



In conjunction with ASEAN COSTI-80 on 14 Oct 21

STI x LIVELIHOOD x WOMEN

For the Sustainable Use of Peatland and Mangrove:
Female Empowerment in Research and Practice



Keynote 2

Women in Tropical Peatland Research



KEMENTERIAN SAINS,
TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION



ICT Virtual Organization
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JASTIP
Japan - ASEAN
Science, Technology and
Innovation Platform

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MALAYSIA

Women in Tropical Peatland Research

Dr. Lulie Melling

**SARAWAK TROPICAL PEAT
RESEARCH INSTITUTE**

14th October 2021



*My
Ambition*

MOMtivation

*"For the hand that
rocks the cradle
is the hand that rules the world"*

- William Ross-





What is the future of our Children?

- Do these children know what is
 - Climate Change
 - Gender



Mother's Unconditional Love for their Children

- Education
- Plenty of nutritious foods]
- Shelter
- Medical and health care
- Clothes
- Safety
- Morals & values
- Self-esteem
- Mutual respect
- Discipline ('tough love parenting')



Livelihood in Sumatera
Indonesia



OUR RURAL WOMEN

- Rural women play a key role in supporting their households and communities in
 - achieving food and nutrition security,
 - generating income, and
 - improving rural livelihoods and overall well-being
- Women's **empowerment** in rural areas will be an important strategy to eradicate hunger, food insecurity and malnutrition.



What is their future ?

Tropical Peatland Research

GLOBAL AGENDA – Western Agenda

- Climate Change & Gender

LOCAL AGENDA

- People, Social and Environment
- **Local Ecosystem** is NOT to benefit the Rich Western Countries when they are the ones that had been exploiting the resources through the history
- Here, we look into how to ensure the **sustainability** of the peatland ecosystem to benefits the local people .

- i.e. how to **eradicate poverty** and increase the income of the people via a **Balanced Approach**
- Agriculture development is an important engine for **rural economic growth** and plays a very strategic role in
 - economic development and poverty reduction;
 - The primary source of **income & employment;**
 - improving food security and nutrition.
- Thus the importance of **Tropical Peatland Research**

Women and Education

- **Education** is an indicator of the status of women and, more importantly, as an agent for the empowerment of women (Jayaweera, 2010).
- Education enables them to respond to challenges, confront their traditional role and improve their lives (Shetty and Hans, 2015).
- With better education, you can have more women doing **STEM** and having an opportunity to do **Tropical Peatland Research**



You educate a man; you **ONLY** educate a man.

BUT

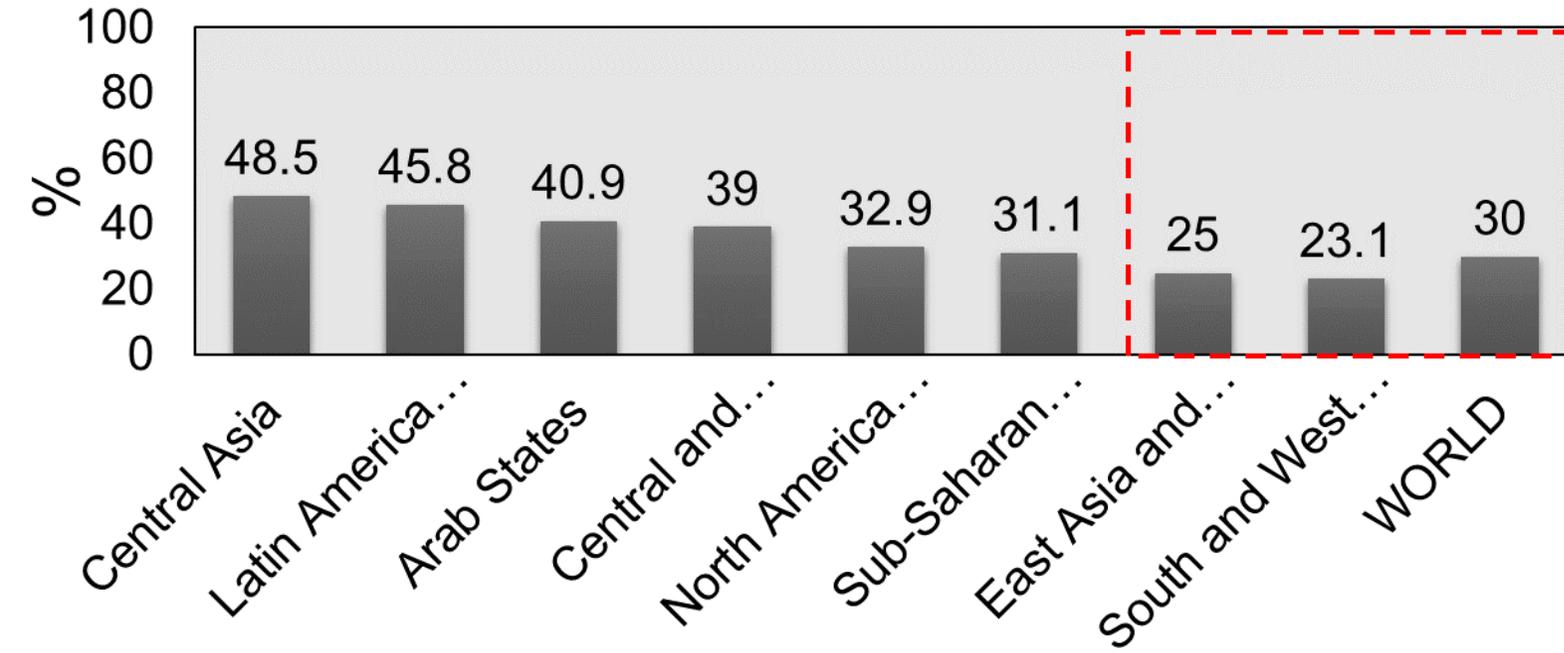
You educate a woman; you educate a **GENERATION.**

