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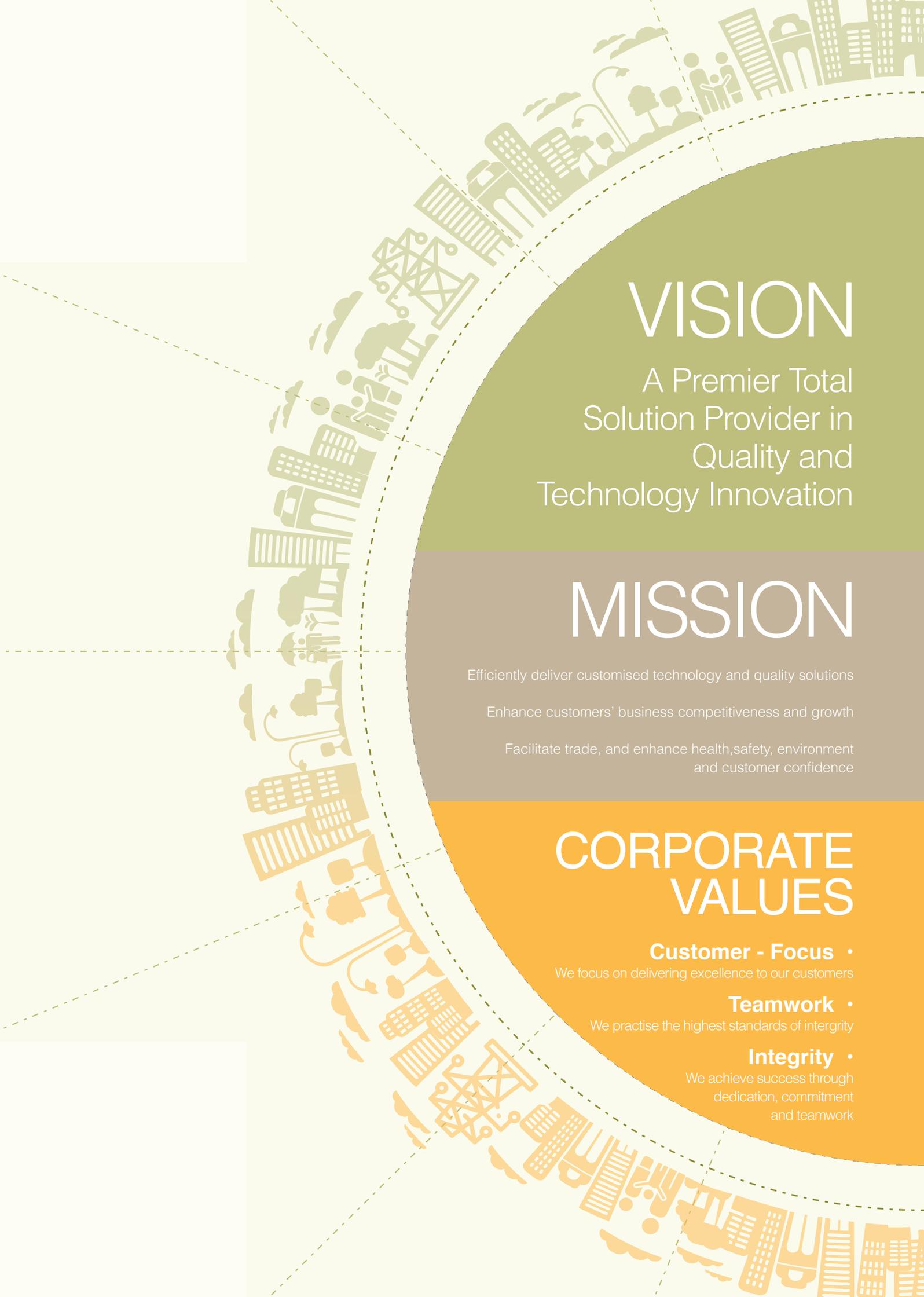
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VISION

A Premier Total
Solution Provider in
Quality and
Technology Innovation

MISSION

Efficiently deliver customised technology and quality solutions

Enhance customers' business competitiveness and growth

Facilitate trade, and enhance health, safety, environment
and customer confidence

CORPORATE VALUES

Customer - Focus •

We focus on delivering excellence to our customers

Teamwork •

We practise the highest standards of integrity

Integrity •

We achieve success through
dedication, commitment
and teamwork



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

ROLES

- The champion of quality
- A national research and technology development corporation
- A vehicle for technology transfer

OBJECTIVES

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

Board of Directors



Dato' Dr. Zainal Abidin Mohd Yusof



**Tan Sri Dr. Ahmad Tajuddin Ali, FASc., P.Eng
(Chairman)**



Datuk Seri Dr. Mohd Azhar Hj. Yahaya



**Prof Emeritus Tan Sri Dato' Dr. Mohamed Salleh
Mohamed Yasin**



Datuk Dr. Ir. Abdul Rahim Hj. Hashim



Khalimatun Saadiah Mohd Khalid



Dato' Dr. Ir. Andy Seo Kian Haw



Saji Raghavan



Datuk Mohd Nasir Ahmad

**Dato' Dr. Zainal Abidin
Mohd Yusof**
President and
Group Chief Executive



**Ir. Dr. Mohamad Jamil
Sulaiman**
Vice President,
SIRIM Industrial Research



Goay Peck Sim
Vice President,
Group Strategic Planning



Management Committee



Azim Ng Abdullah

Managing Director,
SIRIM STS Sdn. Bhd.



**Mohd Azanuddin
Salleh**

Managing Director,
SIRIM QAS International Sdn. Bhd.
(from 1 September 2016)



Haliza Ibrahim

Vice President,
Group Human Resource



Sabarina Harun

Vice President,
Group Finance
(from 1 September 2016)

Chairman's Message

ADDING VALUE ACROSS THE INNOVATION CHAIN

Tan Sri Dr. Ahmad Tajuddin Ali,
FASc. P.Eng
(Chairman)



The world is on the verge of a major shift to re-define industry through the fourth stage of the Industrial Revolution or Industry 4.0. It is being described as the age of convergence of cyber or digital and physical technologies. Industry 4.0 represents a radical shift from the way businesses have always been run, but in reality, that future is already here.

Industry 4.0 has to be part and parcel of our quest towards achieving Malaysia's aspiration to become a knowledge-based, digitised economy and society and ranked as a high-income nation.

As the country's leading agency for industrial technology and quality, SIRIM will continue to support the government in its quest to navigate through the fourth industrial revolution. It is a unique organisation with the mandate to support sustainable industrial growth for the country - it has the responsibility to support industries to compete internationally through standards and quality assurance services; help companies to upgrade their technological capability to enhance their competitive edge; and provide supporting role to the regulatory agencies through measurement services.

The year 2016 was the first year of the implementation of the holding company approach, setting a clear delineation of developmental, statutory and commercial activities. We have developed a distinct strategy on building pathways towards the Group's sustainable growth, while units with developmental mandates continued to deliver the national agenda of steering SMEs towards global competitiveness.

Building on the foundation built over the years, SIRIM has re-defined its business focus in order to be able to respond more effectively to changing demands of its stakeholders. The Group is in the first year of executing its strategy of focusing on core businesses while improving efficiency and reducing operating costs. This was crucial in current environment, with weaker economic outlook and reduction in Government funding for developmental and statutory activities.

In the past year, our subsidiaries have made great strides in supporting local industry needs and businesses, especially in the areas of conformity assessment, technology and quality training and consulting, and calibration services. We launched nine new services, among others to support the country's palm oil industry, the development of mass transit system and product verification of medical devices.

Working with intermediary agencies, SIRIM has also upgraded the capability of local entrepreneurs to export overseas. An acquisition of a technology based company was also made to support local commercialisation initiatives.

SIRIM Industrial Research

In ensuring that SIRIM's industrial research and technology development capabilities are in tandem with the needs of the country's manufacturing sector, SIRIM Industrial Research has started to shift from a supply-driven, to a demand-driven approach. The days to telling customers what we can offer is gone. Today and into the future, it will be about discussing with customers on their needs and subsequently position ourselves to meet those demands.

One such example that is already on-going is the SIRIM-Fraunhofer programme where our engineers and researchers are talking directly to the companies and we will then provide the required technology solutions to enhance their quality and productivity.

SIRIM Industrial Research has also established market-based technological platforms to support SMEs in enhancing their innovative capabilities, increasing their productivity in their effort to grow and move up the value chain. Six such platforms or Industrial Centre of Innovation were established, focusing on nanotechnology, biomedical, energy management, sensor, industrial design and BioNG.



However, funding remained as the core issue to SIRIM in delivering this role effectively. Nevertheless, we are constantly finding new means to finance the ever-growing needs of technology and innovation. We look forward to the result of the current effort by the Government to revamping the way public-sector research is funded to enable us to fulfil this developmental role more effectively.



National Metrology Institute of Malaysia

In supporting the government's regulatory function in disseminating the traceability of measurements for the country based on the International System of Units, SIRIM operates the National Metrology Institute of Malaysia (NMIM) which is traditionally tasked to oversee this national role. NMIM is mandated to realise, maintain and cause to be maintained the National Measurement Standards and Certified Reference Materials under the National Measurement System Act 2007 (Act 675).

Just like other world physical standard laboratories, NMIM has the responsibility in ensuring the national metrology infrastructure meets and complies with the global measurement standards. The importance of the role and functions of NMIM has increased significantly after Malaysia signed the WTO-TBT Agreement, which emphasises on the importance of harmonised national infrastructure measurement system either domestically or internationally.

Currently, SIRIM has little choice but to extend additional funding to support the operations of what is basically a national infrastructure. It is our hope that the Government will bear the total cost in the running of this national industrial infrastructure and commission SIRIM, as a company wholly-owned by the Ministry of Finance, to run the institute on behalf of the nation.

In conclusion, seeing how far SIRIM has fulfilled its transformation agenda to date, I am confident that we have the resources, capabilities and drive to mark new milestones in pursuing our goals. On behalf of the Board of SIRIM, I would like to extend my deepest gratitude to our main stakeholders, the Ministry of Finance and the Ministry of Science, Technology and Innovation for their strong support throughout the year.

I wish to record my sincere appreciation to members of the main board and subsidiary boards for their guidance and contribution and also to the management team led by the President and Group Chief Executive, YBhg. Dato' Dr. Zainal Abidin Mohd Yusof and staff of the Group for their unwavering commitment in providing a solid support for our national development agenda.

Tan Sri Dr. Ahmad Tajuddin Ali, FASc. P.Eng
Chairman

President & Group Chief Executive's **Report**



**Dato' Dr. Zainal
Abidin Mohd Yusof**

ANOTHER YEAR OF SIGNIFICANT GROWTH IN 2016

SIRIM continues to drive long-term returns for shareholders

In 2016, our strategy was finely tuned in order to increase SIRIM's role in adding value through its innovative solutions to the industries and SMEs as well as government agencies. The step-up in performance that followed these changes was the result of a much clearer operating model and a streamlined organisational structure, which together have helped to generate the funds for growth while also resulting in significantly higher levels of productivity arising from improved operational discipline and increased service delivery.

It was hard work for all of us throughout the period under review as the Group faced tough operating conditions due to the slowdown of the economy. In addressing these issues, the Group had identified three key strategies focusing on competitiveness, connection and culture of excellence.

KEY ACHIEVEMENTS

Enhancing SMEs' Productivity

A specially designed programme to increase the productivity of Small and Medium Enterprises (SME), namely the SIRIM-Fraunhofer Programme, had recorded good progress in 2016, with a five percent increase in technology audits and a 34 percent increase in technology interventions compared to the year 2015, a positive reflection of the SIRIM Fraunhofer team's initiative and commitment.

Two more strategic initiatives were also introduced - the Food 4 Future Innovation Network and SIRIM Innovation Management Standard – as continuous efforts toward achieving increased productivity and sustainable growth among local SMEs through technology and innovation.

Another project was on developing bio-degradable packaging for industry in collaboration with the Ministry of Energy, Green Technology and Water. This project introduces safe and sustainable product that can be disposed at landfills without treatment and is aimed to substitute the widely-used non bio-degradable polystyrene food containers.

Efforts in Engaging with Industries

In our efforts to engage our stakeholders, we had organised a series of SIRIM Industry Engagement (SIE) programmes in Penang, Johor, Sabah and Sarawak. Encouraging response was received throughout the four programmes where representatives from industry associations, SMEs, entrepreneurs from various sectors, and government agencies were presented with a wide range of SIRIM's innovative solutions and technology services that will benefit and enhance productivity.

The Ministry of Industrial Development of Sabah, and Ministry of Industrial and Entrepreneur Development, Trade & Investment of Sarawak, as well as agencies such as SME Corp and industry associations including Federation of Malaysian Manufacturers among others, were our strategic partners in the programme.

The SIRIM-SME Innovation Management workshops was also held to provide support to companies and organisations in innovation management and the sharing of knowledge about idea management and technology methodology that can help them to achieve higher productivity and sustainable growth.

Contributing to Social Innovation

SIRIM Group had strongly supported the MOSTI Social Innovation Programme initiated by the Ministry of Science, Technology & Innovation in 2016. The programme helped overcome problems encountered by the society through implementation of projects, services, skills upgrading and innovation using existing technologies and implemented in a sustainable way.



SIRIM organised a series of SIRIM Industry Engagement programmes to engage its stakeholders, update them on the latest products and services and to listen to feedback from the industry, SMEs, trade associations and government agencies

A total of 11 projects were delivered across the country covering a wide range of SIRIM's technological innovations, among them, Automated Bio-Organic Fertiliser Production for the Farming Community, LED Lighting System for Night Market Vendors, Solar Thermal Technology for Cocoa Drying Process and Low Energy Lighting System (Street Lighting).

More than six ministries/agencies were involved in the projects that benefited 10,000 households while 3,000 primary and secondary school students gained knowledge and new skills from the various workshops and educational programmes.

Growth of Subsidiaries

The Group's conformity assessment arm, SIRIM QAS International Sdn Bhd saw a change in leadership with the appointment of Mohd. Azanuddin Salleh as the Managing Director to replace Khalidah Mustafa upon her retirement.

The subsidiary was appointed by the Government as the agency for inspection of imported used tyres for retreading purpose and for the consignment testing of imported edible wheat flour.

