

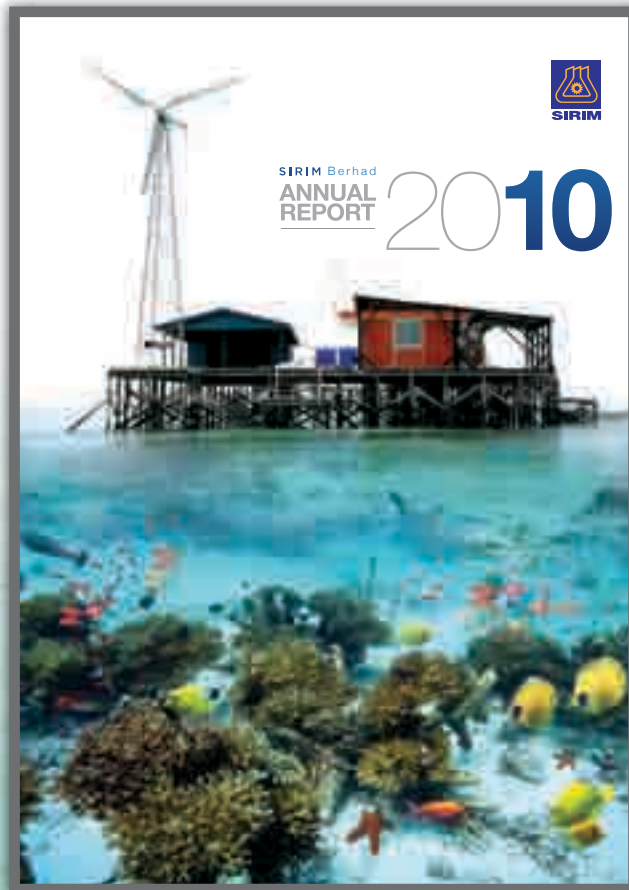


SIRIM Berhad  
**ANNUAL  
REPORT**

2010



# FRONT COVER RATIONALE



**Artificial coral reefs provide a foundation for natural corals to regrow and revitalise coastal areas. On the platforms, a solar-powered drying system lets seaweed farmers rapidly prepare their harvest for market.**

**From the centres of industry to this far-flung coastal community in Sabah, SIRIM's technology innovation brings benefits to all walks of Malaysian life.**

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# VISION, MISSION, ROLES, OBJECTIVES & FUNCTIONS

*Jatropha plant, future biodiesel production*



## VISION

- ▷ To be among the world's best in quality and technology

## MISSION

- ▷ We make businesses compete better through quality and technology innovations

## ROLES

- ▷ The champion of quality
- ▷ A national research and technology development corporation
- ▷ A vehicle for technology transfer
- ▷ A provider of institutional and technical infrastructure for government

## OBJECTIVES

- ▷ To innovate and develop processes, products and technologies for industry
- ▷ To promote standardisation and quality
- ▷ To provide technical services for industry and the public

## FUNCTIONS

- ▷ Plan, develop, operate and manage national strategic facilities and programmes
- ▷ Develop, operate and manage strategic research programmes
- ▷ Operate testing laboratories and quality assurance schemes
- ▷ Undertake development programmes for small and medium-scale enterprises

# BOARD OF DIRECTORS



**Datuk Hj. Jamaliah Kamis**  
Chairman



**Dato' Ir. Hj. Yahaya Ahmad**  
President & Chief Executive

# BOARD OF DIRECTORS



**Dato' Dr. Md. Khir  
Abdul Rahman**  
3 February 2004  
- current

**Khalimatun  
Saadiah Mohd  
Khalid**  
26 March 2009  
- current

**Dato' Syed  
Ahmad Idid Syed  
Abdullah Idid**  
2 June 2008  
- current

**Tan Sri Dato' Dr.  
Mohamed Salleh  
Mohamed Yasin**  
22 September 2004  
- current

# BOARD OF DIRECTORS



**Sakib Kusmi**  
(Alternate Director)  
19 October 2009  
- current

**Datuk (Dr.) Ir. Abdul  
Rahim Hj. Hashim**  
3 February 2004  
- current

**Dato' Dr. Sharifah  
Zarah Syed Ahmad**  
14 October 2009  
- current

**Ahmad Sahab Din**  
2 June 2008  
- current

# Company Secretary



**James Lee  
Liong Chong**

**Muhammad Suria  
Doshi Abdullah**

# MANAGEMENT COMMITTEE



**Asmadi Md Said**  
Vice President  
Marketing & Business  
Development Division  
- until 14 October 2010



**Abdul Razak Salim**  
Vice President  
Standard and Quality Division  
- until 29 May 2010



**Azim Ng Abdullah**

Vice President  
Standards & Quality  
Division  
- from 1 June 2010

**Dr. Zainal Abidin  
Mohd Yusof**

Vice President  
Research & Technology  
Development Division

**Dato' Ir. Haji Yahaya  
Ahmad**

President & Chief Executive

**Nor Rashid Ismail**

Vice President  
Corporate Division

**Ir. Dr. Mohamad  
Jamil Sulaiman**

Vice President  
Design & Engineering  
Division

**Khalidah Mustafa**

Managing Director  
SIRIM QAS International  
Sdn. Bhd.

# MANAGEMENT TEAM



Row above : from left to right

- |   |   |    |   |
|---|---|----|---|
| 1 | <b>DR. ABD RAHIM SAAD</b><br>Senior General Manager<br>Marketing and Sales Centre                                     | 7  | <b>DR. CHEN SAU SOON</b><br>Senior General Manager<br>Environmental Technology<br>Research Centre     |
| 2 | <b>ZURINA MOHD BISTARI</b><br>General Manager<br>Clients Management Centre  | 8  | <b>DR. AHMAD HAZRI AB RASHID</b><br>General Manager<br>Industrial Biotechnology Research<br>Centre    |
| 3 | <b>MOHAMAD NASIR ABDUL WAHID</b><br>Senior General Manager<br>Product Design and Engineering Centre                   | 9  | <b>ABDUL AZIZ LONG</b><br>Senior General Manager<br>Standards Research and<br>Management Centre       |
| 4 | <b>DR. WAN ABDUL RAHMAN<br/>JAUHARI WAN HARUN</b><br>Senior General Manager<br>Advanced Automation and<br>Rfid Centre | 10 | <b>DR. MOHD. AZMAN IDRIS</b><br>Senior General Manager<br>Quality and Enterprise<br>Management Centre |
| 5 | <b>AZMAN HASSAN</b><br>General Manager<br>Security Printing Centre  |    |   |
| 6 | <b>DR. ABDUL KADIR MASROM</b><br>General Manager<br>Industrial Nanotechnology Research<br>Centre                      |    |   |

# MANAGEMENT TEAM



Row below : from left to right

- 11 **ABDUL RASHID ZAINAL ABIDIN**  
Senior General Manager  
National Metrology Laboratory
- 12 **AZIZAH CHE MAT**  
Senior General Manager  
Group Human Resource Department
- 13 **LEE LIONG CHONG**  
Senior General Manager  
Group Finance Department
- 14 **MOHD. GHAZALI MOHD YUNOS**  
Senior General Manager  
Group Procurement Department
- 15 **NORAINI KASSIM**  
General Manager  
Group Corporate Affairs Department
- 16 **WAN MOHD SILMI MOHD YAACOB**  
Senior General Manager  
Group Internal Audit Department

- 17 **ROSMINA MUSTAFA**  
General Manager  
Office of The President and  
Chief Executive
- 18 **MUHAMMAD SURIA DOSHI ABDULLAH**  
Senior General Manager  
Group Legal and Company Secretarial  
Department
- 19 **NOR'AFIZA SAIM**  
General Manager  
Group Quality and Oshe Department
- 20 **DR. IR. AHMAD ZAINAL ABIDIN**  
General Manager  
Renewable Energy Research Centre

# MANAGEMENT TEAM



# MANAGEMENT TEAM



Row above : from left to right

- 21 **FUTOM SHIKH JAAFAR**  
Senior General Manager  
Malaysian Design Council  
Secretariat
- 22 **ABDULLAH ABD. HAMID**  
Senior General Manager  
Flagship Hub
- 23 **GOAY PECK SIM**  
General Manager  
Commercialisation and Business  
Incubation Centre
- 24 **ZULKEFLY SONGIP**  
General Manager  
Research Grant Secretariat
- 25 **ZULKIFLI ABDULLAH**  
Senior General Manager  
Group Asset Management and IT
- 26 **KHAIRAN UNTOH**  
General Manager  
SIRIM Sabah

- 27 **MOHD ABDUL KADIR JOHARI**  
General Manager  
SIRIM Sarawak
- 28 **MOHAMAD NAWAWI HUSSAIN**  
Senior General Manager  
Intellectual Property Centre
- 29 **MOHAMAD NIZAM ZAINUDDIN**  
General Manager  
SIRIM Terengganu

Row below : from left to right

- 30 **AHMAD FAIZI MOHD KAMIL**  
Senior General Manager  
Group Strategic Planning Department
- 31 **AB HALIM AB RAHMAN**  
Chief Operating Officer  
National Precision Tooling Sdn. Bhd.
- 32 **DR. SHAMSUDIN BANI**  
General Manager  
Engineering Consulting Centre
- 33 **DR. AZMI IDRIS**  
Senior General Manager  
Advanced Materials Research Centre
- 34 **DR. ROHANI HASHIM**  
Secretary General  
WAITRO Secretariat
- 35 **BASORI SELAMAT**  
Senior General Manager  
Product Certification & Inspection  
Department  
SIRIM QAS International Sdn. Bhd.
- 36 **ABDUL GHANI ABDUL RAHMAN**  
General Manager  
SIRIM Training Services Sdn. Bhd.

- 37 **NUR FADHILAH MOHAMAD**  
Senior General Manager  
Testing Services Department  
SIRIM QAS International Sdn. Bhd.
- 38 **HALIZA IBRAHIM**  
Senior General Manager  
Corporate Services Department  
SIRIM QAS International Sdn. Bhd.
- 39 **PARAMA ISWARA SUBRAMANIAM**  
Senior General Manager  
Management System Certification  
Department  
SIRIM QAS International Sdn. Bhd.

