

3rd Agro-industrial Biogas Training Seminar

Kuala Lumpur

April 16-17, 2018

Venue: Sunway Putra Hotel, Kuala Lumpur, Malaysia

Monday, 16th of April

08:30 **Registration**

09:00 **Part 1: Welcome to the seminar**

- Introduction of the seminar participants and experts
- Expectations from the seminar
- Collection of the first questions

09:30 **Part 2: Development of the biogas technology in Europe**

- Potentials and prospects
- Status of waste legislation
- Economic framework conditions
- Data for waste arising and composition

10:30 Coffee break

11:00 **Part 3: Operation and maintenance is the stumbling block in the biogas industry in SEA. How to make it better?**

- Market challenges – legal, administrative and technical obstacles
- Experiences with technology and operation
- Operation of POME fed biogas plants

12:30 Lunch

13:30 **Part 4: General introduction into biogas technology**

- Definitions & biogas composition
- Technology overview and its main applications
- Wet and dry fermentation plants

15:00 Coffee break

15:30 **Part 5: Introduction into process parameters and digester biology**

- Basic principles of process technology
- Temperature, retention time, organic loading rate
- Operating experiences from 8000 agro-industrial biogas plants
- Conditions for the generation of biogas,
- Operating parameters, process monitoring and task management
- Process disturbances and failures

16:15 **Part 6: Operating experiences with agro-industrial and municipal biogas plants**

- Wet and dry fermentation plants
- Bio-waste digestion
- Agricultural biogas plants
- Treatment of industrial effluents
- Experiences with investment and operation

17:00 End of the day

Tuesday, 17th of April

09:00 **Part 1: Choosing the best components for a biogas plant for smooth operation**

- Digester types and installation technology
- Process and feed in technology
- Developments and adaptations of the technology to suit the local circumstances in South-East Asia

Part 2: Most suitable substrates which can be used in biogas plants and their advantages and disadvantages

- Input substrates: POME, agricultural slurries, industrial and communal organic residues
- Gas yields from POME, residue material and industrial wastes
- Solid wastes (empty fruit bunches) as a feedstock for biogas plants
- Pollutants and contraries in solid bio-waste

10:30 Coffee break

11:00 **Part 3: Interactive operators session for wet and dry fermentation technology**

- Retention time
- Organic loading rate
- Sizes of containers and tanks
- Nutrient composition
- Electricity and heat production
- Efficiency factors of gas utilization
- Discussion of the results

12:30 Lunch

13:30 **Part 4: Models of biodigesters**

“Lagoon- and tank-based digesters are not different models but different vessels”

14:00 **Part 5: Energy crops in tropical countries**

“Energy crops for decentralized biogas and electricity production: The next biofuel after bioethanol and biodiesel with a high impact on rural development”

15:00 Coffee break

15:30 **Part 6: Proper usage of digestate as organic fertilizer in agriculture**

- Environmental aspects
- Application of digestate
- Digestate processing
- Treatment costs-profitability
- Experiences with digested POME sludge as fertilizer

17:00 End of the day and the seminar