

JGSEE

The Joint Graduate School of Energy and Environment



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Consortium involving five leading institutions

CENTER FOR ENERGY TECHNOLOGY AND ENVIRONMENT

JGSEE Newsletter

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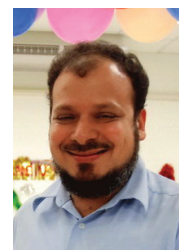
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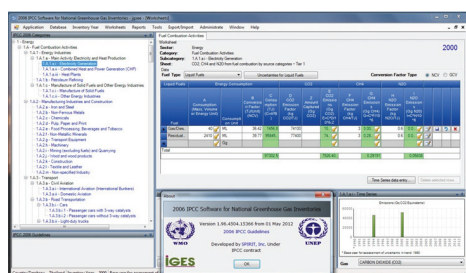
Contribution to International Organizations

Prof Shabbir H Gheewala Appointed Adjunct Professor at University of North Carolina

Prof Shabbir H Gheewala of JGSEE has recently been appointed as Adjunct Professor at the Department of Environmental Sciences and Engineering, University of North Carolina Chapel Hill (UNC). Prof Shabbir has been contributing to the UNC program for several years teaching life cycle assessment and supervising the students' Capstone projects.



Review of the New 2006 IPCC Software for National Greenhouse Gas Inventories



JGSEE has been invited by the Technical Support Unit (TSU), Intergovernmental Panel on Climate Change (IPCC) Task Force on National Greenhouse Gas Inventories (NGHGI) and the Institute for Global Environmental Strategies (IGES) to review the New 2006 IPCC Software for National Greenhouse Gas Inventory over the period March – May 2012. The objective of this study is to thoroughly review the new 2006 IPCC software using data of Thailand as a test case.

This software is primarily designed to help non-annex I countries to prepare their NGHGI and report their greenhouse gas emissions/removal in the national communications submitted to the United Nations Framework Convention on Climate Change (UNFCCC). Researchers in this project include, Assoc Prof Dr Sirintornthep Towprayoon, Assoc Prof Dr Amnat Chidthaisong, Assoc Prof Dr Savitri Garivait and Dr Awassada Phongphiphat.

At the end of the project, based on this new approach, NGHGI for the years 1994 and 2000 using the new software will be produced along with the submission of a critical review report to support the improvement of the new 2006 IPCC Software.

Contribution to Research Arena

GRENE-JICA Project on Climatic Changes and their Effects on Agriculture in the Asian Monsoon Region



Kick-off meeting, March 2012, Bangkok

The research collaboration between JGSEE and NIAES (National Institute for Agro-Environmental Sciences, Japan) on "Climatic changes and evaluation of their effects on agriculture in the Asian monsoon region" is one of the projects under the Green Network of Excellence Program (GRENE), supported by the Japanese Government through JICA. The project kick-off meeting was held during 3-5 March 2012 at Asia Hotel, Bangkok. This project involves the contribution of researchers from Japan (University of Tokyo and Tokyo Metropolitan University), the Philippines (Mariano Marcos State University), Indonesia (Bogor Agricultural University), Vietnam (Hanoi University of Science), and Thailand (JGSEE, led by Assoc Prof Dr Sirintornthep Towprayoon and Assoc Prof Dr Amnat Chidthaisong).

The research objectives of this project, all focused on developing countries in the Asian monsoon region, include: (1) the development of agro-meteorological and climatological databases, (2) the evaluation of land surface conditions based on climate conditions, (3) the elucidation of the effects of climatic changes on major crops in the region, and (4) the development of an information platform to design adaptation and mitigation strategies of major crops against the predicted climatic changes in the region.

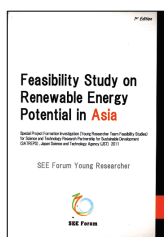
OAE funded Projects for Improved GHG Inventory and Policy in the Agricultural Sector of Thailand



JGSEE has received financial support from the Office of Agriculture Economics (OAE) for two projects of one year each starting April 2011. The first project led by Assoc Prof Dr Sirintornthep Towprayoon in collaboration with the Faculty of Economics at Thammasat University aims at investigating greenhouse gas emissions, mitigation options and associated costs for paddy fields in Thailand. The second project led by Assoc Prof Dr Amnat Chidthaisong, aims at establishing a database to estimate greenhouse gas emissions from the agricultural sector in Thailand. Both projects involve intensive field surveys for data collection and analysis. Both projects are expected to provide better quality greenhouse gas inventory data and support policy in the agricultural sector of Thailand.