- Brigham Young -



Expanding women's educational opportunities is an effective way to promote economic growth in developing countries (Altuzarra et al., 2021).

Percentage of Female Researchers



Women account for a minority of the world's researchers, particularly in Asia.

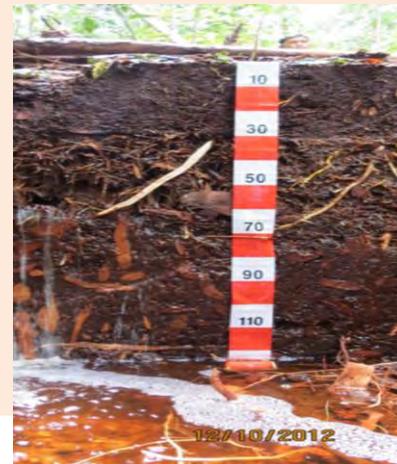


TROPICAL PEATLAND OUR WEALTH

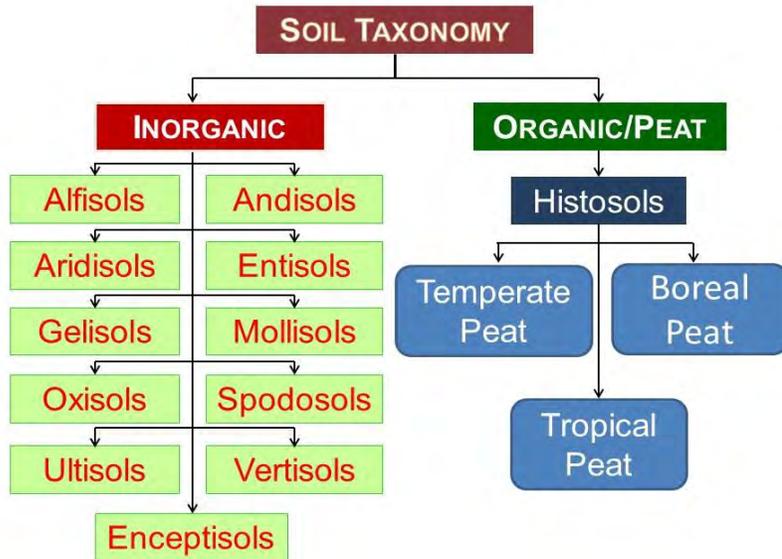
- World's most important resources - **ARABLE LAND**, water, energy and minerals.
- **FOR MALAYSIA & INDONESIA** – Tropical Peatland is one of the most important **ARABLE LAND** – that will generate the “**NATION**’s Wealth”.
- Environment and sustainability issues of tropical peatland:
 - Climate change (GHGs, carbon source)
 - Peat fire
 - Subsidence
 - Flooding
 - Water quality degradation
 - Biodiversity loss

TROPICAL PEATLAND – *What is so sexy about it ?*

1. Tropical Peatland has been **arousing different levels** of interest among different groups of people.
2. It was once a no man’s land and is considered a **wasteland**.
3. Man has been exploiting tropical peatlands as a hunting ground and for timber extraction.
4. Peatland is a problematic soil with marginal agricultural capability due to its:
 - High water table,
 - Low bulk density
 - High acidity and
 - Low fertility



SOIL SCIENCE & TROPICAL PEAT



- Being the last exploited land resource, it is also the **least researched and understood** soil type among tropical soils.
- As compared to Temperate & Boreal Peat, Tropical Peatland Research is a **New Research Frontier**

Tropical Peatland was suffering from a **“Cinderella Syndrome”** was an **unknown** and, therefore, **unloved**



