

JGSEE

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JGSEE NEWSLETTER

Vol.8 No. 3-4 May-December 2006

From the Director



Assoc. Prof. Dr. Bundit Fungtammasan

This issue of JGSEE Newsletter brings to our readers and stakeholders of JGSEE a series of good news.

After a long period of uncertainty clouding the issue of funding for Phase II for the HEDP (Higher Education Development Project), of which JGSEE is an integral part, the Cabinet of the previous government finally delivered the result. On 1 August 2005, the Cabinet passed a resolution to provide 2 billion baht in support of the project over the 2006-09 period. The resolution has been acknowledged and confirmed by the new Minister of Education, Prof. Dr. Wichit Srisa-an. If there is no further untoward maneuvering, JGSEE should receive a total of 270 million baht to strengthen its education, research and outreach activities, with complementary support from the Energy Conservation Promotion Fund of the Ministry of Energy. However, because of the transition in government, the new budget will not be disbursed until January 2007 at the earliest. When the dust is settled, a new plan of action will be unveiled.

JGSEE staff, students, and stakeholders were delighted when the Commission on Higher Education announced on 31 August that JGSEE had been ranked Thailand's top research school in the technology and engineering category. This was the first time that such a ranking -- which saw KMUTT being ranked in the top-five band of research universities as well -- was carried out, amid much controversy as to the soundness of the criteria used and the accuracy of the information provided and processed. Regardless of the methodological inadequacies, the ranking is indicative of JGSEE's stature in Thailand's higher education system. There is however no room for complacency: JGSEE shall strive to live up to its new found image.

The new Cabinet lineup saw two important figures associated with JGSEE being appointed to strategic portfolios: Dr. Piyasvasti Amaranand who was instrumental in securing the initial funding for the setting up of JGSEE when he was Secretary-General to the National Energy Policy Office back in 1999, was put in charge of Ministry of Energy, and Prof. Dr. Yongyuth Yuthavong, who has been a member of JGSEE's Board of Trustees since its inception, took the helm at Ministry of Science and Technology. On behalf of JGSEE, I offer our congratulations to both Excellencies.

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Dr. Piyasvasti Amaranand



Prof. Dr. Yongyuth Yuthavong

At JGSEE, there has also been a change at the top. Assoc. Prof. Dr. Kraiwut Kiatkomol was recently appointed the new President of KMUTT, succeeding Dr. Krissanapong Kirtikara who has served two consecutive terms. We welcome Dr. Kraiwut as the new Chairman of JGSEE's Board of Trustees, and thank Dr. Krissanapong for his unceasing efforts in supporting the operations of JGSEE and providing wise guidance to JGSEE's management and staff throughout his tenure. His support was particularly crucial during difficult times, such as when the proposal for the Phase II HEDP funding was in limbo. I hope JGSEE can count on his continued support in the future.



Dr. Krissanapong Kirtikara



Assoc. Prof. Dr. Kraiwut Kiatkomol

I am also proud to announce that Dr. Peter du Pont, a part-time JGSEE lecturer/researcher, will be taking up a prestigious new position as "Chief of Party" of a regional USAID program called the ECO Asia Clean Development Program, starting 1 November. This regional effort promotes policy and market transformation in Asia and encourages strategic investments in clean technologies that would contribute to improving energy security and combating climate change in the region. Dr. du Pont will not only continue to be associated with JGSEE's teaching and research activities as an adjunct faculty member, but has also managed to involve JGSEE as a key Thai partner in the ECO Asia Program - providing JGSEE with an expanded network into the five countries of the program - India, Indonesia, Philippines, Thailand, and Vietnam. It is also my pleasure to welcome Dipl.-Ing. Werner Siemers as a new staff of JGSEE. Mr. Siemers comes here as an expert with support from the German government, to help build up expertise for the formulation of a sustainable biomass energy strategy in Thailand - a very important issue as we try to scale up the use of bioenergy of various forms.



Dipl.-Ing. Werner Siemers

Lastly, preparation of the SEE2006 International Conference is well under way, with more than 200 papers submitted for presentation. I hope to see you all at the Swissotel Nailert Park, during 20 - 25 November, inclusive of a pre-conference workshop and a post-conference symposium.