Significant work during the year include the provision of electromagnetic compatibility (EMC) testing to ensure related electrical and electronic systems supplied to the Klang Valley Mass Rapid Transit project meet EMC specifications.

Photovoltaic Module Testing Laboratory was also launched to enable quality Photovoltaic Modules produced by local manufacturers to be tested to Malaysian Standards, MS IEC 61215 and EN IEC 61646, as well as the international standard, IEC 61215.

The year 2016 saw the merger of business activities of SIRIM Training Services Sdn Bhd and the business activities of Standards Research and Management Centre of SIRIM. This new entity with businesses in standards, training and consultancy was named SIRIM STS Sdn Bhd (SIRIM STS).

SIRIM STS was tasked to continuously upgrade the technological skills and capabilities of local industries through the organising of courses, seminars, workshops, conferences and in-house training programmes. Eight new SIRIM Industry Standards were developed in 2016 with the collaboration of several stakeholders such as Malaysian Automotive Institute, Universiti Putra Malaysia, Public Works Department, Nano Verify Sdn Bhd, Herbal Development Department and Security Services Association Malaysia.

The subsidiary also trained 56 international delegates under the Malaysian Technical Cooperation Program, Ministry of Foreign Affairs in customer service and innovation management.

SIRIM Standards Technology Sdn Bhd had introduced calibration of acoustics and vibration test instruments, as well as calibration of smoke meter in 2016, while SIRIM Measurement Technologies Sdn Bhd together with Agilent Technologies formed a tri-party partnership with Universiti Malaysia Kelantan in the advancement of knowledge on "Concentrated Animal Feeding Total Operation Control" research.

SIRIM Tech Venture Sdn Bhd, the subsidiary mandated to drive technology commercialisation undertook work on commercializing the Bio Natural Gas project in Marotai, Sabah, which would enable storage of natural gas from Palm Oil Mill Effluent and transport them to the filling station in Sandakan. SIRIM Tech Venture also had set up 13 testing facilities which comply to ISO 14439:2013 and BS EN 14427:2000 requirements.

Meanwhile, in efforts to align its role as the national measurement system in the world, the National Metrology Laboratory, SIRIM was renamed as the National Metrology Institute of Malaysia (NMIM) on 1 January 2016. The role of NMIM is to undertake scientific metrology, realisation of the base units and primary national standards maintenance.

Ingraining New Corporate Values

A new set of Corporate Values were launched in August 2016 in conjunction with SIRIM's 20th Corporatisation Anniversary to provide the operating principles that guide the organisations' internal conduct and its relationship with customers, shareholders and consumers.

Enculturation and enhancing integrity among SIRIM staff was further strengthened in 2016. Efforts were embarked to ensure that employees practise integrity as part of SIRIM's working culture with ingrained high moral values and good ethics. In order to inculcate these desired culture, various initiatives and actions were designed to ensure high ethics and professionalism in the organisation.

MOVING FORWARD

The reality of today's business is rapid and with constant change. We had our five-year Strategic Plan but the ground has shifted on our ability to obtain adequate government funding. The management has taken steps to improve the Group's position by focusing on enhancement of commercial activities through productivity measures.

Driven by advances in technology, whole industry sectors are being disrupted. Companies that have been around for decades can suddenly find themselves obsolete, while – at the other end of the spectrum – relatively young companies are being valued at billions of dollars even before they start to generate much in the way of revenue.

In this environment, we must continue to reach towards Industry 4.0 with the right blend of global and local expertise, supported by an organisational structure that is resilient enough to withstand shocks and agile enough to respond to rapidly emerging trends. There have to be a radical change toward a culture of excellence through adoption of entrepreneurship spirit.

In 2017, we will focus on supporting Industry 4.0 through Additive Manufacturing technology. Capitalising on additive manufacturing capabilities through innovative designs would enable more products and components to be effectively manufactured.

SIRIM QAS International will also expand the testing services to include testing of ventilation ductwork, photovoltaic (PV) modules as well as brake systems and components for motorised vehicle weighing below five tonnes. Also in the pipeline is the opening of SIRIM QAS International's maiden overseas branch office in the Kingdom of Bahrain which will act as the gateway for us to offer our services in the Middle East region.

Acknowledgement

We made good progress on these fronts in 2016, and we will continue to deliver our objective of enhancing businesses and lives, to the benefit of our long-term shareholders and the many others who rely on SIRIM. I want to thank them and, above all, our workforce, whose dedication, commitment and sense of purpose shone through again in 2016.

On behalf of the management team, I would also like to express our sincere appreciation to the Chairman of SIRIM, YBhg. Tan Sri Dr. Ahmad Tajuddin Ali, FASc., P.Eng. and all the Board Members for their continuous support and commitment.

With courage, fortitude, and dignity - values that have distinguished SIRIM through periods of challenge - I trust SIRIM will continue to flourish, add value to the innovation chain consisting of critical industries and sectors of the economy, and continue as the transformational, dynamic, and strategic catalyst for national development.

Dato' Dr. Zainal Abidin Mohd Yusof

President & Group Chief Executive



SIRIM Industrial Research

ENERGY AND ENVIRONMENT FLAGSHIP

The Energy and Environment Flagship (EEF), together with other technology centres under SIRIM Industrial Research (SIR) developed the Technology Roadmap to help achieve the short-term and long-term goals of SIR via specific technology solutions. A total of 14 technology roadmaps were discussed and proposed for endorsement. The list of technology roadmaps are as follows:

- **Bio Natural Gas (BioNG)**
- **Battery & Supercapacitors – Potential ICOI**
- **Micro Smart Grid**
- **Solar Thermal**
- **Renewable Materials**
- **Bio-Actives**
- **Solid State Lighting**
- **Green Blue Packaging**
- **Water Reuse Technology**
- **GLP & non-GLP for Safety & Pre-Clinical Evaluation**
- **Bioassays for Cosmetics**
- **Solar PV Verification Services**
- **Carbon & Water Footprint Labelling**
- **Eco Design**

EEF was appointed as the Secretariat for the SIRIM Industrial Innovation Model Fund (SIIMF), one of the core activities under the SIRIM-Fraunhofer Programme. The mandate is to evaluate the technical aspects of proposals and ensure that they follow the requirements set by the SIRIM-Fraunhofer Main Secretariat. A total of 121 project proposals were presented in 13 technical committee meetings in 2016. Out of the 121 proposals, a total of 83 were granted approval for second evaluation by the Financial Committee.

For the year under review, EEF was entrusted to identify at least six suitable programmes/technologies within SIRIM that has the potential to be developed into a new Industrial Centre of Innovation (IC-Innovation). The setting up of (IC-Innovation) is one of the core activities by the SIRIM-Fraunhofer Programme. Towards the end of 2016, six programmes or technologies were identified:

- IC-Innovation Biomedical
- IC-Innovation BioNG
- IC-Innovation Energy Management
- IC-Innovation Industrial Design
- IC-Innovation Nanotechnology
- IC-Innovation Sensor



MEDICAL TECHNOLOGY FLAGSHIP

In the year 2016, the Medical Technology Flagship (MTF) secured a Grant from Ministry of International Trade and Industry for High Value Added and Complex product and market development. With the agreement signed in June 2016 between SIRIM and MIDF/ MITI, the project included a few collaborative roadshows that were carried out, such as with the Medical Faculty of University Malaya for dental and maxillofacial implant, Tengku Ampuan Afzan Hospital, Kuantan for craniofacial implant and IIUM Medical Hospital, Kuantan for total hip implant.

MTF also continued to enhance its capabilities at the Advanced Materials Research Centre (AMREC), Kulim and Industrial Biotechnology Research Centre (IBRC) at Shah Alam where the laboratory capabilities in conducting testing services for medical devices were significantly upgraded. AMREC is also in its mid-stage process of being accredited the ISO 17025.



MTF also had been actively involved in the successful acquisition of GranuLab Sdn. Bhd. a company producing bioceramic bone graft from Kulim Berhad. Dr. Fazilah Fazan, Senior Principal Researcher of MTF has been appointed as the Chief Operating Officer of GranuLab.

MTF organised a Biomedical and Healthcare Industry Engagement Day 2016 on 22 December 2016 at Shah Alam and the Symposium and Exhibition in Additive Manufacturing (SEAM) at Penang from 26 to 27 July 2016. A total of 100 participants attended the Industry Engagement Programme with over 150 local participants and 11 international exhibitors participated in SEAM.



Medical Technology Flagship secured a total of 37 bio medical services in additive manufacturing compared to 14 cases recorded in year 2015

The business performance under the Medical Technology Flagship in year 2016 continued to be very encouraging especially in the customised craniofacial and maxillofacial services provided to hospitals. The financial achievement recorded was much more than the targeted value and had secured 37 bio medical services in additive manufacturing.

A total of 10 R&D project proposals were submitted to MOSTI in year 2016 and a total of six international patents were granted under MTF in year 2016. Three patents were granted for "A Method of Converting Limestone into Tri-Calcium Phosphate and Tetra-Calcium Phosphate Powder Simultaneously" by Japan, Indonesia and USA. Another three patents were granted by Japan, South Korea and USA for "Composition Containing Injectable Self-hardened Apatite Cement".

PLANT AND MACHINERY FLAGSHIP

In 2016, the Plant and Machinery Flagship (PMF) focused in ensuring two national projects were carried out successfully. The Flagship anchored the Technology Audit programme under the SIRIM-Fraunhofer initiative. Under this programme, a total of 186 SMEs from various industry sectors were audited and 27 new Technology Auditors were trained.

To attract participants and create awareness especially on Technology Audit among SMEs on the SIRIM-Fraunhofer programme, 17 briefings were held for SMEs in various states. The awareness programmes involved collaboration with agencies such as the Federation of Malaysian Manufacturers (FMM), the Malaysian Digital Economy Corporation (MDEC) and SME Bank. SME Bank promoted the SME Technology Transformation Fund (STTF) which is the Government's initiative to encourage the participants of Technology Audit to increase their productivity through expansion and upgrading of technology capability. The Flagship led a SIRIM team to undertake analysis of Technology Audit findings done on 150 companies in 2015. A report was produced and the findings were presented to the auditors and Technology Audit participants in November 2016.

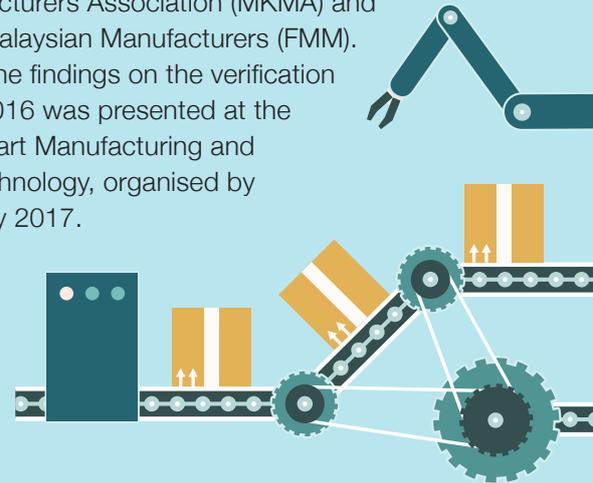


Plant and Machinery Flagship anchored the Technology Audit programme which aims to increase SME productivity through the expansion and upgrading of technology capability

A total of 150 SMEs that underwent the Technology Audit were identified and recommended to undertake Technology Upgrading Programme which covered areas such as implementation of automation and mechanisation, energy efficiency and upgrading of knowledge and skill in technology management.

PMF also played a significant role in the implementation of Automation Capital Allowance (A-CA), introduced by the Government in 2015 to encourage Malaysian companies to implement automation and reduce dependence on low skilled workers. Through a mandate given by Ministry of International Trade and Industry (MITI), Malaysian Investment Development Authority (MIDA) and Inland Revenue Board, the Flagship was tasked to undertake the verification process of machines and automation systems claimed by eligible companies.

A total of 39 applications for A-CA were received through MIDA in 2016 and 36 verification work were undertaken. Four briefings on A-CA were held together with MIDA, in collaboration with Malaysia Knitting Manufacturers Association (MKMA) and Federation of Malaysian Manufacturers (FMM). A summary of the findings on the verification work done in 2016 was presented at the Seminar on Smart Manufacturing and Automation Technology, organised by MIDA in January 2017.



During the year, PMF also started a project with Denel Land System of South Africa. It is a term project that will harness the technical capability of our researchers and engineers in electronics assembly.

In supporting the Government's move to encourage Malaysian companies to implement Industry 4.0, the Flagship has taken relevant initiatives such as identifying SMEs that have the potential to apply Internet of Things (IoT) applications in their factories and carry out relevant projects with these factories. The Flagship has been working closely with MDEC and National R&D Centre in ICT (MIMOS) to promote IoT applications and to ensure that real applications could be implemented in Malaysian factories.

SIRIM-FRAUNHOFER PROGRAMME

Since the Programme was first introduced in 2015, SIRIM continued to receive strong support from the Government through budget allocation, assistance and promotion to strengthen its implementation. Recognising the role technology has to play in bringing about growth to the small and medium enterprises (SMEs), SIRIM-Fraunhofer is aimed at increasing the productivity of SMEs through technology penetration, upgrading and intervention. The programme leverages on the experience of the Fraunhofer Model which has been successful in spearheading the innovation and technology development of German industries. To ensure maximum impact to the SMEs, SIRIM has developed and put into operation the SIRIM Industrial Innovation Model (SIIM) which is based on two significant features – enhancement of innovation services and strengthening of networks with strategic partners. The Programme comprises of four main activities: Implementation of Innovation Management/ Technology Audit, Technology Uptake, Nurture Growth of Small and Micro Enterprises and Cross-Cutting programme.



Technology audit remains one of the key components of SIRIM-Fraunhofer Programme. It is aimed at assessing a company's technology management capability and capacity, its strengths and weaknesses as well as its technology readiness level. A total of 186 SMEs were audited in 2016 comprising of 15 industry sectors such as food & beverages, machinery & engineering, electrical & electronics, oil & gas, and automotive. For efficient implementation of the technology audit, 27 new auditors were trained to expand the current pool of qualified technology auditors. To encourage SMEs participation in the programme, 13 briefings and engagement sessions were carried out with the industries, government agencies and industry associations to promote the programme.

