

# Driving science, technology

**T**HIS year has been declared as the Year of Science and National Innovation Movement (SGI2012). It is an on-going effort by the government to promote and acculturate science, technology and innovation (STI) to all segments of society.

"Innovation shifts the economic value chain to a higher level. Innovation triggers new ideas to be translated into viable commercial products and services. Hence, research institutes should re-strategise and commercialise their research and development findings. In addition, it is vital to internalise innovation as a way of life, to be practised by all including pre-school children," said Prime Minister Datuk Seri Najib Razak, when he announced this year as the Year of National Innovation Movement during the 2012 Budget Speech.

The Deputy Prime Minister, Tan Sri Muhyiddin Yassin, echoed this during the official launch of the Year of Science and National Innovation Movement 2012 (SGI2012): "In the context of the Year of Science and the 2012 National Innovation Movement, the main emphasis is to enhance the transformation of knowledge into products, processes, services or solutions to value add each sector and to maximise the socio-economic benefits to the people."

Datuk Seri Dr Maximus Ongkili, Minister of Science, Technology and Innovation added to this saying, "This is a national initiative aimed to promote and to acculturate science and innovation among Malaysians in pursuit of achieving the aspirations of Vision 2020."

This is evident through the many activities that have been organised by the Ministry of Science, Technology and Innovation (MOSTI) for the year 2012.

**ACTIVITIES GALORE:** Under the theme of Science and Innovation Drive Transformation, SGI2012 is set to be a calendar year filled with events, featuring a wide range of programmes including seminars, carnivals, competitions, and exhibitions aimed at engaging widespread participation in STI. The 397 events that have been lined up for



*Age of the Giants exhibition. (right) The Robot Actroid.*



**MOTIVATION FOR RESEARCHERS:** Recognition through awards is another way of motivating involvement and contribution to STI. Towards this end, MOSTI organises the National Innovation Awards annually. The awards serve as a recognition and acknowledgement of innovation and creativity that generate ideas, inventions and products in science and technology that contribute towards economic development. Prizes are awarded in four categories: products, services, grassroots, and schools.

In addition, the National Young Scientist Award and the National Technologist Award, ceased in 2004, have been reinstated. "These awards aim to inspire and encourage young scientists and technologists to enhance excellence, creativity and contribution in the field of science and technology," explains Datuk Fadillah Yusof, Deputy Minister of Science, Technology and Innovation.

Associate Professor Dr Irmawati adds that for a developing country, a bottom-up approach of educating the public, especially the youths, would be more effective in encouraging a scientifically curious attitude. "A solid support from an empowered society at the base is needed to bring more talent into the pool of qualified scientists, technologists and engineers for acquiring and maintaining a competitive edge in the new economic order."



*Solar boat competition.*

SGI2012 focus on four main segments of innovation, namely science and mathematics; awareness and enculturation of innovation; research and development commercialisation and exhibitions; and services and management innovation.

One of the pillar programmes under SGI2012 is the Science and Innovation Carnival, which will be held in six zones throughout the country. The carnivals are expected to draw more than 10,000 visitors at each venue, through special attractions such as Science Camps,

Angkasawan Space Camps, Amphibious Electrical Vehicle Competition, Water Rocket Competition, and Nano Fest, among others.

To attract the students and youths, the important target groups as they will be the nation's future torchbearers, are activities that demonstrate that science and mathematics can be creative and exciting. These include musical science shows, robotics challenges, astronaut games and 3D kite competitions.

The National Science Centre (NSC) has lined up a host of events in conjunction with SGI2012 such as the Science Kids, Special Science Day, Science Festival, World Robotic Olympiad, Lego League and Paper Air Plane competition, in addition to its usual attractions which include permanent exhibition galleries, walk-in education programmes, outreach programmes, self-exploration visits and an outdoor Science Wonderland.

The NSC's activities are not limited to the Klang Valley. Its Science on Wheels Programme is a travelling exhibition to schools and communities in different parts of the country.

**ENGAGING THE YOUNG:** "To achieve a high income economy, Malaysia needs a huge number of science and technology experts to develop the country. The latest statistics indicate that the percentage of students taking science subjects in school has decreased to 28 per cent. This is cause for concern as to whether we will be able to produce the critical mass of science and technology experts required by 2020," Datuk Dr Maximus opined.

