

This is 5 year co-research project between Malaysia and Japan started in July 2023

Overall Goal

Technologies developed by the project are utilized by private and/or public sectors for sustainable production of energy, recovery of water and nutrients and the reduction of CO₂

Project Purpose

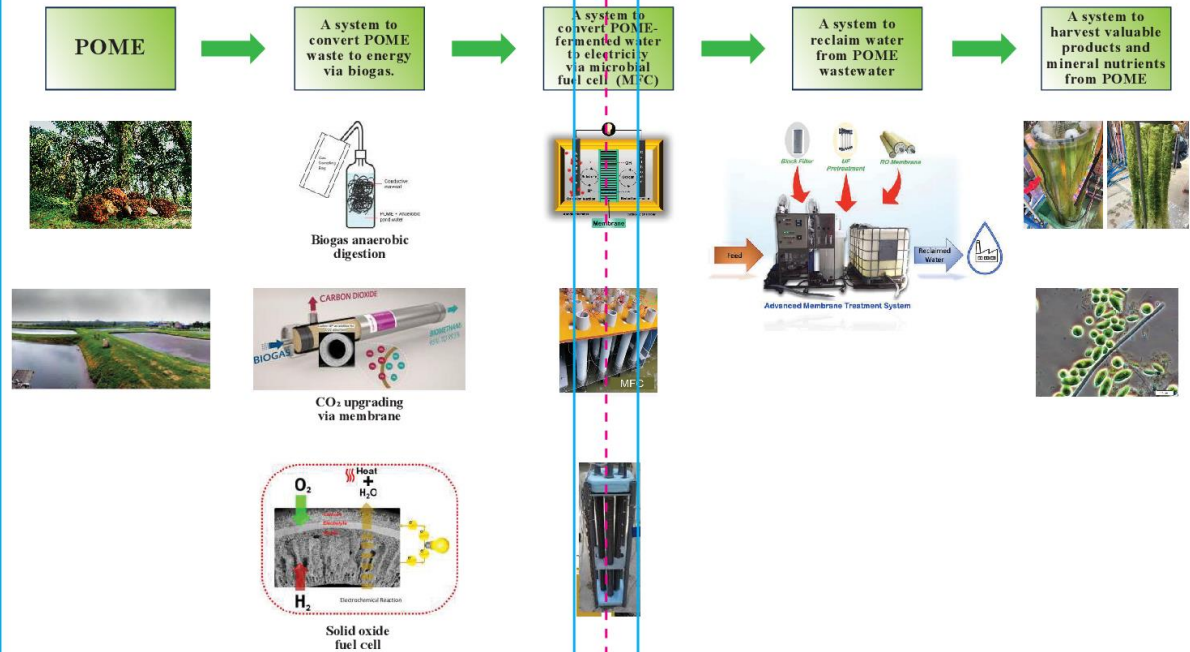
A POME treatment system that can recycle energy, water and nutrient and reduce greenhouse gas emissions is established.

Outputs

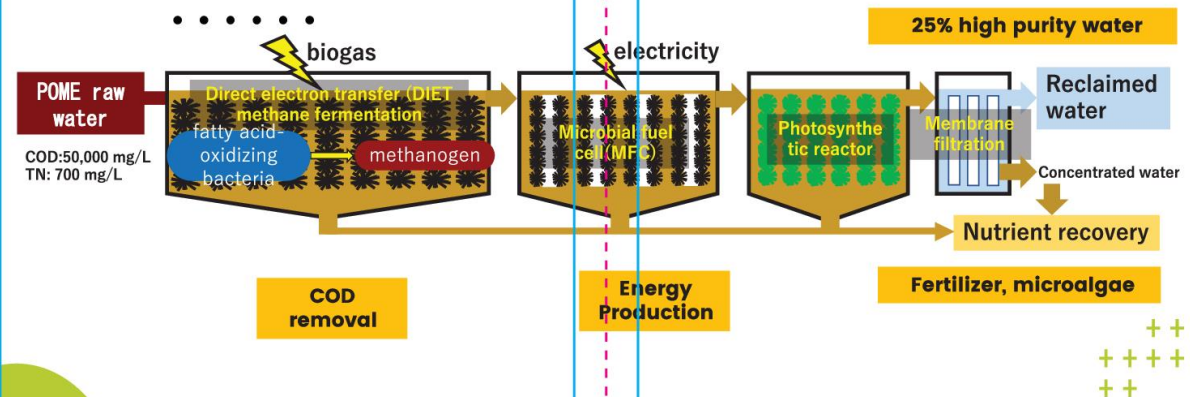
- 1) A system to convert POME waste to energy via biogas is established by introducing carbon materials that enhance direct interspecific electron transfer.
- 2) A system to convert POME-fermented water to electricity via microbial fuel cell (MFC) is established.
- 3) A system to reclaim water from POME wastewater using manufactured porous and reverse osmosis (RO) membranes is established for palm oil production.
- 4) A system to produce or recover valuable products and mineral nutrients from POME biogas fermented sludge and wastewater is established.
- 5) Research outcomes and technologies developed by the project are widely shared with public and private sectors for social implementation.



Recovery of Water, Electricity and Mineral Resources from Palm Oil Mill Effluent (POME)



Proposed Treatment



Project Director



Prof. Datuk Ir Ts Dr Ahmad Fauzi Ismail

Vice Chancellor

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Principal Investigator



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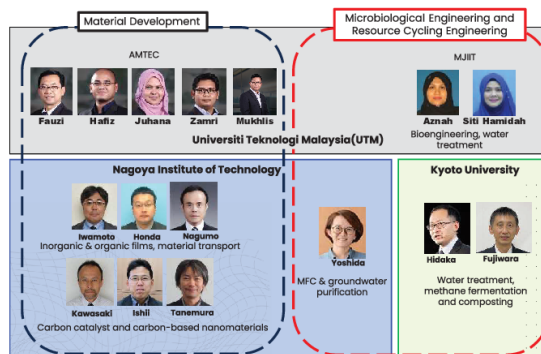
Research Institutions in Malaysia

Universiti Teknologi Malaysia /
Malaysia Palm Oil Board /
Tenaga Nasional Berhad Research /
National Hydraulic Institute of Malaysia

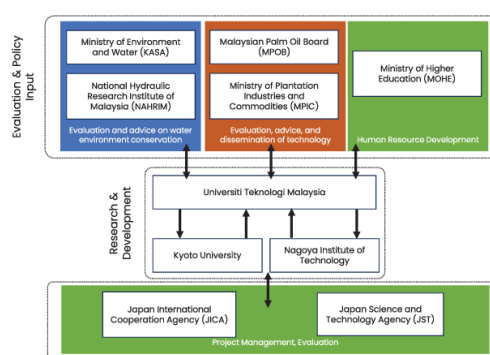
Research Institutions in Japan

Nagoya Institute of Technology / Kyoto University

Research Organization



Implementation System



Contact:

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Development of Palm Oil Mill Effluent (POME)
Treatment System for Sustainable Energy
Production and Resource Recovery based on
Material Innovation

材料革新に基づく持続可能なエネルギー・資源・
水回収型 パームオイル搾油排水 (POME) 処理
システムの開発



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Malaysia-Japan
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