For the Earth, For the Next Generation

SATREPS

Science and Technology Research Partnership
for Sustainable Development Program

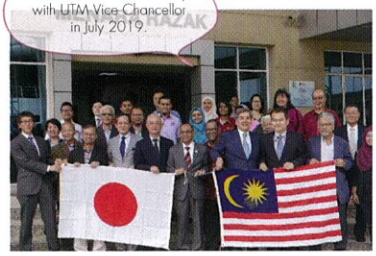
JST AMED JICA ジャイカ

14 = Development of Advanced Hybrid Ocean Thermal Energy Conversion (OTEC) Technology for Low Carbon Society and Sustainable Energy System: First Experimental OTEC Plant of Malaysia =

Achieve sustainable power supplies using temperature differences in the ocean

Adoption Fiscal Year FY 2018

Principal Investigator
Prof. IKEGAMI Yasuyuki
Institute of Ocean Energy,
Saga University



SATREPS kick off ceremony with UTM Vice Chancellor in July 2019.

Develop an OTEC Malaysia Model with an innovative hybrid ocean thermal energy conversion system at its core

This project will conduct a demonstration of an innovative hybrid ocean thermal energy conversion system (H-OTEC) in Malaysia, a nation that has great potential for ocean thermal energy conversion. The hybrid OTEC system can resolve issues seen with conventional systems such as the cost of heat exchangers and the need for anti-fouling measures. There are high expectations for the system's ability to desalinate seawater at the same time as generating energy. This project also aims to investigate the economic viability and construct models of systems that can utilize the deepwater raised by OTEC for other purposes in addition to power generation. Furthermore, the project is planning the utilization of research outcomes in society.

Principal Investigator
Prof. Dato' Ir
Dr. A. Bakar Jaafar
Director, Ocean Thermal Energy Centre,
University of Technology,
Malaysia (UTM)

Making available new sources of clean power and safe water supplies

Deep ocean water utilized by hybrid OTEC has high added value, including nutritional value. Availability of deepwater can jumpstart the creation of new industries in areas such as farming and fishing, permitting the construction of a sustainable, low carbon Malaysia Model OTEC system that is advantageous to local industry in Malaysia. This model can then be rolled out to other parts of the world, including other Asian and Pacific Island countries.

OTEC system in service on Kumejima (Okinawa)is a reference point for the Malaysia Model.

Inspecting the UTM HAQUAS project site

Research Institutions in Malaysia	Saga University / The University of Tokyo / AIST
Research Institutions in Japan	University of Technology, Malaysia(UTM) / University Putra Malaysia(UPM) / University of Malaya / University Kebangsaan Malaysia / University Malaysia Terengganu
Research Period	5 Years

15 = Development and Dissemination of Innovative Oil-Extracting Technology from Crop Process Residue for Rural Electrification and Value Addition of By-products =

Utilize agricultural residues for rural electrification and achieving a low carbon society!

Adoption Fiscal Year FY 2018

Principal Investigator
Research Prof. / Emeritus
Prof. SAKO Takeshi
Energy System Section, Graduate
School of Science and Technology,
Shizuoka University

Japanese and Tanzanian project members

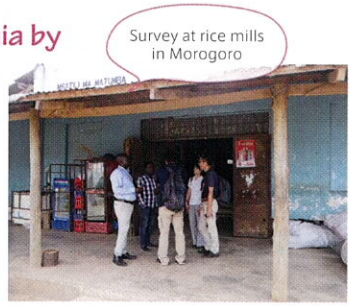
Develop technologies for extracting fuel oil from agricultural residues and efficiently using by-products

Rural areas in Tanzania have a low electrification rate, but demand is increasing for electric power to charge the growing number of mobile phones, and to provide lighting, enabling children who work on farms during the day to study at night. Many kinds of agricultural residue, such as rice bran, contain good-quality oil. This project will develop technology using CO2-expanded hexane to extract unique oils for power generation that are energy-saving and have a low environmental impact. It will also develop technology for producing high-value-added products from extraction residues.

Principal Investigator
Associate Prof.
Emrod Elisante
Department of Chemical and Mining
Engineering, College of Engineering
and Technology, University of Dar es
Salaam

Contributing to the supply of power in rural Tanzania by extracting oil from agricultural residues

This project aims to will contribute to the rural electrification of Tanzania using renewable energy and provide a model for achieving a sustainable, low carbon society. Generation of electricity using oil extracted from oil-bearing agricultural residues will provide power to rural areas. Manufacture of products such as soap from part of the extracted oil will also open the way towards employment and cash earnings in rural areas.



Survey at rice mills in Morogoro

Rice bran piled up near a rice mill

Research Institutions in Tanzania	University of Dar es Salaam / Sokoine University of Agriculture
Research Institutions in Japan	Shizuoka University / Central Research Institute of Electric Power Industry / Nihon University
Research Period	5 Years