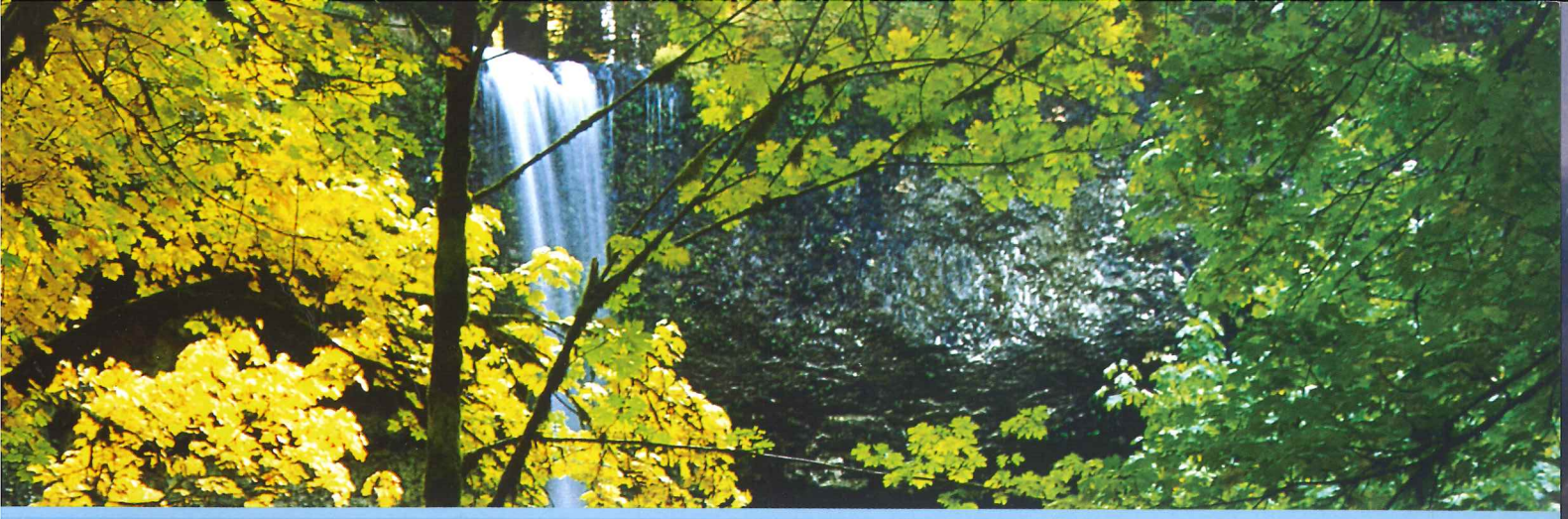
A well-known expert in fluidized-bed combustion and gasification from Dalhousie University, Prof Prabir Basu took his sabbatical leave at JGSEE during November 19, 2007 – February 27, 2008. Prof. Basu advised JGSEE students and staff in the area of fluidized bed combustion and gasification, and helped supervise the construction of a circulating fluidized bed (CFB) combustor at JGSEE's laboratory at Bangkhuntian Campus. Prof Basu also delivered a few lectures, including part of JEE642 Fuel & Combustion course, a public lecture on "Sustainable Coal Utilization" and a keynote lecture on "The present status of biomass gasification in supercritical water" at the HiTACG2008 – an international conference organized by KMUTNB with the support and collaboration of JGSEE. He also spent time writing a book on biomass gasification.

JGSEE Educates Public on Energy and Environment

"Energy's Future Beyond Carbon" Translated into Thai



In September 2005, Scientific American published a special issue on "Energy's Future Beyond Carbon", which featured a series of articles on future energy options for mitigating climate change. These articles were written by well known energy technology and policy experts from world renowned institutions such as MIT, UC Berkeley and Princeton University. The articles have now been translated into Thai by a team of JGSEE staff members with the permission of Scientific American Inc. This Thai version of the articles has been published in paperback form by the We Wish Publishing Company and is available for sale at major bookstores. JGSEE undertook the task with a view to enabling the general Thai public to have better access to this valuable scientific information and analysis.