Contribution to ASEAN Community

SEE Forum Updates



Sustainable Energy and Environment Forum (SEE Forum) is an academic and S&T forum that brings forward the dialogue on global climate and energy security issues of common concerns in the Asia-Pacific region. It was formed during a side-meeting of the first International SEE Conference co-organized by JGSEE and Kyoto University in 2006. The Forum is chaired by Prof. Susumu Yoshikawa of Kyoto University with Assoc Prof Dr Bundit Fungtammasan of JGSEE as Vice Chair. Currently, there are more than 30 institutions in 14 countries (ASEAN 10 plus Japan, India, Korea and China) involved in this forum.

One of the activities of the Forum is the holding of regular meetings among members to update on the status of new and renewable energy developments in their respective countries and to discuss scientific cooperation activities. At the 4th International Conference on Sustainable Energy and Environment (SEE 2011) held during 27-29 February 2012 in Bangkok, the 9th SEE Forum Meeting was also held. The meeting brought together over 30 participants from 9 countries. Country reports and recent SEE Forum activities were presented, including the results and lessons learnt from the JST Japan – Thai bilateral research cooperation project on “Scenario Planning for Future Energy System Based on Low Carbon Technology in Thailand, ODA-UNESCO Program for Human Resource Development (E-Learning Course: Energy for Sustainable Development in Asia), AUN-KU Workshop (Building Academic Partnership through Collaboration and Exchange), JENESYS (Japan-East Asia Network of Exchange for Students and Youths), and lessons learnt from AUN SEED-Net Project. Announcement was also made on the 10th SEE Forum Meeting to be held in Brunei during 21-23 November 2012, and a brainstorming session was held to explore ways and means to sustain future SEE activities.

An integral part of SEE Forum is the SEE Forum Young Researcher program, which has been awarded a JST grant to conduct a feasibility study on renewable energy potential in Asia with a budget of 3 Million yen (November 2011 – March 2012). The study has produced a comprehensive status report on renewable energy in 6 ASEAN countries, including India, Indonesia, Malaysia, Philippines, Thailand, and Vietnam, plus Japan. The 1st edition of this report will serve as a background for developing new concept research proposals related to the matching of technical and knowledge needs, particularly among Southeast Asian countries, for enhancing energy security and mitigating climate change in the region.

Contribution to Knowledge Platform



The 4th International Conference on Sustainable Energy and Environment (SEE 2011): A Paradigm Shift to Low carbon Society



SEE 2011 conference, 27-29 February, Bangkok

JGSEE - CEE and Kyoto University successfully organized the 4th International Conference on Sustainable Energy and Environment (SEE 2011) – A Paradigm Shift to Low carbon Society during 27-29 February 2012 at Centara Grand & Bangkok Convention Centre at CentralWorld, Bangkok.

Despite the postponement of the conference from November 2011 to February 2012 due to exceptional floods in Thailand, the SEE2011 Conference was very successful. It attracted over 300 participants from academia, research organizations, government agencies and businesses who joined to present their research work, exhibit institution/company profiles, and attend technical sessions. A total of 130 papers from 15 countries around the world were presented at the conference.

Dr Kurujit Nakornthap, Deputy Permanent Secretary, Ministry of Energy, presided over the opening ceremony and delivered a keynote address on "Overview of energy situation and policy in Thailand. The Conference also featured several keynote lectures by well known policy makers and scientists including, Prof Ralf Sims from Massey University in New Zealand (former Senior Analyst in Renewable Energy and Climate Change at the International Energy Agency), Prof S K Chou from the National University of Singapore (Singapore), Prof Masayuki Kamimoto from the North Japan Research Institute for Sustainable Energy (Japan) and Prof Christoph Menke from the University of Trier in Germany.

The event, the 6th in a series of biennial conferences that began in 2000 and the 4th in collaboration with Kyoto University, also featured a successful post-conference workshop on "Biofuel Technologies: From Present o Future". The event was held on 1 March and gathered over 80 participants including key experts on biofuels from Thailand and abroad. A technical tour was also organized on 2 March to visit Muangklang Municipality in Rayong province where Thailand's Best Practice Low Carbon City could be seen.

