

SPEECH BY
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1. Firstly, allow me to thank the organising committee from Universiti Putra Malaysia and the Prime Minister's Department for organising this very timely and important seminar on one of Malaysia's oldest and most treasured resources, our rainforest. I would also like to thank Kumpulan Permodalan Nasional Berhad, in particular Golden Hope Plantations, for supporting this event.

2. The idea of having this seminar cropped up after Professor Makhdzir Mardan gave a presentation to Datuk Effendi Norwawi, Datuk Law Hieng Deng and myself several months ago. We felt that there was an urgent need to highlight the vast potential that resides in our rainforest and draw up a strategy that can facilitate sustainable utilisation of our rainforests.

3. I am happy that today we are able to bring together many experts in related fields, government officials, the private sector and members of non- governmental organisations (NGOs) to discuss and deliberate the best way we can develop rainforest-based industries, an in particular the best way in which we can utilise the knowledge content that resides in the rainforest, for the benefit of national development. I look forward to the outcome of this seminar and hope that its findings can be incorporated into concrete policy actions.

Ladies and gentlemen,

4. The recently tabled Third Outline Perspective Plan articulated a vision for Malaysia to develop a knowledge-based economy, or k-economy. We have defined a k-economy as one where the generation and utilisation of knowledge contributes significantly to economic growth and wealth creation. Knowledge is intended to be more important than traditional factors of production such as land labour and capital. The government believes that by developing the knowledge content in economic activities, the national economy stands to increase its total factor productivity and improve its competitiveness vis-a-vis the global market.

5. The k-economy is not restricted to sectors of the so-called new economy. Although information and communication technology (ICT) is an important enabler, it is not the only sector that will benefit from Malaysia's transition to a k-economy. A knowledge- based economy is envisioned to transform all sectors of our economy, whether it be manufacturing, services or agriculture. This broad-based transformation of our economy will require concerted efforts at ensuring a targeted human resource development strategy and a significant boost to relevant research and development activities.

6. In this regard, the government has committed itself to enhancing Malaysia's medium term competitiveness by increasing the allocation for R&D and commercialisation of technology to RM 1.6 billion in the Eight Malaysia Plan period, as compared to RM 1 billion during the Seventh Malaysia Plan. We are also propelling Malaysia's human capital to one that is better educated and with higher skills. We

are aiming, inter alia, for 30 per cent of 17-23 year olds to be enrolled in university by 2005.

7. We believe that efforts towards creating a k- economy are in line with global economic developments. There is wide agreement that economic progress in this century will be focused on the on-going digital revolution and the complementary developments in biotechnology. Malaysia in many ways has a head start in biotechnology development. We have around us a rich biodiversity of natural resources, especially in our rainforest. By developing the knowledge content of these resources we will create spin-offs into other sectors of the economy. Commercial applications can be developed in areas such as medicine, fuel production and food production. High-value-added industries such as pharmaceuticals and agrobiotechnology can also be established and strengthened through proper utilisation of our natural resources.

Ladies and gentlemen,

8. The holistic effect of the nation's transition to a knowledge based economy augurs well for a more efficient, profitable and sustainable utilisation of our natural resources. In this regard, we want to approach the exploration of our rainforest and the development of rainforest related industries in such a way as to derive greater economic benefit from it while at the same time maintaining its rich biodiversity. While we recognise that the rainforest has much to offer in terms of creating value for knowledge-based sectors such as biotechnology, pharmaceuticals, agriculture, medicine, ecotourism and education, we must ensure that any attempt to tap into this precious bio-resource must be done in a responsible manner that ensures its conservation and sustainability for future generations.

9. As a signatory and contracting party to the 1992 convention on biological diversity, Malaysia is committed to the objectives of protection of biodiversity, sustainable development of natural resources and equitable sharing of benefits derived from the use of genetic resources. Developing rainforest knowledge industries must, therefore, adhere strictly to these conditions. The rainforest is not a resource that can be exploited freely and replaced easily. It contains a treasury of plants, animals and microorganisms that balance with each other to create a delicate ecosystem. Irresponsible exploitation of the rainforest through environmental degradation and excessive logging, for example, can cause long-term damage to this ecosystem.

10. With this in mind, we need to look at our rainforest as a key component of a knowledge based economy, but one which perhaps requires the most care in its development. The rainforest holds within it a vast repository of genetic material and scientific knowledge. Approximately 62% of our land in Malaysia is covered by tropical rainforest. Yet most of this is unexplored. In our rainforest, knowledge coded in genes of species are waiting to be discovered, deciphered, patented and developed into a whole range of knowledge-based industries.