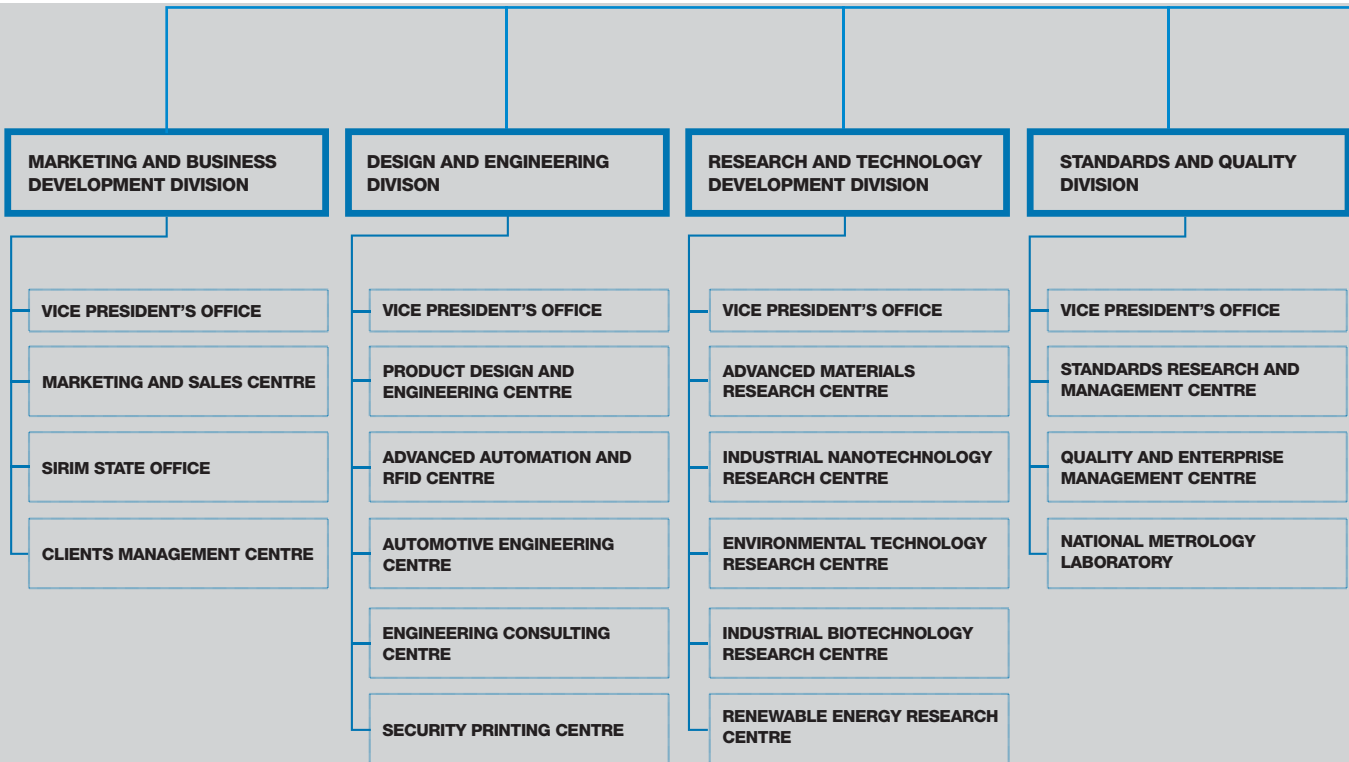
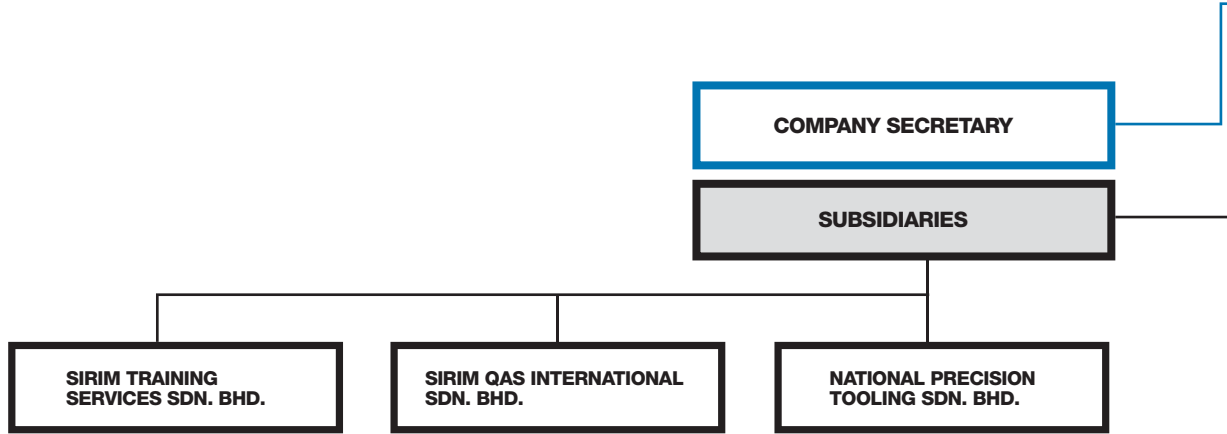
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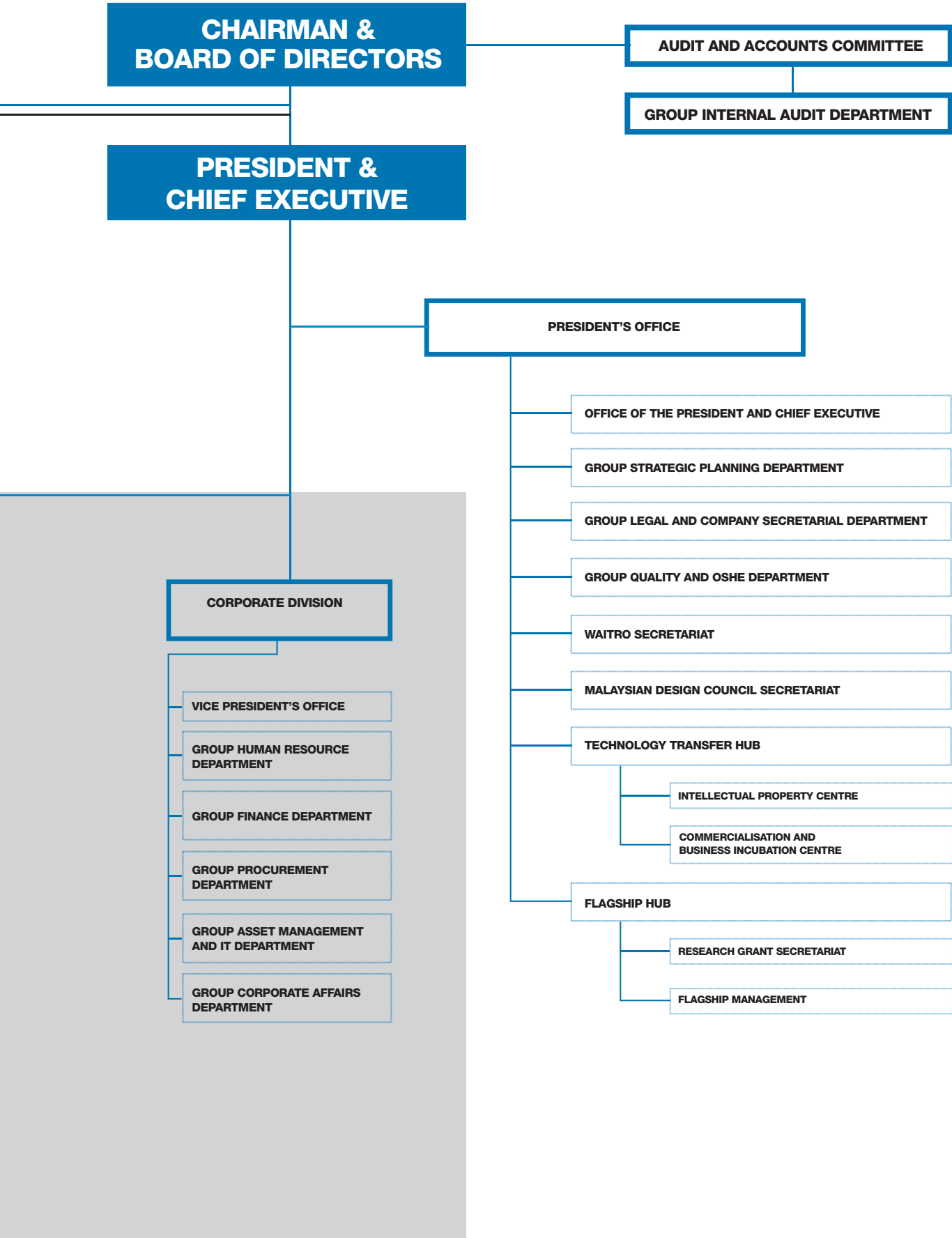
**MOHAMAD SHALAN HASSAN**  
Senior General Manager  
Automotive Engineering Centre

**ABDUL BASID RAMLI**  
General Manager  
SIRIM Pulau Pinang

# ORGANISATIONAL STRUCTURE

as at 1 December 2010





## CHAIRMAN'S MESSAGE



“ On behalf of the Board of SIRIM, I would like to congratulate and thank the management and staff of the Group for their support and continuing commitment to the principles and mission of the organisation. Through their concerted efforts, we are bringing our institutional excellence into the larger entrepreneurial landscape of the country and delivering value to our customers and stakeholders. ”

## CHAIRMAN'S MESSAGE

**D**uring 2010, I was pleased to witness SIRIM's growth and improvement as we continued to strive to be one of the world's best quality and technology institutions. The Group was realigned and reorganised at the start of the year in order to focus more effectively on our goals of technological excellence and serving our customers.

With the overall SIRIM Group KPI performance for FY2010 at 96.8%, I am confident that the Group will maintain its strong position as a market-driven research and technology development organisation.

Our key milestone in 2010 was to elevate SIRIM to be a world-class technology institution. This was accomplished through sustained technological discovery by our dedicated researchers such as the "Photopatternable Hybrid Organic-Inorganic Sol-gel Materials for Planar Optical Waveguide", "Potential Application of Waste Rubber as a Binder in Metal Injection Moulding" and "Circuit Breaker Management System".

In 2010, SIRIM also achieved its mission to make businesses compete better through technology transfer. Our activities reflected our culture of excellence by supporting Government initiatives as well as assisting small and medium enterprises (SMEs). We have played a crucial role in helping SMEs achieve international standards of excellence. Workshops and training courses to build technical and business proficiencies among entrepreneurs were organised all over the country for this special group, business incubation programmes were offered to 30 budding entrepreneurs while guidance on quality, standards and best practices were given to nearly 900 SMEs. These SMEs will bring a higher standard of excellence into the market, and their increased competitiveness will help to lift the standards for other SMEs and technopreneurs to follow.

In serving the needs of the people, our subsidiary SIRIM QAS International began to offer new testing services such as safety testing for LED lamps and LED televisions, sugar profile testing, testing of steel rails and testing of motorcycle helmets for ECE R22 compliance. The company has also been appointed by the Government as a certifying agency in the implementation of new technical regulations for new and retread tyres, safety hats and shoes and insulated fish boxes.

### Cultivating local innovation

The Ninth Malaysia Plan which ended in 2010 placed an emphasis on developing local talent to its fullest potential. SIRIM contributed to the country's Human Capital Development initiative by providing vital technology training to the Malaysian workforce, particularly unemployed graduates who made up two thirds of the participants in these sessions. Our training and reskilling programmes contribute to the creation of a highly-skilled workforce in the sectors of Welding Technology and Non-Destructive Testing, Design Engineering and Electronic System Design.

SIRIM has evolved over the past three and a half decades to become a Malaysian centre for innovation, not just through its own research and development but also through the promotion and support of individual inventiveness. From September to November 2010, the Group endorsed the efforts of ordinary Malaysian inventors by joining in the creation of the reality TV show IDEA: Malaysian Inventors' Challenge. The reality programme

## CHAIRMAN'S MESSAGE

brought local inventors into the public eye, creating a new and positive image of Malaysian inventors who can create and innovate at world-class levels.

### Community: A key agenda

While SIRIM helps to accelerate the pace of enterprise and innovation among key industries, we also work to ensure that no community is left behind in the course of national economic transformation. Last year, SIRIM adopted the principle of “inclusive innovation” – a concept designed to bring the benefits of technology to the 40% of the population at the bottom of the economic pyramid. The beneficiaries of this initiative will include youths, single mothers, disabled persons, senior citizens and indigenous communities.

Our expertise supports technology application programmes for schools, small businesses and rural communities alike. Under the TAPMOSTI@Community initiative funded by the Ministry of Science, Technology and Innovation, SIRIM has implemented programmes such as the Pintar-Learning interactive tool for schools, artificial reefs for fishing communities and hydrostone craft production techniques for ceramics entrepreneurs. These programmes increase the awareness of science and technology among these communities while improving their economic opportunities and capabilities.

### National transformation: Our role

Moving forward into 2011, I wish to see SIRIM taking up the challenge to make a greater contribution to the nation's economic development. I am certain that SIRIM will find new and significant ways to assist the government in transforming Malaysia into a high-income nation.

SIRIM will continue to maintain its place of pride in spearheading technology, quality and standards development at the national level. The Group's research findings will support the fulfilment of the Government's objectives.

We provide invaluable assistance to the Government in developing the respective National Key Economic Areas (NKEAs) under the Economic Transformation Programme, where SIRIM plays a key role in Entry Point Projects (EPPs). This is evident by the acknowledgement of its existing capabilities and expertise by the government in the NKEA for Palm Oil, NKEA for Agriculture and NKEA for Electronics and Electricals.

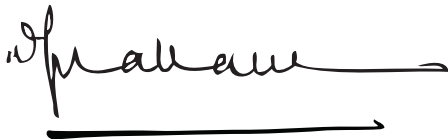
Under the NKEA for the Oil, Gas and Energy Sector, the government has set a target of reducing the country's energy bill by 15% through Energy Efficiency best practices. To support this initiative, the Energy Commission has introduced the Electrical Appliances Energy Efficiency and Labelling Program. Our subsidiary, SIRIM QAS International has been identified as a testing house that can provide testing services for electrical products and appliances such as air-conditioners, refrigerators and lamps.

In moving forward towards Sustainable Consumption and Production, SIRIM will continue to help Malaysian industries go 'green' by building our existing credibility in green-related

activities. We will also take the lead in enhancing the portfolio of local and international customers in Sustainable Consumption and Production.

Our leadership in technology sectors comes not just from the quality and quantity of research, but more importantly how we transfer the results of that research into the hands of the public. At the same time, the Group must push the frontiers of research and technology so that it can strengthen its place as one of the world's finest technology institutions.

On behalf of the Board of SIRIM, I would like to congratulate and thank the management and staff of the Group for their support and continuing commitment to the principles and mission of the organisation. Through their concerted efforts, we are bringing our institutional excellence into the larger entrepreneurial landscape of the country and delivering value to our customers and stakeholders.



**Datuk Hajah Jamaliah Kamis**

Chairman  
Board of Directors

## PRESIDENT'S REPORT



“ SIRIM continues to grow from strength to strength. With a team that is both talented and motivated, we can achieve the Group’s strategic direction and turn the challenges of tomorrow into new benefits for society and the nation. Let us accomplish all this with the unified spirit of 1 SIRIM. ”

## PRESIDENT'S REPORT

I am pleased to present the Annual Report of SIRIM Berhad for the year 2010.

The Malaysian economy performed strongly against a backdrop of gradual world economic recovery, setting the stage for the national economic transformation envisaged in the Tenth Malaysia Plan (RMK10). The new growth areas for the future identified in the RMK10 will be driven by technological innovation. SIRIM is well positioned to make significant contributions in many of these National Key Economic Areas, especially in the areas of standards and quality and industrial technologies.

In the year under review, SIRIM undertook Statutory Programmes and Strategic Research activities funded by the government amounting to RM61.19 million of which 51% was spent on talent and expertise. SIRIM was allocated a budget of RM305 million under the Ninth Malaysia Plan to fund the development of 21 strategic projects, and 85% of that funding was invested into technical infrastructure for research and development. Out of this overall budget, RM32 million was disbursed to SIRIM in 2010.

### Realigned for a stronger, transformed SIRIM

The Group was restructured in 2010 as part of an exercise to realign SIRIM's offerings, keeping them relevant to the needs of the industry and society today. The restructuring exercise has resulted in SIRIM becoming more streamlined, which in turn has ensured a more effective and efficient use of resources. SIRIM also became more focused on the task of being champions of new technology, which is part and parcel of its aim to support the national agenda of turning the country from a knowledge-based nation into an innovation-based economy.