Carbon Capture and Storage Workshop



JGSEE-CEE as the colleague of the Asian Development Bank (ADB), and Department of Mineral Fuels (DMF), Ministry of Energy organized a workshop on "Determining the Potential for Carbon Capture and Storage in Southeast Asia: Final Workshop" on 2 May 2012 at Centara Grand Hotel in Bangkok, where there were more than 80 participants from government sector, private sector, and universities.

The Opening Ceremony was presided over by Mr Chavalit Pichalai, the Deputy Director General, Department of Mineral Fuels, Minister of Energy and Mr Craig Steffensen, Country Manager, Asian Development Bank (ADB) office in Thailand. Potential sources, possible storages, economics of CCS, and regulatory and social issues were presented by Dr Kelly Thambimuthu, the Chairman of the IEA Greenhouse Gas R&D Program and the study team leader, Dr William D Gunter (Professional Geologist from Canada), Dr Wimolsiri Pridasawas (KMUTT), Asst Prof Dr Sunthorn Pumjan (CU), Dr Athikom Bangviwat (JGSEE), and Assoc Prof Dr Bundit Fungtammasan (JGSEE). Dr Witsarut Tangsuntornkun, the representative of the Department of Mineral Fuels (DMF) also presented other studies related to CCS conducted under the supervision of DMF. After the question and answer session, Mr Pradeep Tharakan, the project manager, gave a closing speech.

G-COE Symposium on Zero-Carbon Energy 2012



Kyoto University in collaboration with JGSEE-CEE organized the 4th International Symposium of Global COE Program on "Zero-carbon Energy 2012" which was held during 22-23 May 2012 at Siam City Hotel in Bangkok. The symposium aimed at providing an opportunity to researchers to present their work under 4 main topics: (1) Scenario/Socio-economics, (2) Solar Energy, (3) Advanced Nuclear Energy and (4) Bioenergy.

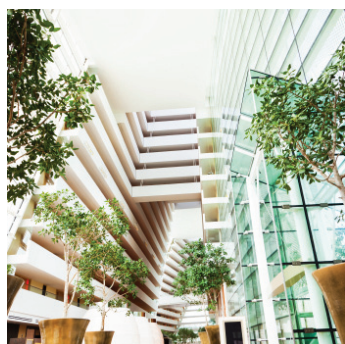
Assoc Prof Dr Sirintornthep Towprayoon, Director of JGSEE, Prof Dr Takeshi Yao, G-COE Leader (Japan), and Prof Dr Yoshikazu Nishikawa, President of G-COE Advisory Committee and Emeritus Professor of Kyoto University (Japan), presided over the opening of the symposium. Assoc Prof Dr Bundit Fungtammasan, Vice President for Research at KMUTT, was invited to deliver a keynote lecture on "Energy Policy in Thailand and the Outlook for CO₂ Mitigation".

The event was a success with over 130 participants joining the symposium mainly from the academic sector although there were also representatives from the private and government sector. Further to this event, a proceeding of the symposium including a selection of peer reviewed papers presented during the event will be produced, which will be published by Springer. The book should come out in March 2013.



Zero-Carbon Energy 2012 Symposium, May 2012, Bangkok

Contribution to National Policy



A Path Toward Low Energy Buildings

Thailand is located in a tropical region where the climate is hot and humid. The air temperature, underground soil temperature, and sky temperature are all high. Traditionally houses and public buildings were constructed from materials of low thermal mass, with open and well shaded windows. Such dwellings require very little energy to maintain. New large buildings are all air-conditioned. Air-conditioning is also increasingly used in houses. Electricity consumption in buildings now contributes 54% of total energy consumption. In a typical large building, air-conditioning contributes 50% and electric lighting contributes 20% of electricity consumption. In air-conditioned houses, air-conditioning takes up 70% of the share of electricity consumption. With the present building design and the present trend of

Thai life style, there is a serious limit to improvement of energy efficiency. Increasing use of cooling for thermal comfort, hot water for bathing, and electricity for cooking could pose substantial constraints to energy supply in the future. It is projected that the building sector will increase electricity consumption to more than two folds of the present level in two decades. However, daylight can be re-introduced for lighting to replace electric lighting. Substantial improvement in energy efficiency of air-conditioning and alternative method of cooling for thermal comfort that includes solar cooling and part-active part-passive, or hybrid, cooling could be applied. These, together with smart building design, will lead to substantial energy savings. A building each has been constructed in Malaysia and Singapore for demonstration of how building can be designed and constructed to be extra energy efficient. Each of the two building consumes electricity at only 20% of that of general buildings of the same type and size. These cases show promises, but it remains a challenge that they will be replicated.

