

## 2. MOLECULAR & MICROBIOLOGY (M&M) DIVISION

### • ROLE

Explore the microbial communities of tropical peatland, understand their functions in the biogeochemical cycling along with their response to climate and environmental changes.

### • RESEARCH AREAS

Role of microbes in peat formation and carbon and nitrogen cycling in tropical peatlands, effects of land-use change on microbial communities of tropical peatland, understand how pathogenic microbes emerge from their natural niche to affect crops on tropical peatland.

### • LABORATORY

Media Preparation and Environmental Microbiology Laboratory, Plant Pathology Laboratory, Molecular Biology Laboratory, RNA and Protein Laboratory.

### • INSTRUMENTS

Biomolecular Imager, Real-Time PCR, Refrigerated Benchtop Centrifuge, Biology Identification System, Nucleic Acid Extractor and Nucleic Acid Fluorometer.

### M&M LAB EQUIPMENTS



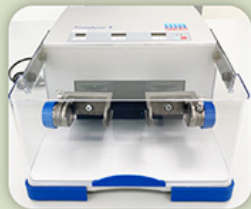
Refrigerated Benchtop Centrifuge



Nucleic Acid Fluorometer



Biomolecular Imager



Nucleic Acid Extractor



Real-Time PCR



Biology Identification System

## 3. ENVIRONMENT DIVISION

### • ROLE

Develop environmental baseline data concerning tropical peatlands.

### • RESEARCH AREAS

Surface-atmosphere exchange, ecosystem ecology, hydrology, biomass and carbon stock, peat surface fluctuation, land use change and climate change.

### • FIELD INSTRUMENTATION

Eddy covariance systems, manual and automated chamber systems and automated gas sampling system.

### • FACILITIES

Research stations, ecosystem workshop and environment laboratories.



Primary Forest  
MALUDAM NATIONAL  
PARK



Secondary Forest  
CERMAT CERIA



Oil Palm Plantation  
NAMAN

## 4. CROP DIVISION

### • ROLE

Generate and disseminate knowledge on sustainable crop cultivation and production on peatland, including identifying suitable crops and their improve agronomic practices.

### • RESEARCH AREAS

Pests and diseases, ecology, plant physiology and breeding.

## 5. INFORMATION MANAGEMENT DIVISION

### • ROLE

Provide support service in research database development and maintenance, enhancing analytical capability and accessibility of information on tropical peat and peatland.



**SARAWAK TROPICAL PEAT  
RESEARCH INSTITUTE  
(TROPI)**



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## ABOUT US

### VISION

A World Leader in Tropical Peat and Peatland Research.

### MISSION

To develop scientific, technical knowledge and understanding for the responsible management and conservation of tropical peat and peatland.

### BACKGROUND

Started as a Tropical Peat Research Laboratory (TPRL) in 2008, Sarawak Tropical Peat Research Institute (TROPI) has now become an institute with a reputable recognition as a trusted voice in global discussions on peatlands development. An accomplishment and realisation of TROPI vision as "A World Leader in Tropical Peat and Peatland Research" stemming from Sarawak Government strong support throughout TROPI development and growth.

Since its inception, TROPI has been pioneering and focussing its research on peatland ecosystems, while studying changes in Greenhouse Gas (GHG) emissions, carbon stock, soil properties and soil microorganisms that occur under the various land practices. These were undertaken parallel to TROPI continuous effort to build up its research and development capacity and capability through the development of related research facilities and expertise.

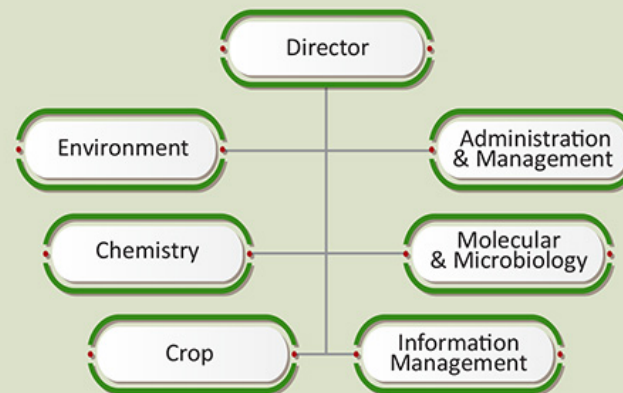
In 2010, three (3) Eddy-covariance flux towers were constructed at sites representative of various peatland ecosystems; conserved primary forest at Maludam National Park, secondary forest ecosystem at Cermat Ceria, Betong and oil palm plantation ecosystem at Naman Sibiu. Their full commissioning had enabled TROPI to accelerate and consolidate its field research as well as widening its scope to encompass the whole ecosystems, covering aspects of forestry, wetlands and conservation.

Since 2015, TROPI has enjoyed a new, purpose-built research complex which houses the state-of-the-art instrumentation for a range of data analyses.

Besides, it has also developed a team of competent researchers, with doctorates obtained from Japan and USA.

TROPI has a long history of successful international collaboration with Japan, Europe and the USA resulting in numerous joint-authorship publications. It will continue to nurture the long established international research collaboration, promote and seek further international and local collaboration in research on the chemistry, ecology, molecular and microbiology, management and conservation of tropical peat resources in line with its vision.

## ORGANISATION CHART



Organisation Structure of TROPI since 2013

## RESEARCH AREAS

- Peatland Ecosystem Study via Flux Tower and Chamber Measurement
- Biomass and Carbon Stock of Tropical Peatland
- Tropical Peatland Hydrology
- Synthesis, Modelling and Projection of Greenhouse Gas (GHG) Emissions
- Peat and Peat Water Chemistry
- Crop Nutrition and Soil Fertility
- Peat Profiling
- Peat Microbial Diversity
- Plant-Microbe Interaction and Plant Pathology

## RESEARCH DIVISION

### 1. CHEMISTRY DIVISION

#### • ROLE

Generate and provide baseline information on tropical peat chemistry.

#### • RESEARCH AREAS

Interactions between soil, water, plant and atmospheric components of tropical peatland ecosystems.

#### • LABORATORY

Preparation and Extraction Laboratory, Instrument Laboratory and Gas Chromatography Laboratory.

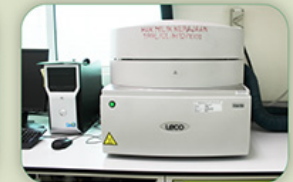
#### • INSTRUMENTS

Inductive Coupled Plasma Mass Spectrometry (ICPMS), Automated GC – FID, Carbon Nitrogen Analyzer (CNA), Ion Chromatography (IC), Total Organic Carbon (TOC) Analyzer and Thermogravimetric (TGA).

### CHEMISTRY LAB EQUIPMENTS



Total Organic Carbon (TOC) Analyzer



Thermogravimetric (TGA) Analyzer



Inductive Coupled Plasma Mass Spectrometry (ICPMS)



Automated Gas Chromatography - FID



Carbon Nitrogen Analyzer (CNA)



Ion Chromatography (IC)