

**SPEECH BY
YAB DATO' SERI ABDULLAH BIN HAJI AHMAD BADAWI
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**"INTERNATIONAL COLLABORATION IN R&D –
THE WAY FORWARD TO A KNOWLEDGE-BASED ECONOMY"**

I am honoured tonight to address the Academy of Sciences Malaysia. The academy was established by the government to bring together the most eminent Malaysian scientists, engineers and technologists, to provide advice and leadership in the development of science, engineering and technology in the country.

2. We recognize that in the new global economy, the ability to create, organize, and use knowledge will hold the key to economic and social security. We already have seen how, in the past twenty years, progress in science and technology, particularly in information technology, has drastically changed many sectors such as industry, health, banking, air travel, communications, entertainment and education. Almost nothing has been left untouched. Many of the changes have been beneficial. Other changes could have wrecked our economy. For example, our once-powerful tin industry has collapsed due to the replacement of tin by other alternatives. Our once-powerful rubber industry is facing similar problems. We have managed to stay ahead through the innovation of downstream rubber products and by diversification into other industries such as oil palm and petroleum. But already, there is talk of cheap solar and other forms of energy replacing petroleum. Predictions that petroleum resources will run out are being replaced by predictions that petroleum will become obsolete before it can run out.

3. Who can foretell how oil palm will fare in 20 years time? The driving force of innovation will make obsolete many of the industrial, agricultural and other technologies that we now depend upon. In twenty years time, the bulk of world business may revolve around the trading of commodities and services that are yet to be invented.

4. The health of our current industries therefore cannot be taken for granted. Indeed, we can be certain that if we rest on our laurels, we will be overtaken by those who are constantly innovating and probing new and better ways of doing things. Our economic security has become dependent on our ability to take part in the global innovation process, so that we can have a share of its benefits. If not, we will certainly be left behind as spectators and ultimately as victims.

5. For Malaysia to be a part of the global innovation process, our scientists and technologist have to be competitive on the global stage. They have to bring real commitment and passion to their work. In asking for commitment and passion, we are not asking for the impossible. Without an outstanding level of commitment and passion, one cannot be ranked among the top performers in any field of human endeavour. Therefore commitment and passion is what we should expect, even demand, of our practitioners of science and technology.

6. Studies on international development have shown that the gap between the rich and the poor countries has been widening. If we think of this gap as a wealth gap, nothing can be done, because the wealthy, having money to invest will become more wealthy. The poor, having nothing to invest, will get poorer. The truth is that the widening gap is fundamentally a gap in innovative ability, and this is something we can and must address.

Ladies and gentlemen,

7. Our country is fortunate in that we have a strong basis for embracing a knowledge-based economy. Located in one of the major trading cross-roads of the world, we have, throughout our history, been open to multi-cultural influences from east and west. The average Malaysian is culturally tolerant, open minded, and quick to adapt to technological change. This is one of our great national strengths. We also have a well-established system of research institutions and a rapidly-growing university system.

8. Among our shortcomings is perhaps the tendency to picture ourselves only as supporting actors on the world stage. The idea of playing major roles tends to frighten rather than inspire the average Malaysian. Yet to achieve excellence, we need to aspire for the big roles, to cast aside the limits that we have subconsciously placed around ourselves.

9. For several decades, we have been sending students by the thousands, every year to study abroad. The exercise has been useful but perhaps too passive. It is time for us to take active roles in order to speed up the opening of our intellectual and scientific horizons. International collaboration is one of the major avenues that we can use.

10. One example of international collaboration has been the practice of secondment of Malaysian scientists to the technical agencies of the United Nations, such as UNESCO and WHO. This has been practised for some time, particularly with respect to senior scientific staff. We could perhaps expand this practice, and extend it to younger scientists, even to those at the beginning of their scientific careers. We might also offer direct technical assistance to other developing countries, in the form of scientific teams to undertake research and development projects. All the advanced countries have overseas development programmes, and in implementing such programmes, they extend their own global expertise and outlook.

