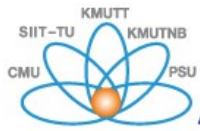


# THE JOINT GRADUATE SCHOOL OF ENERGY AND ENVIRONMENT



# JGSEE



Consortium involving five leading institutions

CENTRE OF EXCELLENCE ON ENERGY TECHNOLOGY AND ENVIRONMENT



## JGSEE Newsletter

Volume 40, May-August 2021

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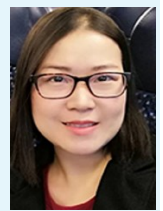
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Congratulations to Dr Agapol Junpen for Promotion to Assistant Professor

### Congratulations

Professor Shabbir H. Gheewala Acknowledged by Elsevier for Contribution to SDGs



## Outstanding Achievement

### Professor Shabbir H. Gheewala Among World's Top 1,000 Climate Scientists



With over 20 years of experience in science, about 250 publications and 6,000 citations, as well as countless graduates and young researchers under his wings, Professor Shabbir H. Gheewala, Head of the Life Cycle Sustainability Assessment Laboratory (LCSAL) at JGSEE, and Head of the Research Center on Life Cycle Assessment for Sustainable Development at King Mongkut's University of Technology Thonburi (KMUTT), is one of the most influential scientists in Thailand and has made the 2021 Reuters Hot List of the world's top climate scientists. He is ranked 552nd on the Reuters Hot List 2021 and 1st in Thailand. Professor Shabbir's experience relates to sustainability, life cycle assessment and global warming. He also received the NSTDA Chair Professor Fund from the National Science and Technology Development Agency (NSTDA) in 2016.

Professor Shabbir has conducted research on Life Cycle Sustainability Assessment for energy systems, agriculture, biorefineries, buildings, transport and sustainability indicators development. In addition to enhance awareness on the benefits of system thinking, his research contributes to support the sustainable development of our societies, and to address, in particular, climate change related issues. His research work is recognised both at the national and international level.

## Contribution to Knowledge Platform

### JGSEE Talk Series#1 on Energy, Climate Change and Sustainability

18 June 2021

#### Energy, Climate Change & Sustainability: 20 years of research and the way forward

**Shabbir H. Gheewala**  
Professor and Head  
Life Cycle Sustainability Assessment Lab (LCSAL) &  
Research Centre on LCA for Sustainable Development (RCLCA-SD)  
The Joint Graduate School of Energy and Environment  
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On 18 June 2021, JGSEE-CEE successfully organised a JGSEE TALK series#1 on "Energy, Climate Change and Sustainability: 20 Years of Research and the Way Forward" using Zoom and broadcasting live on Facebook. The talk was delivered by Professor Shabbir H. Gheewala, Head of Life Cycle Sustainability Assessment Laboratory (LCSAL). The event was held to celebrate his achievement as a top ranking climate scientists, #1 in Thailand and #552 in the world, according to the Reuters Hot List 2021.

At the start of his talk, Professor Shabbir acknowledged his core team, including, among others, Dr Rattanawan Mungkung from Kasetsart University, Dr Thapat Silalertruksa from KMUTT, Dr Piyanon Kaenchan from Thammasart University, Drs Sebastien Bonnet, Pariyapat Nilsalab and Patcharaporn Pongpat from JGSEE, and Dr Naruete Lacksiwilai (independent researcher). The group's core competencies were highlighted to include sustainability assessment (environmental, social and economic assessment) of energy systems, life cycle assessment (LCA), carbon-water-ecology footprint and sustainability indicators development.

The rest of the talk covered his scientific and academic contributions both at the national and international level, his involvement to human resources development through mentoring of researchers, and his long-term vision for sustainable development. The presentation was followed by an active discussion session during which questions were answered and advice provided. As concluding remarks, Professor Shabbir recommended young researchers to focus on establishing a strong network and actively publish their research work to achieve success. This first talk in JGSEE Talk Series was a great success, being viewed by over 150 participants from all regions of the world.