Virgin peat – Less decomposed peat



Non-Virgin Peat - Well-humified peat

Beauty of Tropical Peat Swamp Forest



CHALLENGES ON TROPICAL PEATLAND

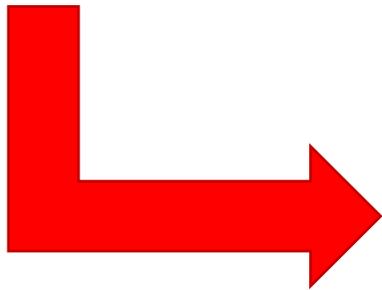
TROPICAL PEATSWAMP FOREST



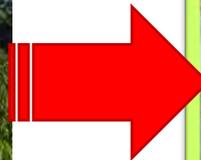
MANAGED PEATLAND
- COMPACTION &
WATER MANAGEMENT



UNMANAGED PEATLAND
- NO COMPACTION &
WATER MANAGEMENT



SHRUBLAND / BELUKAR



PEATLAND FIRE

CHALLENGES IN TROPICAL PEATLAND RESEARCH



Anguish of walking in soft soil & wet whole day



Crossing the river infested with crocodiles



Fieldwork in harsh work environment;

- Walk on wet, porous, uneven peat surface, tree roots and buttresses
- Wade through flooded part of the forest to go to the study site
- Heat exhaustion ($> 40^{\circ}\text{C}$) in opened-canopy peatland.



Woman's Challenges In Tropical Peatland Research (1)

- Combining an **enriching career** and nurturing a loving family relationship is a goal for many people.
- But for women, **this noble goal still presents higher hurdles**, even in the most gender-equal countries in the world.
- Regardless of our background and culture, issues concerning women in the workplace are common.
- Fieldwork in tropical peatlands is not for the faint-hearted being **demanding** and **challenging**, both physically and mentally

BUT FIELDWORK is the **INESCAPABLE** heart of Tropical Peat Research



Woman's Challenges In Tropical Peatland Research (2)



- Fieldwork means trampling the challenges and dangers.
- But women face additional challenges that makes their gender, such as modesty and menstruation.
- Experience pressure to adhere to certain gender roles during fieldwork (e.g. expectation for women to cook and washing in the field).
- Risk of facing harassment and jealous power dynamics with men, both in the field and in academia.
- Dealing with the politics of peatland science.
- Challenges with childcare and safety while conducting field-based research.
- **Major challenges** – Being at decision-making tables. “To be present and welcome is step one. To be heard and respected would be the second ‘.

To Pioneer in Tropical Peatland Research



- What appeals to me most about tropical peatland research is the complexity and interconnectedness of all belowground processes, both abiotic and biotic. There is never a dull moment when studying the soil.
- It allowed me to be outdoors to be one with nature, get my hands dirty, and still study science and answer complex environmental questions.
- Initially, when I first started as a **soil surveyor**, I was extremely nervous and some aspects of the fieldwork I found challenging, physically and mentally

- In the early years, women's roles in soil survey appear to have been limited to clerical work, copyediting of manuscripts, and cartographic drafting of maps, and women with appropriate academic training soon began to work in the laboratories.
- **Soil survey** remained resistant to women in field parties. There was still uneasiness with having women in the field with an **all-male crew**.
- When you are able to prove your survival in doing the soil survey, you get **Obstruction** and **Sabotage**.

To Pioneer in Tropical Peatland Research



1) **OBSTRUCTION** can be in the form of

- Gender prejudice
- Last to be selected
- No choice given

2) **SABOTAGE** can be in the form of

- Budget,
- Logistic,
- Equipment,
- Manpower
- Harassment
- Character Assassination

- At the time, I felt that I could not express this for fear of being perceived as weak or a 'typical girl' and that people would question my suitability for the role.
- Through the difficulties of fieldwork and being women working in one of the most challenging environments out there, the swamp has also taught us lessons about our own **resilience for survival**.