11. Yet utilisation of our rainforest has hitherto been limited and even damaging. While the timber industry has, for example, generated export revenues for our economy, excessive logging has cleared vast tracks of our forests. In this regard, the government is working to ensure that our rainforest is managed sustainably, in line with the International Tropical Timber Organisation's year 2000 objective that requires all timber traded in the international market to be produced from forests

that are sustainably managed. Between 1996-2000, the annual allowable cut in permanent forests was reduced to 46,000 hectares in peninsular Malaysia. There were also reductions in Sabah and Sarawak resulting in a decrease in the production of sawn timber. These conservation efforts will be continued in the Eighth Malaysia Plan.

12. Agriculture is another area in which we have been able to use our bio-wealth. The rainforest provides an endless supply of potential new crops and livestock. Sago, for instance, the staple diet of Sarawak's Melanau people, is now being developed as a cash crop of the future. With the wealth of species waiting to be discovered, the rainforest provides tremendous potential for agriculture. Likewise for ornamental plants. Consumption for cut flowers alone is expected to reach 35 billion U.S. dollars. And the market is growing at about 6-9% per year.

13. But perhaps the largest market for new genetic resources is in the area of high-tech healing- biotechnology and pharmaceuticals. The total retail market in pharmaceutical sales in the U.S. last year was US\$132 billion. Biotech companies have been making enormous advancements at unusual speeds, leading to revolutionary changes in drug discovery processes, in disease targets for drugs, and in understanding the pathways of complex diseases.

14. Such advances in biotechnology can be combined by traditional medicine and knowledge that has not been codified from the rainforest. New age aromatherapy is an example of resources from the rainforest being used for medicinal purposes. There are potentially countless medicinal applications to be discovered in the rainforest. There may be plants and species whose properties contain the ingredients for medicine to combat diseases that continue to baffle mankind.

15. With such potential for the development of these industries, the possibilities for the rainforest's bio- resource to create new applications are numerous, especially considering the fact that there are still millions of new species yet to be discovered, especially in the forest canopies.

Ladies and gentlemen,

16. The rainforest can also spin off economic activity in the service sector. Ecotourism, for example, is worth developing. Although ecotourists traditionally make up roughly 10 per cent of tourists, figures show that they spend more on average, and are willing to contribute towards conservation. Innovative ideas such as the marrying of tourism and bioprospecting can also bring together the public and researchers in the exploration of our rainforest.

17. In the context of the ICT and the Multimedia Super Corridor (MSC), the rainforest offers pure content. Digital databases on the rainforest is rich fodder for the ecomedia and ICT industries, ranging from documentary broadcasting and telecommunications to advertising, entertainment, and the creative arts.

18. By building a digital repository of rainforest knowledge Malaysians, present and future, can be cognisant about our very own heritage, tell our own stories, and be enriched by the ethnic lifestyles and relationships of our people. Such codified knowledge can then be passed on to build an institutional memory of our relationship with the rainforest.

19. The codification of rainforest knowledge through efforts such as creating a digital repository or a gene bank that catalogues the genetic material found in our rainforest is a crucial aspect of utilising our bio- resource in a k-economy. What we are beginning to realise is that knowledge is not free. While ICT has enabled access to vast amounts of public domain information through the internet, proprietary knowledge that is codified and patented is only available to those who own it and those who can pay for it.

20. Through agencies such as the forest research institute of Malaysia (FRIM), we have been successful in broadening and deepening our understanding of the rainforest and the numerous creations and applications that can be borne out of its resources. However, we need to do more to ensure that we can benefit from this knowledge. Although we may realise the enormous potential that resides within our canopies and jungle, we may not be able to derive economic opportunities or scientific advancement from it. If we are not quick to identify and utilise the knowledge inherent in our rainforest it can be lost to us. Biopiracy and biotheft is not unusual in areas with rich biological content. We may find that if we are not proactive in looking for undiscovered applications, others will come in, prospect for exciting new species and patent the genetic material. In other words, if we do not find the hitherto undiscovered rainforest knowledge ourselves, its ownership can reside outside our own country. Such developments in intellectual property of bio-resources can mean that we do not actually own natural resources found on our land.

21. This does not mean that we are not open to international cooperation in the area of rainforest management and exploration. We welcome experts in biotechnology, medicine and pharmaceuticals from around the world to work together with us to find new genetic and biological knowledge. We want to make sure that community stakeholders, such as the indigenous peoples of Malaysia who have for hundreds of years been the custodians of rainforest knowledge, also benefit from developing rainforest knowledge industries. Without their knowledge of the rainforest, there will be nothing to codify and nothing to build upon.

22. The rainforest also offers valuable, first hand environmental education. Research in areas such as climate change, the effect of pollution on soil and the ecosystem and sustainable usage of renewable sources of energy can be gathered and collated through studies of the rainforest. The rainforest contains more species of plants, animals and microorganisms than perhaps any other terrain on earth. By observing the interrelationships of these things, scientists, geneticists and rainforest knowledge workers will be better able to understand ecological structures and the fine balance of rainforest ecosystems.

