WELCOMING REMARKS by
PROFESSOR DR. FAISAL RAFIQ MAHAMD ADIKAN
VICE-CHANCELLOR, UNIVERSITI SAINS MALAYSIA

PUBLIC LECTURE: *'R&D ECOSYSTEM AND GREEN TECHNOLOGY'*
by YB YEO BEE YIN, MINISTER OF ENERGY, SCIENCE, TECHNOLOGY, ENVIRONMENT & CLIMATE CHANGE (MESTECC)

20 JANUARY 2020 | MONDAY | 2.30 P.M. | DEWAN BUDAYA, USM

Bismillahirrahmanirrahim
Assalamualaikum warahmatullahi wabarakatuh
Salam sejahtera and a very good afternoon.

Salutation *[kindly refer to the list on the rostrum]*

First and foremost, on behalf of Universiti Sains Malaysia, I extend a very special *Selamat Datang* to the Minister of Energy, Science, Technology, Environment & Climate Change (MESTECC), Yang Berhormat Yeo Bee Yin, to the USM Main Campus. We believe this is the first time you set foot in USM campus since you took the helm at MESTECC. It's indeed a privilege to have you with us this afternoon.

It gives me a great pleasure to also welcome MESTECC's Deputy Minister, Secretary-General, Deputy Secretary-General and the entire entourage including the Academy of Sciences Malaysia, various agencies and organisations, to the USM campus.

Ladies and gentlemen,

Climate change is imminent with severe significant impact on the nation. For Malaysia the rising temperature has had major repercussions, one of which is the rise in sea levels. The recent Asian Development Bank Forum in early 2020 recognized the challenges, and the effect on coastal nations. USM studies pointed out the vulnerability of low lying coastal plains such as that of Kedah, Perak and Selangor, from which our main food resources grow. Here too are the main population areas and cultural heritage sites. There will also be a drastic reduction in coastal fisheries resources as major ecosystems such as coral reefs are obliterated. A rise of 1.5°C in ambient sea temperature of more than 2 days will result in coral bleaching which may lead to death – a phenomenon of increasingly common occurrence in the past decades here.

What USM brings to the table is the expertise and experience in Environmental Science and Sustainable Development Studies. In 2019, USM was ranked No. 1 in Malaysia and 49th in the World by the Times Higher Education (THE) in helping to achieve the Sustainable Development Goals set up by the United Nations. Such goals are realized through insights and proactive research. The Centre for Marine and Coastal Studies (CEMACS) at USM, the oldest marine science institution in the nation, for example, has preempted the need for readiness in the developing climate crisis. The Centre is now developing green and sustainable aquaculture for Malaysia as food security of our future.

USM has a long record of collaboration with MESTECC especially in the fields of ecosystems research and on green technology. Some of the ministry's climate data collection centres are here. This, in tandem with USM marine data collection system, will help us understand changes in our climate. Ecosystem profiling has helped us understand the evolution of our living resources. Under the former MESTECC, USM has been appointed to explore the living offshore ecosystems of the Straits of Malacca and the South China Sea under the ROSES (Research on the islands and seas) project in 2004 pointing to the rich natural heritage of Malaysia in her maritime space and anticipate threats to their conservation.

Human activities have amplified the natural concentration of carbon dioxide (CO_2) in our atmosphere, intensifying the greenhouse effect. In addressing this, USM has entered a research and technology collaboration with our industry partners to convert CO_2 to fuel gas and other value added product. This collaboration seeks ways to develop long-term strategies for the remediation of the greenhouse gas in the environment and scope to offer solution for climate change mitigation. More collaborative efforts with

MESTECC in solving CO_2 issues ought to be strategized and are indeed desired for a more impact outcome.

In fact, the field of energy and environment (including pollution mitigation and disaster) is among the most popular in USM especially from our experts in engineering and applied sciences. The experts through their respective schools or centres have already collaborated with various MESTECC agencies. An example is School of Aerospace Engineering with ANGKAsA (now MySA) on space weather modelling to measure earth's magnetic field. Two satellites have been developed so far:

- MySAT: a cube satellite project to measure electron density in ionospehere as a detector for earth quakes.
- CanSAT: small satellite for education.

Another activity worth highlighting is on USM efforts to reduce plastic in environment. Among many activities, USM researchers have been actively researching on a bioplastic called polyhydroxyalkanoates (PHA) for almost 20 years now. The technology for producing PHA is currently at the stage of scaling-up with funding from our overseas industry and from ministry. USM has more than 10 patents and around 200 publications on various aspects of bioplastics. At the moment, we are looking at the development of PHA production from wastes from the palm oil industry.

MESTECC through International Collaboration Fund and Smart fund has supported USM researchers in exploring sensors and catalysts for solving immediate issues related to environmental pollutions. The grants have amounted to more than RM2 million. In order to encourage for more of our researchers to venture into projects with societal benefit and economy growth, in November last year, our Research and Innovation Division had invited a few MESTEC officers for a grant application workshop which include special private sessions for our researcher to be guided in writing grant applications.

USM seeks to continue its collaboration with MESTECC through our expertise and insights by providing solutions for the various environmental issues and climate crisis. Through the support of MESTECC we will be better positioned to help in solving the real pressing issues. We applaud MESTECC for their continuous support in our research activities and we look forward for more collaboration with MESTECC in the near future.

Once again, our sincere thanks and appreciation to YB Yeo for stopping by at USM Campus in your one-day working trip to Penang, and delivering a public lecture after this. Same appreciation goes to the entire MESTECC

entourage. Many thanks to the Research and Innovation Division, Industry and Community Network Division, and the entire working committees who have worked hard to ensure the programme runs smoothly.

With that, Thank you.

Wabillahittaufik Walhidayah Wassalamualaikum Warahmatullahi Wabarakatuh.