A total of 199 technology intervention projects have been approved for the SMEs involving areas of mechanisation and automation, technology enhancement, localisation of technology, packaging and labelling, training and consultancy programmes for standard compliance, technical advisory for exporters which have received encouraging response from the SMEs. The expected outcome from this technology intervention would be an increase in production yield, reduction in production reject rate, and development of new products and processes.

SIRIM Innovation Management Standard was also launched on 15 December 2016, known as SIRIM 8: 2016 - Guidance Towards Becoming an Innovative Organisation. The standard provides guidance to Malaysian manufacturing and service industries on how to build an innovative organisation through innovation activities and culture derived from a structured innovation process. It also aims to provide general guidance to organisation that wishes to undertake innovation regardless of its sector, size and type. The standard describes innovation activities and techniques from the exploration of ideas to screening, product development and testing, and market launch.

The SMEs also gained immense benefit from participation in the Innovation Network programme. The Innovation Network is a network of interconnected and integrated functions and operations by SMEs for a specific sector. It aims to establish a trust-based network to foster long-term collaboration and initiate sharing of experiences between the SMEs, as well as a platform of benefits and support available from the research–industry collaboration. The network is mediated by scientific partners, SIRIM and Fraunhofer IAO of Germany which will be responsible in the development of innovations to achieve SMEs' growth and competitive advantage. One of the networks that was launched in 2016 is Food 4 Future Innovation Network in food processing sector. More Innovation Networks will be established in the future depending on the needs of the specific sector.



Technology audit is aimed at assessing a company's technology management capability and capacity, its strengths and weaknesses as well as its technology readiness level. 136 companies were audited in 2016 comprising of 15 industry sectors such as food & beverages, machinery & engineering, electrical & electronics, oil & gas, and automotive

To assist SMEs in making decisions on technology investment, a Technology and Market Radar (TMR) is being developed in collaboration with Fraunhofer Institute. TMR is an important tool in providing a snapshot of future technologies combined with market intelligence into a comprehensive information for SMEs to decide on their investment in technology. The TMR is expected to be completed in May 2017.

“Solving Industry-wide Problems” is a new initiative introduced under the Programme in 2016. Under this initiative, common problems faced by industries are identified and solutions to address these problems are sourced from various strategic partners locally or globally. SIRIM and its partners undertake technology and innovation projects to solve the common problems identified. A demo site to showcase the technology solutions for the common problems is open to industries and interested stakeholders. The year 2016 saw three demo sites showcasing solar thermal technology application in poultry, hotel and the food & beverage industries

In view of the continued support by the Government and positive response by the SMEs, SIRIM-Fraunhofer programme is expected to provide the massive push needed in improving SMEs' productivity. The key objective is to fulfil the needs of the SMEs in order for them to remain competitive and this is to be achieved through repositioning and alignment of SIRIM Industrial Research activities. An important outcome of the initiative is the establishment of six Industrial Centre of Innovation (IC-Innovation) which is expected to play a vital role in addressing issues faced by the SMEs. The IC-Innovation are are BioNG, Biomedical, Industrial Design, Sensor, Nanotechnology and Energy Management. The IC-Innovation in collaboration with its strategic partners and industry will provide innovation services in the areas encompassing research and development and market penetration to nurture the growth of SMEs.



ADVANCED MATERIALS RESEARCH CENTRE (AMREC)

AMREC continues to deliver advanced materials services covering activities in government funded research, contract research, consultancy and technical services to relevant industries. The year 2016 had been a challenging year for AMREC in undertaking the research projects, technology audit activities, socio-economy projects, commercial projects and technical services and consultancy.



On-going and Completed Projects

In regards to Socio-Economic projects, AMREC completed four projects that included the Tube Well, Composite Fish Cage, Composite-Based Fish Tank and Portable Procedure Station for Hospitals which were approved in 2016 to support the local community and technopreneurs in SMEs to upgrade their skills and knowledge and expand their businesses.

In 2016, AMREC successfully implemented two MOSTI Social Innovation (MSI) projects, LED Lighting System for Night Market Vendors and the Low Energy Lighting System. These projects allowed AMREC to collaborate with the local community in enhancing technological development, products, processes and services.

A total of 71 technology audits were performed on small and medium companies and new processes were proposed to enhance their productivity and quality.

AMREC continued to carry out R&D efforts in the identified focused areas related to advanced materials and nanotechnology that are market-driven and delivered research outputs and products to tap into future potentials in commercialisation development. More than 400 requests were received for technical services in testing contract, testing services for ceramic materials as well as other testing services using high-end equipment namely XRD, SEM, TEM, FTIR, FESEM, VPSEM, etc.

Events

AMREC continued to participate in exhibitions and trainings to further promote its technological capabilities and facilities available to the industry, institution of higher learning, and other research institutions and government agencies. An expert panel was also established to evaluate the Techno fund, Science fund, *Dasar Sains, Teknologi dan Inovasi Negara* (DSTIN) and also nanotechnology-related projects under the National Nanotechnology Directorate (NND).

Throughout the year 2016, AMREC organised technological conferences, workshops and seminars in various areas of advanced materials such as:

- 26-27 July 2016 – Symposium and Exhibition on Additive Manufacturing (SEAM 2016)
- 28-29 November 2016 – 3rd Advanced Materials Conference (AMC 2016)

Awards & Recognition

AMREC's researchers won two awards in various exhibitions such as:

ITEX 2016

Bronze Medal – Composite Drain Cover

MTE 2016

Bronze – Application of Metal Injection Molding Technique for Producing Open Pore Copper Foam

AUTOMOTIVE DEVELOPMENT CENTRE

For 2016, Automotive Development Centre's (ADC) main activities were projects and activities related to the validation of fuel saving devices. There were a few noteworthy projects undertaken during the year.

The projects include the Hybrid BioNG Motorcycle with Vandri (2-wheel cart) Project for the Orang Asli Community. The objective of the project was to validate the Tare Weight (*Berat Tanpa Muatan, BTM*) and the Laden Weight (*Berat Dengan Muatan, BDM*) performance of the motorcycle on an actual road-test with a 2-wheel cart in tow.

The outcome of the validation project will assist the authority to ascertain the legal road weight of the 2-wheel cart with the motorcycle.

Another interesting project undertaken was the Syn-Fuel Hybrid Gas Generator (SFHGG) Road Test Project for a local company. The objective of the validation exercise was to determine the comparative fuel consumption, measured using distance travelled in kilometres of two types of vehicles. The vehicles were both fitted with and without the Syn-Fuel Hybrid Gas Generator (SFHGG) fuel saving device.



Performance test in a plantation of the Hybrid BioNG Motorcycle with Vandri (2-wheel cart)

The 110cc Honda EX5 is the most commonly used motorcycle model by the Orang Asli Community in the plantation. The motorcycle was retrofitted with a CNG fuel system which could also run on BioNG. This project also supports the BioNG project currently undertaken by SIRIM Industrial Research.

An R&D project undertaken was the continuation of the Hybrid Motorcycle Techno Fund Project. It resulted in a patentable innovative design for a Valve Assembly Attachment for the 12 litre nylon liner of the Type IV Composite Tank used in the project. The patent is in the process of being filed.

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

SIRIM-UNEP Eco-Innovation – Pilot Application for Small and Medium Sized Enterprises

Businesses and industries worldwide have recognised sustainability as an imperative strategy in shifting production and consumption patterns towards better economic generation. However, the gradual implementation approach has proven ineffective due to environmental and social pressures that arise from challenges such as dwindling resources and climate change.

Eco-Innovation can contribute considerably towards sustainable development through systemic changes at the company, its value chain and societal level. It harnesses the power of the private sector to scale up actions that meet the sustainability objectives of governments. Eco-Innovation allows companies to evaluate and eliminate potential business risks and identify opportunities for innovation by integrating sustainability into strategic and daily decision-making. In return, it allows them to improve their performance and stay competitive.

This is particularly relevant for Small and Medium Enterprises (SMEs) as they are more receptive to change and are significant contributors to the economic and human development of their countries, often providing up to two thirds of employment. Yet, they also face operational capability constraints due to limited expertise, skills and access to finance.

SIRIM embarked on a “Pilot Application for Small and Medium Sized Enterprises (SME)” project upon signing the Small-Scale Funding Agreement (SSFA) with the United Nations Environment Programme (UNEP). SIRIM ran a pilot application of the Eco-Innovation method in SMEs from the chemicals sector, as outlined in the UNEP Eco-Innovation Manual. SIRIM followed the manual’s guidelines to assess the market suitability, identify main challenges and opportunities and create awareness about Eco-Innovation.

The aim was to enhance the business sector’s contribution to the achievement of resource efficiency as well as sustainable consumption and production patterns. The output of the project was presented at the Seminar on Sharing of the Eco-Innovation Project Experience, 7 December 2016.



SIRIM embarked on a “Pilot Application for Small and Medium Sized Enterprises (SME)” project upon signing the Small-Scale Funding Agreement (SSFA) with the United Nations Environment Programme (UNEP)

SIRIM ASEIC Eco-Innovation - Post Assessment Audit

SIRIM and ASEIC Korea, via the appointed Korean consultant; Ecoeye Pte, worked together in conducting the post Eco-Innovation management project for the 45 companies that participated in the Malaysia Eco-Innovation Consulting Project (MEICP) from 2011 to 2015. However, only 15 companies responded to the survey, where the majority agreed (54%) that MEICP has been effective, with another 13% responded that the programme failed to meet their aim. The top three effective consulting activities were: Process Efficiency Improvement, Energy Saving, and Waste Reduction.

Half of the participating SMEs implemented all the recommended improvements, while the other half only implemented less than five improvements, with eight as the average number of suggested improvements per SME. The main reasons why improvements were not fully implemented were high investment costs (39%), lack of manpower within the company (17%), and lack of information (17%) on the recommended improvement. It is concluded that a follow-up with the consulted companies is necessary, while looking at options in providing the required funding to carry out the improvements.

The biggest demands for follow-up programmes were linking them with various government support (27%), continued support for consulting (27%), and education and training (23%). In general, companies seek vital information on how they can manage energy saving within their processing lines. Based on the survey conducted, ETRC will continue to provide support in years to come, to ensure companies are well-prepared with the skills and knowledge to enhance process improvement and to provide support in product development especially in creating sustainable eco-products.

Harmonising the Life Cycle Assessment (LCA) Method for ASEAN Biofuel – Carbon Footprint (CFP)

SIRIM assisted MOSTI in delivering a project on Harmonising the LCA Method for ASEAN Biofuel - Carbon Footprint (CFP) funded under ASEAN Committee on Science and Technology (COST). The project took place from September 2015 to June 2016 to harmonise LCA method for biofuel production and use across ASEAN.

The harmonised methodology was embedded into a document referred to as Product Category Rules (PCR) which described specific rules, requirements and guidelines for declaring the environmental performance of the specific biodiesel produced within ASEAN region. The PCR focuses on measuring environmental impacts related to climate change in the form of greenhouse gases (GHG) profile. Discussions with the Forest Research Institute Malaysia (FRIM), Federal Land Development Authority (FELDA) and Malaysia Palm Oil Board (MPOB) were conducted to get information related to land clearance, cultivation and processing of palm oil during development of the document.

The harmonised CFP calculation toolkit; ASEAN GHG Calculator for Biofuel was developed based on the requirements set in the PCR. The toolkit provided some degree of commonality in carbon footprint calculation. It enables the relevant stakeholders to identify and compare the CFP profiles of biofuels produced from different feedstock and different agricultural production practices across ASEAN member countries. Input and output data collection sheets are developed for each biofuel production stages (from the nursery, plantation, milling, refinery up until the biodiesel production stage) to form the supporting kit to help users that manage a huge inventory of data.

The project's output is aimed to support and contribute to the growth of the biodiesel industry, impacting different players in the supply chain. Among the direct beneficiaries of the project are the biofuel stakeholders, such as biofuel farmers and producers, technology providers/ developers, biofuel investors/ manufacturers, science community and policy makers in ASEAN.

The output of the project was presented at the 46th of The Sub-Committee on Sustainable Energy Research (SCSER-46) in Siem Reap, Cambodia on 24 October 2016.

MSI 2016: Climate Change Awareness and Carbon Emission Awareness Programme at Primary School Level (PIPKAR); June – December 2016

Through the MOSTI Social Innovation (MSI) programme, SIRIM embarked on a community outreach initiative to instill and improve environmental awareness towards the much-talked global warming and climate change at the primary school level. The project was successfully implemented in good collaboration with the Jabatan Pendidikan Negeri Johor and WWF Malaysia.

The project comprised of a series of environmental awareness engagement sessions conducted in 10 primary schools. Interactive learning mediums were also distributed to 100 schools in Johor, covering most of the state's districts. Through the engagement sessions, the project reached approximately 1,200 pupils and teachers.



PIPKAR is an interactive learning medium aimed to educate children on how their daily activities contribute to the environment

PIPKAR, short for 'Perubahan Iklim dan Pelepasan Karbon', aims to educate children on global environmental issues, particularly on climate change and carbon emissions that result from daily activities or routines. PIPKAR relates to the daily routine in a day's life of school-children and highlights the negative and positive impacts to the environment contributed by the routines. This initiative will bring positive changes in the daily behavioral routine, resulting in lesser adverse effects on the environment.

INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE

It was another fruitful year of active participation for the Industrial Biotechnology Research Centre (IBRC). IBRC collaborated with local organisations and SMEs for commercial biotechnology projects to produce bio-based products from renewable resources for industries including chemicals, wellness and healthcare.

Under a number of MOSTI and MOHE grants, nine research projects were funded in various areas of Industrial Biotechnology. As a result, three technical papers were published and one patent was filed in 2016. IBRC was also involved in the research and development and commercialisation activities of cosmeceutical products, resulting in five of them successfully commercialised to local cosmetic entrepreneurs.



In 2016, the centre maintained its ISO 9001 certification after being audited by SAI Global. To continuously stay competitive in the area of technical testing services, the centre widened the scope for its ISO 17025 accreditation testing from Standards Malaysia for toxicology, microbiology and material characterisation testing. Researchers from the centre also received various awards during the Malaysia Technology Invention and Innovation Award 2016.



IBRC researchers won several awards during the Malaysia Technology Invention and Innovation Award 2016

INDUSTRIAL DESIGN CENTRE

The Industrial Design Centre (IDC) established in 2013 continues to blend problem solving and design research, with a primary business focus in engineering design that branches out into Design & Modelling as well as Additive Manufacturing sections.