11. One of the most enduring examples of international collaboration in science and technology is the Antarctic program. Countries in the northern as well as the southern hemispheres collaborate in this programme. However, the participation of tropical countries in this program has been notably absent. The tropics is a geographical and climatic zone. It has also become a mental cage, limiting the intellectual and scientific horizons of tropical countries. To break out of this cage requires a definitive step. Our decision to participate in Antarctic research is therefore important symbolically and psychologically. It is one of the measures that we can take to encourage Malaysians to think global. Our presence in the Antarctic will be small, but the symbolism is great. And we expect our team to make a significant contribution to the international effort. I congratulate the ministry of science, technology and environment for approving and funding the Malaysia Antarctic program.

Ladies and gentlemen,

12. In the knowledge driven economy, the role of science, engineering and technology will be crucial to national development and must be clearly defined and evolved into the national innovation system.

13. Malaysia, being a developing nation, is gradually redirecting its economy from being low knowledge content, low capital, labour intensive industries to capital intensive, high knowledge content industries to drive its next phase of economic growth. The science, engineering and technology (S.E.T.) component will then feature prominently in this phase of economic growth. In this context Malaysia must now seriously focus on strengthening its S.E.T. international collaboration to harness the enormous benefit from resources available from the international scientific community.

14. Through this strategy, the country can reap huge potential benefit derived out of international collaboration.

15. The Academy of Sciences Malaysia by its charter and name, is immediately identifiable as the apex organization for Malaysian science and technology. The task of forging close collaborative links with similarly prestigious academies in other countries is something which the academy is well-placed to do. I am pleased to know that the academy has made international relations one of its priority activities. I urge the academy to assume the leadership to establish and promote international R&D collaboration in Science, Engineering and Technology (S.E.T). The government is willing to consider allocating the necessary resources to the academy for this purpose.

Ladies and gentlemen,

16. In concluding, let me comment briefly upon the review of the national science and technology policy that the academy will be undertaking. A good policy will lay the foundations for excellence in science. I urge the academy to be thorough in evaluating the options. The history of Asian Nobel prize winners is not encouraging. Most Asian Nobel prize winners have made their prize-winning achievements in the west, particularly in the United States of America, rather than in their home countries. This is cited as proof that the Asian scientific environment does not encourage world class scientific research. If such is the case, what exactly is wrong with our scientific environment? Why is it that some universities in the west can claim to have 20 or more Nobel prize winners, while many countries have yet to claim even one prize winner?

17. A decade ago, when we began to reform our funding mechanisms for science, we thought a change in the funding of research would raise the level of science in Malaysia. We are not sure to what extent we have succeeded or failed. Part of the problem is that we have had no independent measuring system by which we could quantify our performance. There is indeed no universal system for measuring the scientific strength of a country except by its Nobel prize winning record. The number and frequency of such awards provides a universal measure of the scientific status of a particular country or institution.

18. Last year, at the academy's annual dinner, our Prime Minister YAB Dato' Seri Dr Mahathir Bin Mohamad challenged the scientific community to produce a Malaysian

nobel laureate by 2020. In setting the nobel prize as our target, we have implicitly accepted the universal measure of scientific performance as our own. The acceptance of the universal measure makes it necessary for us to focus on what is needed to bring our science up to standard. Many things may have to be upgraded. The National Science, Engineering And Technology (S.E.T.) policy review undertaken by the academy will further address the policy issues and implication pertaining to achieving a culture of excellence which is fundamental in pushing Science, Engineering and Technology (S.E.T.) development in Malaysia to greater heights in line with the emergence of a knowledge driven economy.

19. I look forward to the recommendations that the academy will make. There is no time to waste. Let us put passion and commitment into this effort.

20. In this regard, the government, through the academy, has instituted the appointments of senior fellows as a life long recognition of the contribution of fellows of the academy to the nation. I would like to congratulate the four outstanding Malaysians who have been appointed senior fellows of the academy of science. Their example will, i believe, stimulate others to follow, to excel in science, engineering and technology in the service of the nation.

Thank you.