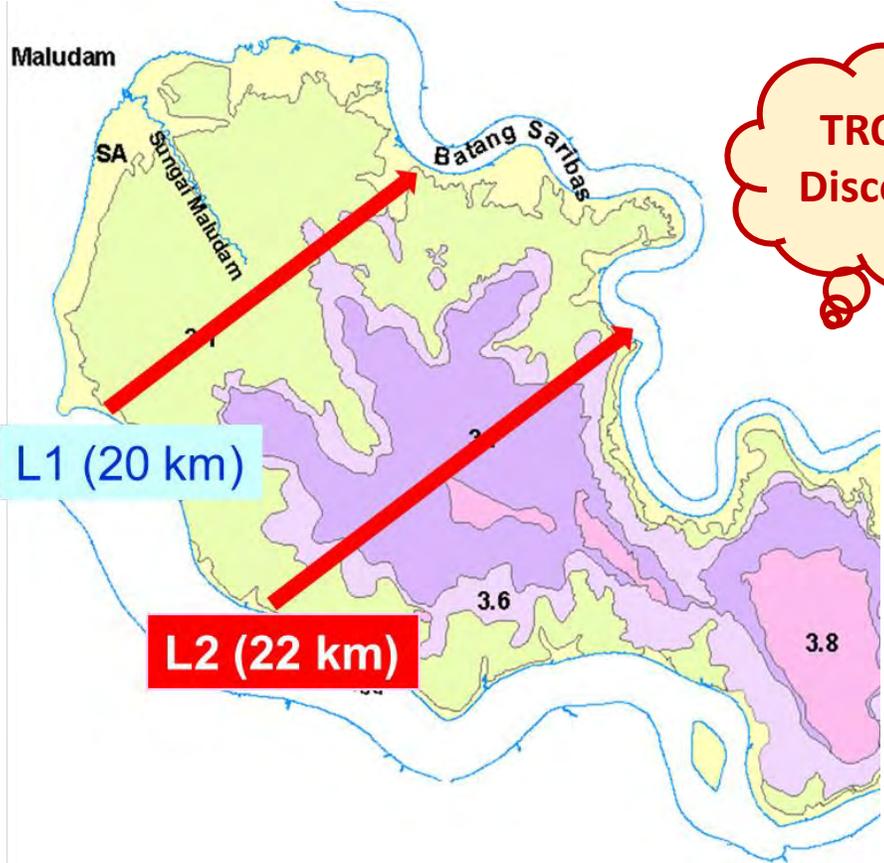
To Pioneer in Tropical Peatland Research



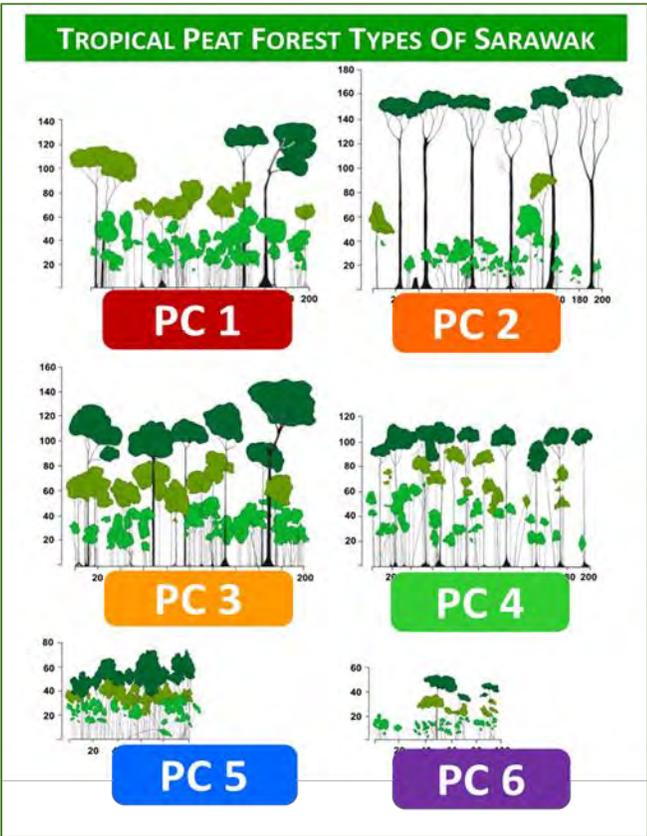
- **Before I had my PhD**, I had difficulties, E.g. when meeting people who may have already heard of my work and do not entirely agree with **my findings and recommendations**.
- I have been ‘scolded’ by older, mostly male practitioners (both privately and publicly) who think that I am sending the ‘**wrong message**’ with my work.
- As long as we are confident in our methods, we should not be intimidated by those who disagree with us.
- Fieldwork and its emotional and physical challenges help build my **self-confidence and resilience**, shaping who I am today and creating as an example a pathway for the younger female researchers.