The Centre maintained its focus on boosting the Malaysian Small and Medium Enterprises' (SMEs) technological and innovation level by increasing their technology uptake and upscaling the commercialisation of their products.

Continued Value-Added Services

Relying on a functional value chain of design to production, IDC's Design & Modelling section provided services in Computer-Aided Design for product modelling, Computer-Aided Engineering focusing on Finite Element Analysis and Computational Fluid Dynamics, and 3D Optical Scanning. Meanwhile, the Additive Manufacturing section concentrated on 3D printing of parts and components, including parts under 'Bio-Modelling' sub-programme.



IDC's Design & Modelling section provided services in Computer-Aided Design for product modelling, Computer-Aided Engineering, and 3D Optical Scanning

Pragmatic Industrial Design Learning and Application

IDC successfully delivered 12 units of Smart Green Kiosks to the community in Tangga Batu, Melaka under MOSTI's Social Innovation programme. These kiosks were unique in which, each kiosks were designed for specific requirements of those recipients.

A one-day workshop on Additive Manufacturing titled 'Additive Manufacturing Landscape in Malaysia' was conducted at SIRIM Bukit Jalil in November.

Under the SIRIM-Fraunhofer programme, IDC engineers conducted technology audits on 18 companies nationwide, initiating several projects as follow ups. These audits were conducted, among others, to assess the technology uptakes of Malaysian SMEs.

Under the Eco Industrial Design Centre (EIDC), a collaborative programme with Environment Technology Research Centre (ETRC) and System Development Centre (SDC); the Ministry of International Trade and Industry (MITI)'s KPI of 20 projects/services for 2016 were met. EIDC also organised a one-day roadshow in April where 24 participants from 12 companies attended project briefings, discussions and a facility tour at SIRIM Bukit Jalil.

EIDC also conducted training on Life Cycle Assessment and promoted their product life cycle consulting services and Greenhouse Gases/ Carbon Footprint accounting.

MACHINERY TECHNOLOGY CENTRE

Machinery Technology Centre (MTC) comprised of three sections namely Foundry Technology Section, Tooling Technology Section and Machine Design Section. MTC undertook 55 projects in services and five commercial projects, one socio-economic project, four MSI projects, two R&D projects, two MiSE Nurture projects, four SIRIM Industrial Innovation Model Fund (SIIMF) projects and won two awards.

MTC focuses on three areas of services identified as follows:

a) Engineering Services

Engineering Services scope includes design & development, prototyping, machining and fabrication of parts and components and rental of equipment. The sectors served are oil, gas and energy (turbine housing), food, mechanical & electrical (M&E) and transportation.

b) Localisation of Parts and Components

Localisation of parts and components is currently undertaken by MTC for clients from sectors such as oil & gas, M&E and power generation. Localisation of parts and components for these sectors and new sector such as transportation will continue to be MTC's focus.

c) Consultancy Services

Consultancy services and advisory to major clients in M&E sector.

Throughout the year, MTC assisted 51 SME and micro enterprises in technology adoption & application. MTC served 31 companies in providing Science & Technology services and trained 43 SME personnel through the following five technical trainings:

- Melting Technique for Ferrous Metal (Cast Iron)
- Gating System for Sand Casting
- Sand Casting Technology
- Sand Properties and Testing for Sand Mould
- Upskilling Plastic Die Engineering World Skill Competition Requirement

During the year under review, MTC was also involved in networking sessions on Technology Audits and visited more than 30 companies for the audits.

MTC received two awards for the High Speed & High Precision Optical Dicing Machine Project during the 27th International Invention & Innovation Exhibition (ITEX) and MTE respectively:

- ITEX – Gold, Project: Optical Dicing Machine (ODM)
- MTE – Bronze, Project: Optical Dicing Machine (ODM)

This high-precision machine's advantage is to make the 5-axis grinding process simultaneous and easily programmable, compared to existing machines in the market that only has a 4-axis motion system. More product configurations can be generated by using ODM innovation developed.



Optical Dicing Machine won a recognition on ITEX and MTE

RENEWABLE ENERGY RESEARCH CENTRE

The Renewable Energy Research Centre (RERC) successfully implemented the SIRIM-Fraunhofer Programme for SMEs. They included Capacity Building activities under the National Project funded by Global Environment Facility (GEF)-United Nations Industrial Development Organisation (UNIDO), Engineering Consultancy services in Cleaner Production for SMEs, Inclusive Innovation through the Ministry of Science, Technology & Innovation (MOSTI), Social Innovation Programmes & Research and Development in Renewable Energy.

Solving Industry Wide Problems

This programme was developed based on findings and feedbacks from the SME Innovation survey, Technology Audit and Stakeholder Engagements carried out throughout 2015. These studies formed the basis for the subsequent programme to be implemented in 2016. As a result, SIRIM designed various targeted programmes addressing the pressing needs of the SMEs today such as the Solving Industry Wide Problems which aimed at tackling the most prevalent weaknesses of SMEs that hinder them from being more productive and innovative. Among the summarised key findings highlighted in the innovation survey and technology audit were:

- Lack of industry wide awareness and knowledge in energy efficiency/ energy management as means to improve operational efficiency of SMEs
- A need to support and foster collaboration and clustering of SMEs for innovation in the industry
- To provide SMEs with more sophisticated and shareable R&D Infrastructure to stimulate innovation and growth

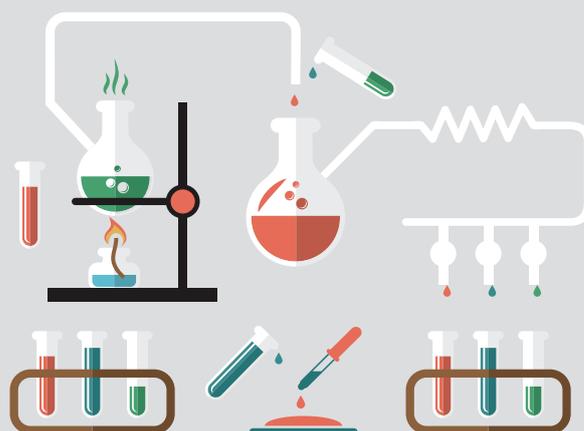
Based on the above findings, RERC was tasked to develop a comprehensive programme to address those weaknesses and to propel SMEs towards growth trajectories, focusing more on operational efficiency through energy efficiency.

Industry Wide Energy Efficiency/ Energy Management of SMEs to Improve Operational Productivity

Under this programme, 43 SMEs participated in energy audits of which the majority were involved in the food and beverage sector. The audits determined the current demand and to find potential energy saving measures.

The preliminary energy audits results revealed that majority of the SMEs lacked awareness and knowledge in energy management, and do not have specific programmes to address the inefficient energy use issue. It was observed that the amount of the energy consumed by SMEs were directly related to the nature of its business, size of operation and manufacturing processes. The final energy consumption of SMEs were found to be within the range of 3000kWh to 400,000kWh per month.

The energy efficiency improvement opportunities were identified and presented to the SMEs. They varied from low or no-cost measures such as controlling the operating time of the air conditioning, lighting & machines and scheduling maintenance of equipment. Medium cost measures included investment of insulation and heat recovery system to reduce heat loss. The integration of renewable energy such as Solar Thermal energy to cater for the heating process was also considered. This is a high cost measure in which investment needs to be carefully studied.



Food 4 Future Innovation Network: A Network Concept to Foster Collaboration and Knowledge Exchange between SMEs

The Food 4 Future Innovation Network consists of interconnected and integrated functions and operations by SMEs involved in the Food Processing sector and moderated by SIRIM and Fraunhofer. The primary objectives of the Innovation Networks are:

- To help Malaysian SMEs in Food Industry to grow their business by means of good business and technology strategies
- To establish a trust-based network between Malaysian SMEs to foster long-term collaboration, facilitated by scientific partners, SIRIM and Fraunhofer IAO
- To initiate sharing of experience between Malaysian SMEs
- To increase awareness of Malaysian SMEs for benefits and potential formats of support from research and enhance research-industry collaboration
- To increase visibility of innovative Malaysian SMEs



Food 4 Future Innovation Network establishes a trust-based network between Malaysia SMEs

Providing SMEs with Sophisticated and Shareable R&D Infrastructure

Solar Thermal Technology has been proven to be effective in providing the necessary processing heat in the food and beverage industry. One of the most effective ways to increase the adoption of this technology is to demonstrate the application. To further promote the sharing of experience and knowledge of the technology, demonstration plants were established at four selected SMEs. These plants will provide SIRIM with a working model platform to disseminate knowledge, experience, learning and showcase the technology.

The four SMEs were PPNJ Poultry and Meat Sdn. Bhd., to demonstrate a scalding process for slaughtered chickens; Muslim Kitchen Sdn. Bhd., to demonstrate hot water for general cooking requirements; Syarikat Ameen Sdn. Bhd., to demonstrate a preparation of juices and sterilising process; and De Baron Resort, to demonstrate hot water use for hotel rooms.



Solar Thermal Technology application to process heat in the food and beverage industry

The four demonstration plants resulted in a combined RM251,000/yr of energy saving that translates to 966,627 kwh/yr reduction and 774.43 tCO₂/yr reduction in emission.

During the implementation of industrial scale demonstrations, RERC also engaged Fraunhofer ISE of Germany to conduct a specialised training on Solar Thermal technology, analysis and design which benefitted local SMEs and consultants.

GEF-UNIDO Capacity Building in Energy Efficiency Improvement and Solar Thermal Application in Industries

Under the UNIDO-GEF capacity building programme, three trainings were organised in the year under review, which were two user trainings and one expert training.

Participants were teamed up to undertake energy efficiency projects in the participating industries. Among the companies which participated in the training were Top Glove, Goucera Tiles, Proton, Royal Selangor, Kerry Ingredient, Yeoh Hup Seng Penbric, CSC Steel Sdn. Bhd. and FPG Oleochemicals Sdn. Bhd.



Participants for expert training under the UNIDO-GEF capacity building programme

Energy Audit and Cleaner Production Consultancy Services

RERC was engaged by the Department of Environment (DOE) to promote cleaner production approach in SMEs' production processes and operations. The main goal of this project was to establish a Green Industry demonstration premise for the poultry industries in Malaysia. The selected premise was PPNJ Poultry & Meat Sdn. Bhd. located at Machap, Johor. The following were the main project objectives:

- To conduct a detailed cleaner production audit
- To develop a bio digester demonstration unit using organic wastes from the factory for producing biogas
- To develop a manual on green industry practices implementation for the poultry industrial sector

The cleaner production audit recommended good practices on the following activities; handling of raw materials, products and solid wastes; production process optimisation; and usage of water and electricity. By the end of 2016, a bio digester demonstration unit was developed to produce biogas from the organic wastes of the factory and expected to be fully operational in March, 2017. This is Malaysia's first bio digester unit to be installed and operated to produce biogas from a chicken slaughtering and processing factory.



BioDigester for BioNG Plant

Solar Thermal Technology for Cocoa Drying Process

In June 2016, RERC developed the Solar Thermal Technology for Cocoa Drying Process under the MOSTI Social Innovation (MSI) project. The main objective is to increase the cocoa output productivity through the technology transfer to the targeted community in Kampung Napong 2, Ranau, Sabah.

The system showed a reduction in drying time for wet cocoa from five days to two days.



Bin and agitator (spiral shape) for the drying process

R&D Project: Development of Tar Free Syngas from Biomass Gasification

This project aimed to develop a highly efficient system for tar removal from syngas and to produce syngas that consists of high hydrogen content. The two main activities are the development of a system that consists of downdraft type gasifier coupled with syngas cleaning system and the development of catalysts for decomposition of syngas tar. Currently, downdraft gasifier of 20 kg/hr capacity with gas cleaning system was successfully installed at SIRIM's premise in Shah Alam.



Downdraft Gasifier at RERC

Steam reforming is part of the component of this project. This work is being carried out at UTM Skudai, by the Faculty of Chemical Engineering. The purpose of this study is to determine the suitable catalyst for condition process during tar syngas steam reforming.

SYSTEM DESIGN CENTRE

System Design Centre (SDC) played active roles in offering automation, mechanisation, robotics application, plant & engineering design, embedded/electronic design and RFID solutions to various sectors under the three flagship programmes namely Plant & Machinery, Medical Technology & Energy and Environment of SIRIM.

SDC provided engineering solutions ranging from small production systems to medium-sized ones in 2016;

- a) Customising automated machines, manufacturing equipment and system
- b) Designing pilot plants based on specialised processing requirement
- c) Retrofitting on existing production machines and equipment for productivity and product quality improvement

Commercial and Developmental Activities

In 2016, SDC was awarded a contract to supply Switch Panels for 8x8 AV in Malaysia. The high skilled job requires high competency in software upgrading, new techniques of assembly and troubleshooting work for the installation of panels to the armoured vehicles.

SDC also continued to build the technical know-how, strength and competency in robotic area. In addition to the existing education robot developed, SDC continued to build the competitiveness in robotic area of healthcare and medical through strategic collaboration with research agencies and local university under the DSTIN flagship fund entitled "Building our robotic competitiveness in Medical and Healthcare: Development of robots for Assisted Recovery and Rehabilitation". Currently SDC is actively involved in the development of robots for rehabilitation specifically in the development of robotic arm, robotic leg and exoskeleton. The project will support the industry with local products and provide technology platforms for the robot development.

In 2016, SDC also contributed towards the successful re-certification of ISO9001:2008 on the scope of Provision of Commercial Contract Development and Engineering Services in the Advanced Manufacturing area.

SDC undertook several SME development projects with deliverables ranging from small to large scale production systems.

The projects are as follows:

- Development of Industrial Centre in Hiliran Jagung, Kg. Pering, Kodiang, Kedah
- Development of the Bakery Centre for Cooperatives, Simpang Bekoh, Jasin, Melaka
- Development of Mineral Water Production Centre, Kg. Ulu Cheka, Jerantut, Pahang
- Fish Cracker Drying System, Hamie Industries Sdn. Bhd., Kuala Terengganu
- Increasing Production Capacity for Sauce Products Through Improvement in System and Production Process Flow for Syarikat Deli Taste Food, FELDA Papan Timur, Kota Tinggi, Johor
- Filling System for Healthcare Products, I Medikel Cosmeceutical (M) Sdn. Bhd., Pengkalan Chepa, Kelantan
- Increased Production Facilities & Goat Milk Packaging (Powder) for Mozac Medicare Sdn. Bhd., Subang Jaya, Selangor

SDC played major roles in education transformation to meet the Government's aspiration in "STEM Learning through Innovations" which helps students to be creative and innovative and cultivate out-of-the-box thinking. These programmes support the National Education Development Plan (2013-2025), "Dasar 60:40", and National Economic Development. Since 2010, SDC conducted and organised many events on Teaching and Learning Robotic using SIRIM's product invention known as SIRIM RoboKit® and SIRIM AeroKit under the platform of workshops and competitions, Creativity and Science4u programme, Talk and Science shows as well as exhibitions.