The Research & Technology Development Division was streamlined to offer greater focus on the strategic research areas of Nanotechnology, Renewable Energy, Industrial Biotechnology, Green Materials and Environmental Technology. Four new centres were set up under the division, including the Industrial Nanotechnology Research Centre which performs research in nano-manufacturing, nano-biomedical and functional devices as well as molecular nano-systems.

SIRIM placed a greater emphasis on green technology innovations and supported important ecological initiatives such as criteria documents for ecolabelling and life cycle analysis through the Environment Technology Research Centre. The Industrial Biotechnology Research Centre also got off to a running start with 11 Government-funded projects under the 9th Malaysia e-Science Fund and Technofund schemes, while also implementing the Groom Big Cosmetics programme for the Ministry of International Trade and Industry. The Renewable Energy Research Centre was responsible for developing alternative energy sources that are critical to the national energy strategy with projects that included the pilot production of biofuel from Palm Oil Mill Effluent and the promotion of solar photovoltaic systems in rural communities.

The Advanced Materials Research Centre (AMREC) was active in implementing Technofund projects and other Science Fund projects throughout the year and I am happy to note that the Centre's researchers won the most awards for SIRIM last year. Several promising projects were selected for their commercialisation potential, including technologies on carbon fibres, resin binders, lithium-ion polymer batteries, wood polymer composites and heavy duty brake pads.

# PRESIDENT'S REPORT

## Championing Malaysian quality

In 2010, the Standards Research and Management Centre developed nearly 700 Malaysian standards, including provisional Malaysian standards related to halal guidelines and edible bird's nest supplements.

The National Metrology Laboratory further enhanced our national measurement capabilities by developing six new standards for DC resistance, a High Precision Nanoscale Measuring System and trace metal analysis standards for food products. Twenty-five new capabilities in the field of electrical, mechanical, temperature, flow and chemistry have been developed, including the High Voltage Impulse Measurement and Calibration System.

The newly established Quality and Enterprise Management Centre now provides a greater scope of services as well as other quality and standards services, covering the end-to-end needs of SMEs – from quality to innovation to branding.

## Designing for the economy

The setting up of the Design and Engineering Division to provide dedicated technical services was in line with the aims of SIRIM's corporatisation, to assume a more prominent role in generating revenue to the organisation. Many important technological innovations were produced including seaweed harvesting and drying systems, a Green Aquaculture system, the Robotic Kit and an online RFID tracker for oil palm seeds.

## Far-reaching achievements

SIRIM maintained its strong presence in the national and international arena last year. In local and international competitions such as the Invention, Innovation & Technology Exhibition and the Malaysia Technology Exposition, SIRIM researchers won five gold medals, three silver medals, two bronze medals and two special green invention awards.

In 2010, the Group entered into collaborations with local and international partners to initiate projects such as the construction of factories in Kelantan and Terengganu through an agreement with the National Kenaf and Tobacco Board and the provision of technical services to the automotive industry through partnerships with Altair Engineering and ACT Technologies. SIRIM also collaborated with MOSTI, PROTON and the Malaysian Productivity Corporation to organise a reality TV programme in search of winning local innovations – *IDEA: Malaysian Inventors' Challenge*.

International collaborations and partnerships are an essential part of SIRIM's operations. SIRIM continued to play a key role in the World Association of Industrial and Technological Research Organizations (WAITRO) while membership in the Global Research Alliance opened up many opportunities in 2010. Following SIRIM's crucial role in WAITRO, SIRIM received MOSTI's approval to host the WAITRO Secretariat for a third four-year term.

On behalf of the Malaysian government, SIRIM also completed its study on the Industrial Development Strategy of Yemen. The findings and recommendations were presented to the Yemen Government in December 2010.

## PRESIDENT'S REPORT

SMEs enjoyed strong support from SIRIM's services in 2010. With our unique technology incubator scheme model, we served 35 incubators last year. Meanwhile, our subsidiary SIRIM QAS International in partnership with SME Corporation reached a new milestone with the award of the first batch of certifications under the national mark of the Malaysian Brand certification. The company also launched the WIMAX testing laboratory, making it the first independent WIMAX test facility in the region.

SIRIM Training Services (STS) also played an important role in the national agenda by building the skills and expertise of job seekers and employed workers. STS organised a total of 183 training programmes in technology and quality for over 4,000 participants from the public and private sectors as well as unemployed graduates.

The latest subsidiary in SIRIM's stable, National Precision Tooling Sdn Bhd, was established to lead the development of Tools, Dies and Moulds industry. A total of 14 companies benefited from its programmes in 2010, in line with the goal of developing the capabilities of the industry's players.

### The way forward

The financial year 2011 brings new challenges and opportunities that SIRIM cannot afford to neglect. Our vision for the way ahead is described in the current SIRIM Group Strategy Map. The strategy map has been revised to address the challenges of the national Economic Transformation Programme while providing a clear plan for sustainable growth.

Five Group Key Strategies were developed, supported by seven Core Programmes and 21 initiatives that will enable the Group to achieve its Corporate Objectives. For 2011 and beyond, the Group's business will be more commercial-driven and focused on the concepts of Sustainable Consumption and Production and Inclusive Innovation.

SIRIM continues to grow from strength to strength. With a team that is both talented and motivated, we can achieve the Group's strategic direction and turn the challenges of tomorrow into new benefits for society and the nation. Let us accomplish all this with the unified spirit of 1 SIRIM.



**Dato' Ir. Hj. Yahaya Ahmad**

President and Chief Executive



## TECHNOLOGY AND QUALITY IN SERVICE OF SOCIETY

*Solar panel and wind turbine generate electricity for Kuching Waterfront*

## 2010: A significant year for SIRIM

### Growing a More Innovative Nation

- ▷ Research for the country's needs
- ▷ Developing a sustainable energy strategy
- ▷ Supporting industry and business

### Bringing Technology to the People

- ▷ Technology transfer through training
- ▷ Commercialising innovations
- ▷ Promoting Intellectual Property Rights (IPR)

### Creating quality-oriented industries

- ▷ Advocating standards and measures

### SIRIM and TAP MOSTI serving the *Rakyat*

# TECHNOLOGY AND QUALITY IN SERVICE OF SOCIETY

## 2010 : A SIGNIFICANT YEAR FOR SIRIM

Against the backdrop of the global economic recovery, Malaysia's strong growth presented many new opportunities for SIRIM to deliver on its mandates. By building upon a strong technological base to offer new products and services while improving existing ones, SIRIM has remained able and ready to respond to the needs of Malaysians.

The Government is steering the country's economy towards greater knowledge-based growth and sustainability through the Tenth Malaysia Plan (RMK-10). SIRIM's role in supporting the Government's planning was led by the Group Strategic Planning Department (GSPD), which was involved in the preparation and submission of the first rolling plan (2011-2012) of the RMK-10. In line with SIRIM's role in supporting the Government's development agenda, SIRIM also prepared the cabinet paper on the National Eco-labelling Programme.

GSPD's activities in 2010 also included the preparation of the SIRIM Group Business Plan for 2011, which required more than 21 consultation sessions with various parties. For the 2011 Business Plan, SIRIM Group's core business will be focused on Standards and Conformity Assessment (SCA) and New Products and Services Development (NPD). Apart from the focus on these two core areas, the Business Plan also introduced seven new group level programmes which will form part of the Group's transformation initiative in 2011.

**Chairman and  
President at the SIRIM  
Business Convention**



## GROWING A MORE INNOVATIVE NATION

SIRIM was allocated a development budget of RM310 million under the Ninth Malaysia Plan to fund 21 projects. However, the ceiling amount was reduced to RM305 million during the mid-term review. Of this, RM70.54 million was for buildings, RM192.35 million for equipment and RM42.11 million for other purposes.

As of 31 December 2010, SIRIM had spent a total of RM269.11 million from this budget. RM171.48 was spent on equipment, RM55.91 on buildings, and RM41.72 for other purposes.

### Research for the country's needs

SIRIM established its Environment Technology Research Centre (ETRC) to provide more visibility of SIRIM's research emphasis in areas that have become important both nationally and internationally. SIRIM's environmental research and technical service areas cover ecotoxicology, genotoxicology, environmental fate, environmental risk assessment, chemical safety management, life cycle assessment, environmental labelling and end-of-life management including waste treatment technologies.

In 2010, SIRIM improved upon existing research and also expanded into new environmental fields. Through the Bionexus Partners Programme Laboratory, our researchers enhanced their technical and quality assurance competencies in performing ecotoxicology, genotoxicology and environmental fate tests. Tests such as the bacteria reverse mutation test (Ames test), biodegradation test and algae inhibition test were upgraded to comply with the OECD Guidelines for Good Laboratory Practice (GLP). By year's end, SIRIM's environmental technology research labs had undergone pre-inspection by both the competent authorities for GLP monitoring in Malaysia, namely the National Bureau of Pharmaceutical Control and the Department of Standards Malaysia.

SIRIM also developed new competencies through the Government's Technofund projects. One of these is the Geographical Information System (GIS) application, which is used for national renewable energy resource mapping. Another Technofund project is a pilot scale solar photocatalytic system located in Cameron Highlands which uses solar UV radiation for water treatment. Meanwhile, the Global Harmonisation System (GHS) toolkit classifies chemical mixtures to assist in product safety assessment.

Physical development for the extension of the ETRC's laboratories began towards the end of the year and is expected to be completed by the middle of 2011. The new laboratories will enable the expansion of tests and experimental studies related to environmental analysis and environmental performance evaluation.

Throughout 2010, SIRIM's Industrial Biotechnology Research Centre was very actively involved in commercial biotechnology projects in 2010 with both international and local organisations. These projects covered various industry sectors such as agriculture, medical, personal products and food. SIRIM researchers were also involved in 11 government-funded projects under the Ninth Malaysia Plan e-Science Fund and Technofund research schemes.



SIRIM also undertook the implementation of the Groom Big Cosmetics programme for The Ministry of International Trade and Industry. SIRIM's commercialisation activities featured products such as fermented food biocosmetics and natural vinegar. In 2010, our industrial biotechnology researchers provided various training activities and programmes to industry participants, students and fresh graduates to give them a better view of the biotechnology industry.

In January 2010, SIRIM's Industrial Nanotechnology Research Centre began operations at SIRIM's Kulim campus, sharing facilities with the Advanced Materials Research Centre (AMREC). The founding of this facility was in line with SIRIM's plan under the RMK9 to establish three new Innovation Centres of Excellence (i-COE).

To achieve SIRIM's nanotechnology research goals, three programmes were proposed in 2010: Nano Manufacturing, Nano Bio-Medical and Functional Devices; and Molecular Nano System. In March 2010, SIRIM held a workshop to prepare a roadmap for nanotech research, involving professionals from multiple institutes and industries as well as staff from various SIRIM technology centres. An expert from Ajou University was invited as the Resource expert for developing this roadmap.

Throughout 2010, our researchers succeeded in developing nine research projects under the MOSTI Science Fund, including a carbon nanotube (CNT) electrode for supercapacitor applications, antimicrobial coatings, and carbon fibre deposited with CNT. Several projects that began in 2009 continued to show promise. This includes the synthesis of magnetic nanowire arrays in cooperation with Ajou University in Korea, and magnetic nanoparticles for MRI Agent and Radar Absorbing Materials Applications in cooperation with Iran University Science and Technology.



**Research for Groom  
Big Cosmetics  
programme for MITI**

SIRIM's joint research projects with leading foreign research institutions represent an effective strategy for providing valuable experience and exposure to its young researchers. Two SIRIM staff were sent for training to Manchester University, United Kingdom under MOSTI's Human Capital Development (HCD) programme. Another researcher was sent to study at the Korea Advanced Nano Fabrication Centre in Korea. Meanwhile, experts from Ajou University and Universiti Tun Hussein Onn Malaysia were brought in to assist SIRIM researchers in their projects.

In 2010, SIRIM nanotechnology researchers published a total of 13 research papers and filed a patent for "Palm Fatty Acid Distillate-based Amides as Corrosion Inhibitor for Carbon Steel Protection in Saline Environment".

## Developing a sustainable energy strategy

SIRIM focuses on research and application development of alternative energy technologies through the Renewable Energy Research Centre. These include solar energy technologies, biomass utilisation for energy production and wind and ocean technologies for energy generation.

In solar energy technologies, our researchers have successfully developed a solar thermal dryer powered by solar and wind power. One recent example is a seaweed drying system on a marine platform off the coast of Omdal Island, Semporna. The energy generated by the 10kW hybrid system is a suitable alternative to the conventional sun-drying method or costly diesel powered dryers. In addition, SIRIM is also active in promoting the application of solar photovoltaic (PV) systems, especially in the rural areas. One recent installation at Kota Marudu, Sabah utilises a PV-lithium ion system to supply Kampung Gontoi's community requirements.

SIRIM's biomass research is currently focused on the production of natural gas-like fuel for vehicles from Palm Oil Mill Effluent (POME) and the development of a ligno-cellulosic bio-ethanol pilot plant. This research has made significant progress and interested parties are planning to commercialise the technology on a large scale.