JGSEE Articles Appear Weekly in Newspapers

Since mid-2007, a series of articles written by JGSEE's core staff and affiliated faculty have appeared every Monday in a Thai language daily, Post-Today. The articles present information and analysis on energy and environmental technology, economics and policy, as well as personal views of the authors. The articles are meant to create greater awareness among the Thai public on issues of current interest in the realm of energy and environment. This important outreach activity is being coordinated by Dr Athikom Bangviwat, JGSEE's Assistant Director External Affairs and Industrial Outreach. A similar series dealing exclusively on environmental affairs is also being arranged with Bangkok Biz, JGSEE's core and affiliated staff are encouraged to contribute articles to this effort.

Recent Events Organized by JGSEE

Lecture on CFD & Computational Combustion

JGSEE and King Mongkut's University of Technology North Bangkok (KMUTNB) jointly organized a half-day special lecture titled "CFD & Computational Combustion" on December 20, 2007 at JGSEE. The lecture was delivered by Dr Akshai K. Runchal from Analytic & Computational Research, Inc., USA, who is an acknowledged expert in Computational Fluid Dynamics (CFD) and numerical simulation of flow, heat and mass transport processes in combustion, engineering and environmental sciences. The lecture covered the background and essential theoretical foundations of CFD, computational combustion with some examples of practical applications and an introduction of a "MeshLess" Virtual Finite Volume (VFV) Method for CFD simulations.

The 7th International Symposium HiTACG 2008

The 7th International Symposium of High Temperature Air Combustion and Gasification or HiTACG 2008 was held during January 13-16, 2008, in Phuket. The symposium was hosted by King Mongkut's University of Technology North Bangkok with the collaboration of JGSEE and Phranakhon Rajabhat University, following successful symposia held earlier in Japan, Taiwan, Italy and Germany. A total of 92 papers from 23 countries were presented at the symposium. The Organizing Committee was chaired by Assoc Prof Dr Somrat Kersuwan of the Waste Incineration Research Center, KMUTNB.

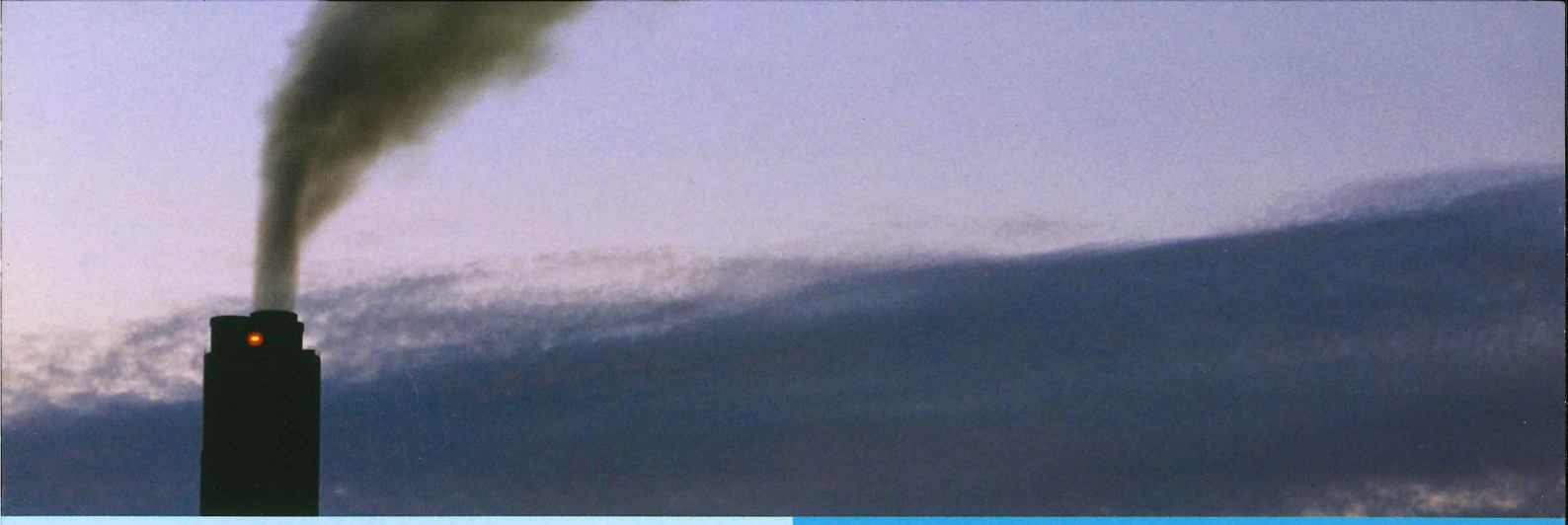
Public lectures on "Sustainable Coal Utilization"

