

# JGSEE

## Newsletter

JGSEE is a consortium of 5 universities



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The Joint Graduate School of Energy and Environment  
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National Energy Policy Office

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## From the Director

It is an honour and privilege that I am entrusted by the Board of Trustees of the Joint Graduate School of Energy and Environment to serve as its second director, succeeding Professor Chullapong Chullabodhi, whose three-year term expired late last year. Following a resolution of the Council of King Mongkut's University of Technology Thonburi approving my appointment, I took up the assignment on 18 January 2002, on secondment from King Mongkut's Institute of Technology North Bangkok. This particular arrangement, whereby an affiliated staff from one of the



School's partner institutions, is picked to lead the consortium is indeed unprecedented as it demonstrates a goodwill gesture on the part of both universities (and that of the three other partners: Chiang Mai University, Prince of Songkla University, and Sirindhorn International Institute of Technology of Thammasat University) towards a higher level of cooperative spirit.

Although I have been involved in teaching, research, and their administration and management through out the last two decades, I must admit that managing JGSEE presents me with a new and multi-dimensional challenge. Firstly, the School is a multi-university, multi-disciplinary education and research venture, which is a rather new concept in the context of Thailand. Secondly, the School must deliver what it had promised to its sponsors within a given time frame and budget, which is also rather unconventional in the setting of the Thai public sector education financing.

Established with initial funding from the National Energy Policy Office (NEPO) and later with a Thai government grant through the Ministry of University Affairs' Postgraduate Education and Research Development Project that is funded by an ADB loan with substantial local contribution, the School has around 500 million baht at its disposal over a period of six years. At the end of this time span, the School would have graduated 45 PhD's and 360 masters armed with research skills and a deep understanding of one or more aspects of the two specific technological fields of energy and environment. The School's staff and students would have published at least an equivalent of 135 technical papers in refereed international journals. About 9 university-industry linkages would also have to be established. These are undoubtedly very ambitious goals by any standards. In fact the Ministry of University Affairs has very high hopes that JGSEE, together with the other six centers of excellence under the same scheme, would be an exemplary project for others to emulate.

Three years have now elapsed since the School's inception. Professor Chullapong, through his dedication and hard work, has led the School through the most critical, and difficult formative years. He put the administrative infrastructure of the School in place, and three brand new study programs – PhD, MPhil and MSc – up and running. In other words, significant groundwork has been laid so that as a successor, I have the luxury of inheriting many of his carefully designed plans, guidelines and regulations.

However, like any other new and nontraditional initiative, there are bound to be unforeseen problems and obstacles, of which the School has more than a fair share. In fact in the First Annual Technical Evaluation Report commissioned by the Postgraduate Education and Research Development Project on the School's progress and achievements, it is pointed out that "While an impressive progress has been made, much remains to be done to raise JGSEE to the level of a "premier center" for education and research in energy and related environmental areas.....". Given that there are only about three years left before the project expires, and that we must look forward beyond the project period (post-ADB) to determine how JGSEE may sustain its



operations, one can imagine that the task ahead is phenomenal indeed. Not only do we have to deal with the more immediate, pressing problems confronting the School, we also need to consolidate our position and formulate a long-range strategic development plan.

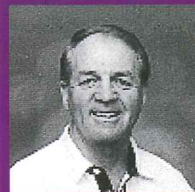
Now that the ball is in my field, I will try to the best of my ability to advance the mission of the School. My vision of JGSEE is that it be seen as 'an internationally recognized, well-coordinated cluster of research groups/centers, each working collaboratively in a focused area and in support of a particular research program that may be of significant economic and environmental benefits to Thailand.' With energy, environment, and sustainable development being such an important issue as it is, I believe that the combined strength of the five consortium partners can make a difference. However, total team effort is required if we are to really make an impact. In the coming months, my colleagues and I will set out to work closely with all parties concerned in an effort to remove obstacles where possible, identify and consolidate our academic strength, define our research focus and modes of cooperation, and formulate a corresponding strategic plan. In the mean time, the School will seek to recruit more highly qualified students and academic staff – particularly in the energy technology field, forge alliances with targeted industries, and strengthen the partnership among the five members of the consortium.

Of course, all these are more easily said than done, unless I have the full cooperation of all parties involved. I therefore look forward to having a fruitful and enjoyable partnership with all colleagues in this joint endeavor during the next three years.

#### Profile: JGSEE's new Director Dr. Bundit Fungtammasan

**Dr. Bundit Fungtammasan** is an Associate Professor of Mechanical Engineering at the Faculty of Engineering, King Mongkut's Institute of Technology North Bangkok (KMUTNB). Born in 1953, he is a native of Betong District, Yala, where he had his primary and lower secondary education. Having completed his upper secondary at Triam-Udom Suksa School in Bangkok, he won an Australian-Government sponsored 'Colombo Plan Scholarship' to study at the University of New South Wales, Sydney, where he received his BE with First Class Honours and PhD in Mechanical Engineering (Two-phase flow). He taught mainly thermofluids and combustion engineering courses at both undergraduate and graduate levels at KMUTNB. His research interest is in the field of solid and liquid fuel combustion. He is the founder and member of the Waste Incineration Research Centre (WIRC) at KMUTNB. On management, he served as Head of Department, Associate

Dean and Dean of Engineering, Dean of Graduate College, and Vice-President (Research & Development). Prior to his current appointment, he also served as Assistant Director of the National Science and Technology Development Agency (NSTDA) where he was in charge of human resources development, research and development support, and the Energy and Cleaner Technology Centre Project.