A project being conducted in JGSEE that is supported by the National Science and Technology Development Agency (NSTDA) aims to develop technology for utilization of daylight through windows that will displace electric lighting and reduce cooling load and to develop a novel, low energy method of cooling spaces in buildings. The results from the project are hoped to contribute towards proliferation of low energy buildings.

Assignment from DEDE on the Development of a Research Plan for Renewable Energy and Energy Storage



Dr Boonrod Sajjakulnukit and Assoc Prof Dr Navadol Laosiripojana of JGSEE's Energy Division received a consultancy contract starting August 2011 from the Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, to develop a research plan for renewable energy and energy storage in Thailand following the 15-years National Alternative Energy Development Plan. The scope of this one year consultancy work includes a global review of renewable energy and energy storage technologies, including, status and future opportunities, the survey of Thailand current technology research and development status, and the evaluation of potential research plans to promote renewable energy and energy storage technologies in Thailand following the 15-years National Alternative Energy Development Plan.

Contribution to Society

JGSEE Leads the Organization of International Workshops on Waste Management

In March, two international seminars on waste management were organized by JGSEE. First a workshop on “Capacity Building on Landfill Gas Utilization in ASEAN” was held during 6-7 March 2012 at Century Park Hotel, Bangkok. It aimed at sharing experiences and knowledge relating to the development of landfill gas-to-energy systems in Thailand. On 8 March, participants of the event visited a landfill gas-to-energy project, the Panomsarakham landfill which is operated by Jaroensompong Co., Ltd at Chachoengsao province. Participants of this workshop included 30 people from the private, government and academic sector in Thailand as well as 11 participants from ASEAN countries. This event was supported by the Japan-ASEAN Integration Fund. Main collaborators for the organization of the event included ASEAN, NUS, JGSEE and NIES.

A second International Seminar was organized by JGSEE and NIES on “Flood Waste Management in Urban Area – Lessons Learned in the Aftermath” on 20 March 2012 at Siam City Hotel, Bangkok. At this event, experts from Thailand, Japan, and New Zealand shared their experiences on flood waste and disaster waste management. The discussions aimed at providing guidance for the formulation of policy recommendations to support adequate and efficient waste management following natural disasters. The event was attended by 80 participants from the private, government and academic sector.



Workshops on Waste Management, March 2012, Bangkok

Contribution to Industrial Arena

Seminar on Fast Flexible Power organized with Wartsila Finland Oy

JGSEE-CEE in collaboration with Wartsila Finland Oy, a global leader in complete life cycle power solutions for the marine and energy markets, successfully organized a seminar on “Fast Flexible Power” on 13 March 2012, at the Intercontinental Bangkok Hotel in Thailand. The seminar aimed at providing executive leaders a perspective view on the dynamic solutions for grid stability, reserve, and peaking load following an intermittent power generation. The event was attended by 30 participants.

A View from Graduate

A View from Dr Nirmala Menikpura on Career Development Following PhD Studies at JGSEE



Dr Menikpura, IGES, Japan

Studying abroad is always a bit of a challenge. It is a decision in life anyone wants to make and get right. It was the same for me when I was looking for opportunities to pursue PhD studies abroad. I wanted to find a place where I could totally feel home and with excellent standards for research studies. At the Joint Graduate School of Energy and Environment (JGSEE), I found that place I was looking for. As a premier research institute in Thailand, benefiting of excellent national and international recognition and with highly qualified and supportive academic staff over a wide range of disciplines, JGSEE offered me a great opportunity to conduct my PhD studies on important global environmental and energy issues.