SIRIM RoboClinic in Langkawi



1 Homestay 1 Product: 360° Panoramic Homestay and Product Quality Improvement Program at Sadong Jaya Homestay, Sarawak

Quality and effective management has become a great essential to any organisation which seeks higher quality, productivity and efficiency. SDC has successfully developed a system called “e-mesyuarat” for ANGKASA to effectively help in managing all aspects of management and administration of daily business operations.

In the development of embedded system, SDC continuously helped international customers from Oman with the development of incense burner product. SDC also introduced a new system called Vehicle Monitoring System Stickers to local municipal, the Sepang Municipal Council which allowed fast and effective monitoring of road tax by the local personnel. Other projects for include the upgrading of LCA Malaysia website and smart card for the National Anti Drug Agency, local municipals and Malaysian Meteorological Department.

Two workshops were held for MOSTI-SIRIM Robotic Workshop attended by experts from research agencies, local universities, industry and engineers from SIRIM. This programme created an R&D working plan that supported Robotic technology and identified capability and projects for Robotic application.

In addition, SDC continued to help SMEs to increase product upgrades and SCORE rating through “Program Peningkatan Kualiti Produk dan Makanan” under the Groom Big Programme and participated in the yearly event, Satu Daerah Satu Industry (SDSI).

Community Development Projects

In 2016, SDC contributed to the National Blue Ocean Strategy programme which fostered closer collaboration across MOSTI’s agencies and other agencies including Ministry of Education and Ministry of Tourism Malaysia in delivering high value impact of services and products to the communities.

The projects are:

1. Learning Workshop and Competition on Robotics for School Students in Langkawi for 10 schools
2. Basic Workshop on Robotic and Aerospace Engineering at the City Kinabluu, Tawau and Sandakan Sabah for 30 schools
3. Wireless Enabled smart paddle wheel system
4. Green Solaerator for Fresh Water Fish Farming
5. Green NGV Save for the National Union of Taxi Drivers
6. 1 Homestay 1 Product: 360° Panoramic Homestay and Product Quality Improvement Programme at Sadong Jaya Homestay Sarawak
7. Automation of Bio-Organic Fertilisers

The communities benefited in product innovation, technology and skill-transfer knowledge and product upgrades. The impact study carried out on the Learning Workshop and Competition on Robotics for School Students at Langkawi showed a significant increase in both students and teachers' interests, knowledge and practical experience through the innovative tools used and techniques taught in the programme, which subsequently promoted the Learning of STEM and Dual Language Programme.

Strategic Research Projects and Activities

To increase future capability planning that is linked to research and impact strategies, several projects have been carried out under research partnership namely:

- Building our robotic competitiveness in Medical and Healthcare: Development of robots for Assisted Recovery and Rehabilitation
- Optical Biosensor for Ammonium Detection
- Housing Demand Prediction System
- Multiple Access Detection Algorithm for File Retrieval System
- Boosting Bio-natural Gas (BioNG) Utilisation for Energy Security - Demo Plant BioNG Generation for Off-site Application
- Local Proprietary Formulation of Polyacrylonitrile for Carbon Fibre Lightweight Tanks

SDC won a Gold award in 2016 at ITEX 2016 and Bronze medal at MTE 2016 on the product invention and innovation called Green NGV Save.



Green NGV Save

TECHNOLOGY COMMERCIALISATION CENTRE

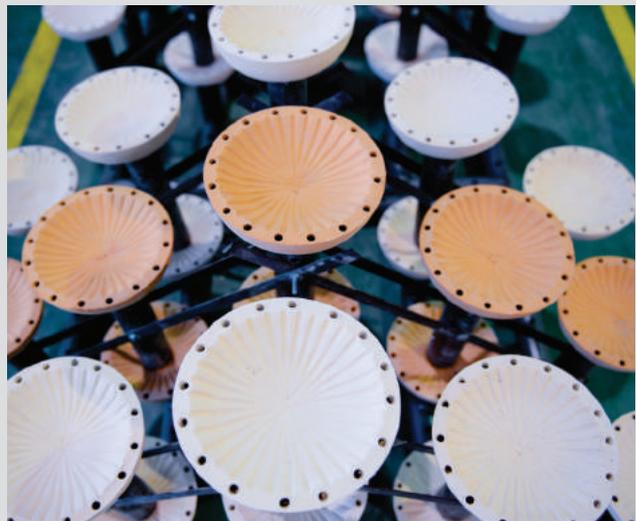
SIRIM's pursuit of commercialisation has resulted in six successfully commercialised technologies/ products through licensing and outright sales commercialisation pathways. They are; Nano Lipid Carrier (NLC), Brake Block, Innovative Eco Artificial Reef, Post-Natal Care Kits, Mineral Water Processing Plant and SimbionteA.



SimbionteA Project being presented to YBTM MOSTI

SimbionteA (SIRIM Biogas & Tenaga Alternatif) is an Anaerobic Digestion (AD) system that will divert food waste from being disposed in landfills by converting them using micro-organisms and produces biogas and a by-product called digestate. Biogas has been through a process of purification of hydrogen sulfide is safe for use as fuel to generate electricity or can be used as cooking gas for local usage. The digestate can be composted together with other organic materials to be used as biofertiliser for gardens and landscaping. This technology has been widely adopted in several developed countries. SimbionteA was first installed at Pusat Biomass Bersepadu, Majlis Perbandaran Subang Jaya. When operated at full capacity of 500kg FW/day, it will be able to generate about 5kW of electricity.

Apart from that, SIRIM participated in Malaysia Commercialisation Year (MCY) Summit 2016 at KLCC; showcasing five commercialised products. During the summit, Chitoplast Sdn. Bhd., a licensee and commercial partner for Deep and Surface Wound Management Products had its products launched by SIRIM, also showcased its lithium-ion battery for the electric car, a result of collaboration with Proton.



Innovative Eco Artificial Reef

NATIONAL METROLOGY INSTITUTE OF MALAYSIA

As part of its efforts to be aligned with the role in the national measurement system in the world, NML-SIRIM changed its name to National Metrology Institute of Malaysia (NMIM) on 1 January 2016.

The role of NMIM is to undertake scientific metrology, realisation of the base units and primary national standards maintenance. Through realising the base units and holding the primary national standards, NMIM provides traceability links to international standards for the country, therefore anchoring the national calibration/traceability hierarchy.

To meet the technology development and demand for new areas of calibration services and provide traceability for the areas of concern, NMIM has upgraded and developed its measurement standards as well as its calibration and measurement capabilities. Among the progress are as below:

New Development and Services

- 01 Calibration of Vehicle Speed Monitoring System (Automated Enforcement System - AES)
- 02 Elemental Analysis by using Energy Dispersive X-Ray Fluorescent (EDXRF)
- 03 Verification of Portable Weighing Instrument
- 04 Calibration of Weighing in Motion Instrument
- 05 Skill Development Training in Measurement & Calibration for Honda Malaysia Sdn. Bhd. in the area of Mass, Dimensional and Torque
- 06 Skill Development Training in Fixed Point Calibration

Signatory

The CIPM Mutual Recognition Arrangement (CIPM MRA) is the framework through which National Metrology Institutes demonstrate the international equivalence of their measurement standards and the calibration and measurement certificates they issued. The outcomes of the Arrangement are the internationally recognised (peer-reviewed and approved) Calibration and Measurement Capabilities (CMCs) of the participating institutes. Approved CMCs and supporting technical data are publicly available from the CIPM MRA database (the KCDB).

The CIPM MRA responded to the need for an open, transparent and comprehensive scheme to give users reliable quantitative information on the comparability of national metrology services and to provide the technical basis for wider agreements negotiated for international trade, commerce and regulatory affairs.

Accreditation

NMIM's quality management system conforms to the international standard "ISO/IEC 17025 - General Requirements for the Competence of Testing and Calibration Laboratories". NMIM has been accredited by Department of Standards of Malaysia (DSM) since 2003. The latest reassessment audit and surveillance audit were conducted on 15 October 2014 and 3 March 2016 respectively.



Peer Review

To comply with the CIPM MRA requirements, five peer reviews were conducted since last APMP meeting as below:

	Area	Date	Assessor
1	Photometry & Radiometry	8 – 10 December 2015	KRISS, Korea
2	Length/Dimensional	29 – 31 March 2016	NIMT, Thailand
3	Acoustics and Vibration	20 – 21 April 2016	CMS/ITRI, Taiwan
4	Thermometry (Resistance, Thermocouple & Radiation Thermometry and Humidity)	15 –17 August 2016	KRISS, Korea and NMC, Singapore
5	Electricity & Magnetism	4 – 7 October 2016	SCL, Hong Kong
6	Chemistry	6 – 8 December 2016	NMIJ, Japan

Status of Calibration and Measurement Capabilities (CMC) Submissions

NMIM currently has a total of 109 rows of CMCs published on the BIPM website (www.bipm.org) for international recognition covering the following measurement fields; Acoustics, Ultrasonic & Vibration, Mass & Related Quantities, Length, Photometry & Radiometry, Thermometry, Time & Frequency, Electricity & Magnetism, and Chemistry (QM). Each area has its own measurement field, with Acoustics, Ultrasonic and Vibration at a measurement of 21; Mass & Related Quantities at 15; Length at 7; Photometry and Radiometry at 8; Thermometry at 6; Time and Frequency at 4; Electricity & Magnetism at 79 (with Matrices) and lastly Chemistry with an area measurement of 0. Total of all the measurements fields add up to 140.



International and Regional Cooperation

The NMIM also played an important role at regional and international activities as part of the global networking initiative. Since the last Asia Pacific Metrology Programme (APMP) meeting, NMIM participated in various symposiums and conferences such as APEC SCSC (Sub-Committee on Standards and Conformance Specialist Regional Bodies Meeting) (SCSC-SRBs) at Lima, Peru, Consultative Committee for Amount of Substance (CCQM) Working Group (WGs) organised by the International Bureau of Weight and Measures (BIPM), France and Annual Meeting for Cooperation on International Traceability in Analytical Chemistry (CITEC) at Paris, France and STI-Days for Task Leader for Metrology at Hanoi, Vietnam.

NMIM actively participated in paper presentations and publications, among them the Standardisation of Agricultural NISAB Through Metric System Chapter in a book from Fiqh Zakah International Conference (FZIC 2015) in Physics; the Hydrostatic Weighing Method for Determining the Purity of Gold conference from 4th International Science Postgraduate Conference 2016 in Physics; and the Development of Low-Cost Black Mold for Copper Alloy Casting journal from *Jurnal Teknologi* in Physics.

NMIM's activities also included measurement technology dissemination and calibration of high precision courses that covers training in specific areas that includes electrical, thermophysical, mechanical, flow and chemical field to government agencies, industries and individuals.



Weighbridge facility being tested and calibrated

MEDEA PROJECT

Train the Trainer Course on the Verification of Non-Automatic Weighing Instruments 28 November to 1 December 2016, Hotel Istana, Kuala Lumpur

The Train the Trainer Course on the Verification of Non-Automatic Weighing Instruments is part of a four-year project managed by Physikalisch Technische Bundesanstalt (PTB) and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) which aims to foster and further develop the capabilities of the Asia Pacific Metrology Programme (APMP) and the Asia Pacific Legal Metrology Forum (APLMF) to support developing economies in the Asia-Pacific region. Participants came from Bangladesh, Cambodia, Bhutan, Nepal and Malaysia.

Malaysia World Metrology Day 2016

NMIM celebrated World Metrology Day 2016 (WMD) on 24 May 2016 at the NMIM campus in Sepang. WMD 2016 was celebrated with the theme of "Measurements in a Dynamic World".

Two main events were held:

- The declaration of NML-SIRIM as the National Metrology Institute of Malaysia (NMIM)
- The launching of the NMIM website (www.nmim.gov.my)

Among the awareness programme/ roadshows/ dialogues conducted by NMIM were:

- Dialogue on Humidity, between Thermophysical Group and Accredited Laboratories
- Dialogue of the Purity of Gold with Industry
- Creativity & Science4U Carnival 2016 MOSTI (Melaka)

AWARD AND RECOGNITION

Gold Medal for Standard Gantang

A project titled Standard Gantang Model Based on Metric System for Zakat Payment in Malaysia from Flow Group was awarded gold medal at the 28th International, Invention, Innovation & Technology Exhibition, ITEX 2016 held at Kuala Lumpur Convention Centre from 12 to 14 May 2016.



The team also bagged a gold medal at the Islamic Innovation Expo (i-INOVA '16) held at USIM from 8 to 9 November 2016 and a silver medal at the International Shariah Compliant, Idea, Invention, Innovation & Design (ISCIID2016) held at The Grand Bluewave Hotel, Shah Alam from 21 to 22 November 2016. NMIM will continue to actively participate in international inter-comparison programmes and capacity building through upgrading of standards and enhancement of capabilities and staff competency. The institute will also focus on upgrading its measurement capabilities including expansion into new areas and cooperation with other National Metrology Institutes, simultaneously disseminating and promoting measurement parameters and measurement technology. It will intensify its metrology activities through courses and seminars on measurement technology and calibration to government agencies, industries and individuals. NMIM will also provide technical support to the Department of Standards Malaysia by coordinating proficiency testing (PT) programmes and measurement audits (MA) at national and international levels.

WAITRO

SIRIM is the secretariat of World Association of Industrial and Technological Research Organisations (WAITRO), an independent association of 180 industrial research organisations from 80 countries under the auspices of the United Nations. WAITRO aims to enable the development of action-oriented partnerships for sustainable development.