***This seaweed drying centre in Semporna utilises a thermal dryer powered by solar and wind hybrid***





**Participants at  
SIRIM's LCA seminar**

At the same time, SIRIM is also placing an emphasis on wind, ocean and wave energy research initiatives. Although these projects are still in the early stages of research, SIRIM is collaborating with local universities and some interested industrial partners to determine the potential of these energy sources. Pilot projects are being installed at various locations in Sabah as well as east coastal areas of Peninsular Malaysia.

In 2010, SIRIM was also invited to join a six-country collaborative project funded by the Economic Research Institute for ASEAN (ERIA) to develop a guideline that will assess the sustainable utilisation of biomass energy.

SIRIM carried out a Type III Environmental Declaration pilot study under the SIRIM-JETRO Green Partnership Programme in order to develop Life Cycle Assessment (LCA) applications. The pilot study product was patterned after the Japanese Ecoleaf Scheme operated by the Japan Environmental Management Association for the Industry (JEMAI). The project which determined the environmental qualifications of a brand of local laundry detergent by collecting life cycle inventory data is collected for verification in Japan.

Market demand of ecolabelled products is expected to grow as public awareness of green products develops. In addition, the introduction of green public procurement is also likely to boost the uptake of ecolabelling. SIRIM embarked on a pilot programme on green public procurement and ecolabelling in 2010. SIRIM and the Ministry of Finance jointly organised an awareness workshop for purchasing officers from various Ministries and government agencies. SIRIM then facilitated a second workshop that identified 10 products with the potential to kick-start the green public procurement programme. The pilot programme included a green technopreneur development programme and developed guidelines for green public procurement.

In December 2010, the Deputy Minister of Science, Technology and Innovation officiated the soft launch of the National Life Cycle Inventory Database. The LCI database will be used together with SIRIM's proprietary Quick LCA software to enable local manufacturers to establish the environmental profile of their products.

## Supporting industry and business

In 2010, SIRIM established the Advanced Automation and RFID Centre (ARC) to increase its activities in automation and machine design while also developing emerging applications of Radio Frequency Identification (RFID) technology. ARC was tasked to monitor two government projects last year: Malaysia Micro (MM) Chip verification and the implementation of the Malaysian Software Testing Hub.



Under SIRIM's automation and mechanisation projects, researchers developed new seaweed harvesting technologies for the Department of Fishery in Sabah: the Sea Lock and Sea Hook. Two patents are being filed for the innovations developed in the seaweed project, and additional prototype systems are expected in mid-2011. SIRIM researchers also assisted in efforts to mechanise and automate palm oil harvesting, undertaking several projects such as the development of a Grabber-and-Cutter for harvesting oil palm fruit bunches and the design and development of an integrated oil palm fruit harvester.

### ***Installing the Green Aquaculture System for testing***

A Green Aquaculture system was developed to monitor water parameters in fish ponds. The system has been successfully implemented at two sites as a showcase for fish farming communities. SIRIM also developed a Green Smart Sensor prototype that monitors growing conditions in farms while running on solar power. The prototype was installed at a farm in Cameron Highlands for field testing.

SIRIM's robotics engineers developed a Kindergarten Robotic Kit (RoboKit) which serves as both a toy and a learning tool. Arrangements are being made with the Ministry of Education to include this tool in extra-curricular activities. A Modular Microcontroller Learning Kit has been successfully tested and will be used in Robo Clinic sessions for secondary school students in early 2011.

In 2010, SIRIM's automation experts aided local entrepreneurs with six automation projects, including automation systems for the *songket* industry, biomass processor technology for oil palm trunks and enhancements to micro hydro power plants.



**The Robokit developed by ARC serves as toy and learning tool**

SIRIM's machine design projects included the second prototype of the CNC vertical milling centre, developed in collaboration with the Instrument Technology Research Centre (ITRI) of Taiwan. SIRIM's engineers have also developed an eight axis Tool and Cutter Grinder, which is ready to be commercialised by the electronics industry.

SIRIM researchers also designed machines for entrepreneurs under Sabah's Ministry of Industrial Development, consisting of drying systems for seaweed and salted fish as well as processing systems for chips, *amplang* (crackers) and *belacan* (shrimp paste). Other specialised machines developed in 2010 include a transparent soap injection system and an organic fertiliser processing system. SIRIM's advanced automation experts were also consulted on projects such as a hydraulic transmission for agricultural vehicles and a large section cold rolled sheet piling machine.

The year 2010 also marked the beginning of a focus in designing automation systems using RFID technology. The first RFID-based project was an online tracking system for oil palm seeds for Felda Agriculture Services Sdn. Bhd. SIRIM also developed a High Frequency (HF) RFID reader/scanner prototype and an improved RFID antenna for SIRIM's ARC machine shop provided services to many industries in 2010, including major companies such as Miyazu and Scomi Rails.

The year 2010 proved fruitful for SIRIM's Advanced Materials Research Centre (AMREC), which implemented four Technofund projects and initiated several other Science fund projects. AMREC received more than 1,000 requests for technical services in 2010, consisting of testing services for aerospace composites, ceramics and many others.

In early 2010, SIRIM established the Engineering Consulting Centre (ECC) to manage three areas of expertise: Tooling Technology, Foundry Technology and Joining & Inspection Services. The ECC's activities are focused on technical services such as testing, inspection and verification in the fields of foundry technology, non-destructive testing (NDT) and failure investigation analysis (FIA). SIRIM won several projects involving mould and die technology in 2010, such as bracelets for Tabung Haji and automotive components for the national car industry.



At the international level, SIRIM participated in technical cooperation initiatives with bodies such as the Korea Institute of Material Science (KIMS), Malaysia Japan Automotive Industries Co-Operation (MAJAICO), American Welding Society (AWS) and Japan Welding Engineering Society (JWES). In 2010, the AWS recognised SIRIM's ECC Welding facility as an Accredited Test Facility (ATF) while the NDT lab received its long-awaited ISO 19025 certification and was recognised by the Ministry of Human Resources as an Accredited Training and Test Facility.

***Welders undergoing training by AWS***

SIRIM's Automotive Engineering Centre (AEC) received more than 100 inquiries for technical services and produced evaluation reports for 50 customers, consisting of testing contracts for automotive components and testing services for automotive engineering. SIRIM's automotive engineering expertise also enabled the signing of several important MoUs with organisations such as Altair Engineering, DAG Technologies and TUV Rheinland.

The year 2010 also saw the Product Design and Engineering Centre (PDEC) being established as part of SIRIM's reorganisation. The Centre consists of three sections: Product Design, Design Engineering and Plant Design. Its purpose is to aid industry, government agencies, entrepreneurs and individuals by providing product design and engineering services.



**Attractive packaging design for local snack food manufactures**

In 2010, SIRIM's Product Design Section provided assistance in packaging and labelling to SMEs in 2010, most of them snack food manufacturers. Our consultants also assisted small and medium industries (SMI) with graphical design for product packaging and promotional materials. SIRIM's product design experts also organised programmes to assist customers in all aspects of designing their products, serving clients such as PKNK Sarawak, Muda Agricultural Development Authority Kedah, Lembaga Tabung Haji and Ministry of Industrial Development Sabah.

SIRIM also created a One Stop Packaging Centre in Perak in 2010 to reduce start-up costs for food and beverage entrepreneurs by providing packaging equipment for rental. The centre is expected to begin operations in the first quarter of 2011.

SIRIM's Plant Design Section helps to create local expertise in the design and optimisation of production facilities, especially cosmetics and food plants. Here, SIRIM's team also provides consultation in designing facilities that follow Good Manufacturing Practices (GMP). In 2010, the team completed 12 small and medium plants operating on a semi-automatic basis. These included liquid and powder detergent plants, waste water treatment plants, a Multi-Purpose Herbal Extraction Unit and several cosmetic plants.

SIRIM's engineers also provided plant design expertise in several of SIRIM's Technofund projects, including a bioplastic pilot plant, a biogas pilot plant, a photocatalytic water treatment facility, a bio-ethanol pilot plant and a powder detergent pilot plant. These projects helped to build SIRIM's expertise in the fields of bioreactor technology, herbal extraction, waste processing, biogas processing, detergent production and Good Manufacturing Practices (GMP).

SIRIM is committed to assist enterprises in advanced engineering and design techniques.

Our design engineers specialise in areas such as rapid prototyping, computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE) and bio-modelling. In 2010, our design engineers were involved in two Science Fund projects, including developing techniques for designing medical implants using CAD/CAM. Experts from public and private hospitals provided positive feedback on the commercialisation potential of the implant design technology. So far, 12 patients have benefitted from implants produced using this technique. Overall, more than 130 private and public organisations benefitted from SIRIM's rapid prototyping, rapid tooling and CAD/CAE services in 2010.

SIRIM was also involved in an automotive Technofund project in 2010 involving the study of design failure mode effect and analysis of components in compliance to ISO/TS16949. Moving forward, SIRIM is planning to develop new Design Engineering services in fields such as computational fluid dynamics (CFD) and finite element analysis.



**SIRIM's rapid prototyping has benefited the industry.**

## BRINGING TECHNOLOGY TO THE PEOPLE

SIRIM fulfils its function as the national vehicle for technology transfer through the activities of its Centres and state offices. Many departments provided the technological expertise necessary to successfully implement SIRIM's training programmes, seminars and workshops. In addition, SIRIM's state offices had a busy year promoting SIRIM and delivering services to the community.

SIRIM established the Commercialisation and Business Incubation Centre (CBIC) in January 2010. This reorganisation assigned the CBIC with the core activities of Technology Intelligence, Techno-Economic Analysis, Commercialisation Services and Business Incubation.

SIRIM's Business Incubation services are designed to assist entrepreneurs and technopreneurs at each stage of enterprise development. SIRIM attracted more than 30 applicants for incubation in 2010 and served 35 incubators by the end of the year.

SIRIM actively promotes public awareness of its services through networking, seminars, discussions, visits and exhibitions. The Johor Bahru Entrepreneur Corporation (PUJB), a State Government subsidiary, assisted in organising courses on packaging design, branding and labelling for SMEs.

SIRIM also continues to support SMEs through the Groom Big Programme, which involved 41 new SMEs in 2010. The Groom Big Showcase was held at Plaza Angsana, Johor Bahru from 5-7 November 2010, providing a platform for a total of 70 SMEs to demonstrate their upgraded product packaging and labelling.



**Groom Big  
exhibition  
booth  
in Plaza  
Angsana**

SIRIM also signed a MoU and a MoA with the National Kenaf and Tobacco Board (LKTN) for a RM2.1 million project to construct factories in Terengganu and Kelantan. Besides cooperating in the construction of the factories, SIRIM will also be involved in the development of kenaf-based products.

Towards the end of 2010, SIRIM Berhad finalised plans to work with the Kelantan State Economic Development Corporation (PKINK) to enhance their Halal Hub factory, a project with an estimated value of RM7 million. The MoA is set to be signed by April 2011. Several other projects have been identified for possible development in Kelantan, including a micro hydro project in Gua Musang, a saltwater fish aquaculture project on land, and security printing for certificates and receipts for the Federal department in Kelantan.

SIRIM also facilitated exhibitions, workshops, industry visits and seminars throughout 2010 as it continued to help create networks among small and medium businesses while promoting our products and services to both the state governments and the private sector.

In 2011, SIRIM plans to hold seminars to promote the value of ISO 9001:2008 certification among public and private organisations. SIRIM also plans to promote its technologies and services through enterprise workshops, briefings, exhibitions, industry visits and local media channels.



**The signing of the MoU between SIRIM and LKTN**

## Technology transfer through training

**MTCP participants are being briefed by Dr. Wan Abdul Rahman Jauhari during their visit to the CAD/CAM Laboratory**



During 2010, SIRIM organised 20 courses relating to entrepreneurship, leadership, marketing and branding, business development and intellectual property management. These courses were attended by about 500 participants in total, including incubator participants. In addition, six workshops on opportunities in technology business development were organised to promote business incubation activities, with a total of 220 participants attending.

For the second year in a row, SIRIM also organised business incubator management training for representatives from African countries. Eighteen representatives from five nations attended the 15-day programme, in which they were exposed to Malaysia's experience and knowledge in managing incubator programmes. SIRIM also shared some of its best practices of incubator programmes during visits by Korea's Daegu & Gyeongbuk Business Incubation Association and the African Microfinance Institutions' Financial Inclusion Advisor Programme.

SIRIM also organised 41 training courses on the topics of non-destructive testing (NDT), welding, tooling and foundry technology. A total of 597 participants attended these courses in 2010.

In conjunction with the soft launch of the national LCI Database in December 2010, SIRIM held a workshop on Ecodesign and Ecolabelling, as well as a seminar on LCA for Environmentally Friendly Goods and Services.

In 2010, SIRIM's design engineers conducted four seminars on CAD/CAM/CAE and rapid prototyping for industry parties. In addition, the Centre also organised two courses in rapid product development and engineering simulation for unemployed university graduates under the Economic Planning Unit (EPU) Reskilling Training Programme.

SIRIM also organised 22 training courses under the Ministry of Rural Development covering all aspects of packaging and design. Under MOSTI's socio-economic improvement grant, SIRIM's consultants also held training activities for product design. In addition, five courses were conducted for Packaging and Labelling Design Technology under the Johor Bahru Entrepreneur Corporation (PUJB).