## Contribution to Research Platform

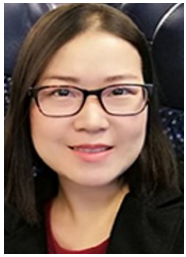
### Professor Navadol Laosiripojana Receives NRCT 2021 Research and Innovation Funding



JGSEE-CEE is pleased to congratulate Professor Navadol Laosiripojana, JGSEE director, for being granted a 2021 Research and Innovation funding by the National Research Council of Thailand (NRCT). Professor Navadol's grant on Research and Innovation for Agriculture on Sugarcane and Sugar is on the project titled "Improving Efficiency of Furfural Production from Sugarcane Bagasse using Reactive Distillation Technology". Professor Navadol's research group intends to develop a novel process to convert xylose into furfural. The successful development of the prototype is expected to be beneficial for the petroleum-based industry, the sugar industry and the cassava starch industry, as well as to reduce dependency on fossil fuels. The team involved in the project includes Dr Verawat Champreda of BIOTEC at NSTDA, Assoc Prof Dr Apichat Boontawan and Asst Prof Dr Panarat Rattanaphanee of Suranaree University of Technology, Asst Prof Dr Pornlada Daorattanachai and Asst Prof Dr Marisa Raita of JGSEE, and Dr Jackapon Sunthornvarabhas of Mittr Phol Innovation and Research Center.



## Dr Marisa Raita Receives NRCT 2021 Research and Innovation Funding and PMU-C Grant



JGSEE-CEE is pleased to congratulate Asst. Prof. Dr. Marisa's for being granted a 2021 Research and Innovation funding by NRCT. Dr. Marisa's grant on Research and Innovation for Biofuels and Biochemicals is on the project titled "Development of Lignin Fractionation by Hydro/Solvothermal Process from Palm Wastes for Conversion to Additives of Biolubricants in Industrial Needed Sector". The objective of the research is to develop a prototype enabling the utilization of by-products from the palm oil industry for the production of products needed by the industry. The team involved in the project includes Prof. Navadol Laosiripojana of JGSEE, Dr. Verawat Champreda of BIOTEC, NSTDA, Dr. Nopparat Suriyachai of University of Phayao, and Mr. Suchat Pongchaiphon and Dr. Nawin Viriya-empikul of Green Technology Research Co. Ltd.

Dr. Marisa Raita also received a grant from Program Management Unit for National Competitiveness Enhancement (PMU-C), a research funding agency created under the auspice of NXPO, for the project titled "Development in the Purification Prototype of Xylose and Xylooligosaccharide from Hemicellulose Extraction of Sugarcane Trash by Hydrothermal Fractionation Process". The development of this prototype is anticipated to lead to the development of other promising biorefinery technologies through joint collaborative efforts between academic institutes and the industry. It is also expected to contribute reducing the importation of sugar products (i.e. xylose and XOS) and to decrease dependency on foreign technology.

## Kick-off Meeting of Project on Air Quality in Greater Bangkok Using Satellite Data

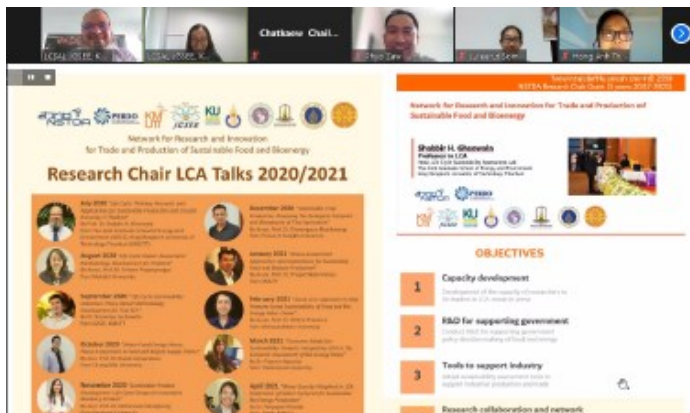
The Asia-Pacific Space Cooperation Organization (APSCO), Beijing, China, has recently granted the DCAS (Data Analytics and Modeling for Climate- Atmosphere System) Group within the AGAR Laboratory of JGSEE-CEE, a 2-year project on "Assessment of Air Quality in Greater Bangkok Using Satellite Data". The online Kick-off Meeting in early April 2021 marked the beginning of its implementation. This project is among 6 projects selected for funding out of a total of 30 proposals. The Office of the National Digital Economy and Society Commission (ONDE) is the local coordinating agency of Thailand for the APSCO and this funding program.