**You can be Good BUT
You cannot be Great.**

Scenario of Sarawak Peat & Peatland



TROPI's Discovery

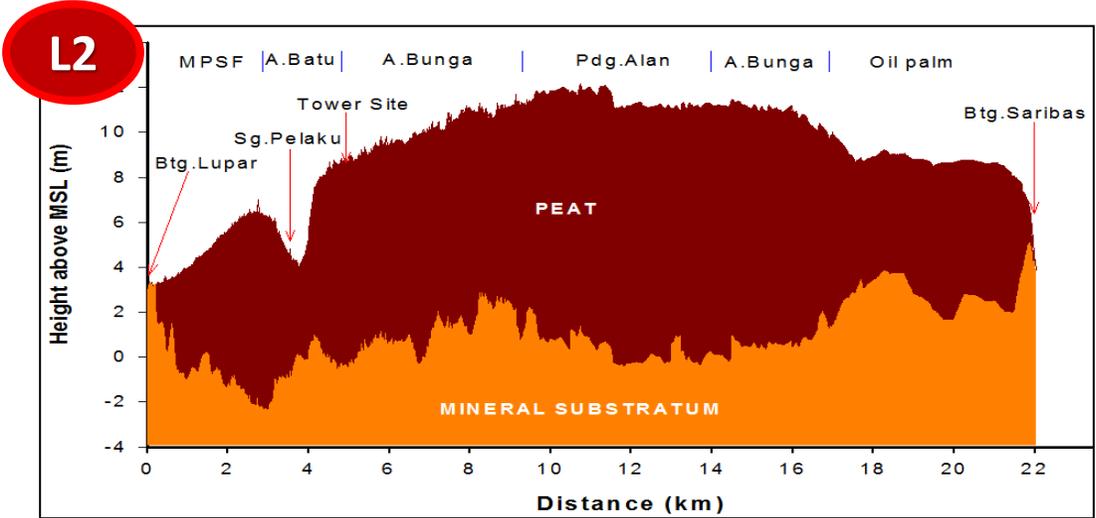


PEAT TYPE

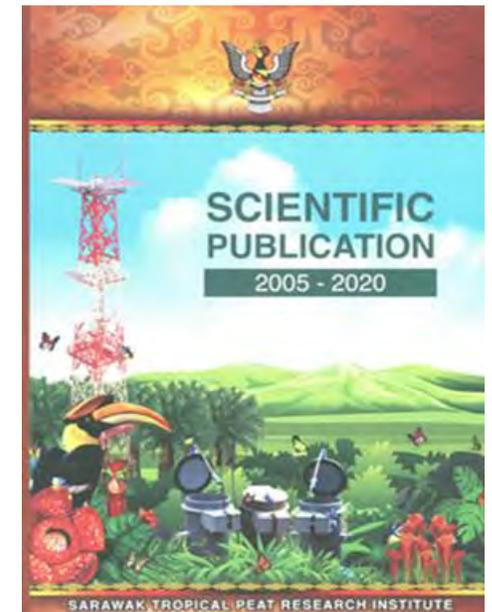
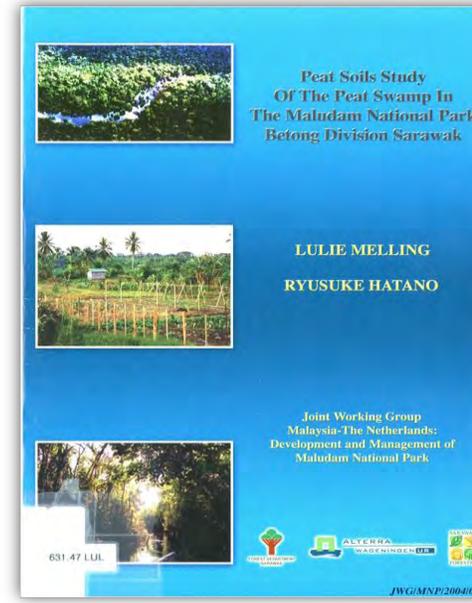
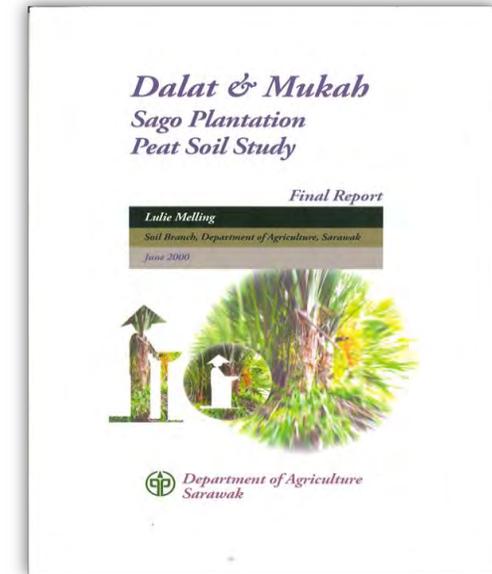
| FOREST TYPE | |
|-------------|------------------|
| PC 1 | Mixed Peat Swamp |
| PC 2 | Alan Batu |
| PC 3 | Alan Bunga |
| PC 4 | Padang Alan |
| PC 5 | Padang Selunsor |
| PC 6 | Padang Keruntum |