Bundit Fungtammasan

Thai University Ranking

The Commission on Higher Education (CHE), Ministry of Education, announced on 31 August the results of the ranking of academic performance of all universities and faculties across the nation. Apart from King Mongkut's University of Technology Thonburi (KMUTT) being ranked on the top band and second band in terms of research excellence and teaching excellence respectively, JGSEE was ranked first for research excellence among all engineering/technology faculties/schools/institutes. The ranking, conducted for the first time in Thailand, was based on 4 key indicators: personnel (20% weight), funding (20%), research output (45%), and graduates (15%). JGSEE received an overall score of 93.6%.

The news came as a pleasant surprise as the School is relatively new, having been established only in 1998. In hindsight, the success of JGSEE on this occasion could largely be attributed to its commitment for the provision of quality graduate education and excellence in research from day one. The flexibility in management granted by the university under the CHE's Higher Education Development Project (HEDP) enabled the School to recruit high caliber academic staff, which the School values most, and to draw on the support and collaboration of its five consortium partners: the various schools within KMUTT, King Mongkut's Institute of Technology North Bangkok (KMITNB), Chiang Mai University, Prince of Songkla University and Sirindhorn International Institute of Technology at Thammasat University. A clear terms-of-reference (TOR) for staff to secure research funding and to publish, as well as the insistence on students to publish their research findings as part of research training, must have also contributed to enhancing JGSEE's performance indices. Above all the concept of creating centers of excellence in science and technology and the financial support committed to this course by HEDP, as well as by the Energy Policy and Planning Office (EPPO) of the Ministry of Energy in the case of JGSEE, is the foundation of this achievement. In this connection, the recent government decision to support the next phase of JGSEE's operations, including funding for scholarships and graduate research, is a most welcome move.

With all the fame brought about by the ranking, the School is, on the other hand, well aware of the fact that the indicators that constitute the main criteria for this ranking exercise are but one aspect of research excellence. JGSEE is committed to move one step further. It will ensure that its research efforts are geared towards the creation of benefits and value for the economy and the public, particularly in the fields that are the mission of the School: energy security, energy efficiency, environmental protection and sustainable development.

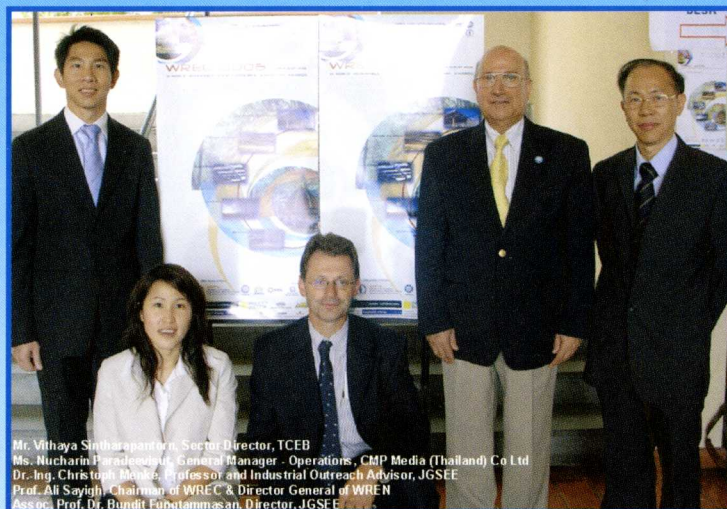
The World Renewable Energy Congress Network (WREC�)

The World Renewable Energy Congress Network (WREC�), based in the United Kingdom, has recently selected Thailand as host country for "The World Renewable Energy Congress 2009-Asia Region". The recent WREC in Florence, Italy, underlined the increasing importance of renewable energy in a world newly awakened to the urgency of assuring energy security and saving the world's fragile eco-system.

WREC� is a major non-profit organization with charitable status. Established in 1992, it is affiliated with UNESCO. Representing most countries in the world, it aims to promote co-operation among scientists, engineers, policy makers and other professionals in order to address the issue of sustainable energy services in both developed and developing countries.

The Congress in Bangkok is expected to draw up to 1,000 academics, researchers, professionals and business leaders with interests in renewable energy and related areas.