*Dr. Batty J. Clair*

#### Lecture on Thermoacoustics

In an effort to strengthen academic cooperation among JGSEE's partners, the Energy Division recently invited Dr. Clair Batty to give a lecture on Thermoacoustics, or the science of acoustically driven heat transport, to a group of JGSEE staff members in the thermal process technology field.

Dr. Batty is Trustee Professor and Head of the Department of Mechanical and Aerospace Engineering in Utah State University, USA. He is also a Senior Scientist at USU's Space System Dynamics Laboratory. His current research is in Thermal Management of Space Systems. As a designated Fulbright Senior Scholar, he was in Thailand on a one-semester sabbatical sponsored by the Fulbright Foundation.

According to Dr. Batty, Thermoacoustics is an emerging, environmentally friendly technology with great potential for applications in the areas of refrigeration and heat engines. Thermoacoustic equipment has few or no moving parts, no sliding seals or wearing surfaces, no close tolerances. It also has, in comparison to conventional equipment, the potential for lower cost and extended life and reliability. However as the fundamental processes involved are still not very well understood, a lot of research and development effort is needed before its commercial potential can be fully materialized. There is also much scope for local and international collaboration in education and research.





After the lecture, a meeting, chaired by Dr. Bundit Fungtammasan, the Director of JGSEE, was held to explore possibilities for collaboration. Since refrigeration and air conditioning is such an important area in Thailand, the meeting agreed that initially, an informal network involving Dr. Batty and JGSEE consortium partners be set up so that collaborative education and research activities in Thermoacoustics can be further developed.

## Workshop Held to Strengthen JGSEE Partnership

Like most multi-party collaborative ventures, JGSEE has inherent problems that have much to do with the word "Partnership". JGSEE's management is well aware of this and has therefore invited members of its affiliated staff from partner universities to join JGSEE's core staff in a workshop to promote greater participation in JGSEE's activities and to learn more about their difficulties and grievances. The workshop, which was held on 25 February 2002, was attended by 25 people from all the five consortium partners.



A number of critical issues of inter- and intra-university nature were raised and there was a straightforward exchange of views. But one thing was clear: there should be a re-alignment on the perception and perspective of JGSEE on the part of all parties concerned, starting from the top management of each partner. This is so that all the affiliated staff members involved in thesis supervision and JGSEE students will be accorded due recognition. If this can be done, it is believed that the spirit of cooperation would be much enhanced, hence JGSEE's various goals better served.

All in all, the meeting was a worthwhile exercise and further meetings to resolve more specific issues will be held in the near future.

## The Atmospheric Science and Modelling Group (ASMG)

The ASMG was formed by the JGSEE at the beginning of 2000, with the stated aim to "stimulate and promote research into regional atmospheric processes relevant to energy and environmental pollution". The group currently consists of members from within the JGSEE and its collaborating universities, as well as the Thai Meteorological Department and the Electricity Generating Authority of Thailand (EGAT).

The interests of the members are quite broad, and include: boundary layer processes, numerical meteorological modelling, atmospheric source and receptor dispersion modelling, solar radiation and atmospheric chemistry. Several members have active research programmes, with students from both the JGSEE and other universities. Project areas include the assessment of dispersion models for use in Thailand, the development of urban air quality modelling, source apportionment receptor modelling and surface evapotranspiration processes. The ASMG helps to develop these projects and enhance their benefits through co-operation. The ASMG also provides a useful arena for discussion by members and students.

The ASMG specifically values a collaborative approach to research and currently has links with the Chinese Academy of Sciences and the Tokyo University of Information, as well as bodies in the United Kingdom and Germany. As part of the active process of stimulating and promoting research



interest, and especially collaboration, the ASMG regularly holds meetings with invited presentations from other researchers or academics within the field. These presentations are attended by members and students.

To help those who are intending to study in the field, the JGSEE runs an introductory course on "Atmospheric Boundary Layer Science" taught by members of the ASMG; this is also open to non-JGSEE students. ASMG members are also developing other relevant courses to be available in the near future. Further details about the ASMG, its research or the Atmospheric Boundary Layer Science course, can be found at the ASMG web site below: <http://www.jgsee.kmutt.ac.th/asmg/>

*Jocelyn Harvey*



## 2<sup>nd</sup> Regional Conference on Energy Technology towards a Clean Environment



RCETCE is organized by the Joint Graduate School of Energy and Environment (JGSEE) every two years. The 2nd RCETCE will be held in Phuket, Thailand on 12-14 February 2003. It will focus on "Clean Energy Development: Challenges and Solutions" with a special highlight on the environmental and social impacts of technologies used for power generation.

To ensure the success of the conference, the support of all partners of the consortium is solicited. Paper will be presented in oral and poster sessions and published in the Conference proceedings. A special issue of the Asian Journal of Energy and Environment will be devoted to some of the outstanding papers. The deadline for submission of abstracts is 15 October 2002. Further details pertaining to the Conference can be found at:

[www.jgsee.kmutt.ac.th/rcetce.html](http://www.jgsee.kmutt.ac.th/rcetce.html)

Postage here

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