**The ABU Robocon 2010 competition at UKM, Bangi**

SIRIM's Advanced Automation and RFID Centre (ARC) also had a busy year in training which included a training and reskilling programme on machine design. Three hands-on workshop sessions on the design of websites were conducted for entrepreneurs under the Ministry of Rural and Regional Development. Forty entrepreneurs were able to design and publish their websites under the myiks.com site, which was specially developed by SIRIM for this purpose. Our engineers also organised the ROBOCON 2010 event on behalf of the Ministry of Higher Education, in which 54 teams competed nationally.

SIRIM also organised 13 standards promotion seminars in 2010 designed to promote Malaysian Standards among government and industry sectors. These standards cover the agricultural, electrical, energy management and information security sectors.

Meanwhile, the National Metrology Laboratory (NML) successfully organised the Malaysian Technical Cooperation Programme (MTCP) on metrology, which took place from 31 May to 4 June 2010. The programme involved participants from 11 countries and promoted NML-SIRIM as an important partner in the development of metrology in the participating countries.

NML-SIRIM also joined with The Technical Committee for Metrology in Chemistry (TCQM) of the Asia Pacific Metrology Programme (APMP) and the APMP Developing Economies Committee (DEC) together with Physikalisch-Technische Bundesanstalt (PTB Germany) in hosting an Analytical Method Validation (AMV) Training Course from 27 September to 1 October 2010.

Besides activities in international collaboration, NML-SIRIM also hosted the JICA Complementary Training Course at its facility in Sepang in August 2010. The course comprises lectures and technical discussions on Legal Metrology activities in Malaysia. Additional metrology training programmes were conducted over the year for government agencies, universities and industries, comprising 10 promotional and awareness programmes and 45 training courses on metrology activities and measurement technology.

Throughout 2010, SIRIM held a total of 10 courses, seminars and workshops on nanotechnology. In addition, SIRIM's Advanced Materials researchers provided training to ADTEC Taiping in the areas of ceramics, plastics and polymer composites. SIRIM also organised conferences, workshops and seminars on Advanced Materials subjects at both national and international levels, including the 4th Malaysian Powder Metallurgy & Malaysian Metallurgy Conference, the 19th Scientific Conference of the Electron Microscopy Society of Malaysia and the 2nd ASEAN-APCTP Workshop on Advanced Materials Science and Nanotechnology.

**Briefing and  
practical training  
for ADTEC  
trainees**



## Commercialising innovations



**Briefing by CBIC GM,  
Goay Peck Sim during  
the Technology Workshop  
on Biomass**

SIRIM plays several roles in helping entrepreneurs to bring new technologies to market by offering Technology Intelligence, Techno-Economic Analysis and Commercialisation Services to its clients. In 2010, SIRIM conducted a Biomass Foresight study for the MOSTI Renewable Energy Task Force, involving 20 participants from industry, institutions of higher learning, Government ministries and agencies. The output of the study was incorporated into the MOSTI Technology Foresight Report for Renewable Energy. A foresight study on nanotechnology was also conducted with the participation of two international experts to identify research priorities in the field of nanotechnology.

SIRIM also conducted feasibility studies on technologies such as portable water disinfectant treatment systems, lithium ion polymer batteries and high performance bio-lubricant base stock. In addition, pre-feasibility technologies were conducted on early stage technologies

such as cloud computing and circuit breaker management applications.

SIRIM selected two technologies to be commercialised through spin-off companies, namely lithium ion polymer battery technology and wood polymer composite technology. In accordance with accepted best practices in technology licensing, SIRIM gave selected industry players the option to license technologies for commercialisation. One of the technologies optioned under this agreement was an oil palm-based binder for metal injection mould feedstock.

SIRIM also collaborated with MOSTI, the Malaysian Technology Development Corporation, and the Federation of Malaysian Manufacturers to organise the Technology Business Matching Workshop, which provides an avenue for researchers to promote their technologies.

In addition, SIRIM continued its support of the South-South Global Assets and Technology Exchange (S-S GATE), which provides an online platform for local technologies to be marketed to the rest of Asia and Africa. SIRIM represented Malaysia at the S-S GATE Business Forum 2010 in Vietnam, where it promoted five projects from local companies.

## Promoting Intellectual Property Rights (IPR)

SIRIM's Intellectual Property Centre (IPC) continues to provide comprehensive intellectual property (IP) services for many clients including MOSTI, the Malaysian Cocoa Board, Universiti Putra Malaysia, the Malaysian Rubber Board and the Malaysian Palm Oil Board.

In 2010, SIRIM's IP search services were used for a total of 118 searches covering patents, trademarks and industrial designs. A total of 25 patent specifications, 123 patent applications, 87 trademark applications were filed and 21 industrial design applications at the Malaysian Intellectual Property Office (MyIPO). SIRIM also improved public awareness on intellectual property and patents through some 20 talks and road shows in 2010.

SIRIM served as the IP Secretariat for Government-funded projects administered by MOSTI for the sixth year in a row in 2010. The Intellectual Property Agency Section conducted a total of 10 IP clinic sessions for public research institutions and universities. In addition, patent search workshops were conducted for three government agencies.

**SIRIM search services cover patents, trademarks and industrial designs**



## CREATING QUALITY-ORIENTED INDUSTRIES

For over 40 years, SIRIM has championed quality and standards for all Malaysians through its quality and metrology departments.

SIRIM's Quality Service Department was reinvented last year as the Quality and Enterprise Management Centre (QEMC), offering a wider scope of capabilities that includes more special service packages for SMEs.

One result of the greater scope has been a marked increase in activity in 2010. SIRIM sponsored 463 courses on quality and standards with as many as 745 companies (including 264 SMEs) and over 6,000 participants. SIRIM's quality experts also provided guidance and consultation for 913 companies including 890 SMEs.

SIRIM consultants help organisations in implementing best practices, using tools and techniques such as Total Quality Management (TQM), Total Productive Maintenance (TPM), Service Quality Management, Innovative and Creative Circle (ICC), Japanese House Keeping (5S), Lean 5S, Statistical Process Control (SPC), Lean Manufacturing, Lean Six-Sigma and Six-Sigma. Last year, we introduced guidance and training packages for Quality Excellence Management Award (QMEA) Criteria and Total Quality Fast Track Model (TQFTM) Criteria. Two new certification schemes were introduced as well: Total Quality Management (TQM) and 5S methodology.

Through the QEMC, SIRIM is responsible for providing consultancy for MS ISO 9001 (Quality Management Systems), MS ISO 14001 (Environmental Management Systems), ISO/IEC 17025 (Laboratory Management Systems), HACCP (Food Safety Systems), OHSAS 18001, GMP, TS 16949 and MS 1500 (HALAL). SIRIM also manages vendor development programmes and programmes such as Groom Big and Dayasaing. At the international level, the QEMC also served as the Lead Assessors for the ISO/IEC 17025 audit in Uganda.

**YB Dato' Mukhriz officiates the 3rd Annual Lean Six Sigma Summit**



In 2010, 28 organisations successfully trained with SIRIM to achieve various certifications. Five companies were awarded ISO 9001:2008 certification, 20 companies received HALAL certification, two companies received TQM certification and one company received 5S certification. Twenty-one of these companies were SMEs.

In 2011, SIRIM will introduce several new or repackaged services such as the Quality Improvement Practices (QIP) scheme, ISO 50001 and ISO 29001.

SIRIM developed and delivered 678 Malaysian standards to the Department of Standards Malaysia in 2010, comprising 455 new standards, 223 revised standards and seven provisional Malaysian standards. Five of the provisional Malaysian standards are related to halal guidelines, while the other two are related to edible bird's nest standards. Malaysia has now developed a cumulative total of 6349 Malaysian standards, which exceeds the national goal of achieving 6000 Malaysian standards as a prerequisite to attain developed nation status.

SIRIM manages the national enquiry point for World Trade Organisation (WTO) Technical Barriers to Trade (TBT). The enquiry point for WTO/TBT circulated more than 1400 notifications in 2010, informing local industry and government on changes of regulations and standards of other WTO member economies. Local industry made more than 400 requests for foreign notifications, while SIRIM also forwarded two Malaysian notifications to the WTO. The enquiry point is also involved in ongoing trade negotiations and follow-up actions between Malaysia, India and Turkey, led by the Ministry of International Trade and Industry.

## Advocating standards and measures

The National Metrology Laboratory (NML-SIRIM) serves as the National Measurement Standards Laboratory under the National Measurement Systems Act 2007 and Custodian of Weights and Measures (Amendment) Act 2007. As a signatory of the Mutual Recognition Agreement (MRA) of the International Committee for Weights and Measures (CIPM), NML-SIRIM has raised national measurement standards to internationally recognised levels.

Through peer review and the adoption of the MS ISO/IEC 17025 based quality system, eight of SIRIM's measurement capabilities are now internationally recognised (Electricity and Magnetism, Acoustics and Vibration, Length, Mass and related quantities, Photometry, Thermometry, Humidity, Time & Frequency). In addition, Nuclear Malaysia also became a Designated Institute for Ionising Radiation measurements.

During 2010, SIRIM metrologists successfully developed six new standards, including a reference standard for DC Resistance using the quantum Hall effect, a High Precision Nanoscale Measuring System and trace metal analysis standards for various food products. SIRIM also developed 25 new capabilities in the field of electrical, mechanical, temperature, flow and chemistry. Among these is a High Voltage Impulse Measurement and Calibration System.

In 2011, NML-SIRIM will participate in meetings and workshops in Japan and Korea, as well as serve on the ASEAN Consultative Committee on Standards & Quality. New services under development for 2011 include Legal Metrology Training and Education for inspectors from the Ministry of Domestic Trade, Cooperatives and Consumerism Inspectors, Calibration of Medical Devices, new development of certified reference materials and repackaging of existing calibration services.



***NML-SIRIM raised national measurement standards to internationally recognised levels***

## SIRIM AND TAP MOSTI: SERVING THE RAKYAT

SIRIM acknowledges the importance of its role in bringing the benefits of technology to the community. In 2010 this mission continued through numerous corporate social responsibility and community improvement initiatives.

The Ministry of Science, Technology and Innovation (MOSTI) has taken the initiative in providing funding for Technology Application Programmes (TAP) designed to apply the benefits of science and technology at the community level. Launched in 2009, the TAPMOSTI@Community programme is in line with MOSTI's mission to move all levels of the Malaysian economy up the value chain while also increasing awareness and interest in science and technology among the public. A total of seven agencies are involved in carrying out 180 projects aimed at rural entrepreneurs, farmers, fishermen, youth and women.

While the Ministry provides funding, SIRIM's role is to implement and monitor projects while also providing technical support. In the past year, SIRIM assisted in monitoring and launching 22 TAPMOSTI@Community projects, which took place across the country. Eleven of these projects were completed in 2010, while the others will continue through 2011.

The 2009 ceramic hydrostone handicraft project in Bagan Pinang, Negeri Sembilan, reached a successful conclusion last year. Local entrepreneurs were trained in making moulds and hydrostone products for the souvenir industry. In addition, a handicraft training project in Sandakan, Sabah enabled local craftspeople to design and mould better ceramic products.

**SIRIM's Chairman visited the community centre in Kuala Pilah**

SIRIM's ceramics technology was also crucial in creating artificial coral reefs to enable natural corals to regrow and revitalise coastal areas. SIRIM researchers devised porous ceramic structures that mimic natural coral in order to encourage the growth of algae and coral polyps that create new reefs. Artificial reefs were planted in several Sabah locations, namely Pulau Sebatik, Semporna and Batu Sapi. In addition, other artificial reefs were set up in Negeri Sembilan, Johor, Sarawak and Terengganu. The regrowth of coral reefs is crucial for enhancing the marine environment in key coastal regions, while also supporting the lucrative tourism industry.

SIRIM's small-scale detergent manufacturing projects in Pahang and Sabah provided job opportunities to less-privileged members of the community such as single mothers and middle-aged people with low educational qualifications. These projects are still in the equipment acquisition phase and will continue into 2011.



In addition to its collaboration with TAP MOSTI, SIRIM also continued its socio-economic improvement programme for small and medium industries and rural communities. This programme came under the purview of the Marketing and Business Development (MBD) Division in February 2010. Nearly RM2 million was budgeted for these projects. Of the 25 projects that were proposed in the year, 20 were implemented to the benefit of 25 small and medium businesses as well as 602 individual participants at the community level.

The socio-economic improvement programme also brought SIRIM's robotics expertise into schools. Five Kindergarten Robotics Kit prototypes were field-tested at Taska Permata SIRIM Berhad, Shah Alam, Selangor to determine their usefulness in early childhood education, and 20 sets of Modular Microcontroller Learning Kits were deployed at five secondary schools in Kuala Selangor to be used in the Roboclinic event in January 2011.

Communities also received assistance with sustainable energy sources through SIRIM's socio-economic improvement programmes. Farmers in Kajang, Selangor benefited from the Green Smart Sensor project. The Green Smart Sensor measures sunlight, oxygen, moisture and pH levels to ensure optimum growing conditions for crops while running on solar power. Stand-alone solar energy systems were set up for several communities, including Pekan, Pahang and Kota Marudu, Sabah.

Meanwhile, remote monitoring systems using GSM were tested in community projects such as the Remotely Reset and Monitoring Circuit Breaker system for a micro hydroelectric generator in Kampung Libang Laut, Sabah, and the Green Aquaculture System for monitoring fish ponds in Kuala Langat, Selangor.