## Progress Meeting on THAI-GLOB

On 10 May 2021, the Advanced Greenhouse Gas and Aerosol Research (AGAR) laboratory of JGSEE-CEE held the progress meeting with Assoc Prof Dr Chanathip Phario from the Thailand Science Research and Innovation (TSRI) and Assoc Prof Dr Soparatana Jarusombat from Thammasart University. The meeting aimed at sharing updates on the climate change research ecosystem in Thailand and the progress made on the project titled "The Thailand Research Fund's Research Development and Coordination Center for Global Warming and Climate Change (THAI-GLOB)". The meeting was led by Assoc Prof Dr Amnat Chidthaisong and involved the participation of Dr. Atsamon Limsakul from Department of Environmental Quality Promotion (DEQP), and Assoc Prof Dr Sirintornthep Towprayoon and Dr. Patikorn Sripirom from JGSEE.

## Research Chair Grant Talk on Water Scarcity Weighted Footprint



On 17 May 2020, the Life Cycle Sustainability Assessment Laboratory of JGSEE-CEE held an online Research Chair Grant Talk on "Water Scarcity Weighted Footprint: Implication of Water Footprint for Sustainable Bio-Energy Production" by Dr. Pariyapat Nisalab. The talk is part of the NSTDA Research Chair Grant project entitled "Network for Research and Innovation for Trade and Production of Sustainable Food and Bioenergy" led by Professor Shabbir Gheewala (Head of LCSAL). This work is contributed by 10 researchers and more than 15 Master and PhD students from 7 universities in Thailand including, King Mongkut's University of Technology Thonburi, Mahidol University, Kasetsart University, Prince of Songkla University, Chiang Mai University, Mahasarakham University and Thammasart University.

## Welcome New Comers

### Dr Jiraporn Payomhomers



In 2017, Dr Jiraporn Payomhom earned a PhD degree in Energy Technology from JGSEE-CEE on “Conversion of Lignocellulosic Derivatives to High-value Products Using  $\text{TiO}_2$ -based Photocatalysis”. Her thesis work was supervised by Professor Navadol Laosiripojana. In 2018, she was a postdoctoral fellow at Clean Energy Technologies Research Institute (CETRI) of the University of Regina. She worked on “Development of Photocatalyst Properties for Photocatalytic Conversion of Glycerol to Value-added Chemicals under Visible-light” under the direction of Professor Raphael Idem. Dr Jiraporn is now a post-doctoral researcher at JGSEE under the supervision of Professor Navadol. She is working on the project entitled “Developments of Photocatalytic System and a Highly Efficient Photocatalyst for Conversion of  $\text{CO}_2$  into Value-added Chemicals and Fuels”. This project is under the CEE’s program “Development of Bioenergy Technology and Value-added Products Based on Circular Economy Concept for Sustainable Bioeconomy”.

## Promotion

### Congratulations to Dr Agapol Junpen for Promotion to Assistant Professor



JGSEE-CEE is pleased to congratulate Dr Agapol Junpen for his promotion to the position of Assistant Professor effective since 11 September 2020. Dr Agapol works in the Advanced Greenhouse Gas and Aerosol Research Laboratory (AGAR) - Aerosols from Biomass Burning to the Atmosphere-Emission Inventory and Projection (ABBA-EIP) research group. His research work includes developing and implementing methodologies to improve emission inventories and projections of air pollutants, short-lived climate forcers (e.g. atmospheric particulate matter ( $\text{PM}_{2.5}$  and  $\text{PM}_{10}$ ), methane and tropospheric ozone) and GHGs. Those can also be used as inputs to air quality models to formulate mitigation options, especially for emission sources that are important to Thailand. This includes power plants and road transport for energy related sectors, and biomass open burning (i.e. agricultural burning, forest fires and solid waste open burning).

## Congratulations

### Professor Shabbir H. Gheewala Acknowledged by Elsevier for Contribution to SDGs

Many congratulations to Professor Shabbir H. Gheewala, Head of Life Cycle Assessment Laboratory (LCSAL) at JGSEE-CEE, for being acknowledged by Elsevier for the contribution of his publications to Sustainable Development Goals, including SDG 8- Decent Work and Economic Growth (37 publications), SDG 9 - Industry, Innovation and Infrastructure (58 publications), SDG 12 - Responsible Consumption and Production (75 publications) and SDG 13 - Climate Action (59 publications).



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