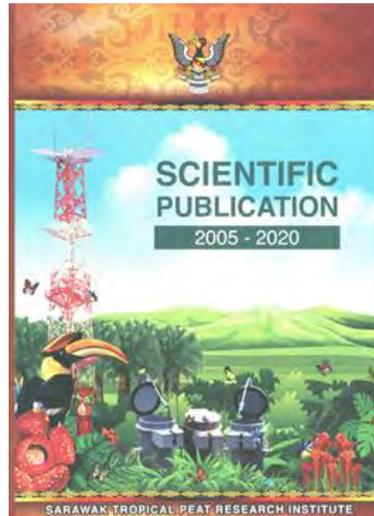
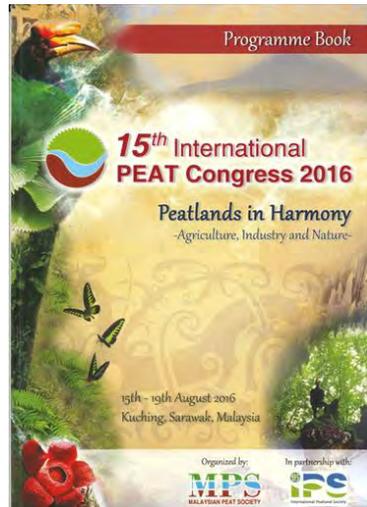
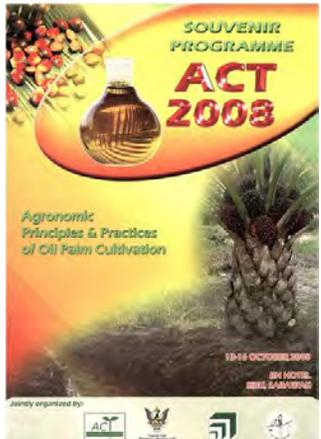
Peat Water Sample from edge of the peat dome



Foundation of Tropical Peatland Research



COMMUNICATION OF SCIENCE TO SOCIETY

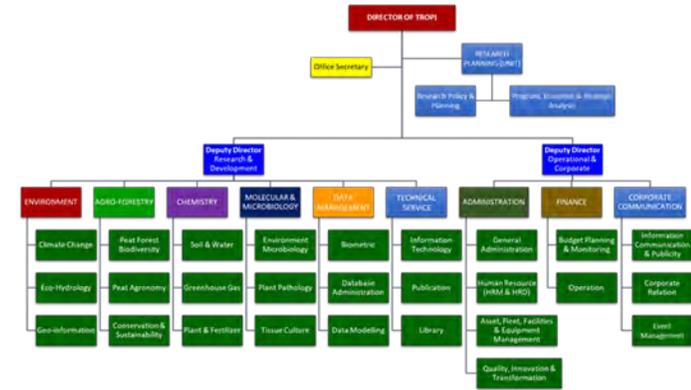


SARAWAK TROPICAL PEATLAND RESEARCH

1. PEAT RESEARCH INSTITUTE



2. EDDY FLUX TOWER



MALAYSIAN PEAT SOCIETY

INTERNATIONAL PEAT SOCIETY



International Peat Congress 2016

- The Malaysian Peat Society (MPS) in 2010 to join the bidding to host the 15th International Peat Congress (IPC)
- MPS successfully organised the 15th International Peat Congress in 2016 – 15th IPC 2016.
- IPC held for the first time outside Europe & North America; also first time in South East Asia
- Hailed as the Best and The Biggest Peat Congress since 1954
- Dr Lulie; the first female Congress General



FIELD & ADVISORY WORK ON TROPICAL PEATLAND



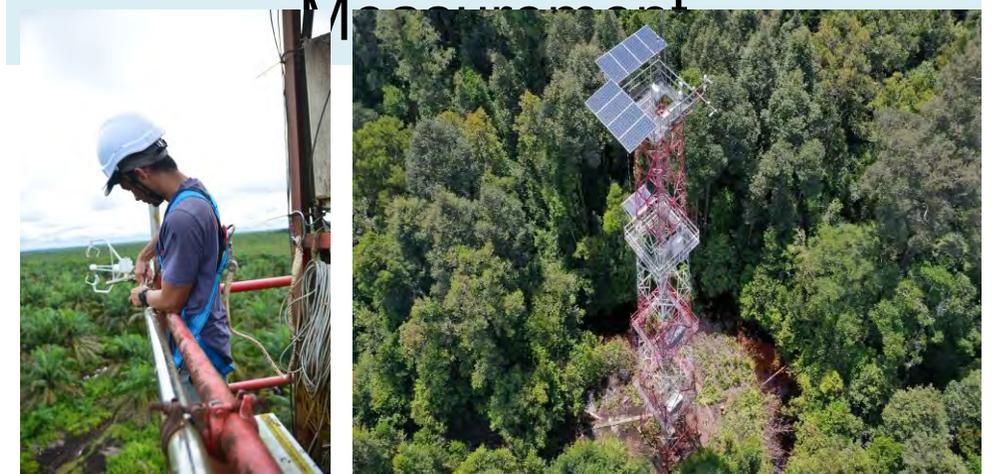
TROPICAL PEATLAND RESEARCH is an exciting and new field, with plenty of future opportunities and endless career paths to choose.