The Regional Congress will be held at BITEC Exhibition Center in Bangkok in May, 2009, and run in conjunction with the third SEE Conference, and Renewable Energy Asia / ENTEC 2009 - the region's largest and most successful renewable energy and environmental technology exhibition. Co-hosting the event will be the Joint Graduate School of Energy and Environment, the Thailand Convention and Exhibition Bureau, and CMP Media Thailand. The Congress will be supported by the Ministry of Energy and Thai Airways International.



Congratulations

National Awards

JGSEE would like to congratulate **Prof. Dr. Somchai Wongwises**, an affiliated staff of JGSEE at the department of Mechanical Engineering, KMUTT, on being selected to receive the 2006 Outstanding Scientist Award by the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King. JGSEE would also like to praise Prof. **Dr. Sumrueng Jugjai**, an affiliated staff at the same department for winning the 2006 Innovation Ambassador Award in the field of energy and environment.



Prof. Dr. Sumrueng Jugjai



Prof. Dr. Somchai Wongwises

Promotion

Congratulations to **Dr. Narongrit Sombatsompop**, an affiliated staff at the School of Energy, Materials and Environment, KMUTT, for his promotion to full professor. Prof. Narongrit, aged 36, has published extensively in international journals on topics related to Polymer Science and Technology.



Prof. Dr. Narongrit Sombatsompop

JGSEE Crosses the 100 Mark in Graduates and International Journal Publication

JGSEE has been moving from strength to strength in accomplishing its mission. Being only 8 years old, JGSEE has managed to produce 102 graduates (71 Masters and 31 PhD).

In addition to graduate students, JGSEE has also produced a total of 551 international and national publications in journals and conferences. In particular, the cumulative international journal publications stand at 155 articles.



JGSEE Staff Advises Major Local and International Agencies

Prof. Dr.-Ing. Christoph Menke

German Technical Assistance Agency (GTZ) recently commissioned JGSEE to review its "Caribbean Renewable Energy Development Programme". The objective of this programme is to study the problems of renewable energy utilization in the Caribbean. The assignment was undertaken by Prof. Dr.-Ing. Christoph Menke, JGSEE's Industrial Outreach Program (IOP) advisor.

Dr. Peter du Pont

JGSEE was funded by the Energy for Environment Foundation (EfE), an organization supported by Global Environmental Fund (GEF) and UNDP, to provide advisory service on re-strategising EfE's mission on "Removal of Barriers to Biomass Power Generation and Co-generation in Thailand". This six months project is led by Dr. Peter du Pont, JGSEE's lecturer/researcher in the Energy Policy Group.

Assoc. Prof. Dr. Bundit Fungtammasan

The Minister of Foreign Affairs of Thailand commissioned JGSEE to provide advisory service on the organization of the Inter-regional Workshop on Clean Fuels and Vehicle Technologies, which was held in Bangkok during 28-29 June 2006 on behalf of the Science and Technology Working Group of the Forum for East Asia-Latin America Cooperation (FEALAC). About 200 invited individuals from 21 economies (8 Latin American and 13 East Asian) attended the workshop. The service was provided by a team of JGSEE staff led by Dr. Bundit Fungtammasan.

JGSEE Secures Local and International Research Grants

Greenhouse gas (GHG) and aerosol emissions under different vegetation land use in the Mekong River Basin Sub-Region

A project entitled: "Greenhouse gas (GHG) and aerosol emissions under different vegetation land use in the Mekong River Basin Sub-Region" is currently undergoing at JGSEE. This project is funded under the Asia Pacific Network (APN). It is a one- year capacity building project led by Assoc. Prof. Dr. Sirintornthep Towprayoon in collaboration with Asst. Prof. Dr. Amnat Chidthaisong, Asst. Prof. Dr. Savitri Garivait and Dr. Sebaatien Bonnet. Partners from four different countries are also contributing to this project: (1) the National Institute of Environmental Studies (NIES) and the Global Environmental Forum (GEF) from Japan, (2) the Center for Environmental Science of the Monash University in Australia, (3) the Department of Civil Engineering of the Lamar University in the US and (4) the Ministry of Environment of Cambodia.

The main objective of this project is to improve the capacity of scientists from the Mekong River Basin Sub-Region in GHG and aerosol emission inventories by providing them with updated information on different vegetation land use in the region and setting a corresponding GIS database of GHG and aerosol emissions from biogenic and biomass burning activities.