***Dato' Sabariah Hassan from MOSTI inspecting TAPMOSTI@community project in Kuala Pilah***



## Solar powered progress



**Solar-powered seaweed dryer system in Sabah**

During 2010, several TAP MOSTI@Community Innovations projects brought solar power to distant Sabah communities. Two communities are set to benefit from solar powered dryer systems while another community will receive a solar powered community centre.

The Community Security and Development Committee (JKKK) for Kampung Tambiau, Ranau, Sabah received SIRIM's assistance in setting up a solar dryer system. In Kampung Tambiau, agricultural products such as coffee, chillies and other herbs are a crucial part of the community economy. By providing the community with a solar dryer system, SIRIM helps local farmers to produce higher quality dried goods while also increasing efficiency of production.

SIRIM also performed a similar project for the JKKK of Kampung Pengkalan Lama Nelayan, Kunak, Sabah. This community depends on both agriculture and marine harvests for its livelihood, and also stands to gain from a solar dryer system.

The dryer technology utilises renewable energy in the form of energy collected from solar panels, but also can be supplemented from the electrical grid or a diesel generator during periods of rainy or cloudy weather. The dryer also uses an air circulation system and an insulated drying chamber, both of which will be assembled in an appropriate location in each community by SIRIM experts.

SIRIM is also setting up a solar-powered community hall for the JKKK of Kampung Mansiat, Keningau, Sabah. This renewable power supply will make use of specially developed solar photovoltaic cells, making it suitable for deployment in areas with no access to the main electricity grid. In case of unsuitable weather for solar power generation, the system can also use a diesel generator as a secondary power source. The solar power system will serve as the primary power source for the community's town hall.

In all of these projects, SIRIM experts will provide the know-how necessary to build, test and deploy these solar-powered technologies. In addition, they will give technical training to members of the local communities to enable them to perform maintenance on the systems. These projects are all expected to be completed in the third quarter of 2011.



***The Green Aquaculture System helps fish farmers manage water conditions***

## From idea to reality

From September to November 2010, local television viewers got a first-hand look at the creativity and innovation of ordinary Malaysian inventors in the inaugural series of IDEA: Malaysian Inventors' Challenge. This first-ever Malaysian reality TV programme focusing on inventors was jointly created by MOSTI and SIRIM. The event also depended on the support of PROTON, MPC and many private sector partners including the hotels that hosted the programme's participants.

IDEA: Malaysian Inventors' Challenge was launched by Deputy Minister of Science, Technology and Innovation Datuk Fadillah Yusof on 13 August 2010 in Bandar Utama. At the same ceremony, PROTON and SIRIM signed a MoU for the organising of the television programme. The programme was held in conjunction with the Malaysia Innovative 2010 initiative aimed at recognising and promoting creativity and innovation among Malaysians.

The programme was aired in 30-minute segments on TV3 every Saturday at 7pm for three months, hosted by Daphne Iking and Major Dr. Faiz Khaleed, Malaysia's National Astronaut. Each week, audiences watched as amateur Malaysian inventors from all walks of life vied for the chance to reach the final round and win cash prizes as well as a possible development grant.

A total of 306 participants entered the programme in four different cities: 60 in Kuantan, Pahang; 30 in Kota Kinabalu, Sabah; 181 in Shah Alam, Selangor; and 35 in Kuching, Sarawak. Out of these, six participants were selected from each city for a total of 24 semi-finalists. Each semi-finalist received RM2,000 in capital to further develop their invention and attended an incubator session in Shah Alam where SIRIM's experts advised them on how to improve their inventions. In addition, SIRIM helped to draft and file the patent for each invention at no cost to the inventors.

During the semi-final stages, a panel of judges from academic and research institutions selected the best four finalists from the 24 inventors and their inventions. When the final episode aired on 27 November, all of Malaysia watched as the finalists took turns to present their inventions one last time in a bid to convince the judges that their product had the greatest commercial potential.

In the end, Manap Abdul Razak and his team walked away with the grand prize of RM30,000 for their invention, a Hanger Dryer System. In addition, the invention would be evaluated by MOSTI for a possible development grant. The second prize of RM15,000 was won by Lee Ka Let for his Spare Tyre Pressure Early Warning System. Zainuddin Ismail won the third prize of RM10,000 for the Oil Palm Seed Collector tool, while Syed Ahmad Syed Nasir won the fourth prize of RM10,000 for his World Clock. The winners received their prizes from Prime Minister Dato' Sri Mohd Najib Tun Abdul Razak during the finale of Malaysia Innovative 2010 at Bukit Jalil on 25 November.



***IDEA finalist Lee Ka Let sharing his invention with Tun Mahathir and other guests***



## REINVENTION AND IMPROVEMENT

*Hydroelectric system such as this was installed at Stamang Jaya, Batang Ai and Lembah Temir, Raub*



**Golden innovations**

**International platform for collaboration**

**Human capital development**

**Internal Improvement**

**Supporting creativity in design**

# REINVENTION AND IMPROVEMENT



## **Malaysia-Yemen Investment collaboration**

SIRIM practises a policy of continuous reinvention and improvement in order to better respond to the needs of entrepreneurs and the general public. To this end, SIRIM pursued agreements and partnerships with major companies and organisations at both national and international levels in 2010. Because of these efforts, SIRIM signed no less than 18 MoUs and two MoAs with leading local and international players last year.

The proposed collaborations include the research and business development of IBS Green Building technology as well as a computerised lowland greenhouse management system. SIRIM will also explore the commercialisation of proprietary Light-Emitting Diode (LED) technologies for mass production, and develop products based on wind turbine technology. The international collaboration projects include marketing of SIRIM products and services in the Middle East and North Africa (MENA) Region, training consultancy in collaboration with Malaysia-Yemen Investment and renewable energy and green technology cooperation with Tatung Co. of Taiwan. During 2010, SIRIM also completed its study on the Industrial Development Strategy of Yemen (IDS Yemen) and presented its findings and recommendations to the Yemen Government in December 2010.

SIRIM achieved many cooperative activities with other research and educational institutions in 2010. MOSTI and SIRIM agreed to a 12-month-long cooperation with Universiti Hasanuddin (UNHAS), Makassar, South Sulawesi, Indonesia on a variety of projects. SIRIM also provided courses on Advanced Materials technology for the Advanced Technology Training Centre (ADTEC) in Taiping.

The year 2010 also saw the signing of an MoU and an MoA between SIRIM Berhad and the National Kenaf and Tobacco Board (LKTN). This agreement calls for the two parties to construct two factories: A vitato factory in Tembil, Besut, Terengganu, and a pineapple factory in Sungai Keladi, Pasir Mas, Kelantan. Both projects are expected to be completed and operational by early September 2011.

Meanwhile, the management of SIRIM also conducted IP surveys and IP audits at 28 departments in 2010 to assess the awareness level of IP among staff and to gather information on IP generated by SIRIM. Forty IP clinics were held to build greater IP awareness and to help staff identify and protect IP. As a result of these activities, SIRIM will launch and implement improvements to its existing IP policy in 2011. In addition, IP surveys and audits will be held every year within each department to help enhance IP development activities within SIRIM.

SIRIM's security printing activities exceeded expectations in 2011, thanks to the introduction of new labels for telecommunications products by SIRIM QAS International. The labels were very well received by the public, and we had to allocate additional time and resources to meet the unexpectedly strong demand.

## GOLDEN INNOVATIONS

SIRIM's ongoing quest to be among the best technology and quality organisations reached new milestones in 2010 as several SIRIM innovations achieved recognition at major technology events, including a record haul of gold medals.

The Q-METRO group from the National Metrology Laboratory (NML-SIRIM) represented SIRIM at the Malaysia Productivity Corporation (MPC) National Innovative and Creative Circles (ICC) Convention 2010 and received the three Star Gold Award. It was recognised as a Best Top 10 ICC Group for Services Sector for its gas flow meter calibration project. Q-METRO will represent SIRIM again in 2011 at the International QCC Convention in Yokohama, Japan.

SIRIM researchers bagged a record of six gold and two silver medals at the 21st International Invention, Innovation and Technology Exhibition (ITEX 2010). In addition, SIRIM emerged victorious with the "Best Green Invention" award for "*Photopatternable Hybrid Organic-Inorganic Sol-gel Materials for Planar Optical Waveguide Applications*," which also won a gold medal. Another big winner for SIRIM was "*Hybrid Network Resettable Circuit Breakers*" which won both a gold medal and a "Green Product and Innovation Award." The other four gold medal winners were "*Potential Application of Waste Rubber as a Binder in Metal Injection Moulding*," "*Wound Management Product From Water Soluble Chitosan Derivatives*," "*Improved HF Antenna Design for Wireless Authentication*" and "*Green and Natural Bioactives for Topical Application*." SIRIM's silver medal winners at ITEX 2010 were "*Generic Microcontroller Training Kit*" and "*Biosensor for Ammonia Detection*."

At the prestigious Malaysia Technology Expo (MTE) 2010, SIRIM innovations were awarded with three silver medals and three bronze medals. The silver medal winners were "*Automated Volumetric Scanning and Weighing Machine*," "*Photopatternable Hybrid Organic-inorganic Sol-gel Materials for Planar Optical Waveguide Applications*" and "*Potential Applications of Waste Rubber as a Binder in Metal Injection Moulding*." The projects that won bronze medals were "*Improved HF Antenna Design for Wireless Authentication*," "*Generic Microcontroller Training Kit*" and "*Palm-based Flux for Binary and Ternary Lead-free Solder Alloys*."

**SIRIM innovations won a record of six gold medals at ITEX**





## INTERNATIONAL PLATFORM FOR COLLABORATION

International collaboration and partnerships are an essential part of SIRIM's operations, as shown in its involvement in international research and technology bodies.

SIRIM's membership in the Global Research Alliance (GRA) opened up many opportunities during 2010. In conjunction with SIRIM's participation in the Ninth annual GRA Principals Meeting hosted by the Netherlands Organisation for Applied Scientific Research (TNO) in May 2010, SIRIM took the opportunity to conduct a benchmarking study visit on TNO. The study analysed TNO in four areas, namely TNO Strategy, TNO Companies, SMEs and TNO, and TNO Patents and Licensing.

The GRA also facilitated collaboration between AMREC and the Danish Technology Institute (DTI) to research the fabrication of Epoxidised Natural Rubber (ENR) based polymer electrolyte in dye sensitised solar cell. SIRIM submitted two proposals to the Nerve Centre of GRA, one project for Point of Care Diagnostics utilising biomarkers for Dengue, and the other being an Inclusive Innovation Project (IIP) for Vietnam.

SIRIM has also played a crucial role in the World Association of Industrial and Technological Research Organizations (WAITRO) by hosting the WAITRO Secretariat for two four-year terms beginning in September 2002. In 2010, SIRIM received MOSTI's approval to continue hosting the Secretariat for another term.

**WAITRO Secretary-General, Dr. Rohani Hashim and SIRIM Vice Presidents Dr. Zainal Abidin Mohd Yusof and Nor Rashid Ismail with Mehdi Rajabi of ISESCO, at the WAITRO Fellowship Programme**

The WAITRO Management Programme was organised at SIRIM's offices in Shah Alam in February 2010, giving a better understanding of WAITRO's activities and functions to 11 contact persons from Research and Technology Organisations (RTO) in different countries. In addition, the WAITRO 20th Biennial Congress 2010 was held in Dubai during October 2010, in conjunction with the WAITRO 20th General Assembly, with the theme of Leadership for Innovation.

SIRIM together with WAITRO helped to facilitate the 2nd ASEAN-APCTP Workshop on Advanced Materials Science and Nanotechnology, held in Penang during December 2010. The main objective of this workshop was to strengthen the research and application of advanced materials science and nanotechnology in ASEAN countries. SIRIM also conducted the WAITRO Research Fellowship Programme (WRFP) in the Area of Ceramics Processing Technology in November 2010.

The Workshop on Technology Foresight was launched in July 2010 with the aim of promoting technology foresight in decision making among member states of WAITRO and the Islamic Educational, Scientific and Cultural Organization (ISESCO). The first phase of the workshop was held at SIRIM's offices, while the second phase was hosted by the Iranian Research Organisation for Science later in the year.

Throughout 2010, WAITRO also held conferences on mineral processing, commercialisation of high-tech projects, biowaste and radiation processing technology. In line with WAITRO's mandate of RTO technology development, a poverty alleviation project study was conducted in Nagaland, India during December 2010. In addition, for Phase one of

the WAITRO-ISESCO Joint Cooperation Programme on Capability Building of Research Technology Organizations in ISO/IEC 17025, SIRIM provided a review of the programme's Quality Manual and Quality System Documentation.

WAITRO conducted successful missions to several WAITRO member organisations, potential members and international funding agencies to develop and strengthen ties with these bodies. As a result, WAITRO approved three new member RTOs from Columbia Germany and Nigeria.

WAITRO also organised two courses of the Malaysian Technical Cooperation Programme (MTCP) in 2010. The MTCP is a programme fully funded by the Malaysian Government and provides training in RTO leadership, standards and quality, metrology for developing countries, and powder metallurgy technology. Fifty three participants from 22 countries attended the various courses conducted.

During 2010, the National Metrology Laboratory (NML) participated in a number of international and bilateral comparisons to ensure harmonisation of measurements with its international counterparts. These comparison programmes ensured greater standardisation in measurements of heavy metals in crustacean seafood, GPS common view time transfer, pH, organic purity assessment and many others.