Associate Professor Dr Irmawati Ramli, Director of the National Science Centre, emphasises that the centre plays an important role to revive public interest in science and technology so that the country can fulfil its aspirations to become a developed nation.

"To build a large pool of young people choosing careers in science and technology, the gaps and shortcomings of the formal science education system in schools will be addressed and supplemented with more hands-on non-formal approach adopted by the National Science Centre where learning of science can be fun and effective."

## Engaging young minds at the National Science Centre



*Solar car competition.*

**FUN LEARNING:** The National Science Centre (NSC) has been in operation for a quarter of a century. From its beginnings in a Jabatan Kerja Raya building in Jalan Kelantan, to its current multifaceted green dome in Bukit Kiara, NSC has sought to provide the Malaysian public with an accessible source of informal scientific education.

As an agency under MOSTI, NSC has an assortment of activities planned throughout the year in celebration of the Year of Science. NSC's quest is to bring Malaysians closer to science and the wonders of nature, including those that tropical countries may never encounter. Among the events NSC is involved in directly are the Ice

Age Experience, Science on Wheels, Science on the Move and Science Villages at various places throughout Malaysia, school holiday camps, and the Space Exploration Exhibition.

NSC is integral to many of MOSTI's other planned activities throughout the year – including the Lego League, which will no doubt attract adults as much as children, the Malaysian Chemistry Carnival, the National Robotics Competition and its heavyweight brother, the World Robotic Olympiad 2012.

In 2010, NSC upgraded and refurbished its exhibition galleries, including Pathways to Science, Thinking Machine and Kids Discovery Place as

well as launched new galleries like Wonderspark, Kidz World, Eureka and Energy World. Additionally, NSC has also played host to international exhibitions Dinos Alive, Da Vinci... the Genius and Encyclopaedia of the Actroid.

Welcoming a record one million visitors last year alone, NSC has evolved in leaps and bounds in tandem with society's growing appreciation for science. This has encouraged NSC to branch out, first with a satellite building in Gemencheh, Negeri Sembilan and followed by a new branch in Alor Setar, Kedah that was launched in 2010.





# Bringing innovation to the fore

**T**HE government's economic transformation programme outlines that innovation, development of talents and knowledge workers are the main drivers in thrusting Malaysia into a high income status by the year 2020.

Science, technology and innovation play a pivotal role for the long-term survival of a nation. Studies conducted by economists and policy bodies clearly indicate the association between science, technology and innovation (STI) and economic growth where STI is an accelerating factor in contributing to the rate of growth and productivity.

"This year we felt the need to continue our focus on developing excellence in Malaysia's greatest resource which is its rakyat. The Innovation Movement is a great platform to carry this out with its aim of nurturing awareness and appreciation of science and technology," says Datuk Fadillah Yusof, Deputy Minister of Science, Technology and Innovation. "This, in turn, will translate into innovations that will benefit advancements in the country."

**JEJAK INOVASI:** Jejak Inovasi is one of the major events that will be carried out in conjunction with the Innovation Movement. MOSTI together with Yayasan Inovasi Malaysia (YIM) will be traversing the country this year to actively promote grassroots innovation among the communities.

The programme was initiated by Datuk Seri Maximus Ongkili, the Minister of Science, Technology and Innovation who believes that innovation is not confined to corporations and laboratories but is possible anywhere.

Last year the Jejak Inovasi expedition kicked off in the historical city of Malacca and continued in the states of Sabah and Sarawak in East Malaysia.

"During our Jejak Inovasi program-



me, we found many inventors at the grassroots level and they are the perfect examples of what innovation should be all about. This year we want to promote more innovation at the grassroots level as part of our efforts to encourage the innovative spirit among Malaysians," says Datuk Fadillah.

Through the Jejak Inovasi programme, MOSTI hopes to inculcate the innovative spirit among people from all walks of life and alter the mindset of many people who think that inventions only happen in research labs.