WAITRO Malaysian Membership Drive and Networking Session: Opportunity to Become Part of a Global Innovation Family

The WAITRO Secretariat based in SIRIM organised a networking session to promote the benefits of becoming a member of WAITRO. Entitled “WAITRO, Your Window to the World”, the session acted as a platform for Malaysian research technology organisations to gain exposure to the WAITRO network. About 70 representatives from government agencies, universities and industries including Ministry of Science, Technology & Innovation (MOSTI), Forest Research Institute Malaysia (FRIM), Malaysian Palm Oil Board (MPOB), Universiti Kebangsaan Malaysia (UKM) and Petronas attended the session.

SIRIM and WAITRO had successfully delivered a poverty alleviation project on Enhancing Capability of Hydro-Generator and Extending Power Supply to Larger Areas to Support Post Harvest Processing Activities of Local Herbs in East Malaysia. SIRIM is also part of a consortium that bid for the EU project entitled Photocatalytic Materials for De-pollution. SIRIM has been partnering with WAITRO in several major projects including an EU project bidding on Processing of Biowaste for Sustainable Products in Developing Countries where WAITRO, SIRIM and several international research organisations formed a consortium to win the bid for the project.

Fraunhofer-Gesellschaft Shares Knowledge with SIRIM Researchers

The WAITRO Secretariat initiated and organised a knowledge-sharing session for researchers to learn tricks of the trade from Dr. Eckart Bierdämpel, WAITRO First Vice-President and Head of Multinational Networking, International Business Development of Fraunhofer-Gesellschaft, a leading research and technology organisation in Germany. The session was attended by 120 researchers.



120 researchers attended a knowledge-sharing session with Fraunhofer-Gesellschaft, a leading research and technology organisation in Germany.

WAITRO–ISESCO International Proposal Writing Workshop

WAITRO and ISESCO organised an International Proposal Writing Workshop on 16–19 May 2016 in Istanbul, Turkey, with support from the Danish Technological Institute (DTI), Denmark and TUBITAK Marmara Research Centre. Nineteen participants from Turkey, Trinidad and Tobago, Colombia, Morocco, Jordan, Sudan, Thailand, India and Malaysia participated in the workshop. Based on feedback from the participants, the workshop provided a good spectrum and framework on the strategic ways to develop international proposals.

23rd WAITRO Biennial Congress on Public-Private Partnership to Innovate Innovation and General Assembly

The 23rd WAITRO Biennial Congress on Public-Private Partnership (PPP) to Innovate Innovation and General Assembly saw experts and CEOs from various RTOs and international industrial development organisations participate and share their experience and issues of PPP in developing the business of RTOs' research and innovation products and services. The emphasis was on how PPPs could be made more innovative by doing it differently, sustainably and on a larger scale. Some success stories with various approaches on PPP were highlighted.

SIRIM shared the Malaysian experiences with its international counterparts, namely from Italy, Russia, India, China, Belarus, Austria, and Ukraine. UNIDO shared their model that fostered innovation by strengthening linkages within the innovation system by linking RTOs to SMEs and the market to facilitate access to international markets. Strong linkages between SMEs and RTOs increased the SMEs' industrial competitiveness, which fostered efficient innovation systems.

WAITRO-ISESCO Training Programme on Production Upgrading and Value Creation for SMEs and Micro-Enterprises

WAITRO and ISESCO co-organised a training programme on Production Upgrading and Value Creation for SMEs and Micro-Enterprises through the Thailand Institute of Scientific and Technological Research, a member of WAITRO. Nine candidates from WAITRO member organisations in Malaysia, Indonesia, China, India, South Africa, Iran and Colombia were selected to participate in this programme. The objective of the training was to share knowledge and experience in production upgrading and value creation by science, technology and innovation to SMEs and micro-enterprises' products.

SIRIM Will Cooperate with TÜBİTAK, Turkey on Biogas, Battery Systems, Methanol, Metrology, Cleaner Production and Water Management

An agreement was signed between SIRIM and TÜBİTAK, Turkey for future collaboration in areas such as biogas, battery systems, methanol, metrology, cleaner production and water management.



"WAITRO, Your Window to the World" Networking Session

MOSTI SOCIAL INNOVATION



Automised Bio-Organic Fertilizer Production for the farming community

SIRIM was actively involved in the MOSTI Social Innovation (MSI) Programme in 2016. A total of 11 projects have been implemented under this programme across the country, covering a wide range of technological innovations from SIRIM. The project's target groups or recipients are made up of various groups of people or communities such as school children, fishing communities, smallholders, traders and so on.

The objective of the programme is to help overcome the problems encountered by society for better living through the implementation of projects, services, skill upgrading and innovation using existing technologies done in a sustainable way. Six special target groups were identified by SIRIM in implementing the MSI projects including school students, homestay operators, the disabled, farmer community, night market dealer, and traditional fishermen community/ coastal fishermen.

The initiative also aims to help the target groups through the development or implementation of an idea, whether in the form of products, services or models. Several projects undertaken by SIRIM include Basic Workshop for Aerospace & Robotics Engineering for students, Automised Bio-Organic Fertilizer Production for the farming community, LED Lighting System for the Night Market Vendors, Solar Thermal Technology for cocoa drying process and the Low Energy Lighting System (Street Lighting).

The impact of the programmes are as follows:

- i. More than six Ministries / Agencies / Collaborators were directly involved with the initiatives of the National Blue Ocean Strategy (NBOS) during the implementation of projects such as the Ministry of Tourism and Culture, the Ministry of Agriculture and Agro-Based Industry, Ministry of Education, Ministry of Rural and Regional Development, Fisheries Development Authority of Malaysia, Education Departments, universities and others.
- ii. An estimated total of 3,000 students from primary and secondary schools had benefited from these three projects, namely Basic Workshop for Aerospace & Robotics Engineering for the Sabah Education Department in Sabah, Awareness Programme on Climate Change and Carbon Emissions in Johor and Educate to Innovate (e2i) in Perak.
- iii. More than 10,000 households representing various communities benefited from the projects that were carried out by SIRIM.

The following is the list of MSI-SIRIM Project in 2016:

- Basic Workshop for Aerospace & Robotics Engineering for the Sabah Education Department
- Homestay 1 Product: 360° Homestay Panorama & Product Quality Increment Programme for Sadong Jaya Homestay, Sarawak
- Automised Bio-Organic Fertilizer Production for Beseri Area Farmers' Association (PPK), Perlis
- Braille Character Arrangement Board (Braille slate) for Kuala Lumpur Braille Association
- LED Lighting System for Night Market Vendors in Kulim, Kedah
- Solar Thermal Technology for Cocoa Drying Processing in Ranau, Sabah
- Compost System for Farm Wastes in Ranau, Sabah
- Malaysian Standard Time and Qiblat Location Finder in Melaka Mufti Office
- Awareness programme on Climate Change and Carbon Emissions for Johor Education Department.
- Educate to Innovate (E2I) for Perak Education Department
- Low-Energy Lighting System for Fishermen's Association, Bakau Tua, Kedah



Basic Workshop for Aerospace & Robotics Engineering for the Sabah Education Department



Solar Thermal Technology for Cocoa Drying Processing



TECHNOLOGY Business Unit

PACKAGING AND SECURITY DESIGN CENTRE

“WE TRANSFORM THEIR BUSINESSES TO BE MORE COMPETITIVE AND SAFE” has become a slogan for the Packaging & Security Design Centre (PSDC). Through several field transition processes and domestic demand that lead to business improvement, the previous Packaging Design Centre (PDC) has been merged with the Security Design Centre (SDSC) to form PSDC.

PSDC offers three types of services under three different sections i.e. Product Development Section, Green and Advanced Packaging Section and Label and Security Document Section.

In 2016, PSDC used electronic billboards, brochures, buntings, backdrop and email signatures to disseminate information on its services.

Throughout 2016, a total of 264 SMEs were assisted under the Innopack programme whilst 1,399 entrepreneurs received training and consultation from PSDC. Another 36 companies were selected to undergo a project under the SIRIM-Fraunhofer programme to improve their services.

Government agencies that have collaborated with PSDC under the Innopack and Biz Transformation programmes are South East Johore Development Authority (KEJORA), Craun Research Sdn. Bhd., National Co-Operative Movement of Malaysia (ANGKASA), Universiti Malaysia Terengganu, Majlis Amanah Rakyat (MARA), Ministry of Energy, Green Technology and Water (KeTTHa), East Coast Economic Region (ECER), Department of Veterinary Services Penang, Selangor State Economy Planning Unit (UPEN),



Rubber Industry Smallholders Development Authority (RISDA) Kuala Lumpur Head Office, Youth Higher Skills Development Division (IKTBN), Perlis Islamic Religious Council and Ministry of Domestic Trade, Co-operatives and Consumerism (KPDNKK). Private companies meanwhile, include Hj. Mustapa Legacy Resources and Qmeltra (M) Sdn. Bhd.



A visit from ECER participant as part of the training programme



100 Product champion is a collaboration between SIRIM and Angkasa to assist entrepreneur in brand recognition programme

PSDC was also entrusted by the Home Affairs Ministry for labeling and security printing services. Other services offered are SecureDoc Design for documents, SecureLabel Design for labels and SecurePack Design for packaging.

To keep abreast with technology development in the industry, PSDC also integrated data storage technology such as barcodes, QR codes and RFID for verification and monitoring processes that are more efficient. This can easily be accessed via mobile application using smart phone to ascertain and verify the authenticity and credibility.



MALAYSIA DESIGN COUNCIL

The Malaysia Design Council (MRM) continued to improve the competitiveness of the national economy via innovation and design in 2016. It also collaborated with Gwangju Design Centre (GDC) of Korea to provide recognition and new market opportunities via the Malaysia Good Design Mark, which saw an increase in participation as compared to the last few years. The collaboration also helped support tourism in Melaka in terms of architectural, improved its training on design and technology for school teachers and enhanced innovation among the disabled through entrepreneurship.

Asia Handicraft Collaboration Project MRM-Gwangju 2016

Asia Handicraft Collaboration Project MRM-Gwangju 2016 was a collaboration between product designers and design entrepreneurs organised by MRM and GDC, in line with the Government's aspiration to foster international relationships through innovation and design. This project acted as an insightful roadmap to fortify global competency by highlighting and bringing forth local culture into commercial products. Apart from strengthening ties between MRM and GDC, the collaboration produced four prototypes with a blend of Malaysian and Korean cultures to cater to the global market. The collaboration opened up new market opportunities in the design economy and also saw the enhancement of skills and knowledge among local designers, while upgrading local product competitiveness.

Malaysia Good Design Mark 2016 Award Ceremony

Spearheaded by MRM, Malaysia Good Design Mark (MGDM) is the highest recognition for quality in design manufacturing by the Government through product endorsements, creating trust and assurance for businesses. The Malaysian Good Design Mark 2016 award saw an increase in the number of participation from 66 to 107 companies, with an improvement in product quality. Year by year, MGDM saw an increase in product competitiveness globally, whilst providing an avenue for companies to build good reputation in delivering quality products and to give recognition to local talents for developing new ideas in product design.



Handing Over of the Information Centre & Tourism Transportation Terminal 'TRANSPOD'

Located in Bandar Hilir, Melaka, TRANSPOD is a one-stop-centre for tourism in Melaka, a project which was handed over by MRM to the local government of Melaka under the Inclusive Innovation Grant by MOSTI. Uniquely built with the combination of local architecture and modern design, the universal design was applied to facilitate the public at large, regardless of their physical abilities. Targeted to mainly serve tourists and the local government, TRANSPOD is a hub that promotes creative activities in the surrounding areas. It also acts as a one stop centre with easy access for tourists to get information on Melaka and its attraction. Aesthetically, TRANSPOD enhances its surrounding landscape and gives a positive impact to Bandar Hilir and Melaka as a whole.



MRM Senior Director Puan Futom imparted her knowledge to the participants of the workshop



MRM designers giving an explanation to teachers of the subject Invention & Technology



Wheelchair prototype making

Training Workshop for Design and Technology School Subject Teachers (Form 1)

In line with its focus on education, MRM organised a workshop on design and technology to 183 teachers with the support from the Ministry of Education.

The workshop was held in five zones:

- Southern (Melaka, Johor and Negeri Sembilan)
- Eastern (Terengganu, Kelantan and Pahang)
- Northern (Penang, Kedah, Perlis and Perak)
- Sabah and Labuan
- Sarawak

The workshop boosted the understanding of the teachers and allowed them to master the basic design techniques to be implemented in class.

Empowering People with Disabilities for Socio-Economic Development through Training of Trainers (TOT) Skills Programme

With an estimated 10 percent of the Malaysian population categorised under 'disabled', MRM worked hand-in-hand with the Government to identify the immense potential that the disabled community can contribute to the nation's socio-economic growth. The TOT Programme to Empower People with Disabilities for Socio-Economic Development was held and funded by MOSTI under Social Innovation (MSI) with full cooperation from the Ministry of Women, Family and Community Development. The impact included better understanding on design techniques and application while enhancing quality with an added value to the products. The programme also encouraged entrepreneurs among the disabled to be more creative and innovative in producing new products. The programme was fruitful in its endeavour, where 13 participants produced four innovative products that were suitable to cater for a bigger market; namely trophies, wheelchairs, handicrafts and a prosthetic body.



SUBSIDIARIES

SIRIM QAS INTERNATIONAL SDN. BHD.

Malaysia's leading conformity assessment body, SIRIM QAS International, remains firmly focused on its core businesses of certification, inspection and testing to help its customers gain greater market acceptance and consumer confidence in their products and services.

With this in mind, new services were introduced, new collaborations entered into and new accreditations and recognitions achieved in 2016 to further support this aim.

The year 2016 also saw En. Mohd Azanuddin Salleh succeeding Pn. Khalidah Mustafa as the Managing Director of SIRIM QAS International upon her retirement. As the new Managing Director, new initiatives were planned to strengthen SIRIM QAS International's position as the market leader in the certification, inspection and testing services in Malaysia and abroad.

SIRIM QAS International began offering Product Verification of Medical Devices in 2016 with 16 medical devices being certified under this scheme during the year. This service complements other conformity assessment services offered by SIRIM QAS International as a Medical Device Authority (MDA) registered Conformity Assessment Body (CAB), namely the Good Distribution Practice for Medical Devices (GDPMD) certification and ISO 13485 Quality Management System for Medical Devices certification.

