

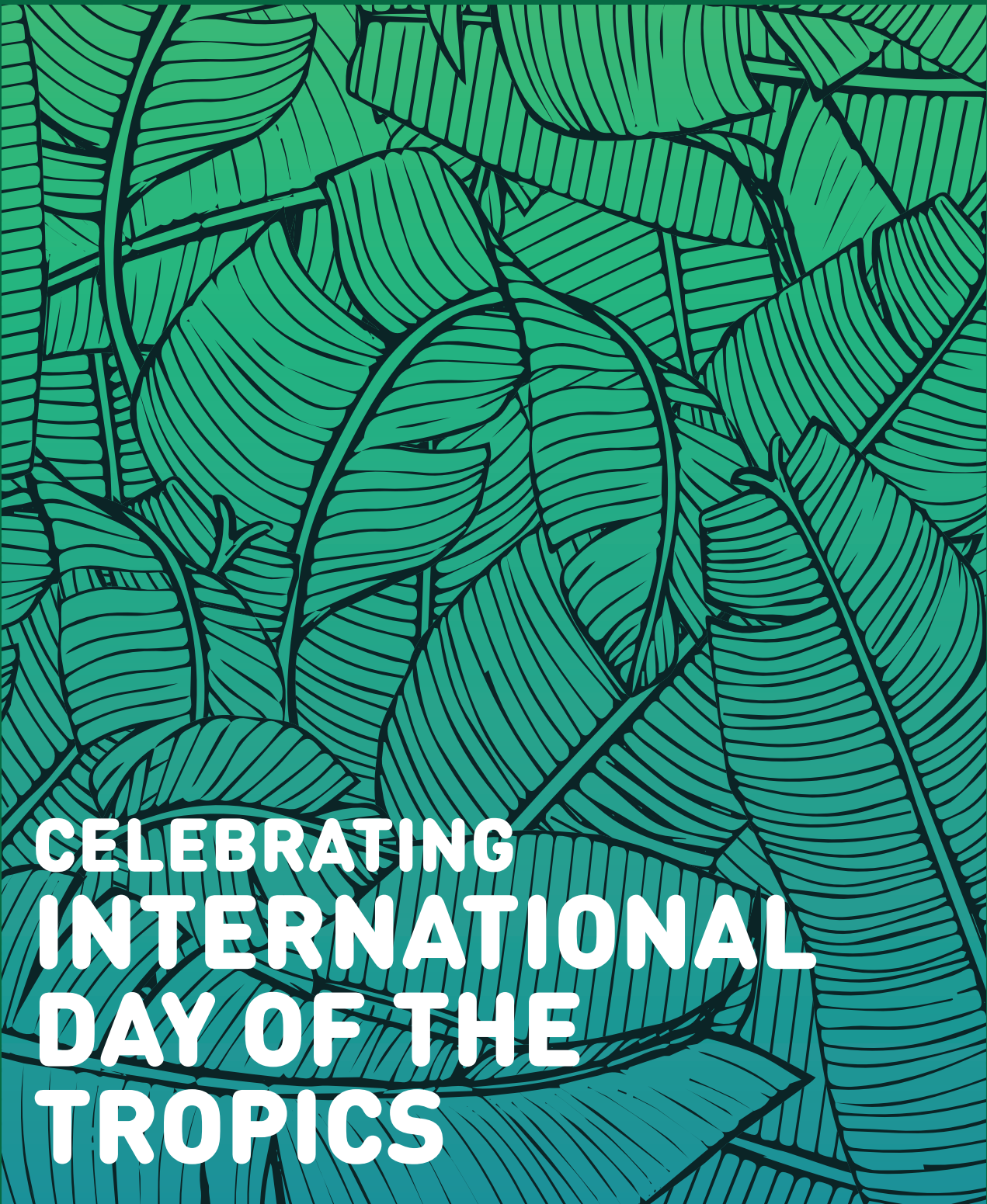
The Future belongs
to the Tropics.

State of the Tropics, 2020

29

JUNE 2020

9 AM - 5 PM



**CELEBRATING
INTERNATIONAL
DAY OF THE
TROPICS**

In conjunction with **TropSc™** 2021

Overview of Malaysian Contributions to Tropical Sciences

The Tropics has a population of 3 billion people, 55% of whom are under 5 years old, and covers 40% of the world's agricultural areas. It also suffers rampant poverty and worsening impacts of climate change. The oceans in the Tropics drive the dynamics of climate change and with global warming the tropical region is expanding into higher latitudes at 50 kilometres per decade. The latter will induce the escalation of tropical diseases into unforeseen regions. Eighty percent of the world's biodiversity are in the Tropics and yet every year 140 000 square km of tropical rainforests are destroyed. While there are scientific and technological remedies to some of the problems, the Tropics needs solutions that are designed for its challenges while harnessing its values.