**THE BIGGER PICTURE:** Another highlight of the Innovation Movement is the Kuala Lumpur Innovation Forum (KLIF), which has been held annually since 2010. The KLIF is the premier national thought leadership platform that facilitates the exchange of ideas and networking for feedback on policy, framework and the best practices on



innovation.

"As our past two KLIFs have been such great successes, MOSTI together with YIM has now been tasked with a bigger responsibility by the government to organise KLIF on a much bigger and grander scale this year. This is how the Kuala Lumpur 2012 (KLWIF) forum was conceptualised. THE KLWIF that will take place towards the end of the year will act as the grand finale of the Innovation Movement. At the event, programmes and activities that have taken place throughout the course of this year will be showcased," explains Datuk Fadillah.

With the theme 'Inclusive Innovation for Transformation', KLWIF 2012 aims to produce a set of resolutions that will promote Malaysia's innovation and economic agenda within the context of a changing regional and global landscape.

KLWIF will also serve as an avenue to establish potential collaborative initiatives at a global, regional and national level to promote innovation and at the same time strengthen the global network for the sharing of best practices and lessons on innovation.

"Additionally KLWIF will act as a platform for Malaysia to showcase the innovations of its people and subsequently establish the country as a regional innovation hub," says Datuk Fadillah.

Programmes like the Innovation Movement and the KLWIF are set to change the mindsets of the public and will help ensure that science and innovation are internalised and practised as a way of life by all Malaysians. With a host of elaborate plans and clear vision, the Innovation Movement is expected to propel Malaysia as a force to be reckoned with in the field of science, technology and innovation.



# Concerted efforts to protect marine resources

**T**HE outline of the awkwardly shaped triangle on the world map belies not only the aesthetic magnificence of the area it represents but also its significance as the planet's pulsing heart of marine biodiversity. An area covering six million square kilometers spanning parts of Indonesia, Malaysia, Papua New Guinea, the Philippines, Solomon Islands and Timor Leste, the Coral Triangle is inhabited by 3,000 species of fish, six of the world's seven species of sea turtles, 27 species of marine mammals and more than 500 species or 75 per cent of the world's known species of corals.

It is from this wellspring of marine life that approximately 120 million people derive the resources for their diet and sustain their livelihood. However, the Coral Triangle's importance to food security and economic growth is being undermined by the damaging effects of climate change, harmful fishing practices and management, pollution and physical damage from tourism activities and over exploitation of resources.

**REGIONAL COOPERATION:** In response to these threats, the six nations (CT6) that fall within the boundaries of the Coral Triangle region have formed a multilateral partnership and collaboration to manage and preserve marine and coastal resources within the region sustainably. Malaysia's involvement in the Coral Triangle Initiative (CTI) for Coral Reefs, Fisheries and Food Security (CTI-CFF) is led by the Ministry of Science, Technology and Innovation (MOSTI).

The National Oceanography Directorate (NOD) of MOSTI acts as the focal point and secretariat to coordinate with the interim regional secretariat and development partners including USAID, AUSAID, ADB, WWF, CI, TNC. The national committee comprising 17 ministries and agencies include the Ministry of Natural Resources and Environment, Ministry of Agriculture Malaysia and Sabah State related agencies.

"The marine ecosystem in the Coral Triangle region is interconnected so a trans-boundary approach is necessary to facilitate the implementation of collaborative conservation programmes, as well as sharing of knowledge on policy frameworks and best management practices," says Datuk Seri Dr Maximus Ongkili, Minister of Science, Technology and Innovation.

Sabah is the only state in the country located in the Coral Triangle region, which encompasses Malaysian waters in the Sulu and Sulawesi Seas. Under its National Plan of Action for the CTI-CFF, Malaysia has underlined five goals which are aligned to the Regional Plan of Action, which is also applicable to outside the boundaries of the Coral Triangle.

These goals include designating and



*The Coral Triangle encompasses more than 75 per cent of known coral species, more than 30 per cent of the world's coral reefs, more than 3,000 species of fish and the greatest extent of mangroves of any region.*



*Datuk Seri Dr Maximus Ongkili, Minister of Science, Technology and Innovation.*

effectively managing priority seascapes, adopting an ecosystem approach to the management of fisheries, establishing and effectively managing marine protected areas, implementing climate change adaptation measures, and improving the status of threatened species. "Our approach in carrying out the National Plan of Action is to apply the concepts of the five goals throughout the country," explains Datuk Seri Maximus.