NML also organised collaborations with the National Institute of Metrology of Thailand (NIMT) during the recent Seventh Official Meeting of Thailand & Malaysian Corporation on Science & Technology in Kuala Lumpur. These collaborations cover electrical, mechanical, flow and thermophysical measurements. The NML also collaborated with the Korea Research Institute of Standards and Science on metal-fixed-point fabrication. Finally, NML continued its work on an ongoing project to help the International Bureau of Weights and Measures (BIPM) develop an organic analysis database for all national measurement institutes around the world.

SIRIM remained active in the international standardisation arena throughout 2010. Through the Department of Standards Malaysia, SIRIM participated in 163 ISO and IEC technical committees while acting as an observer in 206 technical committees. SIRIM also hosted five international and regional standardisation meetings involving about 500 delegates from about 70 countries around the world.

#### **WAITRO Management Programme 2010**





*PDA Briefing*

## HUMAN CAPITAL DEVELOPMENT

As of 31 December 2010, SIRIM's total staff strength stands at 2,035. In addition, 113 new recruits are currently being welcomed into the SIRIM family.

During 2010, SIRIM continued to invest in staff training and development programmes, including sponsoring for further studies locally and abroad. The management also engaged 14 local and overseas experts to expedite technology transfer to SIRIM staff. Three staff members were sent on attachment programmes to Korea Advanced Nano-Fab Centre (KANC), University of Manchester, UK and University of Sheffield, UK. GHRD also organised 74 Development Programmes attended by 1,922 staff, and sent 584 staff to attend 315 Functional Training Programmes related to SIRIM's businesses.

***5S activity is among the programmes carried out under OSHE***



SIRIM enhanced the succession management plan for top management in order to ensure leadership continuity, preparing managers to assume key leadership positions. Four management staff attended the Managerial Development Programme and the Senior Management Development Programme. Apart from introducing the Succession Planning Guide framework, GHRD also developed a new Personal Development Analysis (PDA) format and reviewed the Hardship Allowance rate.



**President & CE  
visiting ERT  
operation center**

## INTERNAL IMPROVEMENT

SIRIM has taken up the challenge of providing its people with a safe and healthy workplace. In 2010, SIRIM's departments made significant progress in implementing Occupational Safety, Health and Environment (OSHE) systems, with each department establishing its own Safety Health and Environment Committee (SHEC).

Each of SIRIM's departments is also cultivating a practice of accident reporting and investigation. A total of 12 departments reported and investigated various incidents in 2010, a significant increase compared to six departments in 2009. Thirty departments performed occupational safety and health audits in 2010, up from just 13 departments in 2001. The audits produced eight non-conformance reports, leading to some 46 improvements being carried out in the relevant departments. Two departments carried out tests on some 27 Local Exhaust Ventilation systems.

SIRIM implemented audits in compliance with the Environmental Quality Act at 12 centres and departments, and is currently implementing 150 improvement activities.

Starting in March 2010, existing paramedic teams were phased out and replaced by Emergency Rescue Teams (ERT) working on daily schedules.

In 2010, the management organised a road show to introduce the new Environmental Management System (EMS) Manual and Procedures to staff members, and trained 18 EMS auditors. In addition, Safety and Environment Day was held to raise staff awareness on the importance of ensuring safety and managing the environment. Celebrity environmental activist Maya Karin attended the event.

In 2010, the management also introduced Policy and Quality Objectives as well as the Internal Service Standard. In addition, SIRIM conducted a MS ISO 9001: 2008 audit in 32 centres and departments, resulting in 61 non-compliance reports issued requiring follow-up action.



### **The i-Radar system**

Twenty-four departments have uploaded work procedures to the *myinfov2* system. Twenty-three staff members have been selected and trained for internal QMS audits in 2010, compared to just 16 staff in 2009.

Throughout 2010, SIRIM management also monitored the Corporate Key Performance Indicators (KPI) of the Group and produced the SIRIM quarterly performance report for stakeholders. During the year, an online manual was produced for the i-Radar system and 10 workshops were conducted to assist all departments and centres in using the system and inputting KPI data.

Looking ahead, SIRIM intends to continue its internal improvement efforts in 2011 by competing for the Malaysian Society for Occupational Safety and Health (MSOSH) Award, registering tools and machinery with the Department of Environment, producing Blue Belt- and Black Belt-ranked Lean 5S auditors, increasing the number of Green Belt-ranked 5S auditors, and identifying additional SIRIM departments for ISO 9001: 2008 certification.

## SUPPORTING CREATIVITY IN DESIGN

In 2010, the Malaysia Design Council (MRM) received 103 product submissions from 42 companies for the Malaysia Good Design Mark (MGDM). Product submissions were 120% those of the previous year, due to the MRM's aggressive promotional efforts in the past year.

In conjunction with Innovative Malaysia Year 2010 (MI2010), MRM organised the Design Innovation Exploration (DIX) programme to promote interest in design among school-aged Malaysians. DIX programmes were conducted in several states with as many as 1,000 primary and secondary school students attending quizzes, experiments and model-making demonstrations.

In the past year, the Malaysian Design Competition was held for the 14th year with the theme of 'Cultural Creative Industry'. A total of 474 design ideas from school children, college students and professionals were submitted, from which 20 ideas were shortlisted. The awards ceremony was scheduled for March 2011, where the next Malaysian Design Competition will be announced with the theme 'Universal Design – Household Products'.

During 2010, MRM also organised several design workshops in association with various partners including the Korea Institute of Design Promotion (KIDP), Malaysia External Trade Development Corporation (MATRADE), Kedah Regional Development Authority (KEDA), Ministry of Rural and Regional Development (KEMAS) and the Ministry of Education. MRM also participated in several exhibitions including Science On-Wheels, Export Furniture Exhibition, and Education Through Design Exhibition. With the cooperation of KIDP, MRM was able to bring several MGDM products to the International Korea Design Exhibition.

In 2010, the Design Outreach Programme was introduced in schools to create awareness of the MRM and the design sector in general. The programme promoted MRM at a total of 20 schools in Selangor and Negeri Sembilan, and further outreach visits are planned in the coming year.



**MRM Chairman Dato' Prof. Dr. Ahmad Hj. Zainuddin officiating the Empowering New Possibilities Design Seminar**



## SUBSIDIARIES

*Seaweed from the harvesting project in Semporna, Sabah*



### **SIRIM QAS International**

- ▷ **Capacity building**
- ▷ **Accreditation milestones**

### **SIRIM Training Services**

- ▷ **Creating a skilled labour market**
- ▷ **Seminars, workshops and conferences**

### **National Precision Tooling**

## SUBSIDIARIES

### SIRIM QAS INTERNATIONAL

As Malaysia's leading certification, inspection and testing body, SIRIM QAS International provides vital services to Malaysian industries. In line with the Government's focus on environmental concerns, SIRIM QAS International also offers numerous environmental verification and certification schemes, including ISO 14001 environmental management system certification, Clean Development Mechanism (CDM) validation, forest management certification and chain of custody, Roundtable Sustainable Palm Oil (RSPO) certification and the SIRIM ecolabelling scheme.

In 2010, the Electrical and Electronic Testing Section (EEST) supported the Energy Commissions programme for Energy Efficiency by providing testing services for electrical appliances such as air conditioners, fans, televisions and lighting products.

#### *Electrical testing laboratory*





**Safety testing  
for motorcycle  
helmets**

## Capacity building

SIRIM QAS International Sdn. Bhd. added several new testing services to better meet the evolving needs of customers, including safety testing for LED lamps and LED televisions, sugar profile testing and testing of steel rails as well as testing motorcycle helmets for ECE R22 compliance. SIRIM QAS International also launched the SIRIM WiMAX testing laboratory, the only independent WiMAX testing laboratory in Southeast Asia.

During 2010, the Government appointed SIRIM QAS International as a certifying and testing agency in the implementation of new technical regulations for new and retread tyres, safety hats and shoes as well as insulated fish boxes. SIRIM QAS International was also admitted into the Global EcoLabelling Network (GEN), providing international recognition for the SIRIM Ecolabel.

In 2011, the Energy Commission will initiate an Electrical Appliances Energy Efficiency and Labelling Programme. The EEST has been identified as a testing house that will provide testing services for this programme.

## Accreditation milestones

SIRIM QAS International received two new accreditations in 2010. Its engineering inspection services are now accredited by Standards Malaysia, while its WiMAX testing laboratory is now accredited to international WiMAX standards.



***Participants  
registering for the  
Training and Re-  
skilling programme***

## **SIRIM TRAINING SERVICES**

SIRIM Training Services Sdn. Bhd. (STS) serves both the private and the public sector by upgrading their human resources. Its programmes provide skills and expertise to help job seekers and employed workers to meet the challenges of an increasingly high-tech economy.

For the year 2010, SIRIM Training Services organised a total of 183 training programmes in technology and quality for the industry, public, unemployed graduates and retrenched workers. Over 4,000 participants benefitted from these programmes during 2010.

STS's activities included 94 public courses, 59 in-house training programmes for companies, two new intakes of public Executive Diploma Programmes (EDP) and 21 batches of training under the Training and Re-Skilling programmes. The company's public training programmes covered topics such as quality and technology, certification programmes and new emerging technologies. Government-funded training programmes under the Economic Planning Unit (EPU) continued to be promoted, coordinated and implemented during the period under review.

As part of a re-branding exercise, STS introduced a new logo which is more in line with the SIRIM Berhad logo. This new logo increases industry recognition of how SIRIM is associated with its subsidiary.



## Creating a skilled labour market

***SIRIM senior management meeting with Malay Bangla Communications Sdn. Bhd. at the MoU to develop a proposal on manpower training***

In 2010, SIRIM Training Services carried out Training and Re-Skilling Programmes for unemployed graduates and retrenched workers under the purview of EPU's special fund. From January to July 2010, the Training and Re-Skilling Programmes registered and trained 420 participants, just short of the original target of 426 participants. All in all, the programmes trained a total of 859 participants since their inception in July 2009, with about two-thirds of the participants consisting of unemployed graduates.

Participants in the Training and Re-Skilling Programmes received valuable knowledge and skills in high-technology sectors from SIRIM Berhad's industry-specific trainers. A survey of the newest batch of students showed that more than half found employment after completing their training and practical programmes.

STS also developed a proposal with Malay Bangla Communications Sdn. Bhd. (MBCSB) to train outbound Bangladeshi workers. The proposed service would train the workers on basic safety, quality and culture to prepare them to work in the Middle East and in South East Asia. The project paper has been approved by STS's Board of Directors for implementation in year 2011.

SIRIM Training Services and University of Malaya Centre for Continuing Education (UMCCed) continued to collaborate on Executive Diploma Programmes with a total of 22 students registering for the Executive Diploma in Production and Operations Management (EDPOM) and the Executive Diploma in Productivity and Quality Management (EDPQM).

## Seminars, workshops and conferences

SIRIM Training Services also organised several awareness seminars and workshops in 2010, as well as one annual summit.

A Nanotechnology Awareness Seminar held in Kota Kinabalu, Sabah in January 2010 attracted a total of 600 participants. In addition, SIRIM Berhad hosted the Care and Growth Leadership Model Seminar in November 2010, which was attended by 50 industry participants and featured four seminar papers presented by speakers from Global Business Excellence (GBE) International and SIRIM Berhad. STS also held a seminar on Life Cycle Assessment (LCA) for Eco-Friendly Products and Services for 190 participants in December 2010.

In 2010, STS promoted and managed a series of workshops on the development of jatropha biofuel plants. The workshops featured invited guest speakers as well as speakers from SIRIM Berhad and were held in several of SIRIM's state offices. SIRIM Training Services also held a workshop on ISO/IEC 27001: 2005 for Information Security Management System (ISMS) implementation at Concorde Hotel, Shah Alam in December 2010. The workshop was facilitated and trained by Mr Akihiko Komase from ASGENT Inc. Japan, a renowned expert on ISMS.

STS plans to further expand its training and seminar programmes in 2011. Several quality and technology training courses are planned for the 1Malaysia Training Programmes under the purview of the Ministry of Human Resources. The proposed training programmes for 2011 include Automation System Design and Embedded System Design, Radio Frequency Identification Detection, Integrity Systems, Certified Welding Inspection, Welding Technology and Renewable Energy Technologies.

The International Conference on Nanotechnology will be held in Kota Kinabalu, Sabah in June 2011, with the theme of Nanotechnology for Sustainability and Growth.

**Dr. Nobuhiko of Nagoya Sangyo University presenting his papers at the LCA Seminar for eco-friendly products**



## NATIONAL PRECISION TOOLING

In February 2010, SIRIM Precision Tooling (Malaysia) Sdn. Bhd. officially changed its name to National Precision Tooling (NPT) Sdn. Bhd. The company's objective remains the same: to serve as the special purpose vehicle mandated by the government to lead the development of the Bumiputera Automotive Tool, Dies and Moulds (TDM) industry. The objective of the business is to expedite the capability and capacity of TDM industry clusters and increase their participation in the TDM business.

The goal of the TDM Project initiative is to create a community of Bumiputera TDM companies that can provide a full range of TDM capabilities for the production and manufacture of components for a complete car by 2015. The TDM Project involves four main sub-sectors, with anchor companies in each sub-sector tasked with the responsibility of identifying and developing vendors.

During 2010, anchor companies were selected for the Stamping Dies and Plastic Moulds sub-sectors, while the anchor companies for Die Casting Dies and Assembly Jigs and Fixtures have yet to be identified. In addition, NPT has been assigned as the anchor company for the TDM Supporting Industry Cluster.