Malaysia resides in the Tropics and in the past has led R&D in several fields through many institutes of international repute. She has a great role to play in the future in driving the agenda for the Tropics. This webinar serves to remind Malaysians of our past and current successes as well as to provoke thought on the potential for leadership roles for Malaysia to play. The latter should be seen in the international context of the importance of the Tropics.

TropSc™ 2021

A joint initiative of



08.45 - 08.55	Participants join the Webinar
08.55 - 09:00	Welcome Remarks by Academician Dr Mazlan Othman FASc Chair of TropSc 2021 Steering Committee
09:00 - 09:30	Climate Change and the Tropics Professor Dr Joy Jacqueline Pereira FASc Principal Research Fellow of Southeast Asia Disaster Prevention Research Institute (SEADPRI), Universiti Kebangsaan Malaysia

Abstract

According to the Intergovernmental Panel on Climate Change (IPCC), anthropogenic activities have contributed to 1.0°C of global warming above pre-industrial levels. Climate-related risks are expected to increase as global warming proceeds to 1.5°C depending on the magnitude and rate of warming, geographic location, levels of development and vulnerability as well as the choices of climate actions. Countries in the tropics are projected to experience the largest impacts on economic growth due to climate change as global warming increases from 1.5°C to 2°C. The highest increases in temperature extremes and the number of hot days are projected for the tropics. Risks from heavy precipitation associated with tropical cyclones are expected to be higher at 2°C compared to 1.5°C global warming. Limiting warming to 1.5°C compared with 2°C is projected to result in smaller net reductions in yields of maize, rice, wheat, and potentially other cereal crops in tropical Southeast Asia. Limiting warming will also reduce the expected frequency of marine heatwaves, deterioration of marine animal communities, and fisheries catch potential. The tropics will be disproportionately impacted by climate change. This makes a case for unprecedented actions for ambitious emission reduction in all sectors. The post-COVID-19 economic recovery plans offer an opportunity to enable unparalleled investment in low carbon options to limit global warming to 1.5°C.



Professor Pereira is the Vice-Chair of the Intergovernmental Panel on Climate Change (IPCC) Working Group 2 on Impacts, Adaptation and Vulnerability. She was Coordinating Lead Author for the Asia Chapter of the IPCC Fifth Assessment Report released in March 2014, Review Editor for the 2012 IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC-SREX), and Lead Author for the IPCC-AR5 Synthesis Report. Professor Pereira is also a Member of the United Nations Office for Disaster Risk Reduction (UNDRR) Asia Pacific Science, Technology and Academic Group (APSTAAG), which supports governments in science-based decision making to implement the Sendai Framework for Disaster Risk Reduction. She is the Director of the Asian Network on Climate Science and Technology (ANCST), working closely with University of Cambridge.

Professor Pereira chairs the Malaysia Research Network on Climate, Environment and Development (MyCLIMATE) and serves as a Resource Person to the Malaysian Government in negotiating international agreements. She is a professional geologist registered with the Board of Geologists Malaysia, Past President of the Geological Society of Malaysia and Fellow of the Institute of Geology Malaysia. She was active in the Commission on Geoscience for Environmental Management of the International Union of Geological Sciences (IUGS-GEM) for about a decade. She retired after serving as Chair from 2004 to 2008.

09:30 – 10:30

Session on Tropical Agriculture

Tropical Agriculture in Malaysia – State of Play

Dr Surina Ismail

Group Head of Sustainability in IOI Corporation Berhad

Abstract

From the past mid-century, the agriculture sector has been the backbone of the Malaysian economy, mainly due to the availability of unutilised lands and the country's rich natural resources. Driven by local commodity conglomerates, Malaysia now is one of the major global producers of rubber and palm oil and possesses a large number of smallholders that produce crops such as rice, fruits and vegetables. Today, the global race for industrialisation saw the rise of the manufacturing industry, inadvertently side-lining the agriculture sector in terms of its importance to the Malaysian economy. There is no denying that some sectors of the agricultural industry, namely the oil palm sector, still plays a prominent role in contributing to our economy. So the question is, will we be able to strengthen the agriculture industry for the next decade through the adoption of technologies like Industry 4.0, by promoting sustainable agriculture and prioritisation of land-use, by having a greater understanding of the market resulting in a focus on higher value-added downstream products; and last but not least, by having policies and remunerative strategies by the government, aided by the private sectors, that are more specific to the sector? Will we, despite global challenges like climate change, scarcity of resources, and most recently, the Covid-19 pandemic, be able to ensure food security for our increasing urban population and ageing rural population, as well as provide basic rights of safety and health for our population without compromising our planet? These are the state of play to be considered.