Preliminary Study of the Factors Influencing Slag Formation Potential of Lignite under Pulverised Fuel Combustion Conditions

A 4-month project on the "Preliminary Study of the Factors Influencing Slag Formation Potential of Lignite under Pulverised Fuel Combustion Conditions" was granted by EGAT with a budget of 455,975 baht. JGSEE researchers carried out this project including Assoc. Prof. Dr. Bundit Fungthammasan and Dr. Suneerat Pipatmanomai, with Dr. Sankar Bhattacharya, an Australian expert from Cooperative Research Centre for Clean Power from Lignite who has recently moved to the International Energy Agency (IEA). The team also worked in close collaboration with the EGAT personnel. The main objective of this project was to identify key mechanisms of slagging/fouling of Thai lignites. The next phase of study is planned to optimise the lignite properties and/or operating conditions in order to minimise slag formation and fouling.

Production of alternative fuels from available feedstock in Thailand

Asst. Prof. Dr. Navadol Laosiripojana is the Principal Investigator of a 3-year project funded by the Thailand Research Fund (TRF) Research Scholar Scheme on the study of "Production of alternative fuels from available feedstock in Thailand". The project, worth 1.2 million baht, is aimed at developing effective reforming, Fischer-Tropsch and dehydration systems for the production of alternative fuels (i.e. Synthesigass, Gas-to-liquid (GTL), Biomass-to-liquid (BTL), and Dimethyl ether (DME)), which can be used as substitutes of diesel and gasoline in the transportation sector.

Inventory of Ethanol Production from Molasses in Thailand

Asst. Prof. Dr. Shabbir H. Gheewala has received a project grant from the National Institute for Advanced Industrial Science and Technology (AIST), Japan, for conducting an investigation on the Inventory of Ethanol Production from Molasses in Thailand. The project duration is 4 months and is focused on the greenhouse gas emissions for ethanol production.

Life Cycle Assessment of Vanadium Batteries

A research project on life cycle assessment of vanadium batteries for use as power source in electric vehicles has been offered to JGSEE by the National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA). The project is funded by the Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy. The project leader is Asst. Prof. Dr. Shabbir H. Gheewala.

Life Cycle Assessment of Bioethanol from Cassava and Sugarcane

Asst. Prof. Dr. Shabbir H. Gheewala has been invited on the research team as energy and LCA expert by the Thailand Environment Institute (TEI) for the project on LCA of bioethanol from cassava and sugar cane. The project is funded by the Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy.

Life Cycle Assessment for Participatory Environmental Management in the Supply Chain of Frozen White Shrimp

Asst. Prof. Dr. Shabbir H. Gheewala has been invited as the main researcher by Kasetsart University on the project for conducting research on life cycle assessment of shrimp farming in Thailand for improving eco-efficiency along the supply chain as well as increasing competitiveness of the shrimp industry. The project is funded by the Thailand Research Fund.

JGSEE Co-host Renewable Energy Asia 2006



JGSEE, along with CMP Media Thailand, organized the "Renewable Energy Asia 2006" conference during 6-7 July 2006 at BITEC under the topic of "Renewable Energy: Technology and Market in Southeast Asia". This event is a part of "ENTEC POLLUTEC Asia 2006" Conference and Exhibition with 21 local and international experts as speakers and 201 participants from government, industry and academia.

SEE 2006 Conference Gathering Momentum



The Joint Graduate School of Energy and Environment (JGSEE) and Kyoto University are organizing the second joint international conference on: "Sustainable Energy and Environment: Technology and Policy Innovations" (SEE 2006), during 21 - 23 November 2006 at Swissotel Nai Lert Park in Bangkok.

This Conference follows the success of the first joint international conference on: "Sustainable Energy and Environment" (SEE) organized by JGSEE and Kyoto University during 1-3 December 2004, in Hua Hin.

More than 200 papers from about 25 countries will be presented. Six topics will be covered including: advanced energy technology, renewable energy technology, biomass and biofuels, air pollution and climate change, energy and environmental management, energy and environmental policy.