**CNC machining in SIRIM is ready for use by industry**

The Economic Planning Unit disbursed RM50 million of funding for the TDM Project. As a result, NPT was able to evaluate and approve the rental of several CNC machining centres and CAD/CAM/CAE systems. In addition, 10 staff members from four companies were sent to Japan for training in advanced stamping die design and manufacture. Local training was also held for 36 staff from 10 companies covering stamping die and plastic mould manufacture. In addition, NPT's expert attachment programme provided technical advice and guidance to one participating company in the area of checking fixtures for metal stamping parts.

In total, 14 companies benefited from NPT's programmes in 2010, comprising six companies under the Stamping Dies Sub-sector, five companies under the Plastic Moulds Sub-sector, and three companies under the Support Industry Cluster. As a result of the staff training and equipment delivered and commissioned to date, some of the companies have already increased their TDM capacity as of the end of 2010.

In 2011, NPT will continue to work with designated anchor and vendor companies to evaluate and further develop the TDM industry's capabilities.



## ACTIVITIES AND AWARDS

*Rise husk for green furniture making*



# ACTIVITIES

## JANUARY

**15 Jan 2010** - During an official visit to SIRIM, Dr. Abbas Sadri, Director of ISESCO Regional Office in Tehran (third from right) held a brief discussion with SIRIM Berhad President and Chief Executive, Dato' Ir. Hj. Yahaya Ahmad in an effort to strengthen cooperation and business relationship between both parties. He also visited SIRIM's gallery and other facilities during his short visit while being accompanied by Dr. Rohani Hashim, Secretary General of WAITRO (second from right).



## FEBRUARY



**08 Feb 2010** -The Sultan of Selangor's Office at the Alam Shah Palace received the MS ISO 9001:2008 certification for palace management from SIRIM QAS International Sdn. Bhd. HRH Sultan of Selangor, Sultan Sharafuddin Idris Shah graced the event with his presence to receive the certification from SIRIM Berhad President and Chief Executive, Dato' Ir. Hj. Yahaya Ahmad at the Alam Shah Palace.

# ACTIVITIES

## MARCH

**27 March 2010** - In support of the global Earth Hour 2010 event, SIRIM Berhad switched off all main lights at its premises for an hour. SIRIM Berhad took up the challenge to preserve the environment by installing LED lighting at its corporate building.



## APRIL

**15 Apr 2010** - The 3rd Creativity and Innovation Week, organised by the Ministry of Science, Technology and Innovation (MOSTI) was officiated by Datuk Fadillah Yusof, Deputy Minister of MOSTI (far right). Among the activities organised during the three-day programme held at the SIRIM complex in Shah Alam were the launching of the "InnoVictors" book and the "Malaysia's Dream Bamboo Super Hybrid Car" competition. An exhibition of innovative bamboo-based products was also held.



# ACTIVITIES

## MAY



**10 May 2010** – As part of SIRIM Berhad's Corporate Social Responsibility (CSR) program, Noraini Kassim, General Manager of Group Corporate Affairs, presented a new motorised wheelchair to handicapped student, Suhazli Muhammad. Suhazli, 18, will employ the wheelchair which has been modified for his usage to attend his studies at the Johor Matriculation College, Tangkak, Johor.

## JUNE

**12 June 2010** - The Northern Zone's Groom Big Showcase 2010 in Alor Setar, Kedah was officiated by Dato' Mukhriz Tun Mahathir, Deputy Minister of International Trade and Industry (MITI) (far left). MITI and SIRIM Berhad also held an exchange of documents for a Memorandum of Understanding at the event. In addition, certificates were presented to entrepreneurs who successfully completed their courses in the Quality and Production Improvement Fast Track and HALAL Fast Track programmes organised by SIRIM.



# ACTIVITIES

## JULY

**29 July 2010** – A total of 340 staff members from various departments took part in the "PEKASA Rat Race" meant to ease work stress. The event saw men running in cotton sarongs and women running in work attire for about 2km around SIRIM's premises. The event not only strengthened the bonds among the staff but also promoted healthy living.



## AUGUST

**13 Aug 2010** – The first ever local reality TV program in search of innovations, "IDEA: Malaysian Inventors' Challenge" was launched by the Ministry of Science, Technology and Innovation, SIRIM Berhad and PROTON. The program, which was aired on TV3, was created to search for the best and brightest innovations and inventions to be commercialised.



# ACTIVITIES

## SEPTEMBER

**2 Sept 2010** - SIRIM Berhad signed a Memorandum of Agreement (MoA) with ACT Technology (Asia) Sdn. Bhd, to collaborate in automotive research, component design and testing. The MoA also gave SIRIM's engineers exposure to the latest technology in vehicle and component testing.



## OCTOBER

**23 Oct 2010** - INNOSPACE Sarawak was launched by Datuk Seri Dr Maximus Johnity Ongkili, Minister of Science, Technology and Innovation. INNOSPACE, set up within SIRIM Berhad's facilities, is aimed at developing and nurturing innovative and creative Malaysians.

The space provided will help inventors to produce prototypes and products that can be commercialised for local or global markets.



# ACTIVITIES

## NOVEMBER

**25 Nov 2010** -The Manap & The Gang Group was declared the champion in the “*IDEA: Malaysian Inventors’ Challenge*” reality TV programme with their innovation, the “Hanger Dryer”. They received a cash prize of RM30,000 from Prime Minister, Dato’ Seri Mohd Najib Tun Razak at the Malaysia Inovatif 2010 Summit in Kuala Lumpur.

Their innovation enables the drying of clothes using controlled heating technology.



## DECEMBER

**15 Dec 2010** - Malaysia Life Cycle Inventory Database (MY-LCID) was launched by Datuk Hj. Fadillah Yusof, Deputy Minister of Science, Technology and Innovation as part of the national green initiative. The database allows local industries to take part in Life Cycle Assessment (LCA) in order to address environmental concerns and issues.



## AWARDS

### ITEX 2010 Gold Medal & Special Award for Best Green Invention



**Project Title:**

Photopatternable Hybrid Organic-Inorganic Sol-gel Materials for Planar Optical Waveguide Applications

**Photonics, Electronic Materials Programme, AMTC researchers:**

Dr. Mohamad Zahid A. Malek (Leader)  
 Mat Tamizi Zainuddin  
 Nik Mohd Azmi Nik A. Aziz  
 Shamsul Azrolsani A. Aziz Nazri  
 Hasrina Hashim  
 Ahmad Zaki Shaari  
 Aishah Isnin

### ITEX 2010 Gold Medal



**Project Title:**

Green Biopolymer For Active Wound Care Application

**Bio-process Technology Programme, IRBC researchers:**

Dr. Zanariah Ujang (Leader)  
 Dr Ahmad Hazri Abdul Rashid  
 Prof Dr. Ahmad Sukari Halim  
 Mazita Mohd Diah  
 Siti Kasmarizawaty Suboh  
 Norrasidah Sarmi  
 Zuliana Ahmad  
 Harmayumi Wahid  
 Mohd Helme Mohd Helan  
 Rozanida Abdul Rahman  
 Farah Zuana Uzair  
 Azriff Roba'ai

# AWARDS

## ITEX 2010 Gold Medal

**Project Title:**

Potential Application of Waste Rubber as a Binder in Metal Injection Moulding

**AMREC Structure Materials Programme, researchers:**

Dr. Istikamah Subuki (Leader)  
Dr. Mohd Afien Omar  
Dr. Hanafi Ismail  
Muner Taha  
Nor Syakira Abdullah



## ITEX 2010 Gold Medal

**Project Title:**

Improved HF Antenna Design for Wireless Authentication

**AMTC, RFID section, researchers:**

Nor Aishah Shamsudin  
Nor Azlina Muslim  
Rahimi Alrozi  
Dzurliza Ahmad  
Borhanudin Md. Yusof  
Mohd. Amin Said



## AWARDS

### ITEX 2010 Gold Medal



**Project Title:**

Hybrid Networked Resettable Circuit Breakers

**Smart System section,  
AMTC researchers:**

Gooi Chye Seong  
Mohd Rafedin Rakiman  
Md. Yazid Miskom  
Nuzul-Amri Zakaria  
Mohd Rizal Abd Razak  
Rosli Mohamad Noor

### ITEX 2010 Gold Medal



**Project Title:**

Green and Natural Bioactives for Topical Application

**Bio-process Technology Programme,  
IRBC researchers:**

Dr. Zanariah Ujang  
Dr. Ahmad Hazri Abd Rashid  
Mazita Mohd Diah  
Thavamanithevi Subramaniam  
Harmayumi Wahid  
Mohd Helme Mohd Helan  
Rozanida Abdul Rahman  
Suzaini Badruddin

# AWARDS

- \* Silver Medal at MTE 2010 - Automated Volumetric Scanning and Weighing Machine, led by Goh Peng San
- \* Silver Medal at MTE 2010 - Photopatternable Hybrid Organic-Inorganic Sol-gel Materials for Planar Optical Waveguide Applications, led by Dr. Mohammad Zahid A. Malek
- \* Silver Medal at MTE 2010 - Potential Application of Waste Rubber as a Binder in Metal Injection Moulding, led by Istikamah Subuki
- \* Bronze Medal at MTE 2010 - Improved HF Antenna Design for Wireless Authentication, led by Nor Aishah Shamsuddin
- \* Bronze Medal at MTE 2010 - Generic Microcontroller Training Kit, led by Al-Malek Faisal Mohd. Amin
- \* Bronze Medal at MTE 2010 - Palm-based Flux for Binary and Ternary Lead-Free Solder Alloys, led by Md. Amin Hashim
- \* Silver Medal at ITEX2010- Amperometric Biosensor for the Determination of Ammonium led by Dr. Jaafar Abdullah
- \* Silver Medal at ITEX 2010 - Generic Microcontroller Training Kit, led by Al-Malek Faisal Mohd. Amin

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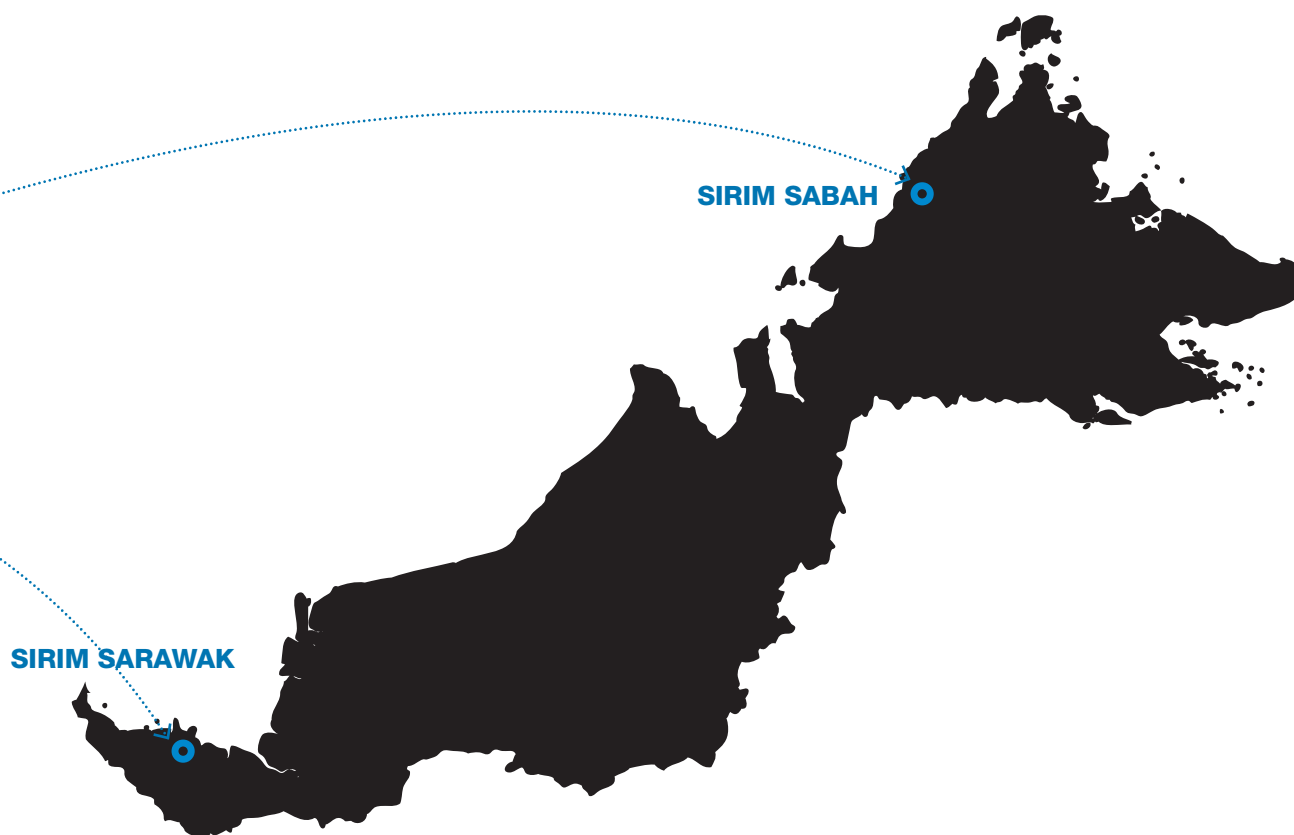
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