Another significant work in 2016 was the provision of electromagnetic compatibility (EMC) testing to ensure that related electrical and electronic systems supplied to the Klang Valley Mass Rapid Transit (KVMRT) project meet EMC specifications. In addition, in the same year, SIRIM QAS International also certified Mass Rapid Transit Corporation Sdn. Bhd. to ISO 9001:2015.

SIRIM QAS International continues to play a vital role in the areas of product quality and safety through its product certification and testing services. Regulatory bodies such as the Malaysian Communications and Multimedia Commission, Fire and Rescue Department as well as Road Transport Department Malaysia continue to put their trust in SIRIM QAS International as a testing and certifying agency for regulated products.

In the interest of road user and consumer safety, the Government appointed SIRIM QAS International in 2016 as the agency for the inspection of imported used tyres for retreading purpose and for the consignment testing of imported edible wheat flour. Besides that, the Ministry of Transport also appointed SIRIM QAS International as the Technical Service (TS) for Category A for UN ECE R10 – Electromagnetic Compatibility (EMC).



Launching of PV Module testing facility during Majlis SIRIM Industri 2016

SIRIM QAS International continued to offer its existing range of testing services to support both the Malaysian industry and regulatory bodies. 2017 will see us expanding our testing services to include testing of ventilation ductwork, photovoltaic (PV) modules as well as brake systems and components for motorized vehicle weighing below five tonnes.

Also in the pipeline in 2017 is the opening of SIRIM QAS International's maiden overseas branch office in the Kingdom of Bahrain which will act as the gateway for us to offer our services in the Middle East region.

SIRIM QAS International also established new collaborations to enhance the recognition of its test reports and certifications overseas.

Lenor Ecuador Cia. Ltda. appointed SIRIM QAS International as Lenor's recognised test house for safety and energy efficiency testing for electrical appliances to support Lenor's product certification. This appointment will benefit manufacturers of electrical appliances in Malaysia aiming to penetrate the South American market.



ISO 9001:2015 certificate presentation to Mass Rapid Transit Corporation Sdn. Bhd.

Additionally, another international collaboration was forged in the area of eco-labelling. Through a Mutual Recognition Agreement (MRA) with the Thailand Environment Institute (TEI), TEI has recognised SIRIM QAS International as a verifier for its Thai Green Label Program in Malaysia. In turn, SIRIM QAS International has also accepted TEI as a verifier for its SIRIM Eco-labelling scheme in Thailand.

Besides international collaborations, accreditations and recognitions also play a significant role in boosting the recognition of our certificates and test reports.

In 2016, IECEx granted SIRIM QAS International four new scopes under its personnel-related certification scheme, which is the IECEx Scheme for the Certification of Personnel Competence (CoPC) for Explosive Atmospheres:

- Unit Ex 000 – Basic knowledge and awareness (EFOC)
- Unit Ex 004 – Maintaining equipment in explosive atmospheres
- Unit Ex 006 – Test electrical installations in or associated with explosive atmospheres
- Unit Ex 009 – Design electrical installations in or associated with explosive atmospheres

In addition, we were also accepted by IECEx for IECEx Certified Service Facilities Scheme – Part 4: Ex inspection and maintenance.

These IECEx certifications provide assurance of the competence of the personnel working with equipment used in explosive atmospheres and the safety of equipment that have been serviced and repaired by an IECEx certified service facility.

Besides that, SIRIM QAS International continued to expand the scope of its ISO/IEC 17065 and ISO/IEC 17025 accreditations with the Department of Standards Malaysia to include additional range of products and test methods.

SIRIM STS SDN. BHD.

The year 2016 saw the merger of business activities of SIRIM Training Services Sdn. Bhd. and the Standards Research and Management Centre (SRMC) of SIRIM Berhad. This new entity with its core businesses of standards, training and consultancy was named as SIRIM STS Sdn. Bhd. (SIRIM STS).

SIRIM STS was established to continuously upgrade the technological skills and capabilities of local industries. This is realised through the organising of courses, seminars, workshops, conferences and in-house training programmes.

Malaysian Standards Development Activities

SIRIM STS developed and delivered a total of 110 Malaysian Standards (MS) to the Department of Standards Malaysia (Standards Malaysia), the national standards body for Malaysia, out of which 47 were new standards and 63 were revised standards. There were also a total of 431 published MS that have been confirmed and another 912 MS have been withdrawn.

SIRIM STS managed about 300 Technical Committees and Working Groups who report to 18 Industry Standards Committees covering various industry sectors. As of December 2016, the cumulative number of MS published under the purview of Standards Department was 4,808. Looking forward, more Malaysian standards are to be developed to meet the demand of the industry and also to support acts and regulations for the security, safety and protection of Malaysian public.

SIRIM STS also organised 11 workshops on MS development and five workshops on reviewing of Malaysian Standards. In addition, a total of 600 meetings of the Standards Development Committees were conducted successfully.

International Standardisation Activities

In the international standardisation arena, SIRIM STS, through Standards Malaysia, actively participated in 337 technical committees in ISO and IEC with 163 technical committees as participating member (P-member) and 174 as observer member (O-member). As a result of active participation in international committees, a total of 2,023 votes related to international standardisation activities, mainly on the draft international standards, were submitted to the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC). The summary is presented in the table below:

Membership Type	ISO	IEC	Total
P-member	132	31	163
O-member	96	78	174
Total	228	109	337

Committee	No. of Documents Voted
ISO	1,487
IEC	536
Total	2,023



Sales of Standards Activity

SIRIM STS is an appointed body for the sale of standards which includes sales of Malaysian Standards, International Standards, Foreign Standards (e.g. British Standards, Australian Standards) and SIRIM Industry Standards.

A total of 14,774 copies of Malaysian Standards were sold including 6,703 copies sold online. As for the Malaysian Standards subscription service, 11 universities subscribed to the SIRIM MS online system.

World Trade Organisation/ Technical Barriers to Trade (WTO/TBT) Enquiry Point and Technical Library Activities

A total of 300 organisations and associations have subscribed to the SIRIM Library Membership Scheme to enjoy the benefits of access to a comprehensive collection of International, Foreign, Association and Malaysian Standards.

The national enquiry and notification point for WTO/TBT successfully served the Government and industry by circulating more than 2,139 notifications from other WTO member economies through the SIRIM Export Alert System. The registration to the system provides local businesses with early information on proposed changes to regulations and standards of foreign countries. There were over 560 subscribers who received timely notifications through the system.

Nine notifications on new and/or revised Malaysian technical regulations were managed and forwarded to WTO. These were notifications on food products (by Ministry of Health), pharmaceutical products (Ministry of Health), telecommunication equipment and network (MCMC), household electrical equipment (Energy Commission) and logs, baulks and plywood (MPIC and MTIB). A total of 18 local and foreign enquiries on standards, technical regulations and conformity assessment procedures were received and addressed.

SIRIM Industry Standards

SIRIM STS continued to promote its new service of developing industry and organisation standards. Collaborations to develop industry standards for the Malaysian Automotive Institute, Universiti Putra Malaysia, Public Work Department, Nano Verify Sdn. Bhd., Herbal Development Department and Persatuan Perkhidmatan Kawalan Keselamatan Malaysia (PPKKM) were carried out.

Taking into account the importance of innovation in today's world, SIRIM STS through the SIRIM-Fraunhofer Programme developed a SIRIM Industry Standard, SIRIM 8:2016 *Guidance Towards Becoming an Innovative Organisation*. This published standard aims to provide a general guide to organisations, regardless of their sector, size and type that wish to undertake innovation. The standard describes innovation activities and techniques from the exploration of ideas to screening, product development and testing, right up to market launch. Other SIRIM Industry Standards which have been developed or are in the process of development include standards on Customer Service Management, Green 5S, Total Quality Management (TQM), Lean Management and Green Logistic – Road Freight Transport.

The list of SIRIM Industry Standards published in 2016 is as follows:

Standard Number	Title
Prima Guidelines	Material Specifications and Standards
MAI 1:2016	4R (Repair, Reuse, Recycle and Remanufacture) of vehicle parts and components
MAI 2:2016	Specification for motor vehicle after-market 2S (Service and Spare parts) workshops
SIRIM/UPM 1:2016	General principles and criteria on sustainable development
SIRIM 5:2016	Green 5S
SIRIM 6:2016	Requirements for Customer Service Management (CSM)
SIRIM 7:2016	Requirements for implementing Total Quality Management (TQM) based on SIRIM Total Quality Fast Track Model (TQ _{FT} M)
SIRIM 8:2016	Guidance towards becoming an innovative organisation

Product Compliance Consultancy

SIRIM STS also introduced a new service on product compliance consultancy, where companies were provided with knowledge and support to assist them in gaining market access through product compliance to standards requirements. Companies also received guidance on the required applicable requirements to ensure product acceptance by regulators and consumers. For the year, a total of six companies were assisted under this programme.

Training And Consultancy Activities

SIRIM STS through its Training and Consultancy Department (TCD) successfully organised 1,037 in-house training courses for 1,092 organisations, involving a total of 21,360 participants. Among these organisations, 58 were SMEs. TCD also secured 88 new consulting or collaborative projects on guidance and consultation.

SIRIM STS continued to focus on training and consultancy services related to quality, technology and best practices. These include guidance and training for Standards Based Management Systems such as ISO 9001, MS 1900, MS 2300, MS 2400, ISO 14001, ISO/IEC 17025, ISO 15189, ISO 13485, Hazard Analysis and Critical Control Points (HACCP), ISO 22000, ISO 50001, ISO 55001, TS 16949, OHSAS 18001, Integrated Management System, Good Manufacturing Practise (GMP), Good Hygiene Practices (GHP) and Halal (MS 1500).

SIRIM STS also offers training and consultancy for Tools, Techniques for Quality, and practices such as Total Quality Management (TQM), 5S, Green 5S, 7 QC tools, SPC, ICC/QCC, 6 Sigma, Kaizen, Customer Service Management, TPM and Lean Management. In addition, SIRIM STS implemented technology related training such as Certified Programme on Application Programme Interface (API), Certified Welding Engineers-AWS, Certified Welding Inspectors-AWS and Certified programme on Non-Destructive Testing (NDT).

Two Industrial Skill Enhancement Programmes (INSEP) were introduced in 2016. A total of 35 university and college graduates were trained between four and six months in ISO/TS 29001 and ISO 50001.

Several new products and services were also introduced in 2016. Among them were the Personnel Certification Programme such as Certified Quality Inspector, Certified Quality Management System Practitioner (CQMSP), Certified Business Continuity Management System Practitioner (CBCMSP); and OHSAS Lead Auditor, ISO 15189 Lead Auditor and ISO 22000 Lead Auditor courses. Through strategic partnership with AIMST University and TESDEC, SIRIM STS trained and qualified 54 individuals for CQMSP and CBCMSP.

During the course of the year, SIRIM STS also successfully implemented training on Halal Auditing for Japan Halal Association (JHA) in Osaka. A total of nine organisations were successfully guided towards obtaining various Halal certifications and recognitions.

Throughout the year SIRIM STS organised and conducted 140 public courses on Standards Based Management Systems, Certified Lead Auditor, Technology and Best Practices, attracting 1,495 participants. In addition, 21 events attended by a total of 1,203 participants were successfully organised on behalf of Standards Malaysia, which are detailed below:

Name of event	Number of event
International meetings	2
Seminar of Malaysian Standards	13
National Consultation for Draft Malaysian Standards	5
Public Consultation for Draft International Standards	1

In collaboration with the Ministry of Foreign Affairs (MOFA), four Malaysian Technical Cooperation Programmes (MTCP) were organised, namely:

- SIRIM G5S for Global Competitiveness and Organizational Excellence
- Managing Safety in Transport Industry
- Customer Service Management for Business Excellence
- The Power of Innovation in Continuous Improvement Activities

These programmes attracted a total of 56 participants from Maldives, Uzbekistan, Sri Lanka, Philippines, Cambodia, Vietnam, Egypt, Zambia, Timor Leste, Fiji, Nigeria, Bhutan, Palestine, Indonesia, Morocco, Georgia, Kenya, Turkmenistan, Bangladesh, Brunei, Kyrgyz Republic, Azerbaijan and Senegal.

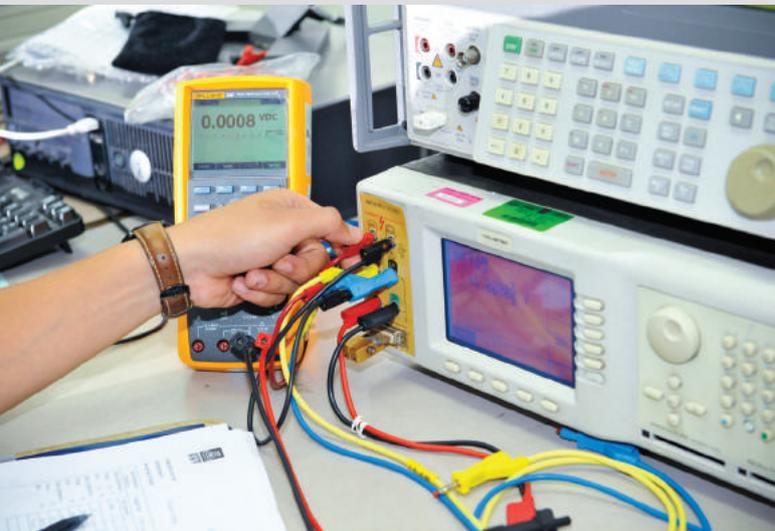
The company's very own annual signature event, QBEST 2016 was organised with the objective of providing our clients with the latest information on our services. A total of 57 guests attended this one-day event.



SIRIM STANDARDS TECHNOLOGY SDN. BHD.

The continued global economic uncertainties in 2016 proved to be challenging for SIRIM Standards Technology Sdn. Bhd. (SST). Nevertheless, despite all the challenges, SST managed to maintain its position as the market leader with the widest range of calibration and measurement scope of services.

SST also continued to expand its scope of services with the introduction of new services for calibration of acoustics, vibration tests instruments and smoke meter. The new scope of services were also awarded the ISO/IEC 17025 accreditation by the Department of Standards Malaysia in January 2016.



