

## Malaysia Collaborates with the New York Academy of Sciences to Develop an Innovation-Based Economy



Michel WAHOME, Ellis RUBINSTEIN

*The New York Academy of Sciences  
250 Greenwich St - 40th Floor  
New York, New York 10007  
United States of America*



### Abstract

If Malaysia is to become a high-income country by 2020, it will have to transform into a knowledge-based, innovation economy. This goal will be achieved by developing an atmosphere conducive to experimentation and entrepreneurship at home; while reaching out to partners across the globe. One of Malaysia's newest partnerships is with the New York Academy of Sciences. The Academy has expertise in innovation and higher education and a long history of promoting science, education, and science-based solutions through a global network of scientists, industry-leaders, and policy-makers. Malaysia's Prime Minister, Dato' Sri Mohd Najib Tun Abdul Razak, leveraged the Academy's network to convene a science, technology, and innovation advisory council. This council would provide practical guidance to establish Malaysia as an innovation-based economy. Three initial focus areas, namely palm-oil biomass utilisation, establishment of smart communities, and capacity building in science and engineering, were established to meet short-term and long-term targets.

**Keywords:** *economic development, international cooperation, knowledge, Malaysia, science, technology, United States*

On 17 May 2011 at the offices of the New York Academy of Science (NYAS) in Downtown Manhattan, the Prime Minister, Dato' Sri Mohd Najib Tun Abdul Razak, chaired the inaugural consultative meeting of the Global Science and Innovation Advisory Council (GSIAC). The council had been convened with the express purpose of catalysing international partnerships and providing practical advice on how to realise the goal of raising Malaysia's economic status to that of an industrialised nation, as articulated in Vision 2020 (1).

In order to accomplish this goal of graduating from a middle-income to a high-income economy, Malaysia will have to double its per capita income to USD15 000 in less than 9 years (2). The country's Vision 2020, as articulated in 1991 by the former Prime Minister, Tun Dr Mahathir Mohamad, as well as the more recent New Economic Model and the Tenth Malaysia Plan

identify science, technology, and innovation (STI) as critical to Malaysia's prosperity and increased global competitiveness. Malaysia's development strategies demonstrate an acknowledgement that global partnerships and a sophisticated knowledge of international markets are also fundamental to achieving industrialised nation status.

The Malaysian government has embarked on a strategic partnership with NYAS to help build the country's capacity in STI. It was after becoming familiar with the Academy's work in innovation and economic development for Mexico and Russia that the Prime Minister, Dato' Sri Mohd Najib Tun Abdul Razak, through the Office of the Science Advisor, expressed an interest in obtaining an international perspective on the fundamental components of STI-based development. In an article in the New Straits Times, Professor Emeritus Dato' Dr Zakri Abdul Hamid, the Science Advisor to the Prime Minister,

elaborated on the government's interest in the Academy. He explained that "the government-academia-corporate nexus that is the *raison d'être* of the NYAS makes it a natural choice to advise us on how to improve our approaches in achieving the New Economic Model, in particular the role of the private sector" (3). Furthermore, the Prime Minister had recognised parallels between his Global Movement of the Moderates initiative and the Academy's STI initiative for the Islamic world. In brief, NYAS, together with the United Nations Educational, Scientific and Cultural Organization (UNESCO), Islamic Educational, Scientific and Cultural Organization (ISESCO), and member countries of the Islamic Conference, is seeking to mentor young researchers at science and technology centres of excellence across the Islamic world.

The Prime Minister's interest in our Academy is emblematic of a yearning we increasingly encounter across academic, industry, and government sectors to establish multilateral partnerships to increase the impact of their strategic initiatives. The challenges and opportunities of our globalised world are so complex that only multi-stakeholder efforts are seen as robust enough to achieve our common objectives.

The Academy has a long history of fostering discussion and collaborative action by multiple actors. Established in 1817 as a scientific society, our membership has always been international and included prominent people from various walks of life—scientists from various disciplines, as well as business-leaders and policy-makers. Our programmes continue to evolve to reflect changing times, while serving our three mandates: to advance scientific research and knowledge, support scientific literacy, and promote the resolution of society's global challenges through science-based solutions. Our main tool is our ability to bring stakeholders together and create partnerships that bring about results in key areas. For example, in 1946, we held the first global conference on antibiotics. In 1983, we convened the first global conference on acquired immunodeficiency syndrome (AIDS), and in 2003, at the height of the severe acute respiratory syndrome crisis (SARS), we brought together, for the first time, experts in that area. In these cases, and others, we publish the proceedings of important scientific meetings and make them widely available. Some of our main dissemination channels include the journal, *Annals of the New York Academy of Sciences*, as well as our online *e-Briefings*.