With an aim to disseminate and update technologies for efficient coal production and utilization as well as to exchange views on the future options for coal utilization, JGSEE organized a one-day lecture series under the theme "Sustainable Coal Utilization" on January 24, 2008, in Bangkok. An overview of coal resource and utilization in the world and in Thailand were given by Assoc Prof Dr Bundit Fungtammasan, JGSEE, and Dr Boonrod Sajjakulnukit, an expert on alternative energy at the Department of Alternative Energy Development and Efficiency (DEDE).

Dr Mike Clarke, a consulting engineer in mining and chemical engineering from Australia, focused on the upstream coal processing including beneficiation and pretreatment of lignite. Prof Prabir Basu of the Dalhousie CFB Laboratory & Greenfield Research Incorporated, Dalhousie University, Canada, rounded up with the presentation of the availability and cost of clean coal utilization technologies.

Symposium on Eco-energy and Materials

Rajamangala University of Technology Thanyaburi (RMUTT) and Kyoto University in collaboration with JGSEE, co-organized the 5th Eco-Energy and Materials Science and Engineering Symposium (5th EMSES) during 21-24 November 2008 in Pattaya. The topics of the conference covered: new energy technologies, eco-materials, and sustainable environment. Over 300 participants attended the event and more than 120 papers were presented during oral and poster sessions. Also, as a side event of the symposium, JGSEE co-hosted with Kyoto University and the ASEAN University Network, the 3rd SEE Forum Meeting, which saw 100 participants from 11 Asian countries.



PERDO's Research Programs

One of the missions of the newly established Postgraduate Education and Research Development Office (PERDO) of the Commission on Higher Education is to deliver multidisciplinary research results that would have a significant impact on solving Thailand's emerging economic and social problems. To this end, the Executive Committee of PERDO has recently decided to develop two major research programs, namely Biofuels and Climate Change. By horizontally integrating the expertise across the eight Centers of Excellence under its jurisdiction, PERDO hopes to be able to tackle problems requiring significant scientific input in a systematic and holistic manner. It would also try to leverage major funding support for the program from both public and private sectors. PERDO is currently calling for proposals for the Biofuel Program, and is working on the framework and guidelines for the Climate Change Program.

Upcoming Events

Renewable Energy Asia 2008 – 4 June, BITEC, Bangkok

CMP Media Thailand and JGSEE are co-organizing a regional conference "Renewable Energy Asia 2008" on 4 June, 2008, at BITEC, Bangna, Bangkok. This annual conference is designed to be a premier international forum for the dissemination and exchange of information and ideas on the latest developments in renewable technologies, policies and markets. A number of international experts, notably from Germany and around the Southeast Asian region, prominent local specialists have agreed to speak at the conference. For registration and further information, please contact Khun Kulakarn at kulakarn_s@jgsee.kmutt.ac.th (/www.thai-exhibition.com/renewableenergy/)