Several keynote lectures will be delivered by local and international experts. Six country reports will also be presented by delegates from the region. Many more events will also be organized as part of this event, including an international pre-conference workshop organized by the Chalmers University of Technology, Sweden, on: "Clean Technologies to Power ASEAN: Implications and Policies", a post-conference symposium organized by Kyoto University on: "Towards Harmonious Coexistence within Human and Ecological Community on this Planet" as well as an exhibition event, and poster award.

The Joint Graduate School of Energy and Environment and the Kyoto University are looking forward to welcoming you in Bangkok for this grand international event.

Key Research Facilities and Capability Established in Biotechnology for Energy and Environment (BEE)

With increasing critical role played by modern biotechnology in bioenergy production and environmental pollution control, JGSEE recently established core competency in biotechnology for energy and environment (BEE). This major undertaking involved the appointment of Dr. Srisuda Dhamwichukorn, a specialist on molecular biology with three years of post-doctoral research experience from University of Notre Dame in the US, as Assistant Professor in the Environment Division, the formation of the BEE research group, and the setting up of the BEE Laboratory. Members of the BEE research group include JGSEE core staff and affiliated staff from Chemical Engineering Departments of KMUTT and KMITNB, School of Bioresources and Technology at KMUTT and Department of Biotechnology at Prince of Songkla University.

The BEE Lab is equipped with state-of-the-art facilities such as DGGE (Denaturing Gradients Gel Electrophoresis), Nanodrop, Thermo-cycler, Kodak gel documentation, DNA sequencing and Fermentor etc. The mission of BEE lab is to become the leading R&D hub of South East Asia on conventional and advanced biotechnology for energy and environment. The research areas supported by this lab are bioconversion of wastes and wastewater to bio-energy, microbial analysis, toxicity, and monitoring as well as bioremediation and biotreatment related to energy. One of the on-going R&D projects supported by BEE Lab is "removal of sulphate from wastewater released from lignite-fired power plants using micro-organisms" sponsored by EGAT.

DGGE



DNA sequencing



Kodak Gel Documentation



Nano drop



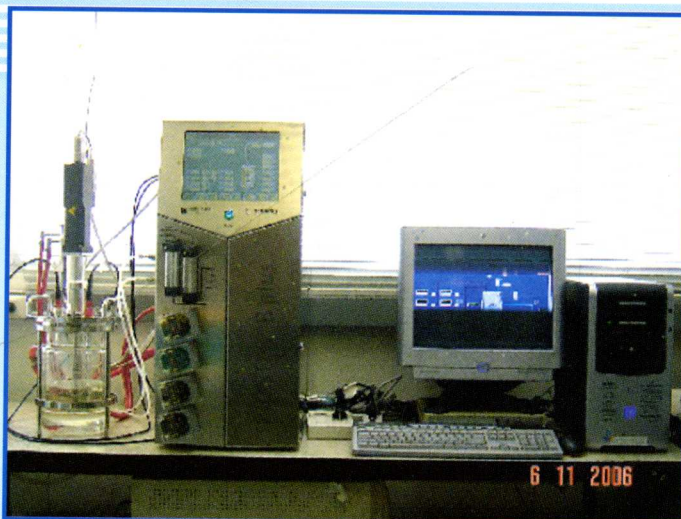
Thermo-cycler



Fermentor



Furthermore, the BEE Lab at Bang Kun Tian Campus, KMUTT, is currently developing a fermentor system (Model Biostat Bplus) with an aim to study the interaction of Hydrolytic/Fermentative, Acetogenic, and Methanogenic bacteria to catalyze the methane production process.



Fermentor system at Bang Kun Tian Campus, KMUTT

JGSEE Appoints New Affiliated Staff

In 2006, JGSEE appointed 5 new affiliated members: Asst. Prof. Dr. Puangrat Kajitvichyanukul from the department of Environmental Engineering, KMUTT, Asst. Prof. Dr. Pakorn Opaprakasit and Asst. Prof. Dr. Mongkut Piantanakulchai from SIIT-TU, and Dr. Somboon Nuchprasert from the Department of Electrical Engineering and Assoc. Prof. Dr. Seni Karnchanawong from the Department of Environmental Engineering, CMU. The total number of JGSEE's affiliated staff from the 5 university consortium is 135.

Postage here

JGSEE Newsletter is edited and published by
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