Tropical Peatland Research Activities



Soil Survey & Peat Depth Checking

Greenhouse Gases



Peat Profile

Litter Decomposition Study

Eddy- Covariance Study

AGRO-ENVIRONMENTAL MANAGEMENT OF TROPICAL PEATLAND

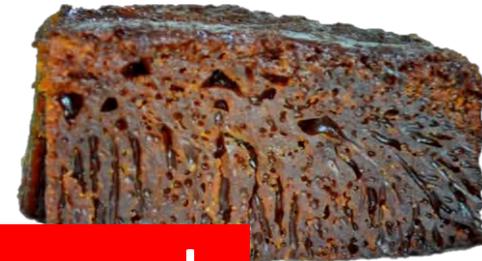
KEEP IT TIGHT
&
MOIST



Bika Ambon



Swiss Cheese



Honeycomb

Drainage
Mechanical
Compaction
Water Management



Cheese Cake

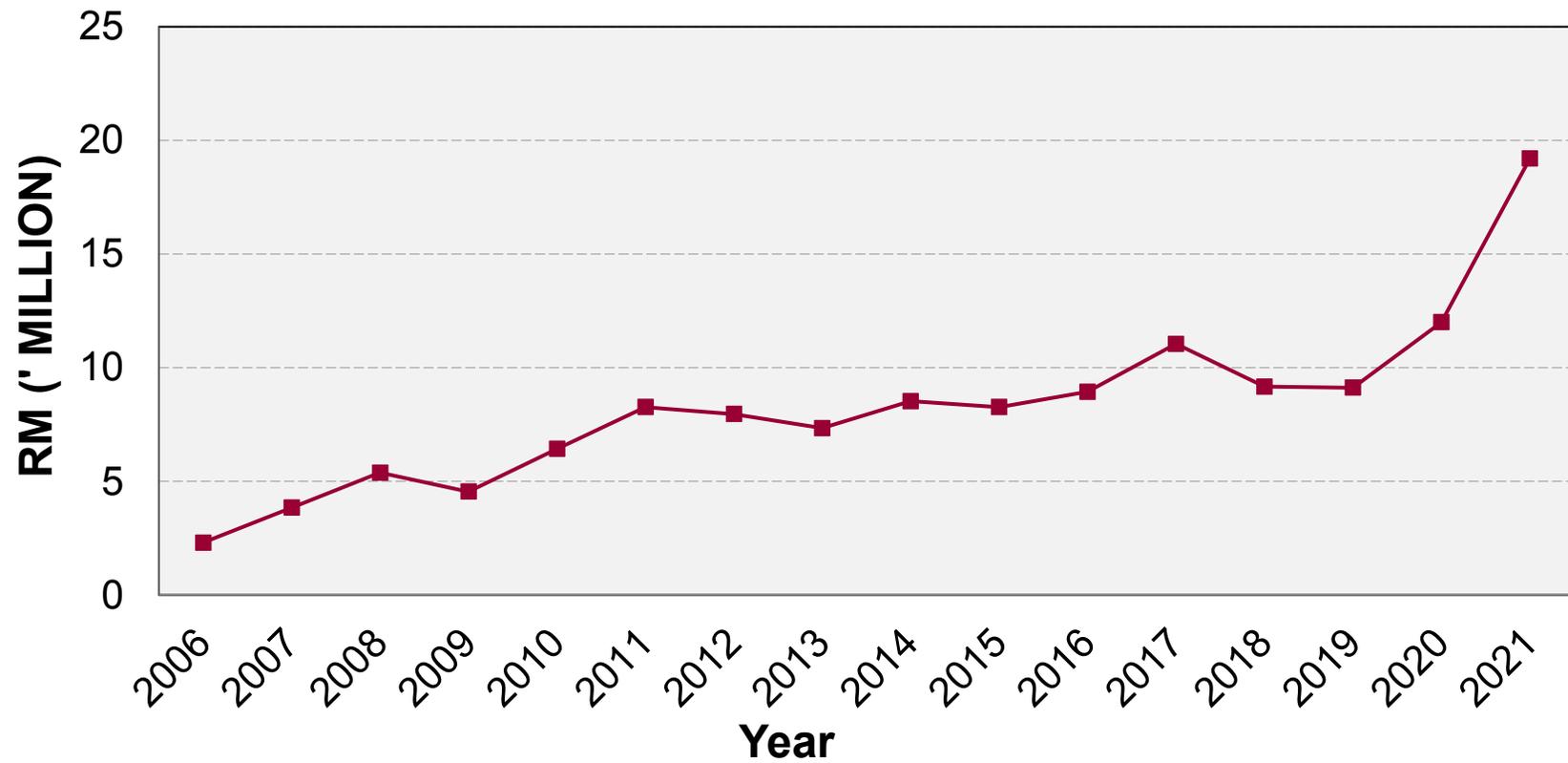


Decrease
Soil CO₂ emission
Prevent Peat Fire

TIGHT MOIST PEAT
ensures Good Oil Palm
Growth & High Yield.