Food (or is it fuel?) for Thought:

The Ever Expanding System Boundaries of Biofuels

Biofuels were initially touted as "green" especially vis-à-vis their carbon neutrality at the use phase where the carbon dioxide emissions were not considered to contribute to global warming, the reason being that an equivalent amount of carbon dioxide was absorbed during the growth of the biomass from which the biofuel was produced. This initial euphoria was tempered down when the system boundaries were expanded to include the whole life cycle of the biofuel starting from the cultivation of the feedstock, including conversion and transportation, and finally use as transportation fuels was considered. JGSEE, under the aegis of the Strategic Environmental Assessment research group, has conducted several such life cycle assessment studies for bioethanol (from cassava and sugar cane molasses) and biodiesel (from jatropha and palm oil). The results on the whole have been promising in terms of reduced impacts on climate change as compared to the petroleum-based fuels, though for some cases the reductions were modest. The studies however indicated the conditions under which the advantages of the biofuels could be maximized thus yielding important information for policy makers.

The "greenness" of biofuels has come under question once again as the system boundaries have been expanded yet again to go beyond the cultivation phase to include also the greenhouse gas emissions from the transformation of land use. Several recent articles in the reputed journal, Science, have opened up this debate. The "whole" life cycle has received yet another "expansion" to include ripple effects throughout the whole world e.g. how does reduced soybean production in the US affect biofuel prices (and probably impacts too) in Thailand? What if a biofuel is produced at sites that have been converted a few years ago? What if biofuel production results in displaced food production at another location where forests are cleared? Should these be part of the "environmental baggage" of the biofuel? The Strategic Environmental Assessment research group will attempt to address these complex issues in the coming years. More information on the on-going and planned research can be obtained from Assoc Prof Dr Shabbir H Gheewala (shabbir_g@jgsee.kmutt.ac.th).

SDSE 2008

Sustainable Development to Save the Earth

Technologies and Strategies Vision 2050

Commemorative International Conference on the Occasion of the 4th Cycle Anniversary of KMUTT

SDSE 2008
"Sustainable Development to Save the Earth"
Technologies and Strategies Vision 2050
10 – 12 December 2008, Central World, Bangkok, Thailand

On the occasion of the 12th Cycle or 48th Anniversary of the foundation of King Mongkut's University of Technology Thonburi, a Commemorative International conference will be held during 10 – 12 December, 2008, at the Centara Grand and Convention Center, CentralWorld, Bangkok. The conference, titled "Sustainable Development to Save the Earth: Strategies and Technologies Vision 2050" or SEDE 2050, is aimed at highlighting the importance of science and innovation – both technology and policy aspects, in underpinning a sustainable development path for the world community and the planet earth in the long term. Papers addressing the following issues are welcome to be presented at the conference. For further information, please see http://www.sdse2008.com/sdse.php?page=home or contact Dr Sirintornthep Towprayoon.

- Integrated Approach to Sustainable Energy, Environment and Materials
- Environmental Protection and Intelligent Environment
- Integrated Approach in Design and Planning
- Pure and Applied Science Approach to SDSE

5th i-CIPEC: 16 – 19 December 2008, Chiang Mai

The 5th International Conference on "Combustion, Incineration/ Pyrolysis and Emission Control" will be jointly 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.

This international conference will focus on eco-conversion of biomass and waste. It aims to provide a forum for exchange of knowledge and experiences among international experts in relevant fields, and improving state-of-the-art facilities, so to contribute enhancing technical capabilities and environmental protection in both developed and developing countries. As part of this conference, an exhibition will be organized, offering companies and organizations an opportunity to advertise their products and services. A pre-conference workshop on: Biomass and Waste Conversion into Eco-friendly Energy, is also scheduled on 16 December 2008. Additional information on the program and registration are available on the conference website (www.icipec2008.org) or contact Dr Suneerat Pipatmanomai or Dr Sébastien Bonnet.