Studying at JGSEE allowed me to enhance my knowledge and research interests on growing environmental issues related to climate change, world resources depletion, pollution, etc., while also paying an equal attention to socio-economic attributes of sustainability. The theoretical knowledge gained on these aspects and many others, along with the curiosity I already had, drove me to achieve great outputs for my doctoral research on the topic of “Development of sustainability indicators for evaluation of municipal solid waste management systems - life cycle assessment perspective”. The key findings of this research could be published in reputed international journals and presented in conferences. Besides, during the process of my PhD studies, I was able to grow into a true researcher thanks to the critical advice and support from my supervisors, Prof Shabbir H Gheewala and Dr Sebastien Bonnet, as well as my PhD committee members and external reviewer. All these experiences helped me to develop from a student to a professional.

Soon after completing my PhD, I was lucky enough to start my professional career getting a position at the Institute for Global Environmental Strategies (IGES) in Japan, a leading international institute for conducting practical and innovative research on sustainable development in the Asia-Pacific region. At IGES, I have been intensively applying the knowledge and practical experiences gained at JGSEE in research activities part of the Sustainable Consumption and Production (SCP) research group. Particularly, I have been working on sustainability assessment of the recycling business in countries across the Asia-Pacific region, developing simulations for zero greenhouse gas emissions via integrated waste management in Asia, as well as methodology development and capacity building in MRV (measurement, reporting and verification) of Asian countries with a view to support the Bilateral Offset Credit Mechanism. In addition, the scientific skills and independent thinking I could develop at JGSEE in an English environment enabled me to establish good collaboration at the international level.

Undoubtedly, I believe I made the right decision in choosing JGSEE to pursue my PhD studies. I could not have asked for a better place. I am proud to say that JGSEE provided me with all the skills and the confidence needed to become an environmental specialist and serve the world.

Awards

Assoc Prof Dr Somrat Kerdsuwan receives the Best ASEAN Outstanding Engineering Achievement Award 2011



Dr Somrat receives award in Brunei

JGSEE - CEE is pleased to congratulate its affiliate Assoc Prof Dr Somrat Kerdsuwan, Director of the Waste Incineration Research Center, Department of Mechanical and Aerospace Engineering, King Mongkut's University of Technology North Bangkok (KMUTNB), for receiving the Best ASEAN Outstanding Engineering Achievement Award 2011. The ceremony took place at the occasion of the 29th Conference of ASEAN Confederation of Engineering Organization on 30 November 2011 at Bandar Seri Begawan in Brunei Darussalam.

The award was remitted to Dr Somrat as an acknowledgement of his expertise as an environmental and combustion engineer and in recognition of his devotion to the Waste Incinerator Research Center. This research center is the result of an outstanding engineering project which has made significant contribution to Thailand's development.

Upcoming Events

Renewable Energy Asia 2012

This year, JGSEE has joined forces with the show organiser, UBM Asia (Thailand), to present a special International Conference on "Renewable Energy Asia 2012: Proving Its Worth Here and Now" a regional conference and exhibition showcasing the increasing significance and viability of renewable energy and energy efficiency in Asia and beyond.

This unique conference is held on 6 June 2012 and run in conjunction with Renewable Energy Asia/EntechPollutec Asia/Pumps & Valves Asia Exhibition at BITEC. JGSEE has been a strong partner of Renewable Energy Asia/EntechPollutec Asia/Pumps and Valves Asia for the past 8 years. This event is one of the environmental exhibitions of utmost importance and relevance in the ASEAN region, which significance grows annually.

Further information about the event can be obtained from Ms Kulakarn Soontornwat at: kulakarn@jgsee.kmutt.ac.th and at: www.renewableenergy-asia.com/

Opening of a Thai-German Summer School in September 2012

JGSEE in collaboration with the University of Applied Sciences - Berlin, the University of Technology - Hamburg-Harburg and the Universities of Applied Sciences in Trier and Stralsund, and with the support of the German Academic Exchange Service (DAAD) is opening a Thai-German Summer School on Renewable Energies at KMUTT. The summer school is scheduled to start on 3 September 2012 and to last for 3 weeks. The program is focused on topics related to bioenergy, solar energy and integrated renewable energy systems.

Further information about the Thai-German Summer School can be obtained from Ms Kulakarn Soontornwat at: 02 470 8309-10 ext. 4130 or kulakarn@jgsee.kmutt.ac.th and pro@jgsee.kmutt.ac.th. Also, information can be found at: www.jgsee.kmutt.ac.th/jgsee1/NewsEvents/2012/apr2012/apr2012-2.php

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