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TALK ON GREEN TECHNOLOGY PROJECT IN PALM OIL INDUSTRY - MOVE TOWARD ZERO WASTE DISCHARGE

Organized by Project Management Technical Division, IEM
BEM Approved CPD/PDP Hours: 2 Ref No: IEM17/HQ/003/T

Date : 14 January 2017 (Saturday)
Time : 11.00 a.m. – 1.00 p.m (Refreshments will be served at 10.00 a.m.)
Venue : C&S and TUS Lecture Rooms, Second Floor, Wisma IEM, PJ
Speakers : Ir. Dr. Nor Azhar bin Mohd Arif

SYNOPSIS

Palm oil is the most important agroindustry in Malaysia. The extraction and purification processes in palm oil processing operation are invariably accompanied by bulky palm oil mill effluent (POME), the single largest source of industrial wastewater pollution in Malaysia. On account of its extremely high BOD and COD, POME poses a great threat to aqueous environment due to oxygen depletion and enormous pollution problem. Thus, while enjoying a most profitable commodity, the industry's commitment to the environmental impact from the palm oil industry is unquestionable. Anaerobic digestion and the present tertiary treatment technologies of POME are unable to consistently meet the proposed stringent BOD regulatory effluent discharge requirement of 20 mg/L imposed by the Department of Environment (DOE). To make full use of POME, the integrated zero waste technology comprising pretreatment of oil palm empty fruit bunch (EFB) for biohydrogen production, fermentative biohydrogen and biomethane production from POME and pretreated EFB, heterogeneous catalysis for biomethane reforming, purification of biohydrogen for power and steam generation, algae CO₂ sequestration and effluent treatment, membrane treatment for water recycle and reuse, and bioconversion of EFB agrowaste into organic fertilizer was carried out with the aim of no pollutants go to the air, the ground, and the water. The effective treatment of POME using this zero waste technology is attained with BOD, COD, TSS, TDS, phosphorus, and pH value of 18.33 mg/L, 0.11 mg/L, 0.04 mg/L, 26.63 mg/L, 0.03 mg/L, and 10.01, respectively at its final discharge, which could be used as the boiler feed water. Membrane filtration concentrate, algae biomass, combined with EFB agrowaste could be used as organic fertilizer. This integrated zero waste technology along with the production of biogas, biofertilizer, and recycled water suggesting a good alternative sustainable management practice in palm oil industry.

BIODATA OF SPEAKERS

Ir. Dr. Nor Azhar bin Mohd Arif is currently serving the Project Management Technical Division in IEM as one of the committee members. He obtained his Doctor of Philosophy (Electronic Engineering) and Master of Engineering Science (Telecommunication) degrees both from Multimedia University. Prior to his postgraduate studies, he graduated from King's College London with Bachelor of Engineering (First Class with Honours) in Radio and Communication in 1998. He is a Professional Engineer with Practicing Certificate registered with the Board of Engineers Malaysia (BEM) and a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). He has been extensively active in the electronic and telecommunication industries for the last 18 years. He served IX Telecom Sdn Bhd as the Technology Advisor and has served Ronser Bio-Tech Berhad as the Executive Deputy Chairman. His has also worked with the Faculty of Engineering at Multimedia University as a Senior Lecturer and attached as a Researcher with the Laser Ultrasonic Research Group in the Department of Electrical and Electronic at the University of Nottingham United Kingdom. He has published numerous articles within his area of expertise in the form of journal and conference papers, books and patents. He attended Asia Pacific Telecommunity (APT) ICT Development Forum (ADF) in four different occasions (2005, 2008, 2011 and 2015) as invited speaker through APT Fellowship awards.

Ir. Dr. Ahmad Anuar B. Othman
Chairman
Project Management Technical Division

ANNOUNCEMENTS TO NOTE

- Non members may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15**. GST is inclusive.
- Limited seats are available on a "first come first served" basis (maximum 100 participants). **To secure your seat, kindly register online at www.myiem.org.my.**

ADMINISTRATIVE FEE

- Kindly be informed that an administrative fee of **RM15** is payable for talks organized by IEM. GST is inclusive.
- Student Members are however exempted.

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