GSIAC is the first product of Malaysia's strategic partnership with the Academy. Together with our Malaysian counterparts at the Malaysian Industry-Government Group for High Technology (MIGHT), we set about identifying experts in the Academy's network who were well-versed in innovation, entrepreneurship, and education. The GSIAC comprises 35 members: 10 from Malaysia and 25 international members from China, India, Russia, Japan, Korea, the Netherlands, the United Kingdom, and the United States of America. This accomplished group of experts was convened to distil the knowledge and expertise of its esteemed members into tangible and feasible projects that could step up Malaysia's performance in STI and translate that performance into economic growth.

Innovation-based economies are creative and dynamic. Since they continuously generate novel concepts and technologies, they avoid the obsolescence and stagnation faced by countries that rely on revenues from commodities or manufacturing. The 2020 target necessitates the timely development of the requisite ecosystem that will nurture a creative entrepreneurial innovation-culture. A method to catalyse this process is to connect to pre-existing knowledge centres around the world, thus, ensuring that Malaysia becomes a node in the global innovation network. Forming connections and strategic partnerships is duly part of Malaysia's STI strategy, and since it is part of the Academy's historic mandate, our alliance is fitting.

The product of Malaysia-NYAS collaborative efforts, including the 17 May GSIAC meeting, is the identification of three initial focus areas.

#### *Palm oil*

The palm oil industry is a sector in which Malaysia enjoys a significant comparative advantage. It follows that this is an area that offers opportunities for quick wins. Substituting palm oil in sectors that currently utilise petroleum-based products is one way to achieve the Prime Minister's Green Future objective. Palm oil biomass can be diverted for use in energy generation as well as a raw material for the manufacture of various biochemicals.

#### *Smart cities and smart villages*

With billions of people expected to live in urban areas in coming decades, several countries are engaged transforming their urban centres into green, smart cities, where necessities like water, power, traffic, and communications are managed in a highly efficient way with sophisticated technological infrastructure.

Applying information technology to targeted municipal issues such as learning, health, and energy conservation will help Malaysia become a centre of excellence with distinct technical competencies that can then be exported to other emerging markets.

While a handful of smart cities are under creation elsewhere—mostly in highly-developed countries—Malaysia's Smart Village pilot project is a first in the region. The goal will be to apply information technology solutions to community challenges, where applicable.

### *Capacity building*

In the long-term, Malaysia's success is likely to hinge on its ability to produce and retain a talented, skilled, and creative workforce, one that is particularly well grounded in science, engineering, and technical vocations. Recent reports by the World Bank revealed a general consensus among business people that Malaysia was falling behind in terms of producing a skilled and entrepreneurial workforce; furthermore, there has been a significant brain drain that is desiccating the talent pool (4).

The Academy's envisioned role includes taking stock of Malaysia's research and development assets, assisting the national government with creating and administering programs to promote mentoring and entrepreneurship, sharing best practices for post-secondary education reform, coordinating research strengths and education competencies among campuses, and creating university–industry research partnerships.

As 2020 fast approaches, Malaysia will have to step up its admirable economic achievements and double its economic growth in 9 years. Partnerships with global thought leaders could create a uniquely Malaysian innovation system that will serve as the engine for exponential economic growth. NYAS's intention has always been to ensure that science continues to be an instrument for prosperity and improvements in quality of life. Our continued interaction with Malaysia builds upon our long history of using science to create positive impact around the globe. We hope to contribute to Malaysia's fulfilment of Vision 2020 and sustaining that growth by building upon established strengths, creative problem-solving, and encouraging experimentation and entrepreneurship in its talents pool. Thereby, Malaysia can be an exemplar for emerging and developing economies around the world.

## Correspondence

Ms Michel Wahome  
BSc (Hons) Environmental Studies (University of Waterloo), MSc Environmental Policy (Bard College)  
The New York Academy of Sciences  
250 Greenwich St - 40th Floor  
New York, New York  
10007  
United States of America  
Tel: +1.212.298.8628  
Fax: +1.212.298.3638  
Email: mwahome@nyas.org

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