During the year under review, SST focused on improving its service delivery/ Turn Around Time (TAT) and enhancement of its calibration capability, through replacement of aged equipment and investment in better accuracy and range of capability of standard equipment, such as Fluke 5730A Multifunction Calibrator (OEM level equivalent), with the ability to calibrate high-end multi-meters such as HP 3458A, Fluke 8508A, and etc. Apart from that, SST also invested in other medium-end equipment such as Low Temperature Bath (Fluke 7381), with the ability to calibrate temperature measuring instrument, Thermocouple, Resistance Temperature Detectors (RTD) and Glass Thermometer, at temperatures as low as - 80 degree Celsius, and Torque Calibration System at Penang Branch's calibration laboratory.

SIRIM MEASUREMENTS TECHNOLOGY SDN. BHD.

SIRIM Measurements Technology Sdn. Bhd. (SMT) focuses in providing a wide spectrum of measurements, information and communication solutions and services to scientists, engineers, researchers and academicians to enable discoveries and push the frontiers of science.

In 2016, SMT secured a project with Motorola Solutions Penang to provide total solutions in support services.

Leading the Talent Development programme to support our industry partners, SMT's focus activities are to collaborate with Higher Learning Institutions to develop "Industry Ready Graduates" and increase local industry-led Research and Development (R&D) and value-added engineering activities, in line with the Government's agenda to drive Malaysia towards a high-income nation by 2020.

The achievement also includes an MoU with Universiti Malaysia Kelantan (UMK) for a Concentrated Animal Feed Total Operation (CAFTO) partner laboratory to support the local industry in poultry and agriculture. UMK plans to set up the laboratory by 2017.

Apart from the commercial revenue, SMT also collaborated with Universiti Teknologi Petronas to conduct a MOSTI Social Innovation Programme to cultivate science and technology in primary and secondary schools.



SIRIM TECH VENTURE SDN. BHD.

SIRIM Tech Venture Sdn. Bhd. (STV) is a new subsidiary of SIRIM Berhad, established in September 2014 as part of the SIRIM commercialisation initiative. STV has been mandated to act as a special purpose vehicle in driving technology commercialisation into the market.

STV has set up the following testing facilities which comply to ISO 14439:2013 and BS EN 14427:2000 requirements:

Section according to ISO 11439	Test Description	Duration (days)	Cylinders
10.5.2.3	Hydrostatic Pressure Burst Test	1	3
10.5.2.4	Ambient Temperature Pressure Cycling Test	3.5	2
10.5.2.5	Leak-Before-Break (LBB) Test	12	3
10.5.2.6	Bonfire Test	1	1
10.5.2.7	Penetration Test (outsource)	1	1
10.5.2.8	Environmental Test	4.5	1
10.5.2.9	Flaw Tolerance Test	4	1
10.5.2.10	High Temperature Creep Test	8.5	1
10.5.2.11	Accelerated Stress Rupture Test	42	1
10.5.2.12	Extreme Temperature Pressure Cycling Test	5	1
10.5.2.14	Impact Damage Test	4	1
10.5.2.16	Permeation Test	20	1
10.5.2.17	Natural Gas Cycling Test	29	1
		Total	18

STV worked on delivering 120 units of 150L Low and High Pressure Vessels to the DSTIN-BioNG project in Sabah. The prime purpose is to store natural gas from Palm Oil Mill Effluent (POME) plant and transport to the filling station in Sandakan, Sabah.



STV enhanced its Micro Precision Grinding machine into a multi orientation machine known as TCG8™, with the capability to grind harder materials such as Tungsten Carbide with an accuracy of ± 2 microns and surface roughness of 0.01 microns. The micro precision grinding technology has been accepted as one of the syllabus in the revised National Occupational Skills Standards (NOSS) 2015.



TCG8 has capability to grind harder materials such as Tungsten Carbide

In the year of 2016, STV secured an R&D project from Lembaga Kenaf dan Tembakau Negara (LKTN) on winding and testing using kenaf material to produce LPG tank utilising SIRIM's Filament Winding Technology.

STV conducted a MOSTI Social Innovation (MSI) project on Micro Precision Grinding for *Institut Kemahiran Baitulmal Cheras*, Wilayah Persekutuan as part of its community service. The programme was successful with the participation of 20 students in the two-week session.

NATIONAL PRECISION TOOLING SDN. BHD.

The National Precision Tooling Sdn. Bhd. is a special purpose vehicle mandated by the Government to be the lead collaborator in the implementation of the “Development of Bumiputera Automotive Tool, Dies and Moulds (TDM) Industry” project. Among the main objectives of the TDM Project is to expedite the capability and capacity development and enhancement of the Bumiputera automotive TDM industry clusters.

The objective of the TDM Project is also to increase the Bumiputera automotive TDM industry clusters’ participation in the TDM business, specifically to opportunities presented by the local automotive manufacturing sector for import substitution, as well as export potential, and targeted to be achieved through the following development programmes:

- Equipment Acquisition Programme (EAP);
- Human Capital Development (HCD) Programme; and
- Technical Assistance-Expert Attachment Programme (TA-EP)

The year 2016 was an average one for the Malaysian automotive industry. Data from Malaysian Automotive Association (MAA) indicated that the Total Industry Volume (TIV) for the year only recorded 580,124 units, down 13% or 86,550 units compared to the performance in the year 2015. This is the first time in six years that the TIV dipped below 600,000 units since the year 2009. The sluggish performance is seen to be effecting the performance of the Bumiputera automotive TDM industry cluster as well.



Stppm EDM

Under the Equipment Acquisition Programme, Human Capital Development Programme and the Technical Assistance – Expert Attachments Programme, two programmes were approved in the year 2015 and targeted to be delivered in the year 2016.

Since its inception in 2009, the first and second phase of the TDM Project have seen the implementation of 36 Equipment Acquisition Programmes for 16 beneficiary companies. A total of 10 Human Capital Development Programmes were implemented, comprising of five overseas training programmes involving the participation of 19 trainees from five beneficiary companies, and five local training programmes involving the participation of 77 trainees from eight beneficiary companies.

Additionally, four Technical Assistance-Experts Attachment Programmes were implemented involving the attachment of eight experts at nine beneficiary companies and the participation of 114 technical staff of the companies in various technology transfer activities conducted by the experts.



Autokeen CNC Machining Centre

Calendar of Events

WORKING VISIT BY YB MINISTER OF SCIENCE, TECHNOLOGY AND INNOVATION

4 FEBRUARY 2016

As this working visit is the first for the newly appointed Minister of Science, Technology and Innovation, YB Datuk Seri Panglima Wilfred Madius Tangau, the purpose is to look on SIRIM activities and services offered to the industry. Starting with a presentation of SIRIM activities by Madam Goay Peck Sim, Vice President of Group Strategic Planning, the programme agenda continued with discussions with YBhg. Dato' Dr. Zainal Abidin Mohd Yusof, President and Group Chief Executive of SIRIM with senior management of SIRIM followed by visit to Open Area Test Site (OATS) and SIRIM Industrial Research Showcase.



SIRIM RECEIVED KPI MOSTI 2015 CERTIFICATE OF APPRECIATION

PUTRAJAYA CORPORATION COMPLEX

22 FEBRUARY 2016

YB. Datuk Seri Panglima Wilfred Madius Tangau, Minister of Science, Technology and Innovation of Malaysia presented SIRIM with the KPI MOSTI 2015 Certificate of Appreciation. A Certificate of Project Completion was also presented to the Medical Technology Flagship for the project 'Pre-Clinical Evaluations of Malaysian-Made "OSTEOPASTE" – An Injectable Self Hardened Synthetic Bone Cement' under the 10th Malaysian Plan TechnoFund.

INTEGRITY PLEDGE BRIEFING BY MALAYSIAN ANTI-CORRUPTION COMMISSION (MACC) SHAH ALAM

4 MARCH 2016

The Integrity Pledge Briefing covered the topic titled “Corporate Integrity Pledge: Policies and Initiatives” which was presented by the YBhg. Dato’ Sri Hj. Mustafar Hj. Ali, Deputy Chief Commissioner (Prevention) on March 4, 2016 at the Headquarters of SIRIM Berhad. The briefing was also attended by the Board of Directors and Senior Management of SIRIM Berhad.

Mar



Apr



MoU SIGNING WITH TECHNOLOGY DEPOSITORY AGENCY (TDA)

PUTRAJAYA

4 APRIL 2016

The MoU signing between Technology Depository Agency (TDA) and Industry Leaders including SIRIM was carried out. Among the objectives of this MoU including SIRIM is to promote cooperation in the audit industry to identify potential recipients from the Industrial Cooperation Programme to support the development of national industries, in addition to conducting technology audits to bridge technology gap.

SIRIM-INDUSTRY ENGAGEMENT PROGRAMME KOTA KINABALU, SABAH

3 MAY 2016

The ‘SIRIM-Industry Engagement’ programme, a joint venture by SIRIM, Ministry of Industrial Development (MID) and SME Corporation Malaysia was held in Sabah to offer a wide range of applications and technology services to enhance industrial productivity and entrepreneurship in Sabah. Themed “Sustaining Your Business in A Challenging Market”, more than 100 representatives of government agencies, industry associations and local entrepreneurs from various sectors in Sabah including retail, food and beverage, mining and farming in Sabah attended the event.

May





June



**DELIVERY OF CONTRIBUTION DURING THE
RAMADAN ROADSHOW PROGRAMME**
ANGKASAPURI & UMMC, PETALING JAYA

30 JUNE 2016

The donation drive to help orphans, converts and the poor of Pusat Jagaan Anak Yatim Penyayang Nur Iman and the children of Ward 5 PA at the Oncology Ward, Women & Children's Complex in University Malaya Medical Centre (UMMC) was launched from June 23 until June 28, 2016 was a success. The donation drive was done in collaboration with TRAXXfm to support the Ramadan Tour Programme, organised by RTM.

CREATIVITY EXHIBITION & SCIENCE4U
KLUANG, JOHOR

29 & 30 JULY 2016

SIRIM participated in the Creativity Exhibition & Science4U held in Kluang Mall, Kluang, Johor. A total of 10,000 people attended the exhibition consisting of students from several schools in the area as well as the public. The innovations by SIRIM which were on display were the Seahook, Seacut and Sealock; Robokit and Craniofacial Bio-Modeling.



July



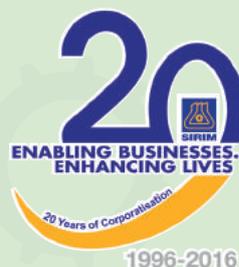
**SIRIM-SME INNOVATION
MANAGEMENT WORKSHOP**
TECHNOLOGY COMMERCIALISATION CENTER

3 & 4 AUGUST 2016

The SIRIM-SME Innovation Management Workshop was organised by the Technology Commercialisation Center (TCC) under the SIRIM-SMEs Technology Upgrading and Penetration Programme. The objective of this programme was to provide knowledge and guidance to companies about effective innovation management within their organisations. A total of 27 participants from 19 Small and Medium Industries (SMIs) joined the programme.



**Re-energising
SIRIM**



**SIRIM 20TH YEAR OF
CORPORATISATION**
SACC, SHAH ALAM

19 AUGUST 2016

This celebration was attended by members from the Board of Directors, and 1,500 staff. Themed “Re-energising SIRIM”, the event is aimed to appreciate the contribution of staff to the organisation. In conjunction with this celebration, the Corporate Values were recently launched for the company to strengthen their efforts in order to provide the best service to the customers and stakeholders belonging to the Government. The three Corporate Values are Customer Focus, Integrity, and Teamwork.



Sep



HAJI CILIK PREMIUM 3 SIMULATION PROGRAMME

SHAH ALAM

7 SEPTEMBER 2016

A total of 21 children aged six from Taska SIRIM Berhad participated in the Hajj Cilik Premium 3 Simulation Programme organised by the Association of Malaysian Islamic Kindergarten (PERTIM). It managed to congregate a total of 3,800 children from kindergartens throughout the Klang Valley, accompanied by their teachers to perform the Hajj simulation.

CERTIFICATE PRESENTATION CEREMONY FOR CIDP3 FAST TRACK MIETI - SIRIM SARAWAK

10 OCTOBER 2016

The Certificate Presentation Ceremony for CIDP3 Fast Track MIETI - SIRIM was carried out at the state office of SIRIM Sarawak. A total of 17 participants comprising craft entrepreneurs were part of a course organised by the Ministry of Industry and Entrepreneur Development, Trade & Investment (MIETI) in collaboration with SIRIM Sarawak.

Oct



MAJLIS SIRIM INDUSTRI 2016

SUNWAY RESORT & HOTEL, BANDAR SUNWAY

25 NOVEMBER 2016

The Majlis SIRIM Industri 2016 was held to celebrate various outstanding industry and government agencies that received certifications from SIRIM QAS International Sdn. Bhd. The highlight of this event was the launch of the SIRIM Photovoltaic Module Testing Laboratory, that will ensure the quality of locally manufactured photovoltaic module is in compliance with Malaysian Standard, MS IEC 61215 and MS IEC 61646, as well as the latest edition of international standard, IEC 61215. This auspicious event was officiated by Minister of Science, Technology and Innovation (MOSTI), YB Datuk Seri Panglima Wilfred Madius Tangau.

Nov



MALAYSIAN TECHNICAL COOPERATION PROGRAMME (MTCP 2/2016)

CONCORDE HOTEL, SHAH ALAM

28 NOVEMBER 2016

A total of 35 delegates participated in the Malaysian Technical Cooperation Programme from Maldives, Philippines, Indonesia, Morocco, Georgia, Kenya, Uganda, Bangladesh, Nigeria, the Kyrgyz Republic, Brunei Darussalam, Fiji, Sri Lanka, Azerbaijan, Senegal and Palestine. The participants underwent a course titled "Customer Service Management for Business Excellence" and "The Power of Innovation in Continual Improvement Activities". SIRIM is among the 70 agencies appointed as MTCP training institutions in Malaysia.



SIRIM-FRAUNHOFER TECHNOLOGY & MARKET RADAR LAB WITH SMEs AND GOVERNMENT AGENCIES

HOLIDAY INN GLENMARIE, KUALA LUMPUR

6 DECEMBER 2016

SIRIM Industrial Research is implementing the Technology & Market Radar (TMR) project in collaboration with Fraunhofer IAO encompassing four implementation phases: Phase 1: Preliminary Requirements & Good Practice; Phase 2: Stakeholders Requirements; Phase 3: Concept & Implementation Roadmap; and Phase 4: Pilot Implementation. Phase 1 was carried out from 18 to 25 September 2016, while Phase 2 commenced on 1 December 2016.

<http://www.sirim.my>