Ladies and gentlemen,

23. In order for us to leverage on our rich bio- resource, we need systematic and strategic management and utilisation of our rainforest. And this must be in accordance with internationally-accepted standard procedures that will ensure conservation and sustainable development and the protection of human rights for all stakeholders concerned.

24. Firstly, there must be a change in mindset from ignorantly debunking and deriding the green wisdom of our rural and indigenous peoples. Instead, we must begin to value that knowledge. We must realise that the knowledge that is passed on

from one generation to another on farming, traditional healing and properties of flora are all un-codified information that can be tapped into for greater economic activity. But, again I stress, we must not do this at the expense of the people with the knowledge. While scientists may be able to codify the knowledge and discover new applications for these bio-resource, we must ensure that there is equitable participation from those who have been utilising the rainforest all this while. Any attempt at developing integrated rainforest knowledge industries must be community based and supported by those closet to the rainforest. In this regard, the Orang Asli and others who have been utilising rainforest knowledge for all these years must be co- opted to provide leads to further discovery. In turn, the rainforest knowledge industries that are spawned from new discoveries can generate new sources of wealth for the indigenous and rural community.

25. Research and development will be the backbone to extracting the knowledge that the rainforest contains. Without R&D the knowledge that can be found will find no application or use. Therefore, government and private sector supported R&D schemes must be expanded. The government has made a start with an allocation of RM 100 million specifically for research in the fields of agro-biotechnology, medicine, and environmental and energy management. The government will also formulate a national biotechnology policy which will chart a coordinated strategy for the development of this sector. I am confident that the rainforest knowledge sector can feed into the national biotechnology policy and vice versa.

26. R&D efforts can also propel our own scientists to make discoveries from material sourced from our own land. While we are open to international participation, we must play a more prominent role in discovering the properties of plants and species that are in our own backyard, so to speak. It took scientists in laboratories in the developed world to discover the medicinal qualities of the mengkudu, the pegaga and aloe vera which are found in abundance in our land. This is an example of how modern knowledge has discovered hidden knowledge in bio-resources that have surrounded us for all these years.

27. The government will also consider pursuing a regional approach to developing rainforest knowledge industries. The rainforest of the Malay archipelago spans more than 20,000 islands in Asean including Indonesia, Thailand, Cambodia, Burma, Vietnam, Laos and the Philippines. The region has a population of more than 350 million, with common ecological, cultural and economic backgrounds. They form the critical market mass, and a pooling of resources can be a win-win situation.

28. Of course this knowledge must be translated into downstream applications: technologies for industries, products for the service industry, content for the media and educational courses for the public, particularly the young. Human resource training is needed to generate the rainforest knowledge workers needed-the biologists, the anthropologists and the geneticists, as well as the manufacturers, the ICT knowledge workers and the ecotourism operators. The development of new industries based on green knowledge and technologies will fuel the k-economy.

29. The legislative framework must of course support this, and the country has in place various legislation such as the national environmental policy and the environmental quality act. Internationally, Malaysia is a contracting party to numerous agreements, including the CBD and Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES), and numerous bilateral and multilateral agreements with agencies within Asean, United Nations agencies, and

international scientific organisations that promote conservation and sustainable development. We will continue to honour our international agreements and push for countries, both developed and developing, to commit to international agreements that will safeguard our environment for the future generations. The recent impasse on the Kyoto protocol on climate change is most unfortunate.

Ladies and gentlemen,

30. Throughout the ages of human civilization, we have benefited tremendously from the product derivatives of the rainforest's biodiversity. But agriculture and livestock are just the start. The rainforest harbours multi-faceted gifts. An untold number awaits discovery, what more utilisation and sustainable exploitation.

31. Worldwide, growing awareness on rainforest conservation is prompting the shift towards sustainable use and the sourcing of materials from the rainforest. Sustainable development of rainforest knowledge industries takes the approach of deriving benefits through non-destruction and least possible destruction to the rainforest. The harvest is the wealth of green information and the knowledge.

32. This is the biological age. This is the genetic century where knowledge and therefore wealth is contained in mere seed or in an Orang Asli myth that has given benefit to them for hundreds of years.

33. This seminar on rainforest knowledge industries recognises the rainforest as critical to our destiny and future in this country. Rainforest knowledge industries are part and parcel our k-economy initiative. For it is about generating and utilising knowledge - rainforest knowledge -as a strategic bioresource and biowealth potential for nation- building. Yet, this new wealth creation from the rainforest can only be successful if there is the k- factor. Without the localised knowledge of the indigenous people and the scientific expertise of scientists and geneticists, we will not be able to derive value added from our rainforest. Only man with knowledge can discover more knowledge.

34. Everyone in this room has a shared responsibility as custodians of the rainforest, not only for Malaysia but the rest of the world. Otherwise, we risk losing something before we even know it and the magnitude of this loss cannot be measured.

Thank you.