At the regional level, Datuk Seri Maximus has been elected Chair of the CTI Council of Ministers for a two-year term from November last year to October next year. In this capacity, his priorities are to spearhead the implementation of the CTI Roadmap for 2012-2013 and to get the ball rolling on the establishment of a permanent CTI regional secretariat.

One of the major challenges is to strive for sustainable financing of the

CTI and to ensure that the implementation of its programmes and activities are not disrupted. "CT6 is made up of diverse nations with different levels of development, political stability, culture and resources," Datuk Seri Maximus elaborates. "To gain equitable commitment for funding towards collective development in the region is not impossible, but a little difficult as these six countries are diverse, have different levels of development and their own aspirations and priorities."

Through a Financial Resources Working Group, a financial framework and strategy is being formulated to sustain CTI related capacity building programmes. Next month, CT6 and the Asian Development Bank will organise a High Level Financial Roundtable in Manila, Philippines to discuss the various mechanisms of sustainable financing for CTI. Coral reefs provide a wealth of opportunities for businesses, particularly in the seafood, tourism and energy-related industries.

MOSTI has allocated RM1.2 million this year for various capacity building programmes and research projects under the CTI which will translate into the development of knowledge management, ecological, social and environmental databases, targeting at economic opportunities and alleviating poverty among the vulnerable coastal communities. These include sustainable fisheries management and protection of endangered species, marine-protected areas, climate change adaptation, mangrove ecosystem resource management and ecotourism. It is also in the interest of industries, NGOs and the public at large to contribute and ensure the sustainable management and protection of coral reefs and marine resources.

## ENGAGING THE PUBLIC, PRIVATE SECTOR:

The establishment of the CTI-CFF Business Council in October last year is aimed at engaging the private sector to participate in the CTI-CFF and contribute to the sustainability of its efforts. "Public-private partnership programmes can reduce the burden on the government to spend on conservation efforts," says the minister. "The CTI-CFF Business Council will be able to leverage on Public-Private Partnerships (PPP) by empowering stakeholders including local communities to get involved in its corporate social responsibility programmes on environmental conservation and sustainable development."

For example, Shangri-La's Tanjung Aru Resort and Spa is working to conserve dugongs and their habitat through cooperation with the local communities. The initial cooperation is between the resort and the community

at Berungus, Pitas. This effort supports sustainable fisheries management and dugong habitat conservation by the Berungus community residing within the boundaries of the proposed Tun Mustapha Park, in the northern part of Sabah. The proposed park area is home to Malaysia's second largest concentration of coral reefs, mangroves, seagrass beds and endangered marine species such as turtles and dugongs. The park is a key component of Malaysia's action plan for the CTI. The resort has also adopted the dugong as its official mascot.

Aside from the private sector, NGOs such as WWF Malaysia are involved in the CTI-CFF and collaborate with other conservation groups in the CT6. Through the Save our Seafood (SoS) Programme, WWF Malaysia has worked with local communities in Semporna, Sandakan, Kudat and Banggi in Sabah to manage marine resources for sustainable livelihood and conserve endangered species such as the Napoleon Wrasse, turtles, seagrasses and dugongs.

WWF Malaysia is also involved in the establishment of the Tun Mustapha Marine Park, which is surrounded by the Sulu Sea in the east and South China Sea in the west, spanning an area of more than one million hectares. This is a pioneer project in Malaysia with the concept of marine conservation and engagement of the local communities in its management and activities.

The conservation and protection of our environmental resources require the participation of all sectors of the society. One of the oldest ecosystems on earth, coral reefs have benefitted humankind by providing subsistence source of income, food security, economic growth, compounds for life-saving medicines, and shoreline protection from storms and tsunamis. A concerted effort like the CTI is vital to ensure that the Coral Triangle continues to persevere and sustain despite the challenges of climate change and to maintain its place as one of the world's most important refuge for marine life.