| YEAR | PALM OIL |
|-------------|--------------|
| 2006 | 2.30 |
| 2007 | 3.84 |
| 2008 | 5.38 |
| 2009 | 4.55 |
| 2010 | 6.43 |
| 2011 | 8.27 |
| 2012 | 7.96 |
| 2013 | 7.34 |
| 2014 | 8.53 |
| 2015 | 8.27 |
| 2016 | 8.94 |
| 2017 | 11.05 |
| 2018 | 9.17 |
| 2019 | 9.12 |
| 2020 | 12.00 |
| 2021 | 19.20 |

SARAWAK - Export Revenues for Oil Palm (RM 'million)



FEMALE ROLE MODEL



- Effective in encouraging women into tropical peatland research.
- Female role models for researchers in tropical peatland have been acknowledged at **Sarawak Tropical Peat Research Institute (TROPI)**,
- Break down **gender stereotypes** about women participating in field research in remote environments.
- Fieldwork empowers and enables us to explore and **discover our own resilience and independence**.
- Another invaluable aspect of building this resilience is the **strong support of the team**.
- Ability to **balance motherhood with a successful career**.
- The role model demonstrates that **women can voice** broader debates about **sustainability** and **responsible environmental management**.



TEAMWORK & MENTORING

- The role of senior female researchers to mentor and support other young female researchers would **inspire** other female researchers in tropical peatland exploration.
- Mentoring, peer support and teamwork are vital.
- Change in cultural perspective that supports women in tropical-peatland research is required.
- Working with female colleagues or with men, who take substantial responsibility for **childcare** is also helpful in terms of having a **supportive environment**

Inspired other Young Female Researchers in Tropical Peatland Research



- For some of the women later in their careers, they feel responsible for addressing these concerns and showing their apprentices that **obtaining a work-life balance is more than achievable.**
- Provide active support and encouragement to your peers and those attempting to follow in your footsteps.
- This has nurtured pride in being where we are and with a **sense of resilience that are central to our identities as women and as researchers.**



PEAT TROOPERS

- Physical and psychological resilience is vital in enabling women researchers to wade their way through their way into the deepest of tropical peat swamp forest.
- The challenging environment will not dampen their spirit in explore and enjoy the charms of tropical peatland.

Inspired other Young Female Researchers in Tropical Peatland Research



Sharon Lau, PhD
Hokkaido University
Japan (2015)



Angela Tang, PhD
Montana University
USA (2017)



Faustina Sangok, PhD
Nagoya University, Japan
(2018)



Auldry Chaddy, PhD
Hokkaido University, Japan (2020)



Nur Azima, MSc
Universiti Putra Malaysia
(2019)

- Life stories of early career scientists and shared worries, which can be overcome, create a sense of hope, optimism, and inspiration by their experience.
- We must continue to inspire and nurture one another through our collaborative network.
- As your career develops, take care not to climb the ladder **ALONE;** instead, pull other women with you.
- Women can be part of scientific research findings and how they fit the bigger picture. – bringing in data, exploring different ideas on developing sustainable management systems, soil fertility, and productivity.

RECOGNITIONS



MOTHER'S SURVIVAL SKILLS



It takes a village to raise a child

- Balance motherhood with a successful career:
- For women already in parenting roles, you just need to do the following:
 - Set your priorities
 - Be **organized** and **efficient**.
 - Plan all your Menu and cook meals for a week
- When I am at work, we try your best to focus entirely on work so that when I am at home, you can focus entirely on your family and yourself.
- Have a **Support System** –
 - have extended family,
 - reach out to other parents, neighbours, colleagues,

Women in Tropical Peatland Research – The Way Forward

- Every individuals must take the initiative when embarking on any project.
- Possible strategies to overcome gender-bias problems faced by women:
 - a) Concept of partnership or teamwork regardless of whether the leader is a woman or a man
 - b) To work together with the full participation of everyone.
 - c) Adopt the process of consultation and collective decision making.
- Empowering women, or even gender equality, **should not** mean that women must expected to be able to do anything that men can do, and vice versa.
- It is not necessary to have women in all areas of development.

- Society must:
 - a) Change its mindset
 - b) Have the right to a personal choice of reference**BUT respect and empowerment** of women is an economic necessity for any nation

FEMINIST

- Instead of labelling a group as “**FEMINIST**” why not take a neutral point of view of social justice?
- A good example is the **environmental** issue where there are area of activision for everyone of both genders from all walks of life with the common objective of a **sustainable world for future generation**

Thank You

My Dream

Opportunity
to have better
Education