(10:00 – 10:30)

Question and Answer session



Dr Surina Ismail holds a BSc (Hon) Chemistry from Indiana University, MSc [Organic Polymer] from University of Massachusetts and PhD [Bio-organic Polymer] from University Akron, USA with experiences in the academia, working as a Research Fellow, Visiting Scientist & Assistant Professor in the USA. Her field of technical expertise includes the rubber & oil palm industry, the oleochemical and petrochemical industry, the coating industry specifically UV Coatings, and Nanotechnology with emphasis on nanocarbon and nanomaterial. She holds several patents in this field and has been invited to be keynote speakers and present technical papers related to her area of technical expertise.

Dr Surina Ismail currently holds the position of Group Head of Sustainability, IOI Corporation Bhd. In this capacity, she is responsible for Corporate Sustainability which includes embedding the sustainability culture within the Group as well as aligning the Group Business strategy and sustainability policies together with their implementation for the whole IOI Group (Plantation & Manufacturing Divisions).

10:30 – 11:30

Session on Tropical Natural Resources

Tropical Biodiversity and Natural Resources: An Overview

Dr Ahmad Aldrie Amir

Senior Lecturer at the Institute for Environment and Development
(LESTARI), Universiti Kebangsaan Malaysia

Abstract

Alexander von Humboldt stated in 1807 “The nearer we approach the tropics, the greater the increase in the variety of structure, grace of form, and mixture of colours, as also in perpetuated youth and vigour of organic life”. This statement, made two centuries ago, addressed the intriguing nature and the magnificent properties of tropical biodiversity and natural resources. These have triggered the interest of many naturalists and scientists from throughout the world to explore and to quantify the richness of the Tropics—both the biotic and the abiotic components. The Tropics occupy approximately forty percent of the Earth’s land surface and account for more than 80% of the Earth’s terrestrial biodiversity. Characterised by the warm and humid climate, the Tropics are also home to the majority of the world’s endemic terrestrial and marine plants and animals that are well adapted to the specific tropical climatic conditions. For the same reason, various types of unique habitats, ecosystems and landscapes occur in the Tropics to provide vital ecological roles and services for local and global communities. Bear in mind, the Tropics are home to almost half of the world’s human population. Despite their apparent benefits, the resilience and the sustainability of tropical biodiversity and natural resources are severely challenged and jeopardised by the increasing demand for materials and energy to cater for rapid human development and the expansion of modern civilisations. Coupled with the impacts from the anthropogenic-induced climate change, tropical biodiversity and natural resources face an unprecedented grand challenge of survival.

(11:00 – 11:30)

Question and Answer session



Dr A. Aldrie Amir is a mangrove ecologist by training. He obtained his PhD in the field of Marine Science (Mangrove Ecology) from The University of Queensland, Australia in 2011. He has participated and led in several projects on various topics related to mangrove ecology, management and conservation. He has published a substantial amount of publications, two of which have recently appeared in Science in 2018 and 2019.

Dr Aldrie’s primary interest and specialisation on the ecology and the dynamics of mangroves are now expanding through a developed interest on understanding the connectivity, complexity and the socio-ecological systems of tropical and subtropical coastal habitats and environment, including the management, conservation and governance of these natural ecosystems and resources. In 2017, he initiated the establishment of the Malaysian Mangrove Research Alliance and Network or MyMangrove to promote multi-disciplinary and collaborative research among academia and scientists. MyMangrove aims at reaching out to the authorities and the general public to increase awareness on the importance of these key tropical habitats and ecosystems, besides to promote public participation in research and conservation as citizen scientists.

11:30 – 12:30

Session on Tropical Architecture and Engineering

Key Principles of Tropical Architecture and Engineering

Dato' Dr Ar Ken Yeang

Principal at T.R. Hamzah & Yeang Sdn Bhd

Abstract

The topic of tropical architecture and engineering is essentially designing buildings and urban masterplans that respond to the characteristics of the tropical climate. Design considerations includes designing to respond to the hot tropical sun and responding to the solar-path of the locality, to the local wind direction(s) and wind-flow, to heavy tropical rain, to high humidity. The techniques include, adopting appropriate built form configuration and orientation, appropriate façade and roof design, responding to the hot tropical climate and humidity. The approach for 'designing with climate' in the tropics is also referred as 'bioclimatic' design. Bioclimatic design seeks to achieve acceptable comfort conditions for the building's users without the use of technology (such as air-conditioning), as low-energy passive-mode solutions. Bioclimatic design as a design approach is also applicable to other climatic zones (such as temperate and cold climates) where the design needs to respond to the different seasons of the year (e.g. the four seasons) and to greater variable climatic conditions between seasons and to other climatic factors (such as snow). Current advancements in this field, regard bioclimatic design as part of a 'design continuum'. The design approach starts with first optimising all 'passive-mode' bioclimatic design options, followed by optimising all 'mixed-mode' design options, by optimising all 'full-mode' features as high-efficiency 'Net Zero Energy Design' systems, while at all stages incorporating ecological features and considerations. The presentation is illustrated by building and master planning examples.

{12.00 – 12:30}

Question and Answer session



Dr Ken Yeang is an architect and ecologist best known for his ecology-based signature architecture, distinctive verdant green aesthetic, and performance beyond green rating systems. His key buildings include Suasana Putrajaya (Malaysia), Solaris (Singapore), Menara Mesiniaga (Malaysia recipient of Aga Khan Award), Genome Research Building (Hong Kong), Great Ormond Street Children's Hospital Extension (UK).

Driven by a pioneering spirit, Dr Ken Yeang's long involvement with sustainable design began in 1971 with his research work on ecological design. For more than 40 years through his commitment, he has developed ideas, principles and systems in ecological and bioclimatic architecture, contributing to the advancement in this field, evident in his design, research, built work and writings.

He is a recipient of the Malaysian Institute of Architects Gold Medal, the Government of Malaysia's Merdeka Award, the Architectural Society of China Liang Sicheng Award 2016. He has authored over 12 monographs and books on ecological design. The UK Guardian newspaper named him as one of 50 individuals who could save the planet.

12:30 – 14:00

Break for Lunch

14:00 – 15:00

Session on Tropical Medicine

Rethink, Reengineer and Revolutionise Research in Tropical Diseases

Professor Dr Yvonne Lim Ai Lian FASc

Senior Professor at the Department of Parasitology,
Faculty of Medicine University of Malaya

Abstract

The current pandemic has opened a window of opportunity to rethink, reengineer and revolutionise research in tropical diseases. Malaysia has been successful in handling various diseases since the early 1900s with the establishment of the Institute for Medical Research (IMR) and in later years with the expertise in various universities in Malaysia. Malaysia is situated in a tropical region which houses a high diversity of flora and fauna. With globalisation, the country is facing an ever-increasing interface between humans, animals and the environment. This interface may be a source of diseases impacting public health and the social and economic well-being of not only the local population, but potentially with global consequences. This presentation will highlight Malaysia's past successes in eradicating certain diseases in the tropics and deliberate on the opportunities and potential in moving forward post-pandemic.

(14:30 – 15:00)

Question and Answer session



Dr Yvonne Lim Ai Lian's research focuses on host-parasite interactions and the epidemiology and control of neglected tropical diseases primarily among the underserved communities. Her work has been funded by various national and international grants (e.g. NIH, USA). Using multidisciplinary advance approaches, her team's landmark publication with collaborators from New York University in Science unravelled the mechanisms of how low levels of helminth (worm) infection promote the growth of probiotic gut microbiota.

Dr Yvonne's team is currently collaborating with researchers at the National Institutes of Health (NIH), USA to further elucidate the role of gut microbiota associations and the effects of this relationship on other communicable and non-communicable diseases. She has published more than 200 scientific papers, nine book chapters and three books. She also has a vast network of local and international partnerships. Currently, she is involved in the formulation of the National Policy for the Development of Orang Asli (Indigenous) with the Department of Orang Asli Development (JAKOA), Malaysia.

15:00 – 16:00

Panel Discussion:

Towards a Federated Data Platform on Tropical Biodiversity

Eighty percent of the world's biodiversity are in the Tropics. Data on this biodiversity comes from various universities, research institutions, non-governmental organisations, like-minded groups and individuals. The existence of a data platform that links these various resources would greatly multiply their individual value.

The panel will demonstrate the different data repositories and discuss the way forward.

Moderator



Dr Liew Chee Sun

Head of Data Intensive Computing Centre,
University of Malaya

Panellists



Mr Lim Kooi Fong

Bioinformatics Systems
Developer,
Bodhi Vision



Dr Lillian Chua Swee Lian

Director of the Forest
Biodiversity Division,
Forest Research Institute
Malaysia (FRIM)



Mr Laurence Livermore

Innovation Project Manager,
Natural History Museum,
London

(15:30 – 16:00)

Question and Answer session

16:00 – 17:00

Discussion on Kuala Lumpur Declaration on the Tropics

Moderated by Academician Dr Mazlan Othman FASc
Chair of TropSc 2021 Steering Committee

** All registered participants will receive an e-certificate of participation after the webinar session.*



INTERNATIONAL CONFERENCE ON TROPICAL SCIENCES: **CONTRIBUTIONS TO SUSTAINABILITY**

TropSc™ 2021

28-30 June 2021

Kuala Lumpur

Follow us on



AKADEMI SAINS MALAYSIA



Mahathir Science Award



@Mahathir_Award



Mahathir Science Award

For more updates visit : <http://www.msa-foundation.org/> or please contact,

Varsheta Sellappah at varsheta@akademisains.gov.my

In conjunction with

TropSc[™] 2021